The Actuarial Profession
making financial sense of the future

The Solvency II Risk-Free Rate

Life Conference and Exhibition 2012
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Agenda

- The legislative process
- The place of the risk free rate
- How to build a Solvency II risk free curve
- Adjustments to the curve

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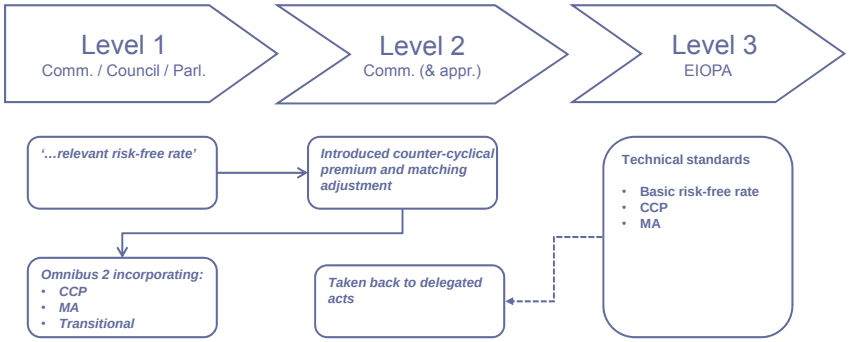
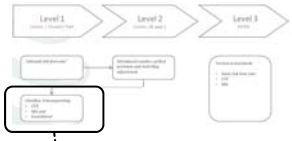
The Map



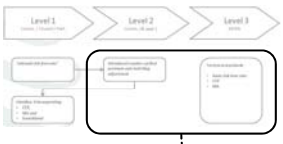
Negotiations on Omnibus II still on-going

Omnibus 2



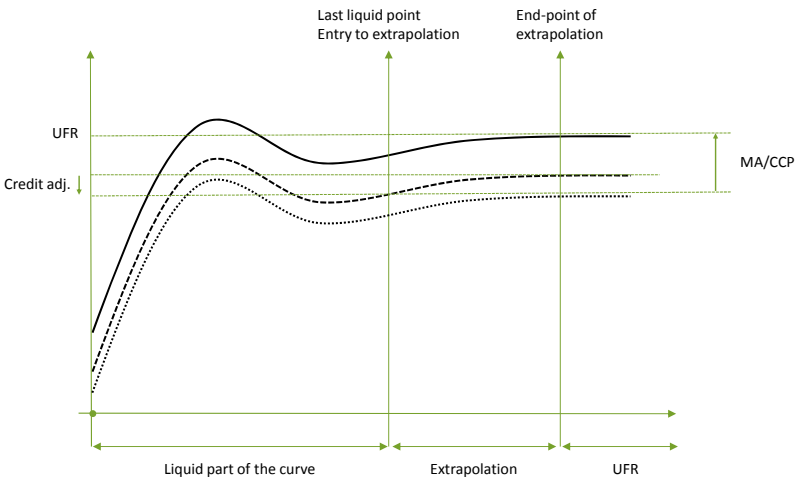
- Contains key risk free rate decisions
- The major sticking point in negotiations
- Grouped together as 'LTG' package
- Solution – Impact Assessment

Level 2 and Level 3

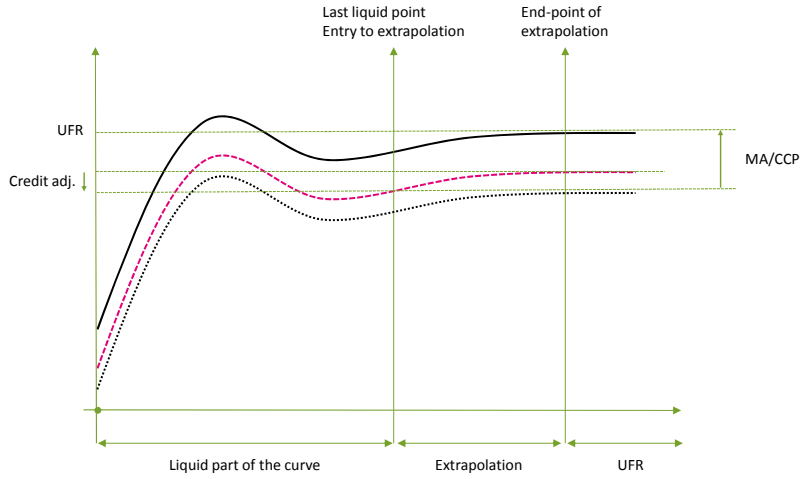


- Builds on the blocks of the OMD2
- EIOPA to produce 'cook book'
- Contains details on all aspects of curve
- EIOPA to publish for major currencies

