GUY CARPENTER

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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

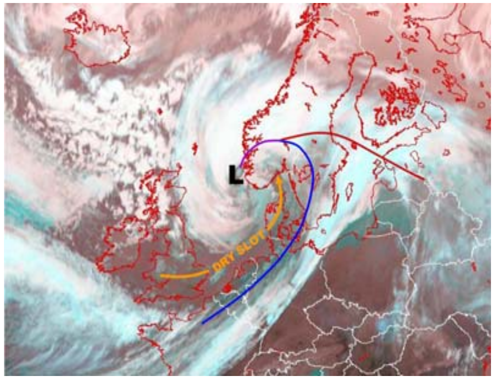
Why buy reinsurance?

Stabilise results

Protect capital

More stability in underwriting results reduces need for capital
Reinsurance is therefore a substitute for own capital

Identify risks to be reinsured
Examples of perils



- Storm

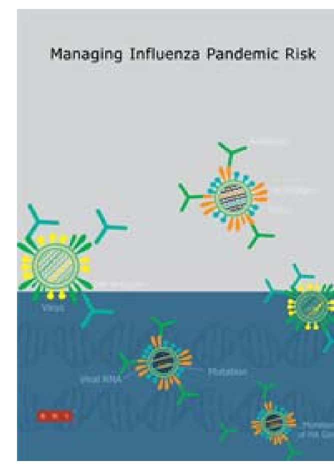
- Freeze

- Flood

- Fire

- Landslide

- Terrorism



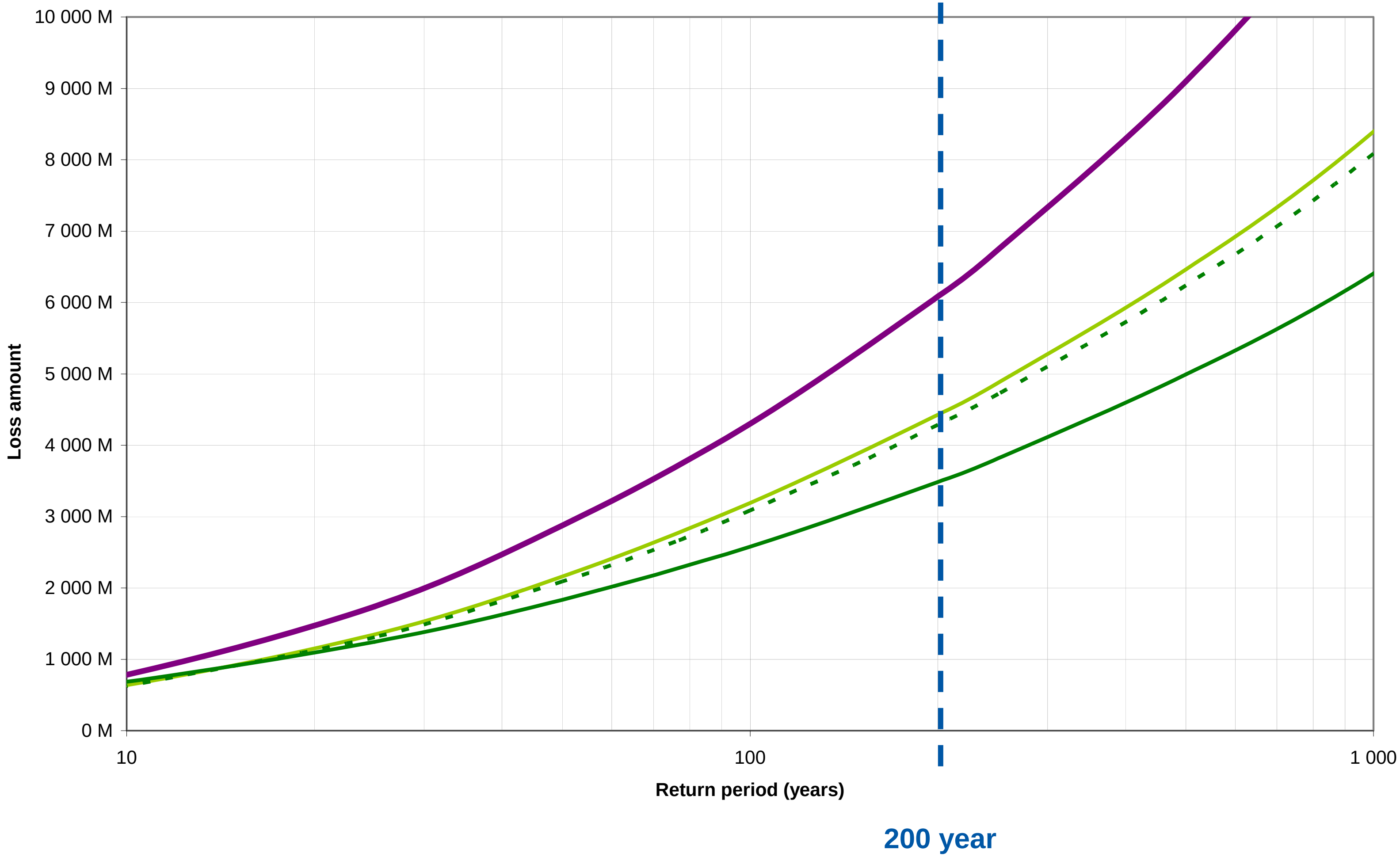
- Pandemi

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

