34TH ANNUAL GIRO CONVENTION
CELtic MANOR RESORT, NEWPORT, WALES

Risk Margins in Reserves—
What’s Going On
Who is Doing What

Julian Leigh
Allan Kaufman
Margin White

The Players

<table>
<thead>
<tr>
<th>Regulatory</th>
<th>Accounting</th>
</tr>
</thead>
<tbody>
<tr>
<td>IAIS</td>
<td>IASB (International)</td>
</tr>
<tr>
<td>CEIOPS</td>
<td>FASB (US)</td>
</tr>
<tr>
<td>FOPI</td>
<td>ASB (UK)</td>
</tr>
<tr>
<td>APRA</td>
<td>and doubtless others!</td>
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<table>
<thead>
<tr>
<th>Industry</th>
<th>Actuaries</th>
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<tbody>
<tr>
<td>CEA</td>
<td>Group consultatif</td>
</tr>
<tr>
<td>CRO</td>
<td>IAA</td>
</tr>
<tr>
<td>CFO Forum</td>
<td>&quot;Giro&quot;</td>
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<tr>
<td>GNAIE</td>
<td>CAS &amp; IoF/A</td>
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history: it started outside insurance (1)

- Accounting manipulation and diversity
- International attempts at convergence
- Insurance: very difficult and left towards the end
- The idea: apply capital market “solutions” to insurance
  - Marking to market (no manipulation) theory
  - Insurance is a financial instrument (isn’t it?)
  - DSOP – “draft statement of principles”

history: (2)

- Association of International regulators
  - Let’s develop a coherent framework for insurance regulation
  - Let’s go back to first principles – risk based, principles based approach
  - Series of papers, very carefully thought out, developing principles
  - UK FSA early adopters of principles based and risk based approach – gives UK a (temporary?) advantage
  - Risk based approach now being adopted by Europe
  - Regulators want consistent reserving, which can be relied on by them. Make input towards IASB proposals, but intention is to use accounting output as an input to the regulatory framework.
  - Some “theological” differences with IASB, but not in relation to risk margins.

history: (3)

- Everything now happening at once, big challenge is not wasting effort
  - IAIS have asked IAA advice on implementing risk margins
  - EU has selected cost of capital in as method of choice for establishing risk margins in Solvency
  - IASB has left it open for the time being
  - A cost of capital-based risk margin needs clarity on:
    - Future capital requirements to use
    - Rate of return to require in excess of risk free
    - We really don’t know how to come to a landing!
    - - which is where we are today
The Players Agree (Mostly)

- Actuaries know how to do expected value estimates! Or do they?
- Cost of capital is an acceptable approach
- Discounting is appropriate
- Calibrating a cost of capital model is described as simple, but no one has done a ‘real’ calibration (apologies to POP).

The First Set of Who -- The Three I's

- IAA – International Actuarial Association
- IAIS – International Association of Insurance Supervisors
- IASB – International Accounting Standards Board

IASB

- May 2007: Preliminary Views on Insurance Contracts
- Comments to be submitted by 16 November 2007
IASB view of Insurance Liabilities

- Non-hedgeable component of insurance liabilities is to be modelled based on ‘current exit value’ considering:
  - Expected value of obligations
  - Discount for interest
  - Risk Margin

IASB – Suggested Risk Margin Methods

- Confidence levels
- Tail VaR
- Explicit in Specified Range
- Cost of Capital
- CAPM or related method
- Adjusted cash flows
- Multiples of parameters
- Risk-adjusted discounting

IAIS-Recent Work

- Comments to IASB on measurement of liabilities “second liabilities paper” (Jy 2007)
- Also
  - Common Structure for Assessment of Insurer Solvency (Feb 07)
  - Draft Guidance Paper on Capital Requirements (Jy 07)
  - Draft Guidance Paper on Use of Internal Models by Insurers (Jy 07)
  - Draft Guidance Paper on Enterprise Risk Management for Capital and Solvency Purposes (Jy 07)
IAA-Recent Work

- Comments also available.
- New exposure draft before the end of the year
- Other Work – Responses to IAIS and others:
  - Internal Models – Aug 2007 – response to IAIS
  - Capital Requirements – July 2007 – response to IAIS
  - ERM and Solvency – Aug 2007 – response to IAIS
  - Fair Value – May 2007 – Response to IASB
  - Insurer Solvency – Jan 2007 – response to IAIS

IAIS – Risk Margins

- Principles –
  - Similar risks to have similar liabilities
  - No preferred method
  - Risk margin should depend on risk characteristics by product

IAA

As usual it is up to the actuaries to make sense of what the accountants and regulators propose

- Analyse cost of capital method
- Compare to %-ile and other methods
IAA – current activities

- Revising Risk Margin Report
- Responding to IASB

Risk Margin Issues

<table>
<thead>
<tr>
<th></th>
<th>IAA</th>
<th>IAIS</th>
<th>IASB</th>
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<tbody>
<tr>
<td>Risk Margin Needed?</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
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<tr>
<td>Risk 'Context'</td>
<td></td>
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<tr>
<td>Reporting company</td>
<td>?</td>
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<tr>
<td>Scale up</td>
<td>?</td>
<td>?</td>
<td>?</td>
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<tr>
<td>Diversification</td>
<td>Yes</td>
<td>?</td>
<td>?</td>
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<tr>
<td>Risk Margin Method</td>
<td>?</td>
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Risk Margins by Method - Illustration

<table>
<thead>
<tr>
<th>Risk margin approach</th>
<th>Simple life products</th>
<th>Motor Liability</th>
<th>simple property liability</th>
<th>Catastrophe</th>
</tr>
</thead>
<tbody>
<tr>
<td>90% confidence</td>
<td>1.1%</td>
<td>6.3%</td>
<td>7.1%</td>
<td>3.0%</td>
</tr>
<tr>
<td>95% confidence</td>
<td>7.1%</td>
<td>14.6%</td>
<td>16.7%</td>
<td>25.5%</td>
</tr>
<tr>
<td>99% confidence</td>
<td>17.1%</td>
<td>14.6%</td>
<td>50.0%</td>
<td>69.8%</td>
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<tr>
<td>99.5% confidence</td>
<td>44.4%</td>
<td>57.6%</td>
<td>84.4%</td>
<td>115.1%</td>
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<tr>
<td>99.75% confidence</td>
<td>97.7%</td>
<td>90.7%</td>
<td>90.7%</td>
<td>137.3%</td>
</tr>
<tr>
<td>99.9% confidence</td>
<td>189.0%</td>
<td>189.0%</td>
<td>189.0%</td>
<td>275.0%</td>
</tr>
<tr>
<td>99.99% confidence</td>
<td>1375.1%</td>
<td>1375.1%</td>
<td>1375.1%</td>
<td>1976.3%</td>
</tr>
</tbody>
</table>

Product info:

- Motor third party: 3.7% discount (Risk free – 2%)
- Motor liability: 7.7% discount (Risk free – 2%)
- Simple property liability: 3.7% discount (Risk free – 2%)
- Catastrophe: 189.0% discount (Risk free – 2%)

OTB: 1.8% discount (Risk free – 2%)

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<td>Motor third party</td>
<td>3.7%</td>
</tr>
<tr>
<td>Motor liability</td>
<td>7.7%</td>
</tr>
<tr>
<td>Simple property liability</td>
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<tr>
<td>Catastrophe</td>
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