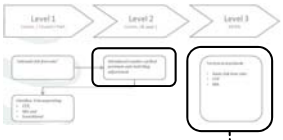
Anatomy of the risk-free yield curve



The basic risk-free rate



The basic risk-free rate – where currently specified



Draft Level 2
- Basic risk-free rate
- Credit and basis risk adjustment
- Extrapolation
- Ultimate forward rate

Draft ITS
- Expands on above
- New concepts?
- Timing/format of publication

The underlying instrument

Swaps or Gilts?

- Main principle is primacy of ADLT market data
- Must be swaps where ADLT swaps exist
- Most ADLT swaps – LIBOR/EURIBOR

Interpolation

- What about when no ADLT swap?
- Interpolation method – curve through each liquid swap
- Switch in and out of gilts to build the curve?

These are questions for the ITS paper

Making swaps risk free

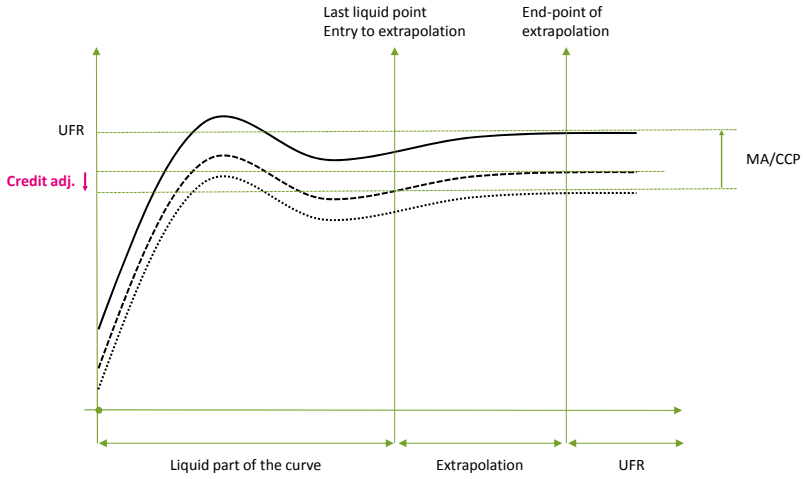
Is there a risk in swaps?

- What is a LIBOR quote?
  - Based on lending unsecured for usu. 6 months
  - So risk you don't get paid back at end of period

How do we capture it?

- Use 'risk free' OIS?
- Need a 'credit risk adjustment'?
  - Standard to measure with 'LIBOR/OIS spread'
  - But do we have the data to do that across the curve?

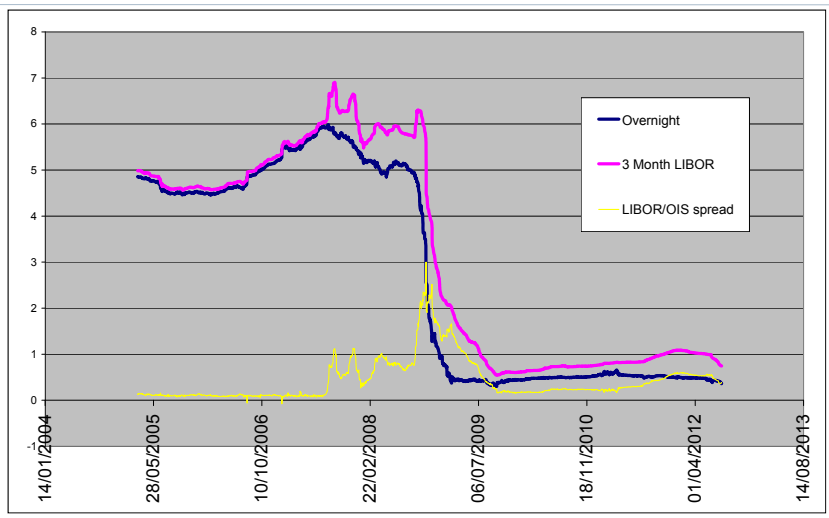
The Credit Risk Adjustment



The CRA – Avoiding unintended consequences

- The LIBOR / OIS spread can get very big
  - Especially when markets are stressed