Property market		PA & WC	Marine/Aviation	GTPL & Motor
Natural Perils only	**General Property**			
Highly model driven Strong portfolio theory High severity Low probability Exposure rating	Main peril is fire Less model driven High frequency Less portfolio theory Experience rating	Few players High uw capacity Bodily injury only Multiple perils	Highly specialised London centric Very cyclical Experience rating	Highly specialised CE centric Few player Longer term Wording based

Highly commoditised ⟷ *Highly specialised*

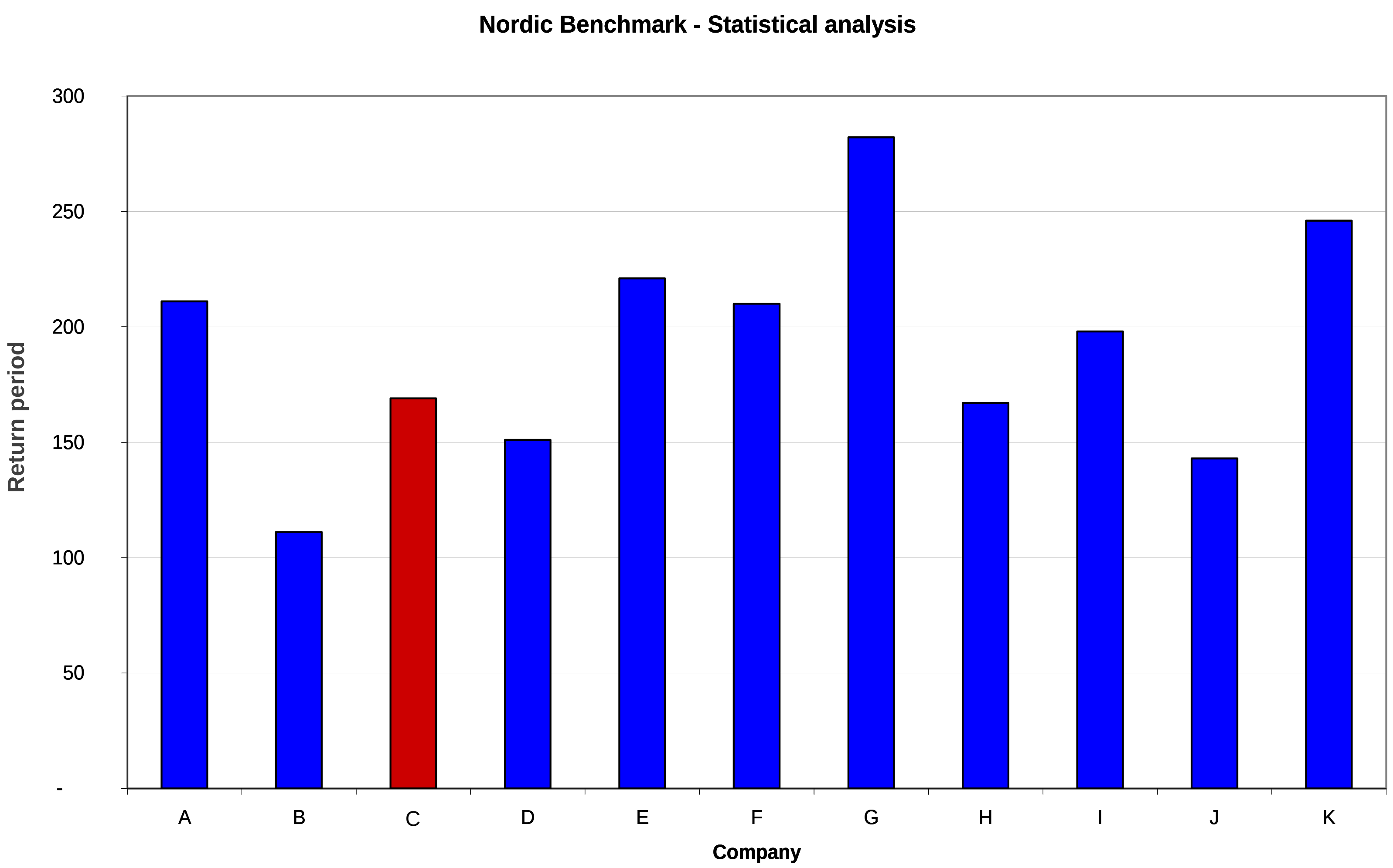
How much reinsurance shall I buy?

