Practical Pricing in Specialty Insurance

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The problem(s)

How we got here

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Real Agenda

Introductions

Questions

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Imploring

Hello

Actuary in specialty insurance since 2005

Currently: hx

- Thinking about what the future of specialty insurance pricing is going to look like
- Making a platform to help the market do it

Before that:

Building and setting up pricing/actuarial teams from scratch in lots of places

- TMK (Head of Pricing and Analytics) GB
- Before that: Catlin (Lots of roles) GB – CA – GB

These are only my opinions

They may or may not be those of my employer

I know "it depends"

Lots of this may be obvious/old news to lots of you

What is specialty insurance anyway?

Not model-driven

Relationship-driven

Multiple methods used for pricing

Broad wordings

More capital intensive

Non-standard risks and cover

Bespoke

Not P&C

Complex risks

Brokers play a big part

Not personal lines or sme/commercial

Perils/triggers are poorly understood

Heterogeneous portfolios

Low-frequency high-severity

Manually underwritten

What is specialty insurance anyway?

There is no clear definition, but some common themes emerge

Risks are individually underwritten...

...by a cross-functional team

Volatility is an accepted/welcomed part of the underwriting strategy

Data is poor...

...and underwriting judgement plays a big part

A (sample of a) survey

Why do you build and use pricing models at your company? (Please rank)

- To help with calculating the charged price
- To assess "actuarial" metrics like rate strength, rate change, etc.
- To meet regulatory obligations
- To support UW management (authorities, max lines, etc.)
- As a sense check for your underwriters
- To collect data for analysis
- To collect non-pricing information/avoid "double-keying"
- As part of a "robotic" pricing/distribution system
- To formalise/share sharing pricing methods internally (e.g. junior uws) or externally (e.g. coverholders)

What proportion of your model fields are dedicated to non pricing work?

- 0
- 0 to 25%
- 25% to 50%
- 50% to 75%
- Greater than 75%
- Don't know

When you design a model, do you consider how your choice of rating factors and how you apply them (e.g. in aggregate or to individual exposures) will impact your ability to recalibrate future versions of the model?

- Yes – it's a factor in the model design
- Yes, but it's not a factor
- No

What proportion of the assumptions in your models do you recalibrate via data-driven analysis of emerging experience, at least annually?

- 0 to 25%
- 25% to 50%
- 50% to 75%
- Greater than 75%
- Don't know

How often do you update any of your key model parameters (not including third-party models) via data-driven analysis of emerging experience?

- More than quarterly
- Quarterly to annually
- Annually
- Less than annually
- Don't know

When a model suggests a significantly higher price than the market premium for a risk that an underwriter wants to write, what's the most common outcome?

- They decline the risk
- They fudge the model to give an acceptable technical price and write it
- They ignore the model and write it anyway – debate the technical price later

When a model suggests a significantly lower price than the market premium for a risk that an underwriter wants to decline, what's the most common outcome?

- They write the risk
- They fudge the model to give an acceptable technical price and decline it
- They ignore the model and decline it anyway – debate the technical price later

Do you know how long it takes for your underwriters to fill out their rating models?

- Yes – it's a factor in the model design
- Yes, but it's not a factor
- No

Do your underwriters see the act of using a model as a valuable use of their time?

- Yes
- No
- Don't know

Would your underwriters see the value in reviewing the model output if they didn't have to complete it themselves?

- Yes
- No
- Don't know

Thoughts?

Conclusions (so far)

Pricing models are too complex

We are dealing with fundamentally volatile perils

We often take a risky slice of this (excess layers, exotic coverages, etc.)

We don't have much (or good) data

How do we justify the complexity?

Accuracy?

More parameters = more total parameter uncertainty to tame

More parameters = more opportunities for variability in the model output

More parameters = more opportunity for subtle, complex, unintended interactions

Should we be worrying about the size of judgemental discounts when we made up the base rates anyway?

Serving many masters?

