The Actuarial Profession
making financial sense of the future

LLOYD'S AND LONDON MARKET SEMINAR

27 JULY 2007, LONDON

Capital and Solvency II

Veekash Badal, Lloyd's

Agenda

- **Internal Capital Assessment**
- **Solvency II**
- **What does the future hold?**

The Actuarial Profession
making financial sense of the future

The Actuarial Profession
making financial sense of the future

Internal Capital Assessment

ICAs – Where are we?

- 2008 YOA ICAs submitted to Lloyd's
  - Review over 60 ICAs each year since 2006 submission
- Models are becoming more sophisticated
- Assumptions are more realistic
  - Diversification and profitability of future business remain areas of great debate
- Lloyd's review looks at the management of risk, not just quantification
  - Encouraging to see that risk management is high priority
- Important that firms demonstrate that the ICA reflects the business

The Actuarial Profession
making financial sense of the future

ICAs – What have we learnt?

✓ Technical standards have improved
✓ Essential to engage other departments in discussions on capital
✓ Risk Management has improved
  - Risk register now commonplace and used to complement capital modelling

? Link between the business plan and capital assessment essential
  - Can help to be more realistic in business planning
  - Should help to manage the cycle
  - Added pressure on underwriting and pricing

The Actuarial Profession
making financial sense of the future

The Actuarial Profession
making financial sense of the future

Solvency II

Solvency II – What's happened?

- QIS-3 exercise to assess impact of Solvency II on individual entities and groups
- Solvency II framework directive released 10th July
- Implementation for Solvency II put back from 2010 to 2012

The Actuarial Profession
making financial sense of the future

QIS-3

- QIS-3 focussed on:
  - Calculation of technical provisions on a best estimate discounted basis including a risk margin
  - Calculation of the Solvency Capital Requirement (SCR) and Minimum Capital Requirement (MCR) using a standardised approach
- Data and information submitted will be used to improve the calibration and development of the standard approach

The Actuarial Profession
making financial sense of the future

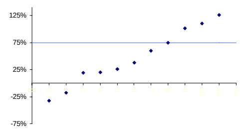
QIS-3 at Lloyd's

- 22 syndicates submitted to Lloyd's on best effort basis
- Full review of submissions taking place later this year
- Main practical difficulties:
  - Accident year data required
  - Difficulty calculating historical loss ratios on prescribed basis
  - Lack of clarity in instructions

The Actuarial Profession
making financial sense of the future

QIS-3 versus internal model

- Generally, the SCR calculated was significantly higher than syndicate's internal model results
- 9 syndicates had increased requirements and 2 had reductions
- Standard approach would increase capital by 75%
- The differences range from a 32% reduction to 125% increase



The Actuarial Profession
making financial sense of the future

QIS-3 issues highlighted

- Why was the standard model so onerous?
  - Most discrepancy came from underwriting risk component
  - No allowance for expected profits
  - Correlation matrices and standard deviations appear high for underwriting risk module
- Failure to capture non-proportional reinsurance benefits (pillar 2)
- Catastrophe risk component needs further development
- Removal of size factor
- Granularity of classes could be improved
- Insurance cycle has not been explicitly considered

The Actuarial Profession
making financial sense of the future

Solvency II framework directive

- 371 sides
- More prescriptive than many had anticipated e.g.
  - Operational risk maximum % specified
  - Correlation matrix between risk groups specified and the same factors as in QIS-3
- Cost of capital approach for risk margin as expected
- Time horizon for risk assessment period still unclear

The Actuarial Profession
making financial sense of the future

Solvency II framework directive

SCR

- Standard formula or full/partial model
- Calibrated at 99.5% VaR over one year
- Operational Risk <= 30% BSCR
- Possible to substitute company parameters into underwriting risk module subject to supervisory approval

The Actuarial Profession
making financial sense of the future

Solvency II framework directive

MCR

- Clear and simple
- Calibrated between 80% and 90% VaR over one year
- Specified minimum floor

The Actuarial Profession
making financial sense of the future

The Actuarial Profession
making financial sense of the future

What does the future hold?

Actuarial function - solvency II framework

Actuarial function to undertake the following:

- **Coordinate calculation** of technical provisions
- Ensure **appropriate methodologies** and underlying **models** used as well as the **assumptions** made in the calculation of technical provisions
- Assess the sufficiency and quality of the **data** used
- Compare best **estimates against experience**
- Inform the administrative/management body of the **reliability** and **adequacy** of the calculation of technical provisions
- Express an opinion on the overall **underwriting policy**
- Express an opinion on the adequacy of **reinsurance arrangements**
- Contribute to the implementation of the **risk management system**, in particular with respect to the risk modelling underlying the calculation of the capital requirements

The Actuarial Profession
making financial sense of the future

Actuarial function

Actuarial function to undertake the following:

- **Coordinate calculation** of technical provisions
- Ensure **appropriate methodologies** and underlying **models** used as well as the **assumptions** made in the calculation of technical provisions
- Assess the sufficiency and quality of the **data** used
- Compare best **estimates against experience**
- Inform the administrative/management body of the **reliability** and **adequacy** of the calculation of technical provisions
- Express an opinion on the overall **underwriting policy**
- Express an opinion on the adequacy of **reinsurance arrangements**
- Contribute to the implementation of the **risk management system**, in particular with respect to the risk modelling underlying the calculation of the capital requirements

The Actuarial Profession
making financial sense of the future

Capital & Pricing

- There needs to be a sensible relationship between risk, value added and capital
- Actuaries have been talking about price monitoring for a while
  - What has been done?
- Estimated profit is a key driver of the value of underwriting risk
  - Can firms monitor the achieved prices against the plan targets?
  - Do we have the right measures in place to make sure we manage the underwriting cycle?
  - Management should take steps to implement a price monitoring process
  - Otherwise there is a risk of overestimating profits, i.e. the value added
- Increase in risk implies increase in capital

The Actuarial Profession
making financial sense of the future

Challenges for the Actuary in capital assessment

- Ensure capital assessment and the impact on the business is understood by key stakeholders in the company
- Price Monitoring process
- Impact of Solvency II

The Actuarial Profession
making financial sense of the future