

The Actuarial Profession
making financial sense of the future

Pensions conference 2011: Moving ahead of the curve
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Version 1.0



Pensions schemes: Are there lessons to be learned from insurers?

3rd June 2011

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Overview

Agenda

- Introduction
- Insurance and pensions perspectives on:
 - valuation
 - security mechanisms / dealing with failure
 - governance
- Lessons

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Some basic objectives

Long-term financial intermediaries – life and pension funds

- Aim to deliver secure and efficient means for saving and protection against a wide range of risks
 - Pooling of risks
 - Risk bearing / loss absorption
- What – if anything – distinguishes the economics and governance structures of the two sectors?
 - Economic nature of risk exposures
 - Providers of risk capital
 - Security, failure and compensation mechanisms

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Insurance regulation: Solvency II

- Objectives
 - Protection of policyholders / beneficiaries
 - Stable and fair markets / avoidance of procyclicality
- Valuation
 - *.. make .. use of the information provided by financial markets*
 - *Valuation standards .. should be compatible with international accounting developments..*
 - *.. value .. shall correspond to the [cost] to transfer .. obligations .. to another insurance .. undertaking.*
 - Risk margins for unhedgeable risks

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What is under discussion?

Implementation challenges

- Valuation
 - Swaps vs government bonds (not corporate yields)
 - Liquidity premium
 - Extrapolation
 - What market prices?

Liquidity premium

The basic idea:

- Instruments which offer identical cash flows can sell at different prices as a result of their trading liquidity
- Hard-to-trade instruments will sell at a price discount.

Liquidity premia have implications for the valuation of illiquid liabilities:

- If markets price liquidity then market-consistent valuation techniques should value *illiquid* cash flows consistently
- The illiquid replicating asset portfolio reveals the economic, market-consistent liability value.

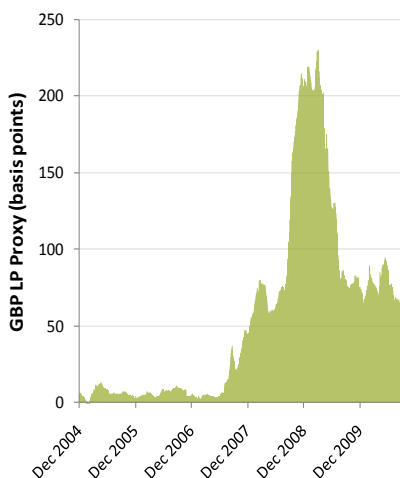
Liquidity premium in corporate bond spreads

The corporate bond spread can be decomposed as:

- the expected default loss on bonds
- plus a risk premium for unexpected default
- plus a liquidity premium.



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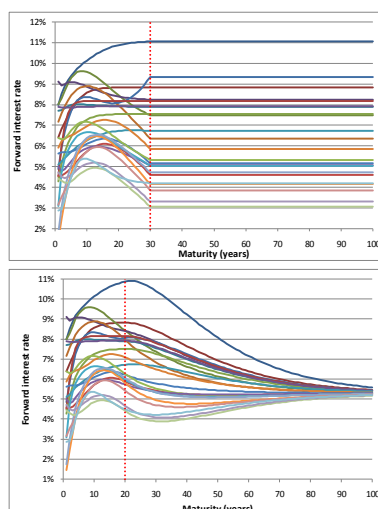


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Extrapolation

3 questions:

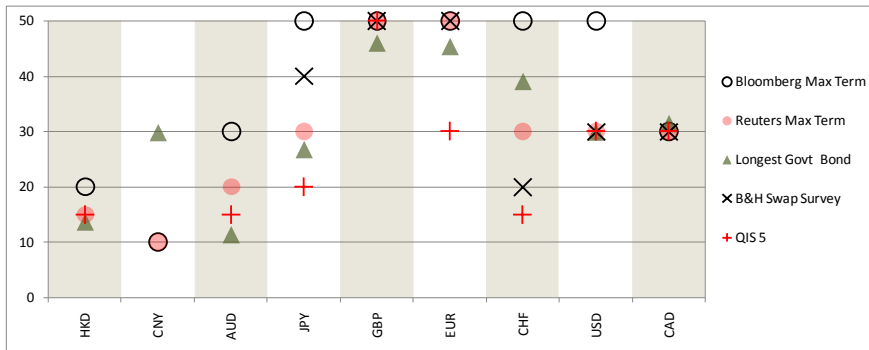
1. What is the longest forward interest rate?
2. What should be assumed for the very long-term 'unconditional' forward rate?
3. What path should be set between the longest market rate and the unconditional forward rate?