Pricing models do lots more than calculate the technical price now

- Saving double keying
- Generating quote documentation
- Capturing peer-review

They are often a key part of a (potentially very complex) underwriting workflow

This is a thorny issue with many trade-offs

"They made me do it"?

Lots of stakeholders believe in the power of a complex rating model

Often they don't have to design, build, calibrate or use them!

Theory and practice are very different

The consequences

😬

Our view of a portfolio is narrowed because we model fewer risks with increased (often spurious) complexity

It's very difficult/impossible to recalibrate our models because of the volume of assumptions and how they interact

We are making much less impact than we could be because we are focusing on the small levers when we don't understand the big ones

We are **wasting time**, energy and money on work that looks useful, but isn't

At worst, we are doing **more harm than good**

What can we do?

SIMPLIFY

A lot

Do more modelling with simpler tools rather than less with complex ones!

Track far fewer points of judgement manually and intentionally

Track far more factual risk characteristics automatically

Establish a baseline for analysing every risk in a portfolio dispassionately, precisely and consistently

Think about how to update your underwriters' behaviours at the same time as you update their models

Agree on why you have pricing models explicitly and up front

Simplicity

Complex risk does not equal complex model

Reduced complexity = reduced time on build, support and maintenance

And more time to do useful things like analysis and parameterisation

Judgement

If you don't think you can parameterise it, or it's not part of a logical partitioning of an underwriter's/actuary's judgement, what's the point?

Moreover, if you ask underwriters to partition their judgement in a way that doesn't align with their mental underwriting model, you get inconsistent results

This is a particularly bad problem in experience rating

Data

Are you treating the data problem differently to 5 years ago? 10 years ago? 20 years ago?

It's 2019 - "there's no data" is not an excuse any more!

- We can collect a lot of extra data with minimal effort (the R&D is the hard bit)
- We don't have to use all of it, all of the time!
- *Insert cliché about a project to reduce double-keying here*

CHALLENGE: What dataset can you compile for *every one* of your potential risks in a portfolio?

Consistency

HYPOTHESIS: The biggest driver of the technical price is the choice of which modelling technique to apply

Without a fair, consistent basis for:

- Modelling every risk the same way
- Selecting the appropriate modelling technique

there is significant but obscured randomness in the technical prices

Impact

When giving indications at the box/in negotiations, UWs often can't/don't have time to complete most of the models we make

The model in the one in the underwriter's head is as important as the fancy, complex ones that we make with software; when recalibrating you need to update both

Intent

As we said ourselves, specialty underwriting is a team sport

So the principles of managing a team are critical, including:

- Agreement on what you are aiming for!
- Concise, explicit responsibilities and accountability
- Co-ordination and communication
- Oversight

Ambiguity leads to unintended consequences

Some ideas for simple, actionable next steps

Simple ≠ easy

We should be accountable for, and incentivised by the performance of our tools

You can help your underwriters and actuaries work together by agreeing on performance measures that align them

Some ideas for simple, actionable next steps

Look at the portfolio:

- What levers drive the performance of the book?
- If these change, which risks become better or worse?
- What are the characteristics of the good and bad risks in a book, given that such variances are inevitable?
- Think about the best response variable(s) – is it only the ULR? Should it be the ULR at all?

Practical barriers

Operational efficiencies/data collection requirements/process-flows

Well-intentioned but misguided regulation

Inertia

Human tendency to want to add more dials to give them "fine-grained control"

People (often management) placing false faith in "numbers don't lie" (scientism)

Actuarial arrogance

Reinsurance is often (not always!) a different beast

Breaking down the barriers

Collaborate, so we have a coherent, collective voice

Pick a small, tractable portfolio and class of business

Do things differently

Demonstrate the benefits

Take the results to the powers that be

Who's in?

We are, but we need your help

We are putting time, money and resource into this

We have a platform and product that can be used to showcase results *very* quickly

The biggest and most important factors are your time and your commitment to delivering something

This is a hands-on participatory group

Skin in the game = motivation to generate tangible results

Thank you

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