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CATASTROPHE RISK AGGREGATION

JB CROZET
REEKEN PATEL

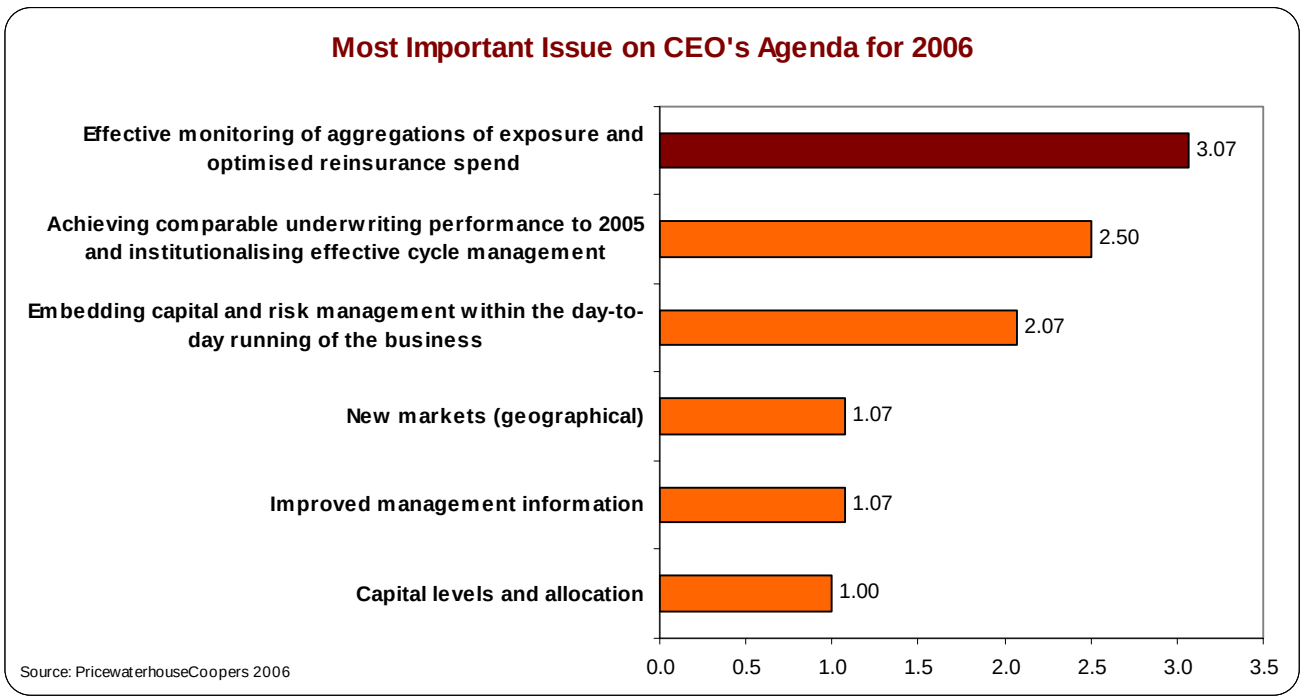
33rd ANNUAL GIRO CONVENTION
Hilton Vienna Hotel, Am Stadtpark

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INTRODUCTION

A Stat & A Quote

Catastrophe Aggregation Monitoring “quantifying the potential losses from catastrophic events, across all the policies sold by the company” is the 2006 MIICA.



A Stat & A Quote

London Market Survey - CEO Quotes:

“Effective aggregation management is an imperative. If you could point to a benefit of the hurricane losses of 2005 it is the extent to which the monitoring of aggregate exposures is more visible and their management more disciplined within our business.”

“Our progress against our forecast aggregate tracks is now the first piece of management information the board reviews on a monthly basis.”

Storyboard

- Catastrophe Risk Aggregation is very high on (re) insurers' agenda
- the pressure comes from capital providers, rating agencies, regulators and Lloyd's.
- while principles are fairly simple, practical implementation is fraught with difficulties.
- the market is evolving quickly towards more robust approaches, and a wider spectrum of risks.