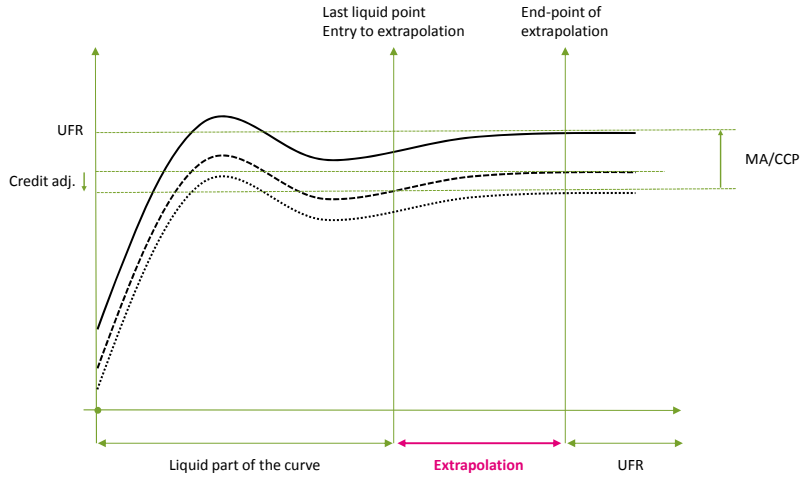
The CRA – Avoiding unintended consequences



The CRA – Avoiding unintended consequences

- The LIBOR / OIS spread can get very big
  - Especially when markets are stressed
  - All pure credit risk?
  - What about pro-cyclicality?
- Quantifying the spread:
  - The QIS 5 approach
  - The latest thinking
  - Outstanding questions
    - Automate some smoothing – or fully through the cycle?
    - Introduce caps and floors
    - EIOPA override?

Extrapolation



Extrapolation

The Start Point

A 'last liquid point'
Varies by currency
Political hot topic

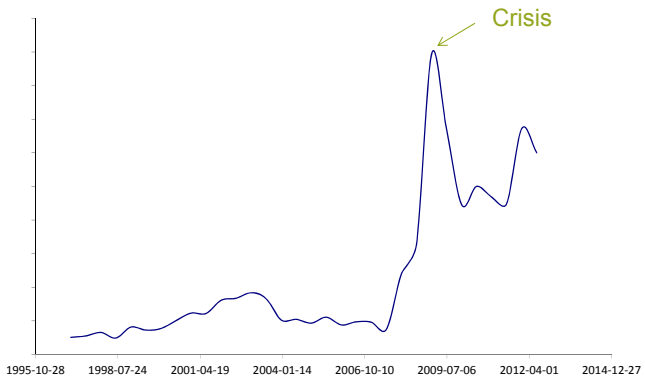
The End Goal

An 'ultimate forward rate'
But how long to get there?
Varies by currency

How to get there?

Choice of methodology
Smith-Wilson most tested
Risk of 'artificial volatility'

Corporate Bond Spreads – a New World



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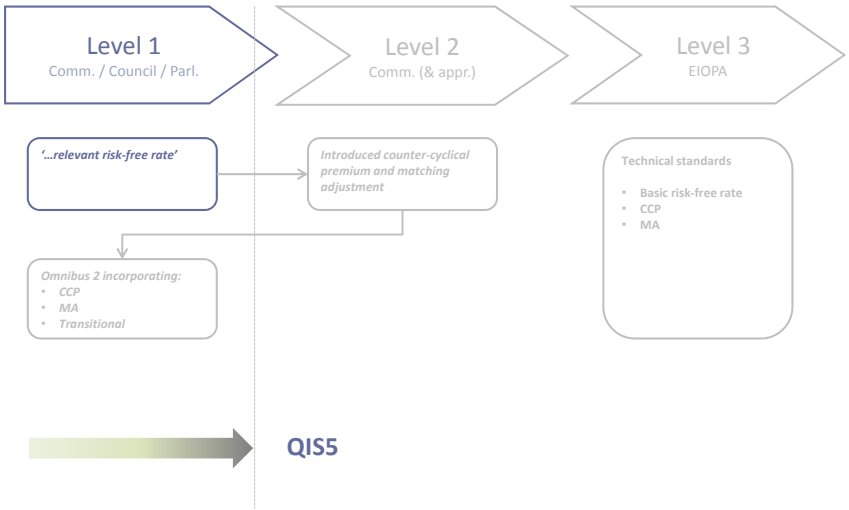
Map