- 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

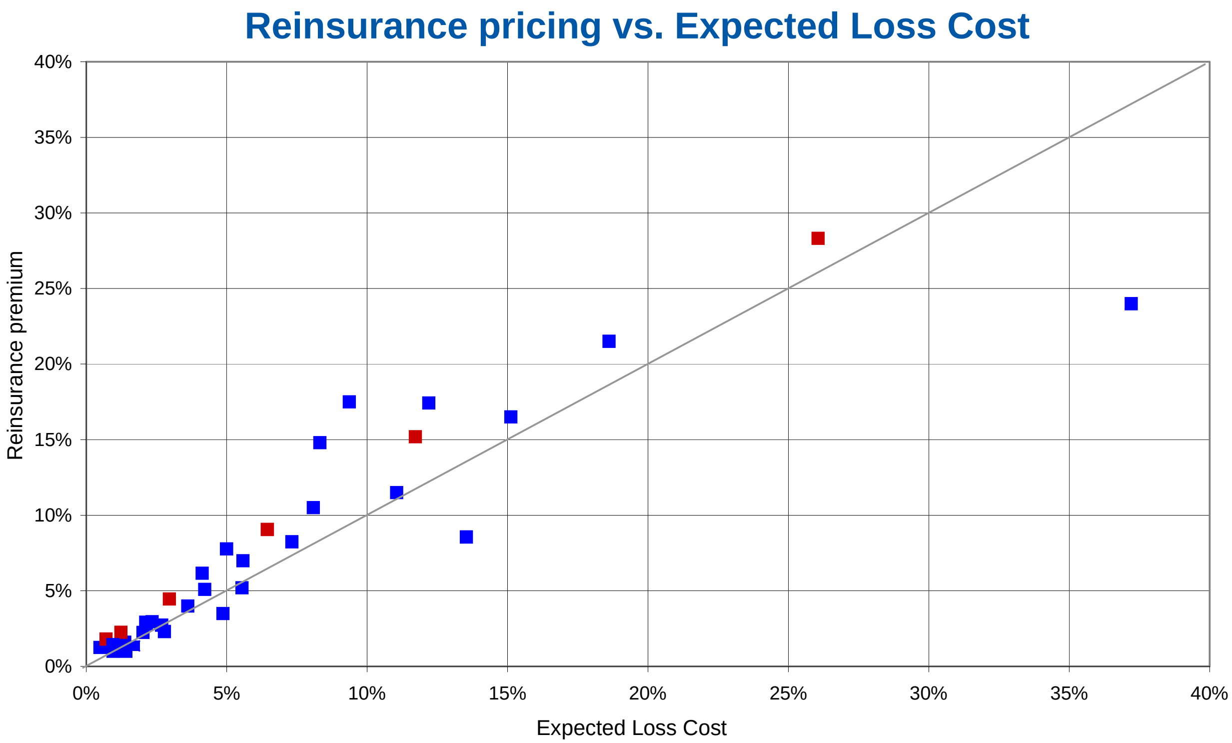
- Benchmark is quite important

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

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