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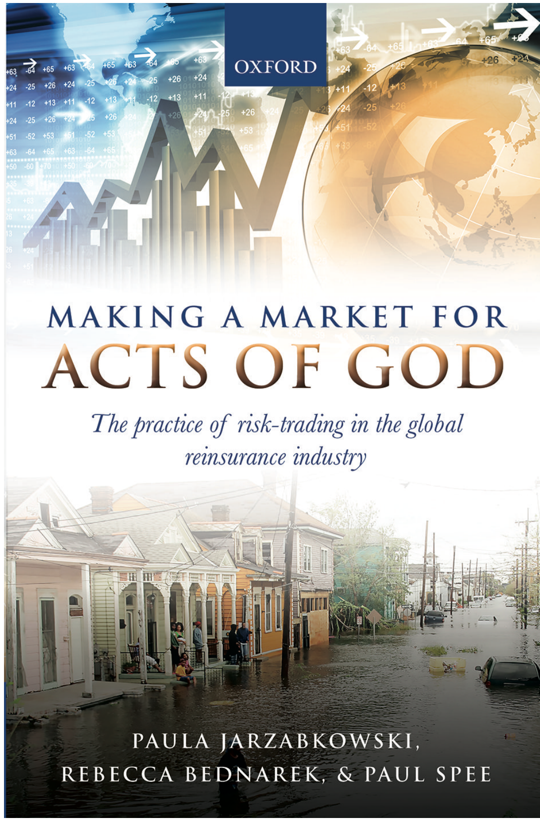
Modelling a Market for 'Acts of God': A Potential Domino Effect



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"Not everything that counts can be counted, and not everything that can be counted counts"
Albert Einstein

The sociology (pathology?) of numbers

- Risk modeling of everything OR risk modeling of nothing?
- Black-Scholes-Merton: An engine not a camera
- Expertise displacement: From the risk to the models
- Modeling risk can become a source of risk itself

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(Re)insurance: A market for Acts of God

The risks being traded are largely:

- Unpredictable
- Uncertain, albeit high, value
- Unique and individually tailored

Insurance value chain & modelling

- A ‘healthy’ scepticism

*“It’s crazy that we’ve been drilling in the North Sea for 40 years and talk about 1-in-500 year return periods. How the f*** am I supposed to know [whether this model is accurate]?”*

- A problem of data

“We like to think there's lots of technical pricing going on, but you generally have a lack of data; a lack of transparency in the risk you're actually taking”.

- A mix of models and judgement

“So these models are more here to help the underwriter than they are to tie him down to a particular answer. There is then a lot of freedom and judgment allowed as to how these things are then used”.

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Step 1: Efficient capital modelling

- Driven by the board
  - Growth
  - Efficiency

"It's about the way you utilise your capital, your investment strategy, you know, it's a whole package.

- Driven by regulators
  - Too big to fail
  - Optimization

"The regulators are requiring insurers from a capital standpoint to think like reinsurers. And one of the consequences of that … in the long-term if you understand risk capital and how it works, then you do, you keep more of your risk yourself".

- Diversification: adding more risk

"We believe that we can add a new component [risk] to the portfolio which just gives diversification".

Step 2: Efficient bundling of reinsurance risk

- Efficiency: more risk retained and remainder bundled

"Fragmented buying is just inefficient; they're spending a lot more than if they did it smarter"

- From subjective 'physical' understandings of risk

"*We have engineers that go out and do an onsite inspection so we can determine what the fire risk is, what the wind risk is, what the quake risk is, what the flood risk is…we do not depend on the model to say here's what our exposure is*"

- To 'objective' modelled understandings of risk

"*All our risks are graded between 1 and 10; 1 being best, 10 being bankruptcy. So we have an average grade of the portfolio, that today is 4.2*".

- Complex to disentangle – persistence of numbers

"The complexity of putting it all together; we were pulling together a large number of underlying programmes"

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Step 3: Reinsurer takes ‘bundled’ risk

- The ‘*black box*’ problem: what is really inside the bundle?
- The ‘*force of habit*’ problem: getting used to models and stop questioning their process and outcomes
- ‘Unspecified’ diversification as a modelled ‘given’

“*I see a series of the same things from clients; pushing in remote earthquake covers. Multi-territory covers expose us to multiple perils. We can’t know every little exposure the client has.* ”

“T*he 10 biggest insurers; their programmes are going to be a worldwide Cat XL: $2 billion of capacity. How can we be with them? We just haven't got the modelling, capital and capacity to be a meaningful partner to them*”

Step 4? Insurance Linked Securities

- Creep (reported $62Bn)
- Heavily dependent on models
  - 'Modelled' triggers
  - No basis in underwriting judgment
- Increasingly abstract from insured risk
  - From indemnity to parametric triggers
  - Requires risk to be better and better specified

""*We are committed to the use of capital markets and getting catastrophe bond protection. We like it because it's a diversified source of protection*"

"We don't think that any model alone is sufficient, so we would like to see the market evolve towards being able to evaluate the output from numerous models" (Portfolio Manager at Pension Fund)

A potential domino effect

- A market where models prevail
  - From unpredictable and uncertain to specified and precise
  - From tangible and flexible to abstract and inflexible
  - From a broad base of expertise to a narrow focus on what can be measured

- At EVERY step of the value chain

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From Acts of God to modelled ‘certainties’….
The underlying risk remains the same

“I keep on seeing unmodelled events. The unknown unknowns, and that's what we have to think about. You know, we're buying, we’re buying out what we don't know, we’re buying out what we don't understand.”

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