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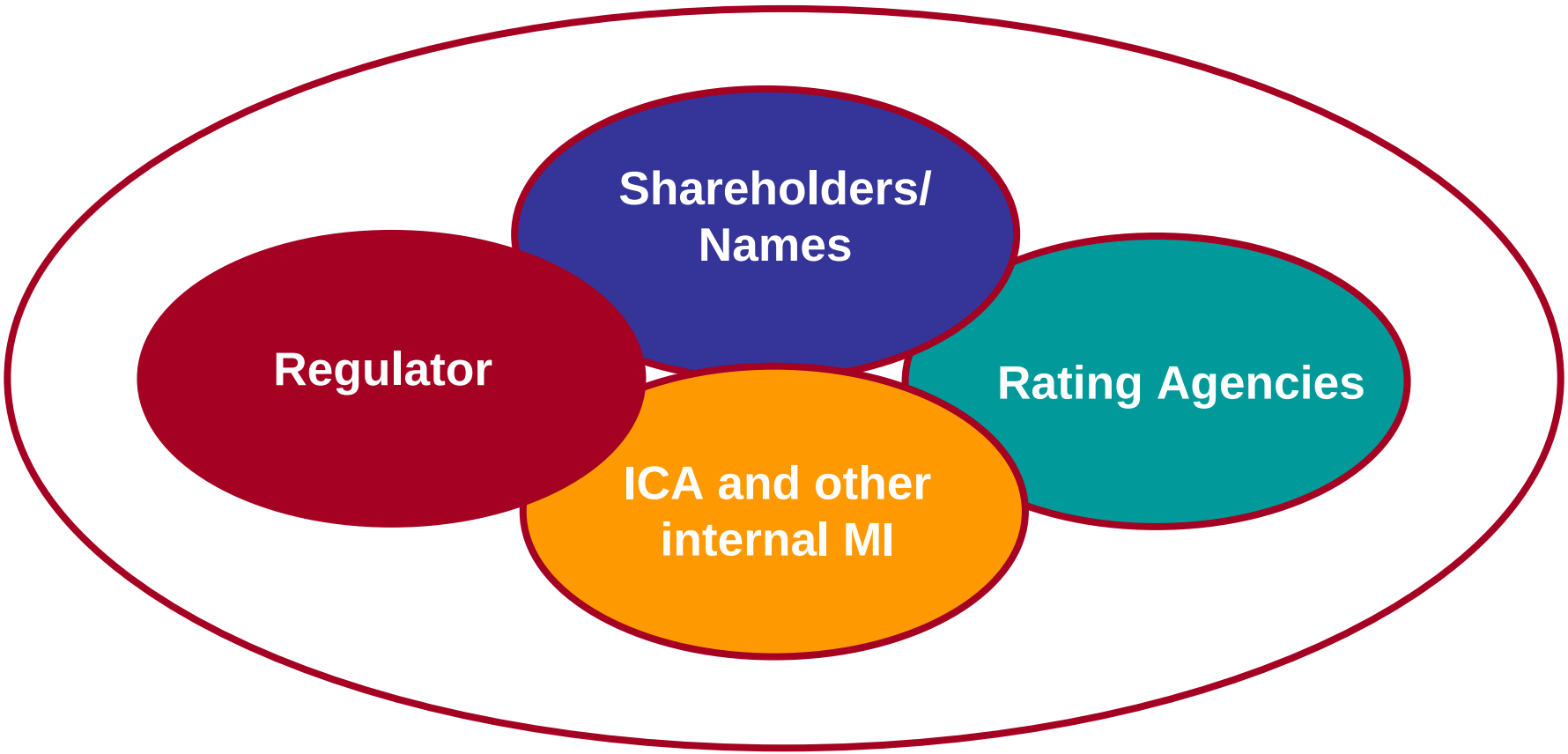
Agenda

- Introduction
- Why monitor catastrophe aggregations?
- Principles
- Current Developments
- Wider Risks
- Conclusions

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Why monitor catastrophe aggregations?

