


The Actuarial Profession
making financial sense of the future

General insurance pricing seminar
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Why should general insurers pay actuaries to help with pricing?

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Agenda

- Stories not graphs!
- Defining terms
- Communication – a key actuarial skill!
- What can go wrong
- Conclusion

Why should GI companies pay actuaries to help them with pricing?



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Introduction

- Spoke to some stakeholders
 - Accountant
 - Underwriter
 - CEO
 - Broker
- Also thought about it myself

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Define terms

- What is GI?
- What is an Actuary?
- What is Pricing?

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Actuary

- What's he brought to the party?
 - Mathematics
 - Technical knowledge of insurance
 - General financial understanding
 - Professional standards
 - Communication skills
 - Ability to make financial sense of the future

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I asked an accountant

- He said “No idea”, then reeled off:
 - Base price, not what you could charge (underwriter would know that)
 - Can actuary spot trends earlier?
 - Can actuary get a better view of ultimate (vs incurred)?
 - Inflation and investment income
 - Portfolio rather than individual risk
 - (This could be different between London Market and Personal Lines where rating factors are actuarially determined)
- I concluded that the accountant is looking for technical skills and judgement

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I asked an underwriter

- There is a problem when actuary's price is unrealistically high or low
- Need to talk to the underwriters
 - Personally I've learned from underwriters often
- I concluded that the underwriter
 - Was looking for communication skills
 - Took technical skills as a given
 - Saw the actuary as an advisor

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I asked a CEO

- “Good underwriters understand individual risk issues and the detailed considerations in pricing. Actuaries understand the story provided by the numbers and are less emotionally attached to brokers. Combine the two together you’ve hopefully got a winning formula.”
- Different perspective – source of *independent* challenge to underwriters
- Actuarial training encourages a numbers-based view of risk
 - This makes the pricing process more explicitly robust, consistent, and probably more defensible in the face of a regulatory environment that craves documented justification for all decisions made

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I asked a CEO

- In the more competitive types of GI, particularly personal lines where there’s lots of data, quantitative techniques are the only way to price successfully. Actuaries have a technical nature and generally understand these types of tools better than the average underwriter
- Actuaries are less likely to inherit a formula-based approach and use it blindly. For example, Increased Limit Factor approaches are often used in the market for pricing XL reinsurance. The formulas developed have many implicit assumptions, which are frequently overlooked by underwriters when “...using a spreadsheet blagged from Munich Re at some point in the past”.
- Actuaries may be better-placed to set the loads for extreme events and to ensure appropriate return on capital over the whole portfolio. That is, actuaries often think more naturally at a portfolio level, whereas underwriters tend to be very good at specific contract details, so the skill sets blend well.

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I asked a broker

- “Arms Race” - is actuarial analysis more rhetorical than objective?

	<u>Without actuary</u>	<u>With actuary</u>
<i>Data analysis</i>	Summary statistics; trend analysis; historical burning cost; simple adjustments for changing exposure.	Statistical models of frequency and severity, adjusted for changes in exposure.
<i>Programme design</i>	Benchmarking price, limits, and deductibles against similar risks. Use desk quotes to compare the cost of alternative programmes	Risk based comparison of alternative programmes. Use of more sophisticated metrics, allowing for cost of capital to support retained risk
<i>Marketing/ placement</i>	Price negotiation tends to be focused on how to adjust last year's price to allow for claims experience, changes in exposure, changes in coverage, and market conditions.	Consistent allowance for risk after adjustment for exposure changes. Emulate actuarial models of more sophisticated underwriters. Exploit broker's wider knowledge of market experience. Provide arguments to use with the pricing actuary.
<i>Client communication</i>	Supply focus. This year vs last year - implicitly assumes that last year's programme was OK (unless last year was placed by a competing broker!).	Client focused. Linking risk transfer with corporate objectives and risk appetite. Clear audit trail supporting risk transfer decisions.

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Other points I'd have raised

- Idea of a second pair of eyes / reality check
 - Does it need to be an actuary? Professional status should help
- Setting targets and monitoring against these
 - A good pricing model may allow one to do this much more in “real time”
 - PMD data at Lloyd's is attempting to do this by asking for the price actually charged vs the price needed to achieve the Plan
- Data – mentioned only by the broker!
- A link to the Corporate Finance view – cost of capital, target setting, reserve policy, capital setting
- Audit trail and risk management (Solvency II fairly quiet on pricing, but the actuarial function does have to report on price adequacy overall)

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Data – what data?

