A risk management perspective.

What type and what size of coverage?

Tomas Ljungqvist
Does the reinsurance market consider climate change?

- A reinsurance contract is for the next 12 months
  - Applies both to buyers and sellers

- Expectations of losses based on very recent history
  - We have 50-60 years of good meteorological data
  - We have 20-30 years of good loss data

- Some reinsurers state that they do include additional loading of expected loss cost due to climate change

In the following I will describe the process of reinsurance buying
Agenda

- Why buy reinsurance?
- Identify risks to be reinsured?
- How to quantify the risks?
- What reinsurance is available?
- How much reinsurance shall I buy?
- How much does it cost?
- Conclusion
Why buy reinsurance?

Stabilise results

More stability in underwriting results reduces need for capital

Protect capital

Reinsurance is therefore a substitute for own capital
Identify risks to be reinsured

Examples of perils

- Storm
- Freeze
- Flood
- Fire
- Landslide
- Terrorism
- Pandemi
How to quantify the risks?

- Natural Perils events
  - Scenario analysis
    - *Will not give any probability for the event taking place*
  - Probabilistic analysis
    - Using technical models to predict the future
      - *Will give return period for events*

- The purpose is to assess exposure during the next 12 months
How to quantify the risk?
Example of output from cat models
What reinsurance is available?

- Traditional reinsurance
  - Very similar to traditional insurance
  - Bilateral agreements between parties if something bad happens

- Insurance Linked Securities
  - Financial instruments linked to insurance risks
  - Catastrophe bonds is the most common security
  - *Insurance risk is poorly correlated with other asset classes and offer portfolio diversification for investors*
### Division of current market place

**Traditional reinsurance**

<table>
<thead>
<tr>
<th>Property market</th>
<th>PA &amp; WC</th>
<th>Marine/Aviation</th>
<th>GTPL &amp; Motor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Natural Perils only</td>
<td><strong>General Property</strong></td>
<td>Few players</td>
<td>Highly specialised</td>
</tr>
<tr>
<td>Highly model driven</td>
<td>Main peril is fire</td>
<td>High uw capacity</td>
<td>CE centric</td>
</tr>
<tr>
<td>Strong portfolio theory</td>
<td>Less model driven</td>
<td>Bodily injury only</td>
<td>Few player</td>
</tr>
<tr>
<td>High severity</td>
<td>High frequency</td>
<td>Multiple perils</td>
<td>Longer term</td>
</tr>
<tr>
<td>Low probability</td>
<td>Less portfolio theory</td>
<td>Experience rating</td>
<td>Wording based</td>
</tr>
<tr>
<td>Exposure rating</td>
<td>Experience rating</td>
<td></td>
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</tr>
</tbody>
</table>

**Highly commoditised** ➞ **Highly specialised**
**How much reinsurance shall I buy?**

- Reinsurance shall be considered across all business and not just the catastrophe risk
  - Effect of portfolio diversification should be considered

- What is my risk appetite?
  - Not to lose more than x% of my capital with 0.5% probability any given year
  - Risk / reward trade off

- Benchmark is quite important
How much reinsurance shall I buy?
Peer study of Nordic reinsurance programmes
How much does it cost?

- Cost of reinsurance driven by two components
  - Expected loss cost
  - Capital charge (including profit margin)
Conclusion

- Climate change has little impact on reinsurance decisions
  - 12 months time horizon

- Reinsurance decisions much more driven by
  - Increase in values of properties (standard of living)
  - Concentration of risks in exposed areas

+ Supply and demand of reinsurance capacity

*Thank you for listening*