Who and What

Who are you?
• The (mixed) cream of the actuarial profession
  – many of whom know lots about commercial pricing

Who am I?
• The Group Actuary at Amlin for the last 11 years
  – where other actuaries do the “real work”

What do I plan to do with you?
• Educate, entertain, provoke, amaze, cause reflection, etc
  – in 20 minutes (!)
Commercial Lines Business

• Contrast is with Personal Lines
• Includes, for me, all B2B – including reinsurances
  – In fact, “Commercial Lines” ≈ mix for Syndicate 2001
    – All classes in Lloyd’s market, including motor fleet, small businesses, excluding life
• Enormous variety
  – Types of risk
  – “Size” of risks
    – Exposure, volatility, claim severity, frequency, correlations
  – Market dynamics
    – Sophistication, traditions, approaches (brokers, wordings, procedures),
Generic Commercial Lines Issues

• Exposures can be complex and change over time
  – Entity appetite, positioning of book
  – Wordings, deductibles/limits, nature of underlying business (e.g. Risk XL)

• Data quality variable, and worse than actuaries want
  – Brokers may not always be as helpful as possible
  – Grouping is common
    – Exposures in bands
    – Locations not individually geo-coded
    – Claims bordereau

• Most classes have “unique” elements
  – Can spend many years becoming a “real” expert
The role and position of the actuary

- Underwriter (always) and broker (almost always) are key
- Some variation on actuaries between entities
- Typically not the underwriter, but subservient
  - part of a support team including claims, wordings experts
- Sometimes elevated: joint sign-off with u/w
- For some classes as important as in Personal Lines
- But … not always necessary
  - statistician, technician, analyst, cat modeller, “fly solo”
Numbers of actuaries in Commercial Pricing
(a stunning success story)

**CALM 2010 survey of Lloyd’s market:**

<table>
<thead>
<tr>
<th>Category</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>382</td>
<td></td>
</tr>
<tr>
<td>Pricing / underwriting</td>
<td>102</td>
<td>(27%)</td>
</tr>
<tr>
<td>Cat modelling</td>
<td>29</td>
<td>(8%)</td>
</tr>
<tr>
<td>Other</td>
<td>251</td>
<td>(31% res, 19% cap)</td>
</tr>
</tbody>
</table>

**Add to this the actuaries in:**

- Other London market insurers
- Brokers, Consultancies, Regulators, Lloyd’s, Raters, …
- Other UK Companies
- Overseas Companies
The life of the commercial pricing actuary

- Workload can be highly seasonal
  - vast majority of risks may renew on same day
- Unless a key lead market, may be price taker
  - only decision is to play or not at pre-defined price
- Often time pressure
- Getting “own” data may not be as easy as it should be
- Market data may be unavailable or of dubious relevance
- Exciting, entrepreneurial environment(?)
Technical Pricing models

Key big picture issues

• Data and time constraints
• Experience rating
  – Commercial risk outcomes often very “spiky”
  – Risk likely to have changed over time
  – Hard to know true expectation and variability / percentiles
• Exposure rating
  – Often large variation between risks
  – “Standard metrics” may be poor fit
  – Adjustments subtle and/or judgmental
• Credibility
The commercial pricing actuary and TAS - I

- Does the April 2010 Exposure Draft of TAS-I fit this world?
- Many actuaries very concerned that it doesn’t
  - Often very different from both Life and Personal Lines
- Transactional pricing as one part of highly knowledgeable team
- Packed meetings of concerned pricing actuaries(!)
- 50 signatories to Tony Jones / UMACS response(!)
- Movement from the BAS in redrafting
Pricing Commercial Lines

For each risk Amlin records:

• Achieved price
• Technical price
  – Actuarial model, incl. loadings for expenses, capital / profit
    – Explicit, auditable, reproducible
• Expected Loss Cost
  – Best estimate ultimate claim cost, no loadings or margins
    – Allowing for “soft factors”, depending on underwriter judgement
• Rate change
• … broken down by various sub-elements
ERM ... surely one “killer” model is all you need?

Ideal world

• Build the perfect all-in model then relax
• Tick all the boxes for rating agents, Solvency II, management

Real world

• Work in parallel on various imperfect approaches
• Understand which sheds most light in individual circumstances
• Think when different signals don’t reconcile
• Use actuarial skill and judgement to add value!
The commercial pricing actuary and Solvency II

- Some Solvency II text arguably more ideal world than real world
  - Manager sits in “insurer cockpit” with dials and knobs
- Does Use Test imply join between capital model and pricing?
- Text requires Capital Allocation and Risk Ranking
  - Each entity (and regulator) working out what this means
- I do hope it all ends happily
- Some danger of lemming-like model adoption?!
Rating and Profitability Indices

• For example, the Amlin “Altimeters” date back to 1993
  – “On level” adjustment for premium rate and claim inflation
• Many others have and publish similar series
• This may make us better able to read and manage the cycle

• There are difficulties in compiling such indices
• It is tempting to believe them too much
• Are we over-selling their usefulness
  – or just not restraining keen management enough?
Just a little go on one of my hobby horses …

- Although it looks highly tempting
  - and sounds marvellous
- Capital allocation can be done very badly
  - and then used very badly
- Some of what I read in public domain is worrying
  - and presumably this is a “select” subset of what everyone is doing?
- Amlin is adopting capital allocation very thoughtfully
  - and using it quite carefully
Pricing models: summary

Spectrum

• GLM to (educated) guesswork
• Cat models to fag packets

Aim

• Suitable form of model
• Useful parameters and sensitivity analysis
• Make a call

Consider an example from another world
Search for Extra-Terrestrial Intelligence

The Drake equation

- \[ N = N^* \times f_p \times n_e \times f_l \times f_i \times f_c \times \frac{L}{T_g} \]
  - Billions of stars, but rare life
- Model first proposed in 1961, not seriously improved since
- Drake’s original result was 10
- Current “plausible” estimates include 2.1, \(6.5 \times 10^{-5}\), \(2 \times 10^4\)
  - Source Wikipedia
- Actuaries must price, capitalise for and reserve “binary events”
  - even with a “sound model”, usefulness may be limited!
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 presenter.

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Anybody like rugby?