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Where is the longest liquid instrument?



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Insurance regulation Security mechanism

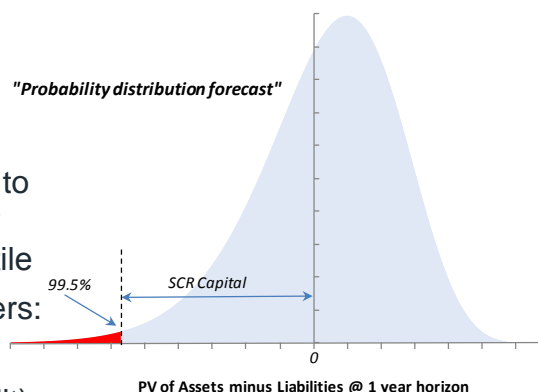
- Solvency capital
 - Economic capital to survive a 1-in-200 year stress
 - “.. solvency requirements should be based on an economic valuation of the whole balance sheet.”
 - Double trigger MCR / SCR
 - Notional transfer to ‘reference entity’
 - Standard formula / internal model / partial
- Procyclicality
 - Recovery period
 - Equity dampener
 - Countercyclical liquidity premium

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Solvency Capital & Internal models

- Aim is to generate a 'probability distribution forecast' for the balance sheet
 - Capital requirements to calculate SCR 1-year 'VaR' @ 99.5 percentile
- Capture all key risk drivers:
 - Insurance risks
 - Market risk (incl. credit)
 - Operational risk
 - Correlation.



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A generic 'double-trigger' system

Solvency ratio	↑	The regulatory authority must check the accuracy of entities' reports. It has no control rights unless these reports reveal that the first (SCR) threshold is breached.
First threshold (SCR)		The supervisor must carry out detailed investigations and agree corrective action to a specified timetable. It has the right to reject the proposals.
Second threshold (MCR)		The supervisory authority [and the guarantee fund, if any,] have joint control of the entity.

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What is under discussion?

Implementation challenges

Solvency capital

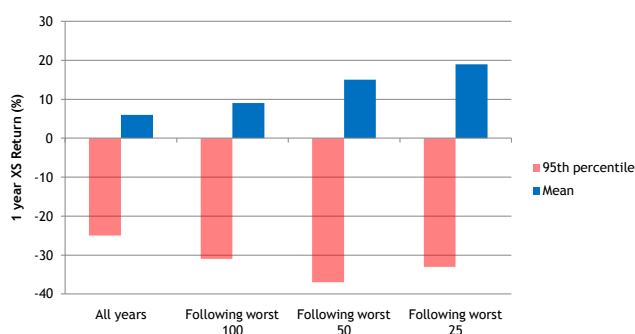
- Initial focus is on the standard formula
 - Credibility of the stress calibration?
 - Missing stresses (option volatility)
- Equity dampener
- Conditional or unconditional stress?
- How relevant will these assumptions be for firms using internal models?

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The equity mean reversion debate continues

- Following a crash - higher mean returns but tails more severe (16 markets, 100+ years data)
- Inconsistent with SII dampener



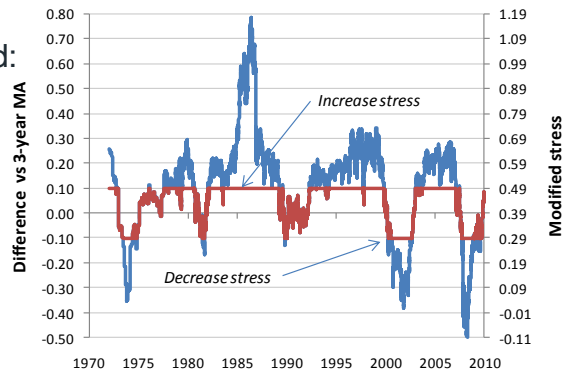
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Equity dampener