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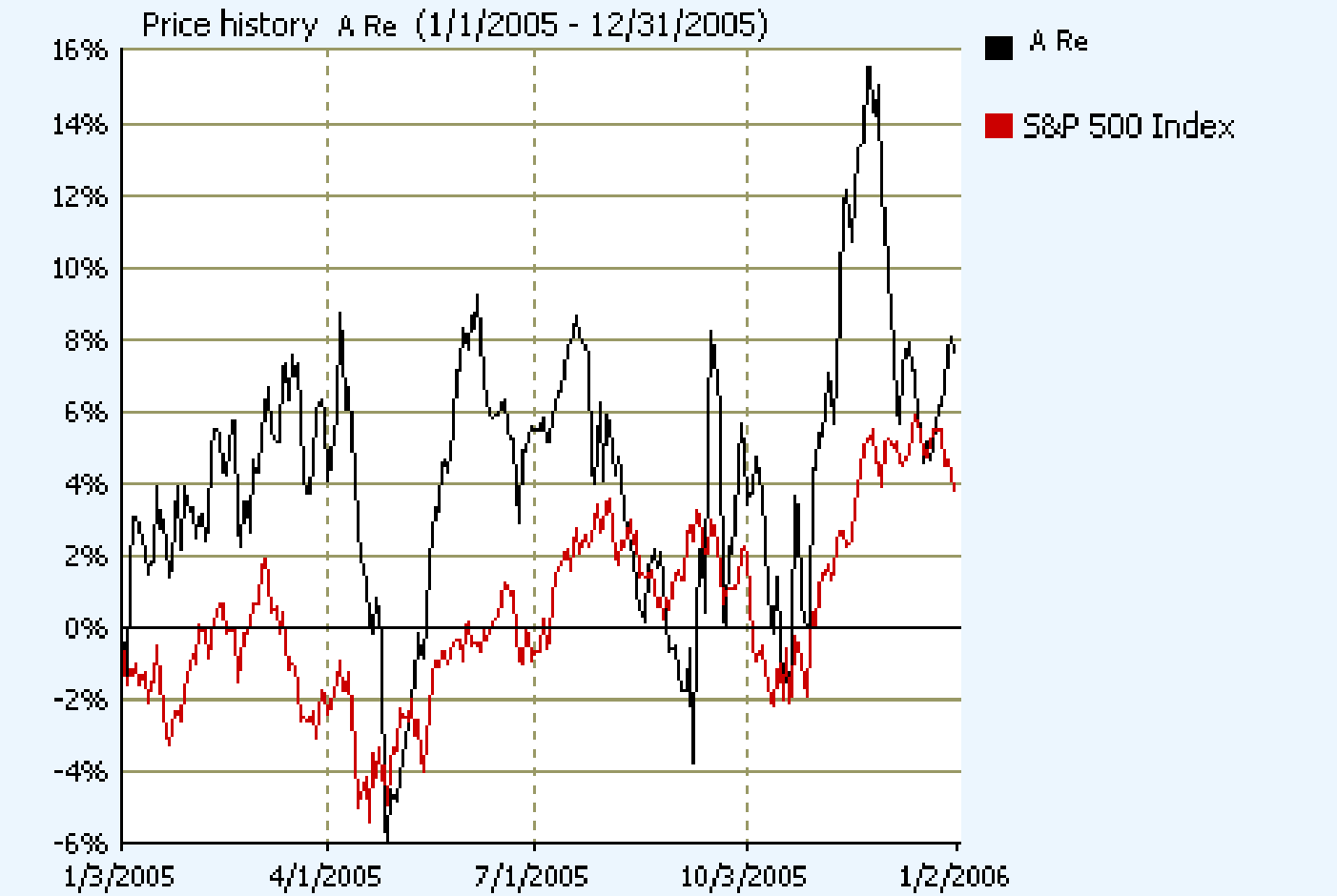
Why monitor catastrophe aggregations?
Regulator

Appropriate accumulations considered			✓
All data captured		✓	
Outputs validated	✓		
Output integrated with mgt processes		✓	
Regular reporting		✓	
Robust modelling process	✓		

Why monitor catastrophe aggregations?
Capital Providers

- Potential downside requires distinct risk management approach
- Tend toward aggregation following periods of low activity
- Significant risk to solvency and capitalisation
- Impact on capital requirements and cashflow

Why monitor catastrophe aggregations?
Capital Providers



Source: www.moneycentral.msn.com

Why monitor catastrophe aggregations?
Capital Providers



Source: www.moneycentral.msn.com

Why monitor catastrophe aggregations?
Rating agencies

- More rigorous approach in their reliance on catastrophe modelling outputs
- A.M Best has announced higher minimum standards, with penalty loads for non-compliance
- A.M Best has now a single event, a terrorism and a second event stress test in their ratings methodology
- S&P is expanding its reinsurance catastrophe criteria to primary insurers, and replacing the NWP base approach

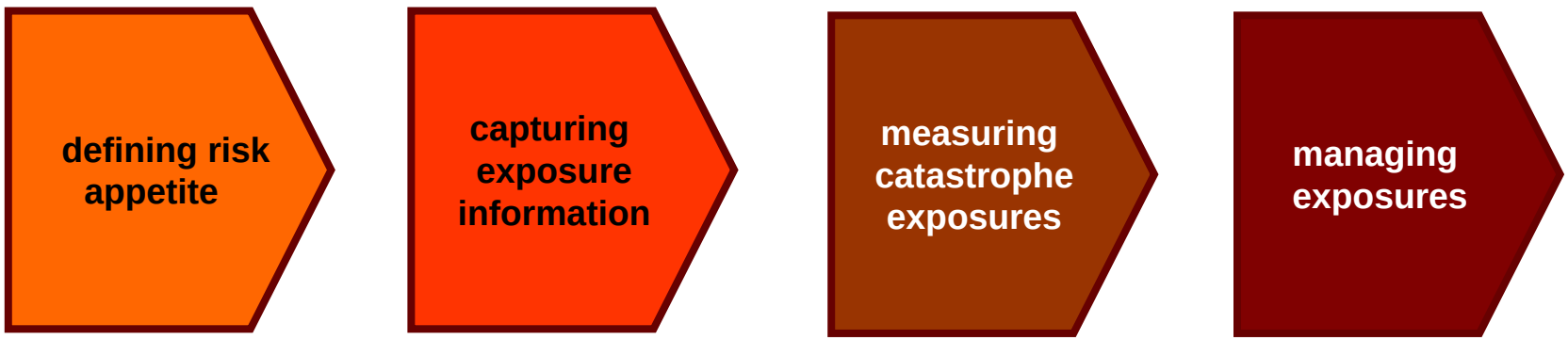
Why monitor catastrophe aggregations?
MI including ICAs