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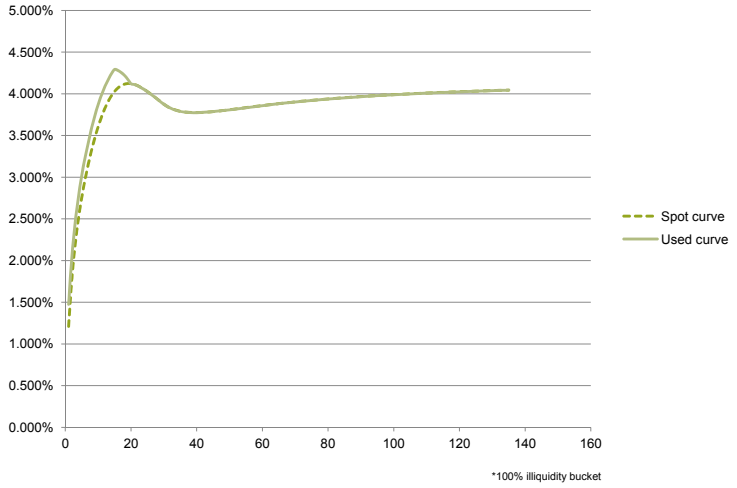
The QIS 5 Illiquidity Premium



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Illiquidity Premium ABCs

A. Held to maturity
   → Non-default price movements not realised

B. Predictability (illiquidity) of liabilities
   ≈ Held to maturity

C. Illiquid liabilities
   + portion of non-default spread

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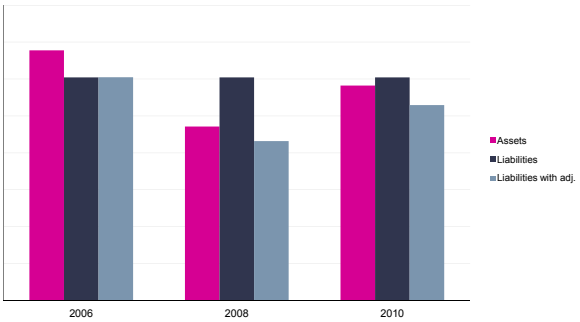
Managing balance-sheet volatility



	2006	2008	2010	
Spreads	↓↓	↑↑↑	↑	
Assets	↑↑	↓↓↓	↓	
Liabilities	--	--	--	→ **Large balance-sheet impact**
Liab + adj.	--	↓↓	↓	→ **Reduced balance-sheet impact (for illiquid liabilities)**

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The Bad Word

Products
Annuities
WP
Rest

QIS5 ILP
100%
75%
50%

Current
Matching Adjustment
Counter-Cyclical Premium

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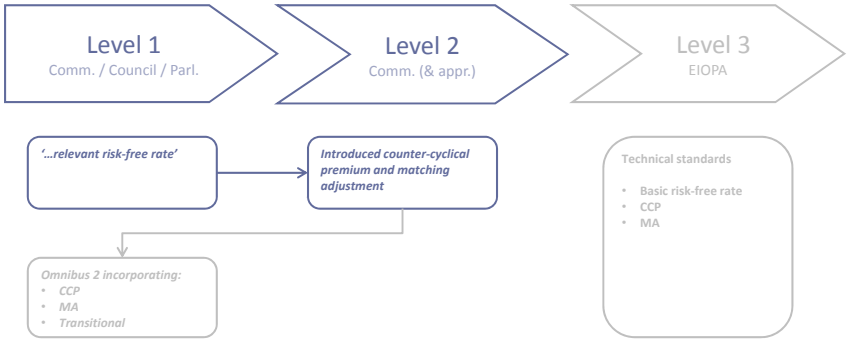

