Solvency II And You

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Solvency I

- **What we have now:**
  - Formula approach to minimum capital
  - Not risk-based
  - Many countries have higher individual capital requirements to varying degrees
  - No group supervision
  - "Strength" of regulators also varies by country

Why are we doing Solvency II?

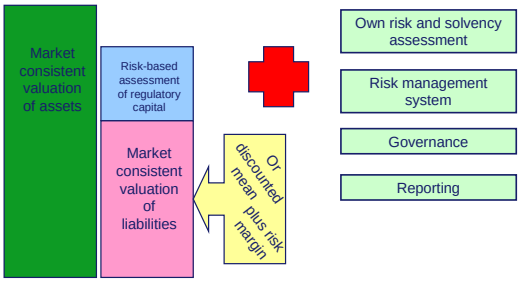
"Solvency II is a fundamental review of the solvency and risk management standards for the European insurance industry aiming to strengthen the prudential regulation of the insurance sector."

•Desire to harmonise consumer protection across the EU
- The strengthened regime should reduce the possibility of consumer loss or market disruption in insurance

•With harmonised regulation, well-run insurers enjoy a competitive advantage

•Solvency II is principles-based and risk-based (calculated at the 1/200 one-year VaR level)
- Solvency II will set out new, strengthened EU-wide requirements on capital adequacy and risk management for insurers with a view to reducing the likelihood of an insurer failing

What is Solvency II ?



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But it does make a difference….

- **Equivalence of regimes**
  - Reinsurance of European companies
  - Subsidiaries of European companies
  - Parents of European companies
- **And it's "state of the art" regulation, so it will spread…….**

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Reinsurance - equivalence

- **Regime equivalent:**
  - Reinsurance accounted as if it were from a European company
  - No constraints on assets, i.e. reinsurance recoverables
- **Regime not equivalent**
  - Up to each country
  - Can't be more favourable than treatment of European companies, and probably less favourable

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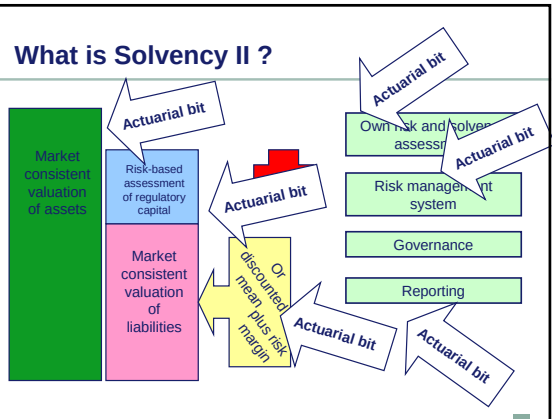
US Subsidiaries of a European company

- **Equivalence is largely irrelevant**
  - Consolidated into group figures on SII basis
  - Can *request* deduction / aggregation:
    - Non-equivalence => restating to SII
    - Equivalence => add the figures on

US Parent of a European company

- **Solvency II applies within Europe**
- **Equivalence:**
  - Look to the group supervisor
- **Non-equivalence:**
  - Look to protect policyholders of European companies
  - ?Ask for SII figures for the parent and whole group
  - ?Other measures

What is Solvency II ?



Interesting bits

- **Reserves have to be the mean**
- **The law requires 99.5% one-year VaR capital**
  - Calculate using a pan-EU standard formula
    - Risk-based, complex, allows for diversification effects
  - OR use the standard formula with firm specific parameters
  - OR use an internal model
  - OR a combination
- **Regulatory capital should reflect the risk profile**
- **AND be consistent**

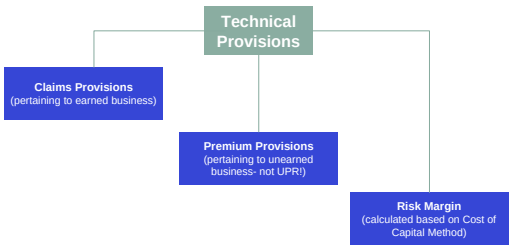
Solvency II and reserves

Article 77 – "The value of the technical provisions shall be equal to the sum of a best estimate and a risk margin...The best estimate shall correspond to the probability-weighted average of future cash-flows, taking into account the time value of money..."