Equity dampener adjustment now judged:

- Too 'binary'
- Biased
- Based on 'wrong' index



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Some observations on 'Pillar 1'

- It is disappointing that Solvency II fundamentals are under debate so late in the process
- But it is not surprising since the basic objectives are difficult to reconcile
- Was the choice of the basic mechanism for failure / transfer and the VaR parameters (1Y, 99.5%) given adequate consideration?

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Pillar 5 (II & III)

Internal Governance, Supervisory Review and Reporting

- A huge agenda for the board
 - Structures and mechanisms
- Own solvency and risk assessment (ORSA)
- What key lessons from the financial crisis?
 - Complexity
 - Suitability
 - Senior management understanding
 - Communication
 - Relatively successful firms were distinguished by:
 - Timing and quality of information flow up to senior people
 - Breadth and depth of internal communication

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Some alternative views on Solvency II

- | | |
|--|---|
| <ul style="list-style-type: none"> + Economic basis for value and capital + Principles-based + Encourages development of risk management and hedging capabilities + Strengthens governance, improves firms' know-how + Delivers security to policyholders + Lower CoC for firms? | <ul style="list-style-type: none"> – Flawed capital measure – incompatible with pro-cyclicality objective – Increasingly political – Decisions driven by start point not end point – Boggled down in technical debate that should have been resolved years ago – Doubt over market basis? – Huge cost burden on firms and regulators. |
|--|---|

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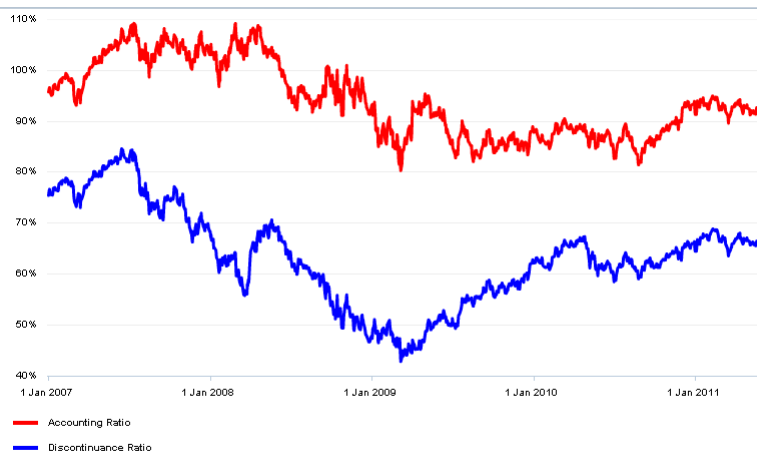
Pensions general objective CEIOPS (2008)

“EEA Member States consider the safeguarding of pension beneficiaries’ claims at reasonable cost as the general objective of their pension fund regulatory and supervisory regimes”.

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Some alternative perspectives on pensions valuation



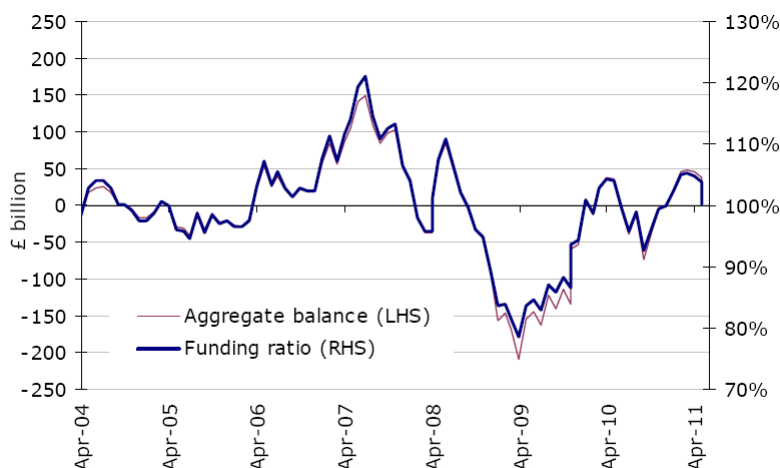
Funding ratio (cumulative assets / liabilities) of all pension schemes in the FTSE 100 index on the Accounting & Wind-up basis.