- FSA wants to see the ICA used in the decision making process
- Insurance risks from catastrophe exposures can present the most significant risk within an ICA
- Reserve risk on known losses
- Underwriting risk on future losses

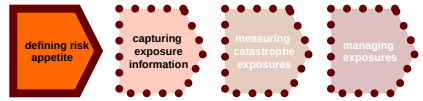
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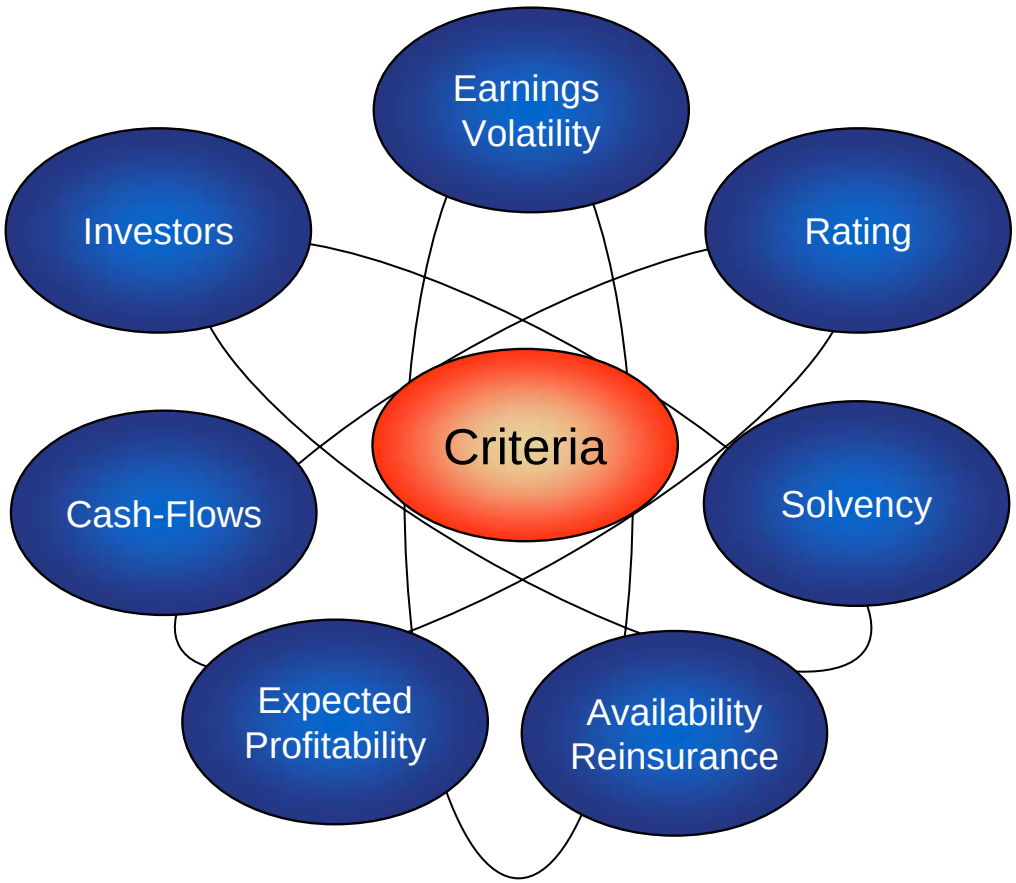
PRINCIPLES