The issue

- Reserving will change, in parts dramatically, under Solvency II
- No margins for prudence allowed
- This will affect calculations as well as how you need to think about your business

What will "Reserving" look like under Solvency II?



The starting point continues to be the actuarial estimate – probably with more accommodation for uncertainty including, but not limited to, 'binary events'

Valuation – Claims Provisions

Deterministic Models	Expenses	Reinsurance
• Can still be used – but for how long? • Ref. CP 39 • Use stochastic models for checking?	• Should be included • Both allocated and unallocated claims management expenses (ALAE & ULAE) • Going concern basis	• Should be gross of reinsurance • Reinsurance provisions calculated separately

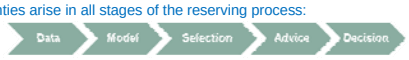
Valuation – Premium Provisions

What is included?	What is NOT included?	Future Premium Payments
• Contracts when legal obligation is established, NOT when policy incepts • Cash-flows resulting from future claims events • Cash-flows arising from allocated and unallocated claims management expenses • Cash-flows arising from ongoing administration of the in-force policies	• Load to delay the recognition of profit.	• Future premium payments, on a cash flow basis – reflect all future premium receipts (regardless of the period these relate to) • What are these exactly?

These are not Unearned Premiums!

Uncertainty

Uncertainties arise in all stages of the reserving process:



Sources of error:
- Selection – in choice of data
- Specification – in defining model
- Parameterisation – in estimation
- Process – outcome of a random process

Prediction Error = Parameterisation + Process Error

Failure of "Law of Large Numbers"
- Events – catastrophes
- Exposure levels – changed risk appetite
- Activity levels – concentrated production
- Claims propensity – honest and fraudulent

Uncertainty

- Binary events (more on later)
- Inflation
- Other changes in demographic, legal, medical, technological, social or economic development
- Uncertainty as to timing included, both in base estimate and cash flows
- Other – already included?
- Documentation of actuarial judgement
- Reinsurance
- Link to Capital Model

Binary Events

What are they?		Why bother?

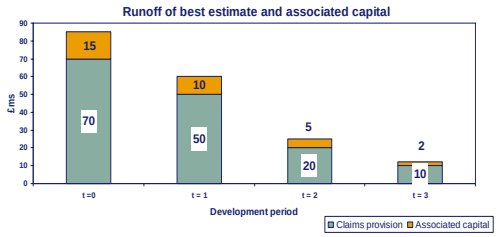
Health	• Nanotechnology
	• Aspartame
	• Electro magnetic fields
	• GM crops
	• Nuclear waste
		• Best estimate = Probability weighted average of **all** possible future cash flows
		• Current methods probably underestimate a "true" mean
		  • Data / parameterisation
		  • Unknown unknowns
		  • "Margin" used for binary events
		• Recognise bias introduced by incomplete information
		• Binary events fill **part of** the gap between the current approach and the requirements
		• Premium provisions
		  Cat & latent loadings – be consistent with pricing assumptions
		• Claims provisions
		  Latent loadings

Events	• Meteor strike • Mega Volcanoes	
Social/ Environ-mental	• Global warming • Polluters	
Legislative & Political	• "Step change" in court rulings (e.g. Ogden) • "the greater good" e.g. asbestos, US Healthcare	
Other	• Contract wording • etc	

Risk Margins
What is a risk margin (RM)?