Source: Aon – Hewitt Pension Risk Tracker <https://rfmtools.hewitt.com/PensionRiskTracker/>

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Aggregate balance & funding ratio of schemes in the PPF universe



Source: PPF 7800 Index, 30 April 2011

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A pensions perspective on Pillar 1

- 'Valuation' can mean different things
 - Replication / buy-out valuation versus funding / budgeting thinking
- Complexity of pensions liabilities (s.t. longevity risk) and path-dependent inflation options
- Full yield curve required under SII
- How illiquid are pensions liabilities?
 - Option to take transfer values

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Actuarial profession discussion paper

Developing a framework for the use of discount rates in actuarial work

Recommendations

- #4 Actuaries .. should be clear (to their clients and to regulators) that the use of a budgeting calculation alone in the assessment of Technical Provisions will not provide adequate information on the assessment of the security of members' benefits.
- #6 For the purposes of establishing a recovery plan ... a budgeting framework may be used with a realistic assessment of the expected investment return ... However, actuaries should be clear, as per #4, that such a framework will not provide adequate information on the assessment of the security of members' benefits during and at the end of the recovery period.

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Actuarial profession discussion paper

Developing a framework for the use of discount rates in actuarial work

Recommendations

- #7 For the purposes of calculating an estimate of pension scheme solvency a matching framework should be used (making no adjustment for sponsor default on the pension obligation).
- #9 The Actuarial Profession should call for pension liabilities in company accounts to be calculated in a matching framework (making no adjustment for sponsor default),
...

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CEIOPS Archetype #1 pension framework

..the IORP is an independent legal entity, at some distance from the employer, with full recourse to own funds. .. has up-front provisions on its balance sheet to bear .. risks. This separate buffer implies that an adverse shock can be readily absorbed if appropriate funds are in place and that the ensuing economic and cyclical impact will be limited. However, the need for buffers increases the up-front cost to employers and ties up ..capital in beneficiaries' interests potentially above the level of security promised implying idle funds.

CEIOPS Archetype #2 pension framework

.. the sponsor and the IORP are closely related and the IORP may have been set up by the sponsor. The sponsor provides the ultimate pension security to its employees and stands ready to supply financing in the event of an adverse shock to the IORP. This set-up means the well-being of the IORP is linked to that of the employer. As the financial development of the IORP and the sponsor are likely to be correlated anyway — both will generally suffer during an economic downturn and vice versa — this harbours the possibility of unfavourable financial and procyclical implications.

CEIOPS comparison of security mechanisms (2008)

Security mechanisms	AT	BE	DE	DK	ES	FI	FR	GR	IE	IT	LI	LU	MT	NL	NO	PT	SE	UK	Total
Regulatory Own Funds	Y	Y	Y	Y	Y		Y						Y	Y	Y		Y		10
Subordinated loans			Y	Y			Y								Y	Y		Y	6
S S U P P O N S O R T	Unlimited	Y			Y	Y						Y CAA	Y					Y	6
	Limited		Y		Y						Y	Y CSSF					Y	Y	6
	Not automatic			Y			Y	Y	Y	Y					Y	Y			7
Guarantee fund			Y				Y											Y	3
Reduction of accrued rights	Y	Y	Y						Y	Y				Y			Y		7
Reduction in future conditional indexation				Y										Y			Y		3
Other security mechanism									Y									Y	2

Source: CEIOPS: Survey on fully funded, technical provisions and security mechanisms in the European occupational pension sector, March 2008

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A pensions perspective on Pillar 1

The employer covenant:

- (In economic terms) it is a large and risky asset
- Complex to value - assumptions about future risk management (e.g. dynamic asset allocation and contributions)
- Comparable complexity to with-profits?
 - Less formal governance / documentation around dynamic decisions (e.g. no PPFM)
- Who wants transparency?

