What do London Market Actuaries Price?

Ana Mata, PhD, ACAS
Wendy Russell
GENERAL INSURANCE PRICING SEMINAR
London, 13 June 2008
Agenda

- Background
- Expectations placed on (pricing) actuaries
- Impact of key pricing functions on cycle management
Background

Focus
- Commercial P&C insurance
- London Market business

Pre-2001 – Who needs actuaries?
- Few P&C pricing actuaries
- Mostly reinsurance
- Main role individual risk pricing

2002 & Post – Actuaries as ‘safeguard’
- High demand for pricing actuaries
- Today only 6-7 LM companies no actuaries
‘What do London Market Actuaries Price?’ – Survey Aim

- Understand the role of London Market pricing actuaries
- Understand current pricing actuaries involvement in key areas
- To investigate pricing actuaries (perceived) influence over management of soft market
‘What do London Market Actuaries Price?’ – Survey Results

- Survey sent to over 30 London Market companies
- Only 6 responses
- Few companies opted not to participate
- Rest ignore it!

Why?
- Everyone is doing their own thing
- Lack of industry wide forums BY PRICING ACTUARIES
- Real need for sharing ideas
‘What do London Market Actuaries Price?’- Survey Areas

- Team time spent on pricing
- Individual time allocation to key areas
- Structure of team/reporting lines
- Influence (and perceived influence) over management of soft market
- Change in influence over cycle management
- Appropriateness of sign-off protocols
The Role of Pricing Actuaries

**Reinsurance**
- Account pricing
- Underwriting
- Management reporting
- Benchmarking

**Insurance**
- Account pricing
- Rating models
- Management reporting
- Outwards reinsurance
- Reserving
- Capital modelling
- Planning and Forecasting
Overall Actuarial Time Spent on Pricing

Percentage of total team time spent on pricing (based on days per week per total headcount)

- □ a. 0-10%
- b. 10-50%
- □ c. 50-100%
How Pricing Actuaries Spend Their Time?

- **a. Individual risk pricing:**
  - Time Actually Spent: 35%
  - Time Should Spend: 38%

- **b. Reserving:**
  - Time Actually Spent: 13%
  - Time Should Spend: 8%

- **c. Capital setting/allocation:**
  - Time Actually Spent: 8%
  - Time Should Spend: 8%

- **d. Underwriting management:**
  - Time Actually Spent: 38.3%
  - Time Should Spend: 37.5%

- **e. Other:**
  - Time Actually Spent: 7%
  - Time Should Spend: 8%
How Much Influence Will Actuaries Have Managing This Cycle?

Key Question:

Would companies with pricing actuaries do better than those without pricing actuaries?

- History yet to prove
- Last soft market
  - CO’s without actuaries failed
  - CO’s with large pricing teams failed
- What could we do different this time?
Current Influence vs. Expected Influence

Overall influence relative to last soft market

- a. no influence
- b. some influence
- c. significant influence

Number of responses

- Actual Influence
- Influence Should Have
Current Influence vs. Expected Influence

Influence by area

Number of responses

- a. no more influence
- b. some more influence
- c. significantly more influence

- Capacity management
- Reserve management
- Portfolio management
- Strategic management
What Are We Doing Differently?

- Actuaries cannot prevent market cycle
  - No one can!
- More accurate management reports
- Ensure clear understanding of data provided
- Ensure understanding of impact of business decisions
- Active interaction with other business units
It All Comes Down to Reserving!
It All Comes Down to Reserving!

Reinsurance Context

- Underwriting Considerations
- Risk Profile / Terms & Conditions
- Business Decision / Sign Off
- Binding
- Actuarial Pricing
- Loss Ratio / Target Return
- Reserving & Rate Monitoring
What Could We Doing Differently?

- Ensure all actuarial areas are joined up
  - Reserving isolated from pricing
  - Pricing isolated from capital modeling
  - Planning isolated from pricing
  - Capital modeling uses input from plan

- Raise awareness of actuarial concepts and methods within company

- Raise awareness of impact of change in assumptions
Whose Decision Is It Anyway?

- Binding individual risks
- Benchmarks
- Rating plans
- Rate monitoring
- Held reserves
- Plan loss ratios
Who do Pricing Actuaries Report to?

- Chief actuary (3)
- Chief underwriting officer (1)
- Line of business underwriter
- Finance officer (1)
- Other (1)
Actuarial Influence and Value Added Across Key Areas of Involvement
Individual Risk Pricing

- Common actuarial sign off protocols
  - No sign off
  - Premium threshold
  - Risk type
- Who has final say?
- Who should have final say?
- Proportion of premium priced
- Where are results reflected?
Sign Off Protocols: Survey Results

Number of responses

- a. Actuarial sign-off required above specified premium threshold
- b. Underwriters run models followed by validation or sign-off by the actuary
- c. Risks cannot be bound without actuarial sign-off
- d. No sign-off

Response

Appropriate?
Rating Models or Rating Tools?

- Increased need for rating tools
  - Ease of workflow
  - Automated calculations
  - Documentation
  - Lloyd’s reporting requirements
- Rating model – actuarial value
- Rating tool – IT value
Rating Models or Rating Tools?