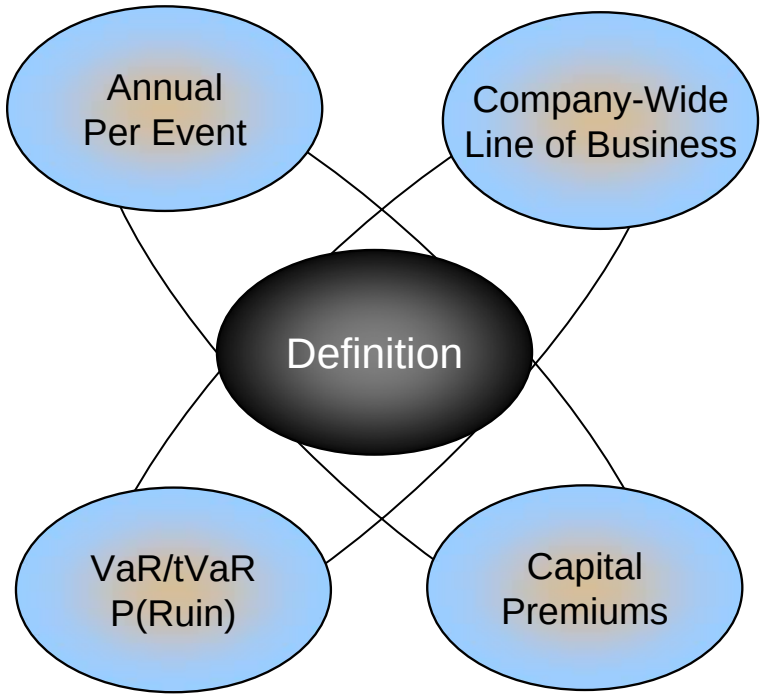
4-Step Exposure Management Framework



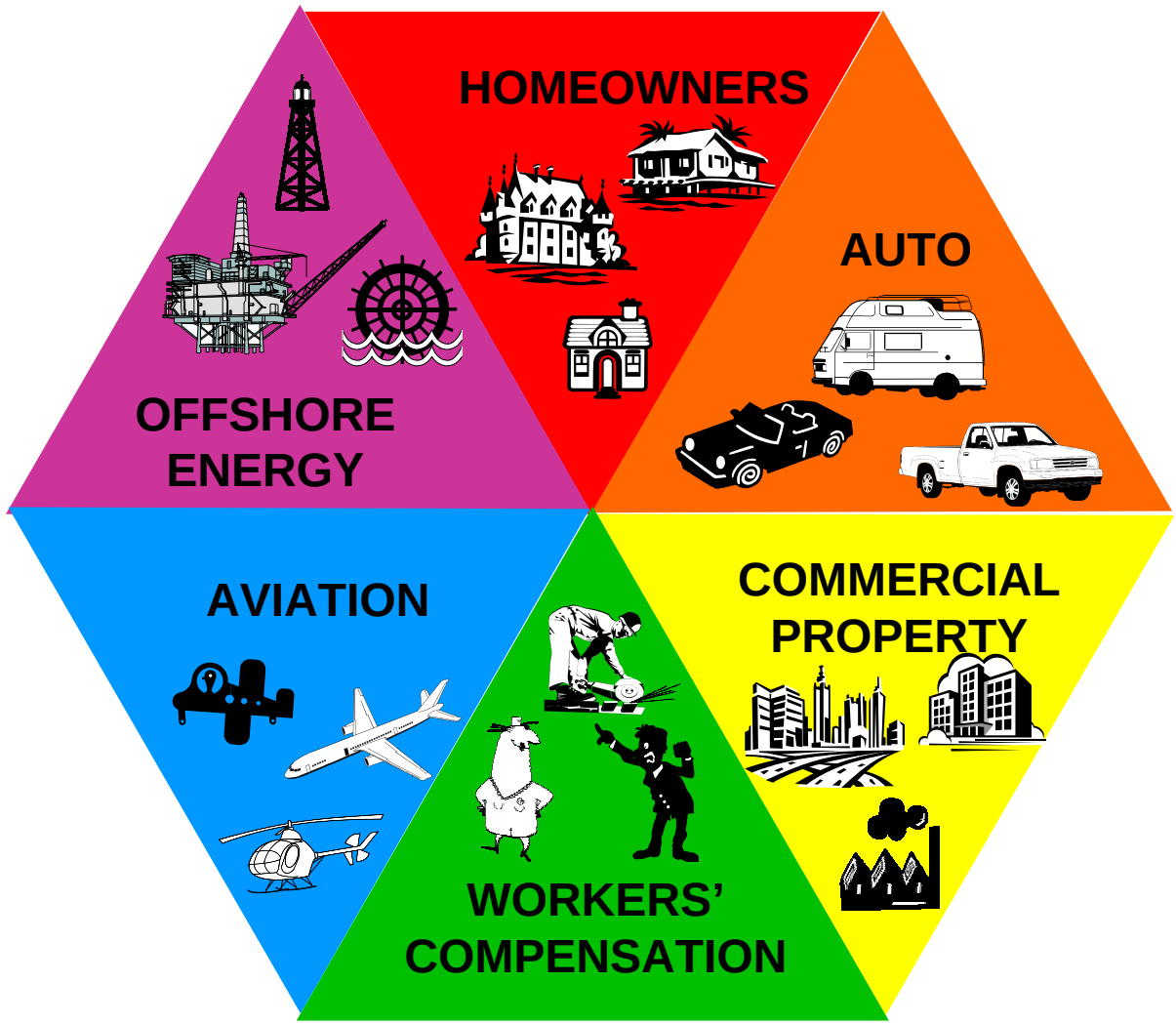
Defining Risk Appetite