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CEIOPS four 'overarching principles'

1. A forward-looking *risk-based approach*
2. *Market-consistency* for valuation of assets and liabilities for supervisory purposes
3. *Transparency* – explicit adjustments for prudence
4. *Proportionality* - given the nature, complexity and scale of the risks

CEIOPS (2008)

Adequate funding requirements and sound risk management practices are considered essential to safeguarding beneficiaries' interests. However, the concern is also felt that heavy funding requirements may impose inappropriate large up-front payments that are not needed because of other security mechanisms in place, thereby discouraging defined benefit pension provision."

The EU green paper

EU green paper: *“towards adequate, sustainable and safe European pension systems”* (July 2010)

3.4.2. *Improving the solvency regime for pension funds*

... With the entry into force of the Solvency II Directive in 2012, insurance undertakings will be able to benefit from a three-pillar, risk-based solvency regime

... The suitability of Solvency II for pension funds needs to be considered in a rigorous impact assessment, examining notably the influence on price and availability of pension products.

NAPF response (2010)

- *..strengthening the security of members' pension benefits, .. will require an approach quite distinct from the Solvency II .. . pension schemes meet their liabilities over the long term and in a reasonably predictable way.*
- *It would be inappropriate to apply a Solvency II-style regime to pension funds in the UK, where members' benefits are already strongly protected by the employer covenant, by the work of the Pension Regulator and by the Pension Protection Fund.*
- *.. introducing an extra solvency buffer for pension schemes ... would .. force more employers to reduce or cease providing pension benefits to their employees... it would undermine adequacy – contrary to the objectives of the Green Paper.*

Lessons

- Fair value / market basis is the emerging standard for valuation
- There are unresolved practical questions associated with:
 - Choice and extrapolation of risk-free rate
 - Liquidity premia and their place in valuation
 - Non-traded exposures
- Forward-looking risk-based analysis will gain more prominence and encourage risk management action
- Insurance regulators aim to significantly raise governance standards relative to current practice
- Allowing the status quo to shape policy is profoundly unsatisfactory.

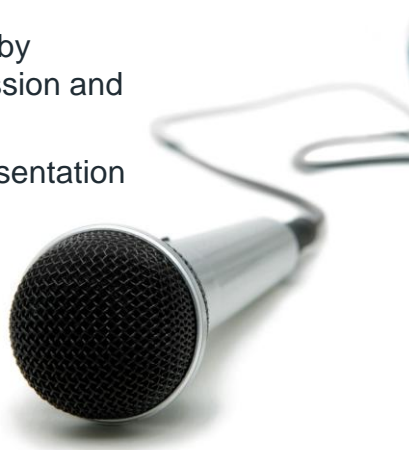
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Questions or comments?

Expressions of individual views by members of the Actuarial Profession and its staff are encouraged.

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



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Solvency II as a template for DB Reform: NAPF summary

Solvency II requirements & existing UK pension scheme regulation					
Pillar I – quantitative		Pillar II – qualitative		Pillar III – disclosure	
<i>SII requirements of insurers</i>	<i>Existing UK pensions regulation</i>	<i>SII requirements of insurers</i>	<i>Existing UK pensions regulation</i>	<i>SII requirements of insurers</i>	<i>Existing UK pensions regulation</i>
Minimum capital requirements. Calculation of technical provisions.	Triennial valuations. Recovery plans approved by the Pensions Regulator. Calculation of technical provisions.	Internal governance. Internal risk management – Own Risk and Solvency Assessment (ORSA). Regulator power to impose extra capital requirements if ORSA unsatisfactory	Trustee governance & risk register. The Pensions Regulator's oversight of DB pension schemes. The Pensions Regulator's power to appoint trustees. Pension schemes' internal controls	Transparency. Disclosure. Publication of annual Solvency and Financial Condition Report. Link to IFRS II	Trustees must publish annual report. Disclosure regulations require annual statements to DC members. Accounting standards - IAS 19 and FRS 17.