- Actuarial Goal – consistent benchmark
  - Objective rate monitoring
  - Market price vs. benchmark
- Rating database
- Link rating plan to loss ratio
- Over time develop technical rates
Renewal Rate Monitoring

- Process in place 2002 and post
- Need to distinguish between
  - Good process – run by actuaries
  - Accuracy – calculated by underwriters
- What is included?
  - Change exposure
  - Change limit / attachment
  - Other rating factors
  - “Soft issues”
Renewal Rate Monitoring: Real Need for Actuarial Accuracy

Rate Monitoring Using Exposure Changes

Benchmark premium assumes 20% commission

<table>
<thead>
<tr>
<th>Min in Range</th>
<th>Max in Range</th>
<th>Max Premium in Range</th>
<th>Implied Load Per Million</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>1,000,000</td>
<td>46,750</td>
<td>46,750.00</td>
</tr>
<tr>
<td>1,000,001</td>
<td>5,000,000</td>
<td>66,775</td>
<td>3,506.25</td>
</tr>
<tr>
<td>5,000,001</td>
<td>25,000,000</td>
<td>100,775</td>
<td>2,000.00</td>
</tr>
<tr>
<td>25,000,001</td>
<td>50,000,000</td>
<td>138,275</td>
<td>1,500.00</td>
</tr>
<tr>
<td>50,000,001</td>
<td>100,000,000</td>
<td>183,275</td>
<td>900.00</td>
</tr>
<tr>
<td>100,000,001</td>
<td>200,000,000</td>
<td>233,275</td>
<td>500.00</td>
</tr>
<tr>
<td>200,000,001</td>
<td>500,000,000</td>
<td>308,275</td>
<td>250.00</td>
</tr>
<tr>
<td>500,000,001</td>
<td>1,000,000,000</td>
<td>358,275</td>
<td>100.00</td>
</tr>
<tr>
<td>1,000,000,001</td>
<td>2,000,000,000</td>
<td>408,275</td>
<td>60.00</td>
</tr>
<tr>
<td>2,000,000,001</td>
<td>5,000,000,000</td>
<td>498,275</td>
<td>30.00</td>
</tr>
<tr>
<td>5,000,000,001</td>
<td>10,000,000,000</td>
<td>648,275</td>
<td>10.00</td>
</tr>
<tr>
<td>10,000,000,001</td>
<td>15,000,000,000</td>
<td>685,775</td>
<td>7.50</td>
</tr>
<tr>
<td>15,000,000,000</td>
<td>Unlimited</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Turnover</td>
<td>150,000,000</td>
<td>250,000,000</td>
</tr>
<tr>
<td>Deductible</td>
<td>50,000</td>
<td>50,000</td>
</tr>
<tr>
<td>Deductible Factor</td>
<td>0.8</td>
<td>0.8</td>
</tr>
<tr>
<td>Limit</td>
<td>15,000,000</td>
<td>15,000,000</td>
</tr>
<tr>
<td>Attachment</td>
<td>10,000,000</td>
<td>15,000,000</td>
</tr>
<tr>
<td>Excess Factor</td>
<td>1.60</td>
<td>2.00</td>
</tr>
<tr>
<td>Commission</td>
<td>20%</td>
<td>20%</td>
</tr>
<tr>
<td>Benchmark Gross Premium</td>
<td>249,930</td>
<td>393,240</td>
</tr>
<tr>
<td>Benchmark Net Premium</td>
<td>199,944</td>
<td>314,592</td>
</tr>
<tr>
<td>Bound Gross Premium</td>
<td>275,000</td>
<td>395,600</td>
</tr>
<tr>
<td>Bound Net Premium</td>
<td>220,000</td>
<td>316,000</td>
</tr>
<tr>
<td>Change in T&amp;C</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Rate change = -13.06%
Answers = -13% to -27%
Renewal Rate Monitoring: Actuarial Value

- Highly linked to reserve (in)adequacy
- Achieve consistency and accuracy
- Only add objective factors
- Understand “soft issues” included
  - Remove as much as possible!
- Link to benchmark or technical pricing
- Train underwriters!
Why is new business rarely monitored?


“[...] In practice it is easier to ignore new business because details of the previous year’s risk may be incomplete. However, new business is typically written on worse terms than renewal business since the business needs to be attracted from the previous insurer, usually by offering a lower price or better terms.”
New Business Monitoring: Actuarial Value

- Expiring price is irrelevant
- Key question:
  
  *Relative to benchmark pricing, what is the difference between new and renewal business rates?*

- Actuarial value – include new business in overall rate monitoring
  
  - New business monitoring significant impact managing this cycle
Rate Monitoring: Actuarial Value

- Rate change “seen” as target
- Target often “achieved”
- Underwriters’ perceptions
  - Rate increase = good
  - Rate decrease = bad
- Not linked to rate adequacy
- Not linked to loss experience
Who Assists Underwriters to Prepare the Plan?

- Reserving actuaries (0)
- Pricing actuaries (2)
- Chief Actuary (2)
- Other (2)
Planning and Forecasting

- Plan 4-6 months before year end
- Difficult to plan next month!
- Optimistic assumptions
- Recent 3-4 years booked at plan
- Compound effect
  - Optimistic rate monitoring
  - Low pegs
  - No new business rate index
## Impact of Plan on Reserves

<table>
<thead>
<tr>
<th>Year</th>
<th>Plan RC</th>
<th>Plan LR</th>
<th>Actual RC</th>
<th>Revised LR</th>
</tr>
</thead>
<tbody>
<tr>
<td>2009</td>
<td>5%</td>
<td>81.5%</td>
<td>-7.5%</td>
<td>92.5%</td>
</tr>
<tr>
<td>2010</td>
<td>5%</td>
<td>84.8%</td>
<td>-5%</td>
<td>93.7%</td>
</tr>
<tr>
<td>2011</td>
<td>5%</td>
<td>95.2%</td>
<td>-5%</td>
<td>105%</td>
</tr>
</tbody>
</table>

- Further impact
  - Actual RC accuracy
  - New business monitoring
Would Actuaries Influence Results?

- Time will tell
- Reputational risk
- Operational risk – inadequate processes
- Pricing role evolving
- Actuarial value added
  - Impact on company’s reserves
  - Management reports
  - Company business strategy