- Amount required to ensure the value of the technical provisions is increased from the discounted best estimate to an amount equivalent to the theoretical level required to transfer the obligations to another insurance undertaking
- Where the best estimate and risk margins are calculated separately, risk margins should calculated using a *cost of capital* approach
- This is a new concept compared to current practice and it is envisaged that RM will be calculated to some extent using suitable simplifications
- Should not be calculated separately for premium and claim provisions
- Should be defined net of reinsurance only. For IM can be calculated gross and RI separately
- Cost of Capital rate is a 'long term' rate above the risk free rate, not adjusted for market cycle

Risk margins



Risk margin = NPV (6% * (15 + 10 + 5 + 2))

Risk Margins
SCR

- 99.5% VaR of the 'basic own funds' of an (re)insurance undertaking over a 1 year time period
- Calculate for all future time periods, needs 're-reserving'
- Standard formula (SF) vs internal model (IM)
- Circular calculation of RM, depends on SCR which depends on RM, need to consider simplifications / proxies as a starting point for RM
- Who's going to calculate SCR for RM?
- Underwriting risk (both reserve and premium)
- Simplifications: A range from a complex to the simplest approach have been set out by CEIOPS

Cashflows

Creating deterministic cashflows

- Is this the best starting point?
- What if you don't use triangles/chain ladder for reserving?
- Can you just start with triangles?
- Large losses will need separate consideration.
- Actuaries should take care to avoid over-smoothing in their analyses.

Data

- Is suitable data available?
- What data should we be collecting now?
- Actuaries should consider the level of granularity they require to produce estimates that meet statistical quality standards of SII.
- The actuary should be guided by the overriding 'Use test' requirements and also proportionality.

Cashflows

Consistency

- What methods make it easiest to ensure consistency between point estimates and means of stochastic distributions?
- What are good approaches for capturing the relationship between paid and incurred losses?
- Actuaries will need to consider consistency in a number of different dimensions
- Use of stochastic distributions vs. practicality

Adding in volatility

- What are appropriate, suitable approaches?
- What distributions could be used?
- Consideration of correlations?

Cashflows

Validation

- How do we validate / justify initial approach?
- How do we monitor, validate and apply P&L attribution on an ongoing basis?
- What will be acceptable to the regulator, and how will this line up with model validation?

Approach for binary events / catastrophes

- What is the best approach?
- Should actuaries model date of loss and payment pattern separately?
- Links between gross and reinsurance
- Effect of counterparty default risk

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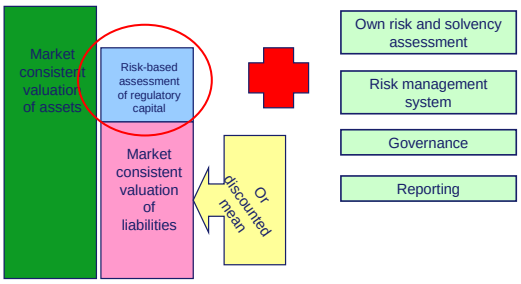

Internal models

- **Building internal models is hard:**
  - Use test
  - Governance
  - Statistical quality
  - Calibration
  - Validation
  - Documentation

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ORSA - what is it?

- **The insurers turn…**
  - Pillar 1 is largely us telling insurers how much capital they need to hold
  - Pillar 2 requires much greater firm engagement
- **Outcome is to derive overall solvency needs**
- **Matching of the own funds to the risk profile should promote a strong culture of the risk management**
- **High level organisational commitment**

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Overall Solvency Needs

- **Once the insurer has understood the risks it faces, how does it mitigate them?**
- **Through capital**
  - How confident does the insurer want to be that it can meet its obligations?
- **Through management actions**
  - What will management do should a risk crystallise?

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That is not all that's required !

- **The ORSA includes an assessment of**
  - The insurers compliance on a continuous basis with capital requirements and technical provisions
  - The significance of any deviation between the insurer's risk profile and the assumptions underlying its SCR

Action now

- **Check whether Solvency II does affect your company**
- **Check *how* it affects your company**
  - Supplying figures to a parent
  - Supplying figures to a subsidiary in Europe
  - What basis for the figures
- **What is calculated where? Who controls it?**

Action now

- **What are the deadlines for reporting? Can you meet them?**
- **Will it affect capital requirements?**

Questions?

Useful links

Legal text:
http://register.consilium.europa.eu/pdf/en/09/st03/st03643-re01.en09.pdf

FSA pages:
http://www.fsa.gov.uk/pages/About/What/International/solvency/index.shtml

CEIOPS pages:
http://www.ceiops.eu/

Groupe Consultatif pages:
http://www.gcactuaries.org/solvency.html

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