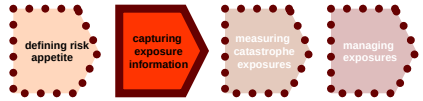


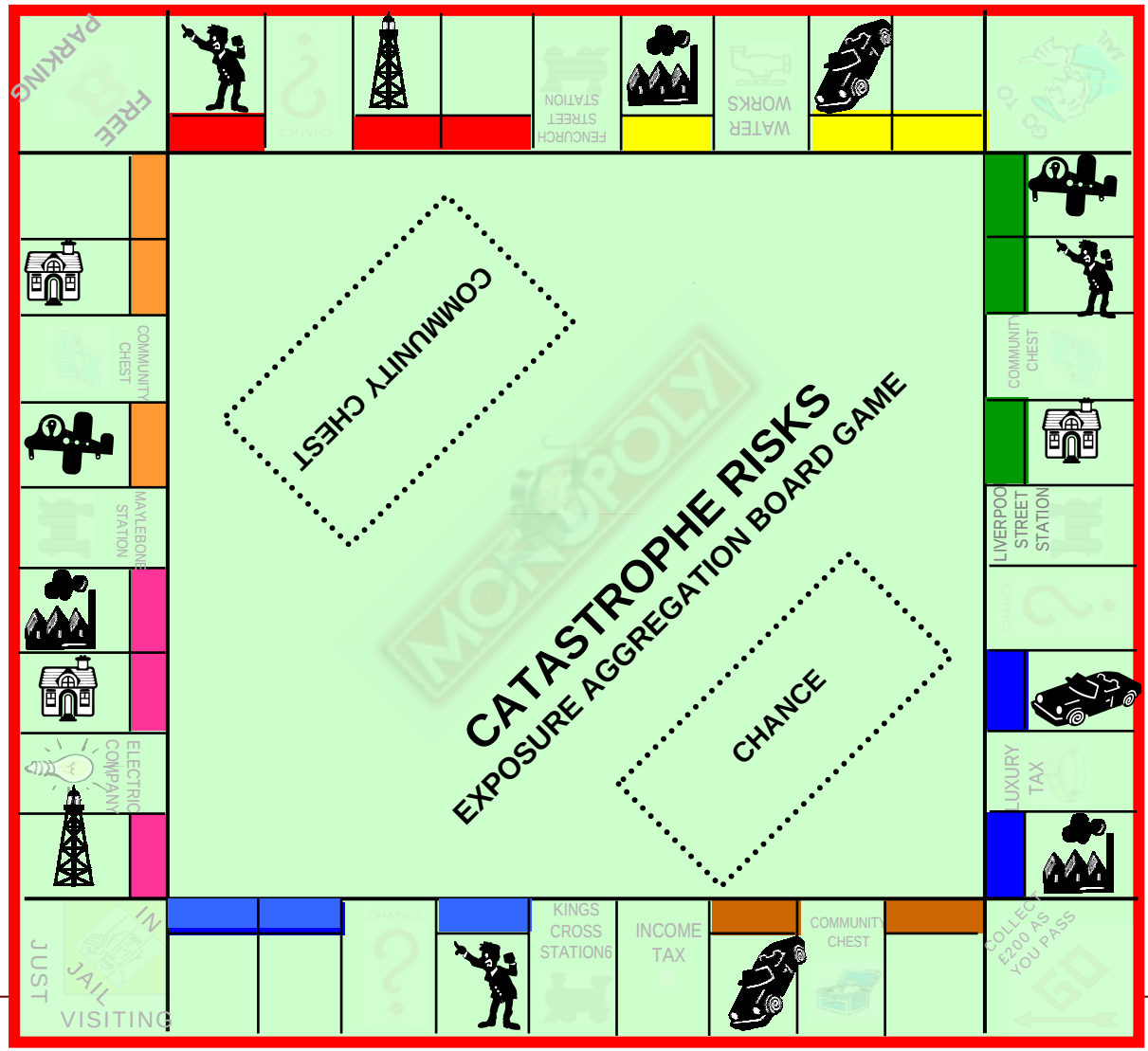


Underwriting Perspective

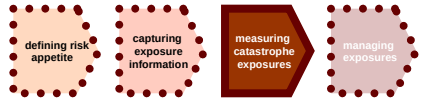


