Presentation agenda

- Best estimate reserving and Solvency II impact
- Liability limits
- Industry survey results

Other sections in the 2011 paper

- Industry claims pool: pros & cons
- Underwriting and pricing for aggregate reinsurance covers, e.g. stop loss XLs
- Role of the FSCS
Acknowledgements
2011 working party members

- Anthony Claughton
- Avni Gohil
- Bruce Stocker
- Gary Yeates
- Karl Murphy
- Mark Cockroft (Co-Chair)
- Nathan Williams (Co-Chair)
- Peter Yeates
- Peter Saunders
- Sarah MacDonnell
- Simon Warsop
- Sylvie Le Delliou-Viel
  …plus several others we consulted and spoke with

Fair cross-section of the UK motor market:
6 insurers
2 reinsurers
4 consultants

Carrying on 2012
+ 6 more

Presentation agenda

- Best estimate reserving and Solvency II impact
- Liability limits
- Industry survey results
Best estimate reserving and Solvency II impact: current practice (or “the obligatory ostrich pic”)

Arguing for non-materiality will not suffice in the future if PPOs continue to grow in number. Eventually they will be material to the balance sheet risk.

QIS5 technical specifications: “Annuities stemming from non-life contracts”

- TP.1.13:
  “In particular, annuities stemming from non-life insurance contracts (for example motor vehicle liability insurance) are life insurance obligations”

- TP.2.49 & TP.2.55: substance (nature of liability) over form (legal form of original contract)

- TP.2.58:
  “…value technical provisions [for annuities] separately from…remaining non-life obligation…should apply appropriate life insurance valuation techniques…consistent with valuation of life insurance annuities with comparable technical features.”

- TP.2.63-67: Lump sum reserves allowable in run-off triangles pre-“annuitisation” (i.e. before becoming obligated to pay an annuity)
Timeline of a PPO claim: best estimate reserving

- Claim not yet notified: IBNR
- Claim notified but not settled, might be a PPO: IBNER
- Claim settled as PPO: in payment

Likelihood of settlement as a PPO

Reserving basis:
- Traditional methods plus load for PPOs not yet in prior year experience
- Summary valuations, e.g. Ogden table lump sum assuming reduced (risk-free) discount rate (*)
- Life insurance techniques: projected cash flows and discounting (*)

Note (*): See last year’s PPO paper for details

Timeline of a PPO claim: Solvency II capital

- Claim not yet notified: IBNR
- Claim notified but not settled, might be a PPO: IBNER
- Claim settled as PPO: in payment

Likelihood of settlement as a PPO

Capital basis:
- Current S2 methods plus load for PPOs not yet in prior year experience
- Enhance own model, or apply life insurance standard formula
Solvency capital requirement for life insurance contracts – standard formula

- Reminder: SCR = Basic Solvency Capital Requirement + Op Risk + adjustment for risk-absorbing effect of technical provisions and deferred taxes
- BSCR for life insurance consists of a series of stresses:
  - Market risk (bond spreads, interest rate and term structure, illiquidity premium, etc)
  - Life underwriting risk (mortality/longevity, morbidity, expense overrun, revision risk, etc)
- Op Risk as for non-life but different factors apply
- No discretionary PPO benefits, so TP adjustment assumed to be nil

Presentation agenda

- Best estimate reserving and Solvency II impact
- Liability limits
- Industry survey results
Liability limits – the problem (1)

- GIRO working party survey results for 21 liability PPOs:
  - Average lump sum = £1.3m
  - Average initial annual payment = £80k
  - Average future life expectancy at settlement = 26 years

Liability limits – cumulative payout pattern for average case (lump sum + PPO)
Liability limits – the problem (2)

- GIRO working party survey results for 21 liability PPOs:
  - Average lump sum = £1.3m
  - Average initial annual payment = £80k
  - Average future life expectancy at settlement = 26 years
- Therefore, “average case” total payment = £5.1m (*)
- This will increase for new loss events happening today
- Typical PL limits are £1m-5m; EL at £10m
- These are just the average, there is a wide range of values
- **Current liability limits are not sufficient for PPOs**