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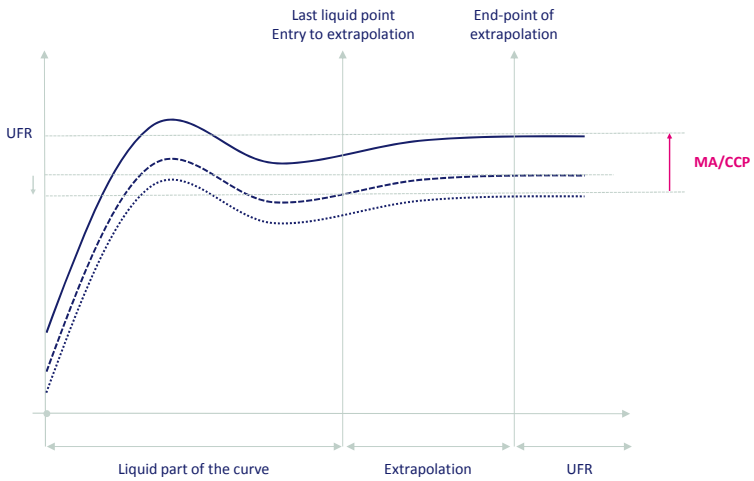
Adjustments to the risk-free yield curve



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Counter-Cyclical Premium

3 Factors ⇨

I. Calculation
- Country or currency basis
- Transparency

II. Trigger
- EIOPA
- Member state

III. SCR treatment

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The Matching Adjustment

MA = IRR [MVA, PV(CF)] – IRR [BE, PV(CF)] – FS

(≈ spread – FS)

Where
- *VA* is the market value of admissible assets held to match liabilities
- *PV(CF)* is the present value of the cash-flows generated by the liabilities
- *BE* is the best estimate of the matched liabilities
- *FS* is the fundamental spread → published by EIOPA
- *IRR* refers to the internal rate of return of the cash-flows

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Not so fast…

A. Demonstrating a match

B. Asset admissibility

The cash-flows of the ③ **assets** of the assigned portfolio of assets:

- are ① **fixed**
- cannot be ② **changed by issuer or third parties**
- are of credit step 3 or higher (subject to limits)

① **'Fixed' → in real or nominal terms**
② **Make-whole clauses excluded**
③ **Restrictions apply to each asset**

and

C. Ring-fenced

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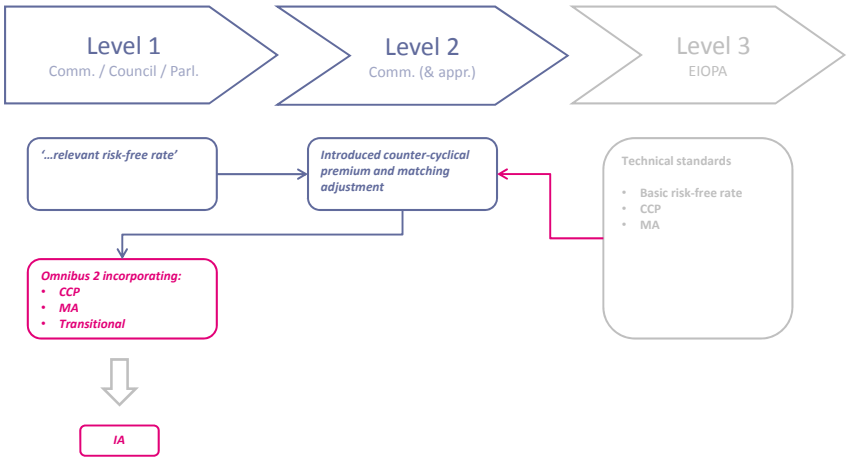

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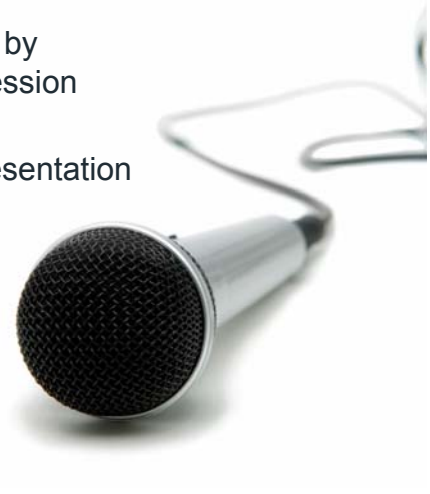
The views expressed in this presentation are those of the presenter.



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