- Company's own vs market data
- Handling data
- Checking data (actuaries so often end up doing this – why?)
- Selection effects on the portfolio

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So what does the actuary bring to the party?

- Technical skills
- Judgement
- Communication skills
- A lack of ego
- Wider financial knowledge

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Pricing

- Not underwriting
- Simple distinction:
 - which risks we acceptversus
 - how much to charge for those we do accept
- Also lots of skills underwriter focuses on
 - Wordings
 - Market sentiment
 - Things that are not in the data (yet!)

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Underwriting and Pricing

- External company commissioned to review household theft claims using neural networks
- Analysts very capable and objective, but no insurance knowledge
- Parameter setting and model testing done on disjoint subsets of data
- Produced a neural network that discriminated very well between those who would and those who would not be accepted for insurance, using the NN

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Underwriting and Pricing

- Two problems:
 - They were thinking that we would decide whom to insure and charge everyone the same price (like a credit card book) and rejection rates were around 50%
 - The test was
 Prob {insured given claimed}
 and not
 Prob {claimed given insured}
- Results on Prob {claimed given insured} were much less impressive...
- Also another actuarial skill: debunking myths!

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Other Pricing issues where an actuary should be able to help...

- Selection
 - Price affects portfolio
 - Underwriter likely to have good instincts in this area
 - Question of how much to try to model vs know limitations of model
 - Marketing vs pricing
- Key assumptions
 - What are assumptions?
 - What is key?
 - “if you think this, you have to think that”
 - Putting assumptions into context

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Pricing as a form of actuarial work

- Same as other sorts of actuarial work
 - Data
 - Business Knowledge
 - Communication
 - Modelling
 - Standing your ground, but being open to other opinions
- Different subject matter?
- A lot of factors at once so teamwork is essential
 - Who “owns” the overall process?

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Communications Skills

- An area of strength for (good) actuaries!
 - Maybe more common for those doing pricing work?
 - Can be easy, and a relief, to communicate with other actuaries
 - Share the same ‘obvious’
 - Keep things simple
 - TLO Story
 - Learn from underwriters – market unlikely to be “wrong” fundamentally

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What can (possibly) go wrong?

- Arrogant / lack of communication / believe models
 - Asking a pricing actuary about reserve assumptions on an ART LDC: who set reserves? A: client → underwriter should have questioned that!
- Group think – seek, don't avoid, awkward questions
- Missing key change in portfolio – maybe a selection effect
- Coming up with a price nobody believes
 - If it's right, failure has been communication
 - Further problem if actuary then joins "group think"
 - how much of this is caused by unsophisticated modelling?

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Conclusion

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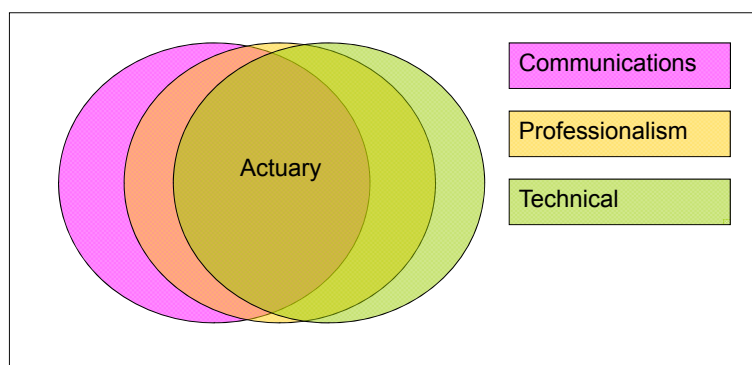
Conclusion

- Need someone with skills an actuary is supposed to possess

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Conclusion

- Need someone with skills an actuary is supposed to possess



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Conclusion

- Doesn't have to be an actuary – but actuarial training is a convenient and typical way to get these skills and professional status should help with standing your ground (“study every evening for 5 years, you should learn something!”)
- Actuary should listen to underwriter at least 50% of the time (and underwriter should sometimes listen to actuary....).
- Actuary is not underwriter but someone needs to ask awkward questions.

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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.