(*): Assuming 3.5% p.a. ASHE inflation, probability-weighted annuity

Liability limits – potential solutions

- Don’t award PPOs
  - Claimants’ needs are not always addressed
  - This is largely current practice by the Courts
- Increase limits generally
  - Liability market is still very soft; no-one will pay for higher limits and insurers won’t give them away for free
- Index/increase limits for PPOs
  - Complex wording issues, different interpretations, may “invite” PPOs
  - Possibly the best solution, but nothing happening yet
Presentation agenda

• Best estimate reserving and Solvency II impact
• Liability limits
• Industry survey results

Industry Survey 2011

Profile of a PPO
Additional measures in 2011
  – Propensity
  – MIB experience
  – Liability PPOs
  – Nature of Injury

Current reserving practice
Contributors

- UK motor market
  - 12 insurance groups
    - 9 out of the 10 top insurers
    - 87% of FSA regulated entities by premium volume
  - 8 out of the 12 also contributed to last year’s survey

- Motor Insurer’s Bureau

Contributors

- Allianz Insurance
- Aviva
- AXA
- esure
- Groupama
- Highway
- HSBC
- Liverpool Victoria
- NFU Mutual
- Provident
- RBSI
- RSA
- Zurich Insurance
Update

Number of PPO claims by settlement quarter

Industry Survey 2011

Profile of a PPO

Additional measures in 2011
- Propensity
- MIB experience
- Liability PPOs
- Nature of Injury

Current reserving practice

Profile of a PPO

Number of PPOs by type of injury

- Brain
- Spinal
- Other

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Profile of a Motor PPO

- Brain or spinal injuries
- Average age at settlement: 34
Profile of a PPO

Number of PPOs by age of driver

![Graph showing the number of PPOs by age of driver]

Profile of a PPO

Age of driver against age of claimant at the time of the accident

![Graph showing the age of driver against age of claimant at the time of the accident]
Profile of a Motor PPO

- Brain or spinal injuries
- Average age at settlement: 34
- Delay to settlement: 6 years

Distribution of delay to settlement

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Profile of a Motor PPO

- Brain or spinal injuries
- Average age at settlement: 34
- Delay to settlement: 6 years
- Future life expectancy at settlement: 41
- Life expectancy reduction: 10 years
- Indexation linked to ASHE 6115
- Annual PPO payment: £80k
- Lump sum: £2m

Industry Survey 2011

Profile of a PPO

Additional measures in 2011
- Propensity
- MIB experience
- Liability PPOs
- Nature of Injury

Current reserving practice
Overall propensity

Number of large claims (>£1m) which settle as PPOs

Propensity by insurer

Variation in propensity between insurers
Industry Survey 2011

Profile of a PPO

Additional measures in 2011

- Propensity
- MIB experience
- Liability PPOs
- Nature of Injury

Current reserving practice
Brain Injury PPOs

Initial payment amount (£)

<table>
<thead>
<tr>
<th>Brain Injury</th>
<th>Count</th>
<th>Ave Claim</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brain - Moderate</td>
<td>2</td>
<td>34</td>
</tr>
<tr>
<td>Brain - Severe</td>
<td>20</td>
<td>120,000</td>
</tr>
<tr>
<td>Brain - Very Severe</td>
<td>50</td>
<td>140,000</td>
</tr>
<tr>
<td>Brain - Unknown</td>
<td>60</td>
<td>100,000</td>
</tr>
</tbody>
</table>

Lump sum amount (£)

<table>
<thead>
<tr>
<th>Brain Injury</th>
<th>Count</th>
<th>Ave Lump Sum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brain - Moderate</td>
<td>2</td>
<td>50,000</td>
</tr>
<tr>
<td>Brain - Severe</td>
<td>20</td>
<td>2,000,000</td>
</tr>
<tr>
<td>Brain - Very Severe</td>
<td>50</td>
<td>3,000,000</td>
</tr>
<tr>
<td>Brain - Unknown</td>
<td>60</td>
<td>2,500,000</td>
</tr>
</tbody>
</table>
Brain Injury PPOs

Percentage reduction in life expectancy

Reduction in life expectancy as a percentage of unimpaired expected lifetime

Industry Survey 2011

Profile of a PPO

Additional measures in 2011
- Propensity
- MIB experience
- Liability PPOs
- Nature of Injury

Current reserving practice
Reserving practice

Claims can be split into different elements for reserving purposes

- Claim settled as PPO (in payment)
- Future PPOs
  - Claims notified but not yet settled as PPO: IBNER
  - Claims not yet notified: IBNR

