Life Office Valuation Evolution & the Actuary
Overview

• The aim of this presentation is to argue that the role of a life office actuary under Solvency 2 will be more than calculating SCR’s (or internal models)

• Secondly that Pillars 2 and 3 are more important than Pillar 1

• Indeed that Pillar 1 left by itself would fail principle tests
Disclaimer

• This presentation represents my personal views and not those of my employer
Overview

• Part 1: A review of the Principles of Life Office Valuations
• Part 2: Welcome to the Black Parade
• Part 3: Orsa’s for Courses
Solvency 1 may be said to have been founded on Skerman’s principles

1. That liabilities should be valued by a net-premium method or on some other basis producing stronger reserves

2. That appropriate zillmerized reserve would be acceptable in order to allow for initial expenses.

3. Adequate margins over the current rate of expenses should be kept in the valuation of the liabilities in order to provide for future renewal expenses.

4. Appropriate recognized tables of mortality should be employed.

5. That valuation of the liabilities should be at rates of interest lower than implicit in the valuation of the assets, with due regard to the incidence of taxation.
A review of the Principles of Life Office Valuations

1. Basic *(meet liabilities when fall due)*
2. Timing *(Not a Ponzi scheme)*
3. Prudence *(much more likely than not)*
4. Public Perception *(after the event)*
5. Publicity *(before the event)*
6. Stability *(what does it lead to?)*
7. Recognition
A review of the Principles of Life Office Valuations

• As an example take the Solvency 2 concept
  – Hold best estimate of liability
  – Plus the Market Value of the risk
  – Project forward 1 year
  – Meet 1/200 event over one year
  – If 1/200 happens sell up and close up
A review of the Principles of Life Office Valuations

• Another example the Net Premium method
• Reserves only for policy liabilities (not expenses or future bonuses)
• Highly stable basis
• Use of book value
• Margins for investment reserves, and from (Office Premium less Net Premium)
• Mortality NOT cautious
A review of the Principles of Life Office Valuations

- In practice what we do under Solvency 1 is far more complex than the pure Valuation Balance Sheet concept
  - Cash reserves = Lifetime deterministic projection
  - New Business profitability = Profit Tests
  - Mismatching = Stress Tests
  - Guarantees = Stochastic Projections
  - FCR = Scenario Projections with New Business
Welcome to the Black Parade
Welcome to the Black Parade

• Solvency 2
  – News Headline

“Society of Actuaries Welcomes Insolvency Too”
Welcome to the Black Parade

• Solvency 2
  – 1 in 200

• There are about 350 insurance companies in Ireland
Welcome to the Black Parade

• Solvency 2
  – Distribution of insolvency would be as follows

<table>
<thead>
<tr>
<th>No Insolvencies</th>
<th>Direct</th>
<th>Direct&amp; Reinsurers</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Insolvency</td>
<td>38%</td>
<td>17%</td>
</tr>
<tr>
<td>2 Insolvencies</td>
<td>37%</td>
<td>30%</td>
</tr>
<tr>
<td>3 Insolvencies</td>
<td>18%</td>
<td>27%</td>
</tr>
<tr>
<td>4 Insolvencies</td>
<td>6%</td>
<td>16%</td>
</tr>
<tr>
<td>5 Insolvencies</td>
<td>1%</td>
<td>7%</td>
</tr>
<tr>
<td>-</td>
<td>-</td>
<td>2%</td>
</tr>
</tbody>
</table>
Welcome to the Black Parade

• Solvency 2
  – News Headline
  – Society of Actuaries Welcomes Insolvency Too
    • The SAI welcomed this Halloween 2012 the introduction of a so called Solvency 2 regime which would mean a failure of a company every 13 months
    • Unlucky for some if you have your life savings in one that fails!
    • Actuarial experts further commented that every 6 years we could expect multiple failures of 3 companies or more
Welcome to the Black Parade

• Other issues with Solvency 2
  – Are the calibrations correct?
  – Does the correlation approach work?
    • In extremis all correlations are 1
    • Stresses are not additive
  – 1 year approach conceals problems more clearly shown by lifetime projection?
  – Can you sell risk at the same price after 1 in 200?
Welcome to the Black Parade

• Other issues with Solvency 2
  – Can it ever be right for a company to need the future goodwill of its customers to stay solvent?
Welcome to the Black Parade

- Rocket science
- \( \frac{d^2x}{dt^2} = -w^2x \)
Welcome to the Black Parade

- Rocket science
- $x(t) = A \sin(wt+b)$
Welcome to the Black Parade
Welcome to the Black Parade

• Rocket science
• $x(t) = A\sin(wt+b)\exp(-t/T)$
Welcome to the Black Parade
Welcome to the Black Parade
Welcome to the Black Parade

ISEQ 1983 - 2009
Welcome to the Black Parade

• Other causes of instability
• Feedback loops
  – Examples DB Pension funds and Equities
    Houses and building workers
• Paradigm changes
Welcome to the Black Parade

Non performing loan provisions (source IMF)
Welcome to the Black Parade

• The Fish and the Shoal
• Financial Institutions flock together
  – In what they do
  – And how they behave
  – But particularly in their modelling and reserving
Welcome to the Black Parade

- Reasons for this
  - Convergence of assumptions
    - Regulators pick off under-conservative outliers
    - The companies themselves pick off over-conservative
  - Safety in numbers for the individual company
  - Hard to resist the call of other people doing something
  - Some markets are made by the most aggressive member
Welcome to the Black Parade

• The Paradox of the Fish and the Shoal

• It is in the interest of the fish for the shoal to be close together

• It is in the interest of the shoal for the shoal to be widely dispersed
Orsa’s for Courses

• Pillar 1 by itself will not protect the industry
• But Pillars 2 & 3 also exist
Orsa’s for Courses

Use test

• If you want to use an internal model you must pass a use test

• I suggest that **Non-use tests** should be employed
  – Stress tests
  – Scenario Tests
  – Use past real events (Japanese equities or Icelandic banks)
Orsa’s for Courses

Abuse test

• If you are open to abuse from predators, particularly from forced trades
• Then make sure you are not the first to be forced to trade
Orsa’s for Courses

Use it or lose it test

- If you are relying on future actions
- Then make sure that the mechanisms to do so have not been atrophied.
Orsa’s for Courses

Lose customer test

• The office should check that it can withstand losing all its customers
Overview

• The aim of this presentation is to argue that the role of a life office actuary under Solvency 2 will be more than calculating SCR’s
• Secondly that Pillars 2 and 3 are more important than Pillar 1
• Indeed that Pillar 1 left by itself would fail principle tests
• And that we need to build our tool box to supplement it, just as we did to Solvency 1