Current reserving practice

PPOs in payment

- Similar practice across the industry
  - Reserves calculated on an individual basis
  - NPV cashflow approach
- Differences in assumptions used
  - Earnings inflation
  - Life expectancy
  - Investment return
Reserving practice

Annuity certain approach
• Assume payments will be made with certainty for every year of future life expectancy

Probabilistic approach
• Take into account probability of survival for all future payments

Reserving practice example:
Male 49 year old at time of settlement

Probabilistic approach
• **Future** life expectancy
  – Year 0: 31.03 years
  – Year 1: 30.13 years 0.90 difference

• Discrepancy is larger as the claimant becomes older
  – Year 20: 14.67 years
  – Year 21: 13.98 years 0.31 difference
Reserving practice

Development of reserves over time

- Whole of life - undiscounted
- Annuity certain - undiscounted

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Reserving practice

Probabilistic approach

• Takes into account effect on life expectancy of someone who has already survived a year
  – Not always material over the course of a single year, however will become more material over the longer term
  – Allows for possibility of survival longer than their original life expectancy assumption
• Impact on discounting
• When PPOs are material, Solvency II requirement

Reserves may increase from year to year

– Once survived a year, an individual’s life expectancy will have increased
– Effect of the discount unwinding
Current reserving practice

- Known PPOs

- Future PPOs
  - Claims already reported but not yet settled as PPOs
  - IBNR claims

Current Reserving Practice

Future PPOs

- No consistent approach in the market
- Significant element of the reserves – delay to settlement
- Almost all respondents monitor open claims for likelihood of turning into a PPO
  - Variety of ways this is achieved
Observations

- Lack of consistency in / disclosure of assumptions
  - Economic assumptions
  - Life expectancy
- Nature of injury
- Life insurance methodologies
  - (Re)education needed

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 presenters.
What we are doing in 2012 working party

• Overseas markets
• Impaired life mortality / future life expectancy
• Classification of injury
• Reinsurance issues
• Continue industry survey

Suggested discussion points

Some thoughts:
• Are PPOs here to stay? Even if the Odgen discount rate comes down?
• Are liability limits of indemnity sufficient? What about limit indexation in case of PPO?
• Is there sufficient awareness of reserving and capital implications, even among actuaries?
• Industry pooling of experience (a new role for CMI?)
Profile of a PPO

Distribution of future life expectancy at the time of settlement

Profile of a PPO

Distribution of lump sum payment amounts
Profile of a PPO

Distribution of initial PPO payment amount

Number of PPOs by settlement quarter
- split by RPI and ASHE indexation

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History

2003 Courts Act
• Courts can impose a PPO for some or all of the heads of damage
• Implemented April 2005

Thompstone versus Tameside and Glossop NHS Trust
• November 2006 ruling
  – RPI was the automatic index but it is not suitable for wage based costs or losses
  – Indexation linked to ASHE, for example, for medical care
• Upheld by Court of Appeal January 2008
• NHS abandoned appeal to House of Lords late 2008

ASHE

• Annual Survey of Hours and Earnings
• Sub-category 6115 relating to salaries of care assistants and home carers
• Difficult to match investments
  – Survey not an index
  – Methodology changes
  – No long term projections
  – Different percentiles used
Profile of a PPO

Number of PPOs by settlement quarter - split by RPI and ASHE indexation

![Graph showing number of PPOs by settlement quarter, split by RPI and ASHE indexation.]

Industry Survey 2011

Profile of a PPO

Additional measures in 2011
- Propensity
- MIB experience
- Liability PPOs
- Nature of Injury

Current reserving practice
MIB experience

Number of claims by settlement quarter
MIB experience

Propensity: number of PPOs per large (>£1m) settlement

Lump sum
Industry Survey 2011

Profile of a PPO

Additional measures in 2011

- Propensity
- MIB experience
- Liability PPOs
- Nature of Injury

Current reserving practice

Liability PPOs

Number of liability PPOs by settlement year
Liability PPOs

Cover type

Liability

- Employer’s Liability
- Public Liability
- Other

Liability Vs Motor PPOs

Delay to settlement

[Graph showing delay to settlement for Liability and Motor PPOs]
Liability Vs Motor PPOs

Lump sum

Initial PPO amount