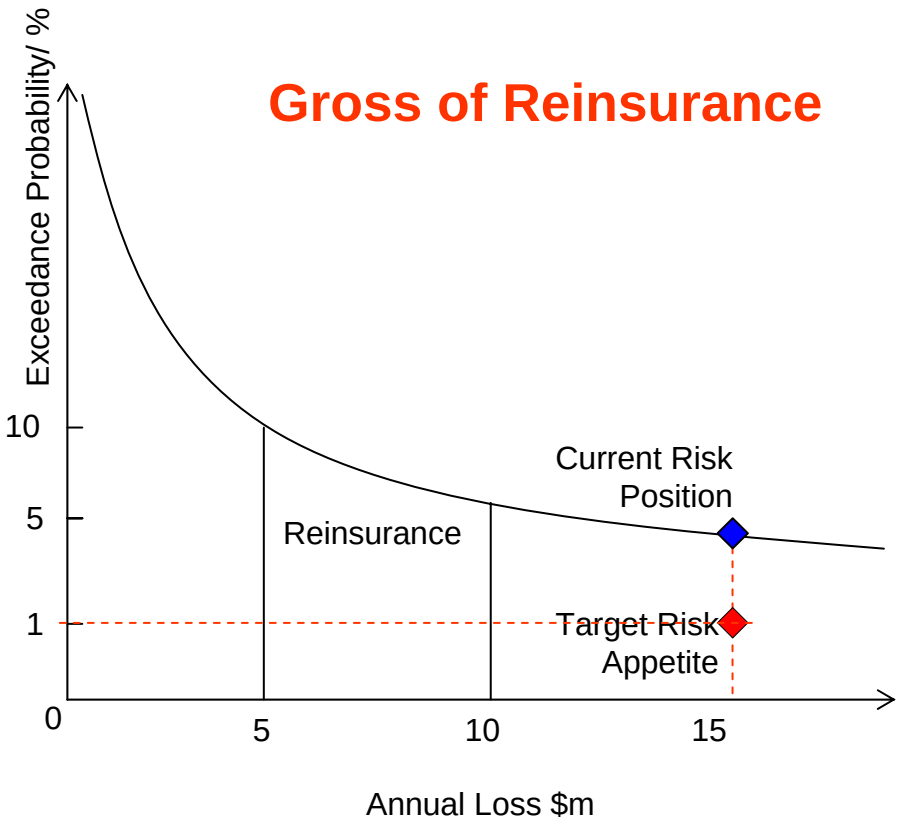
Risk Aggregation Perspective

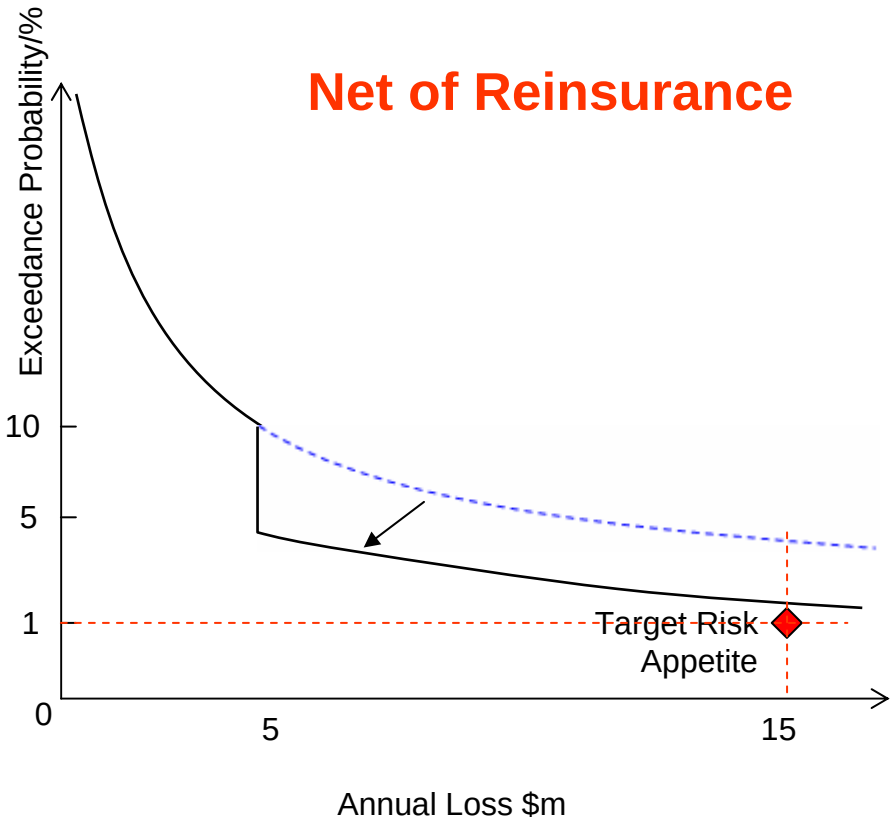




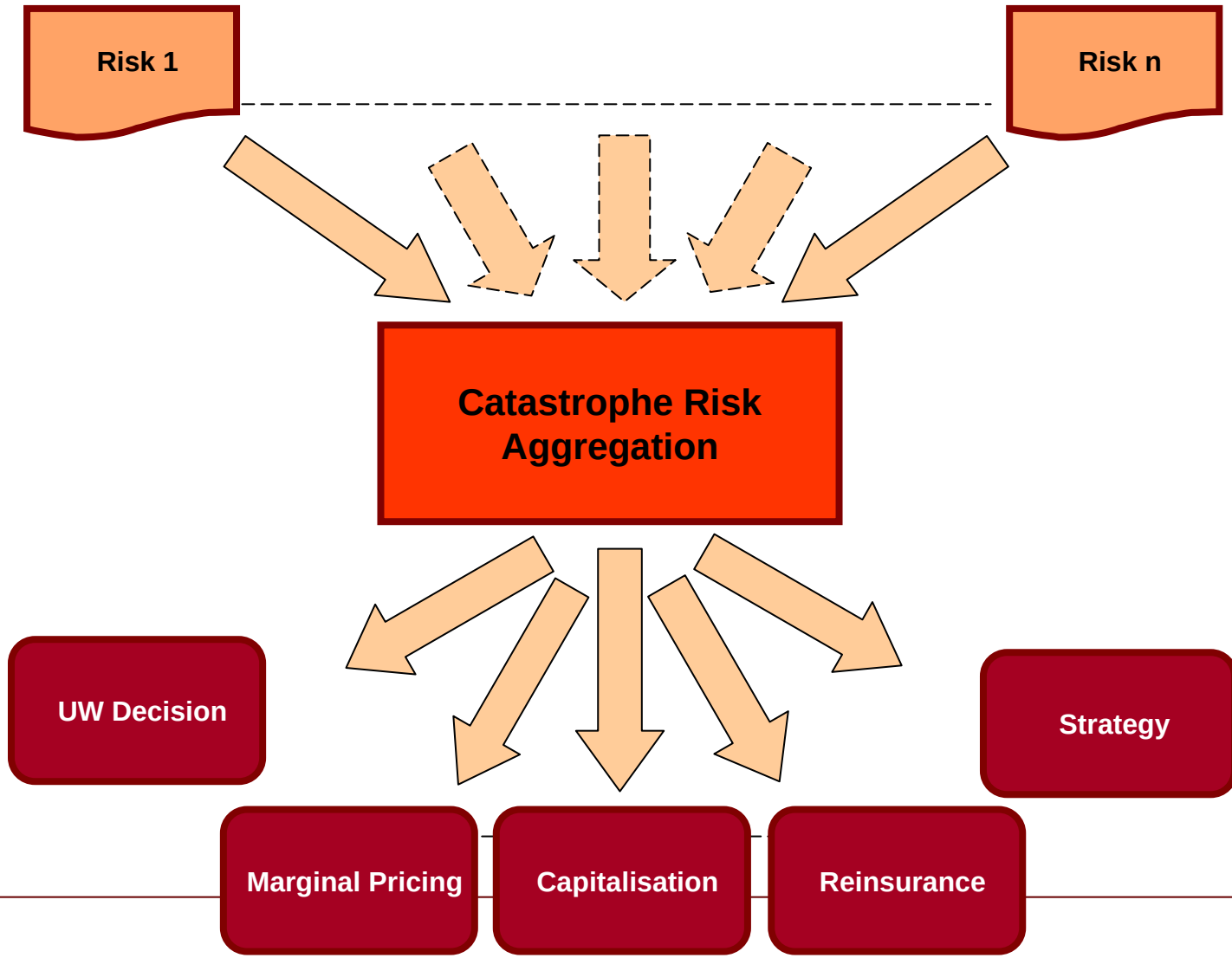
Measuring Catastrophe Exposures







Managing Exposures



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CURRENT DEVELOPMENTS

Speedometer for Underwriting



reliable

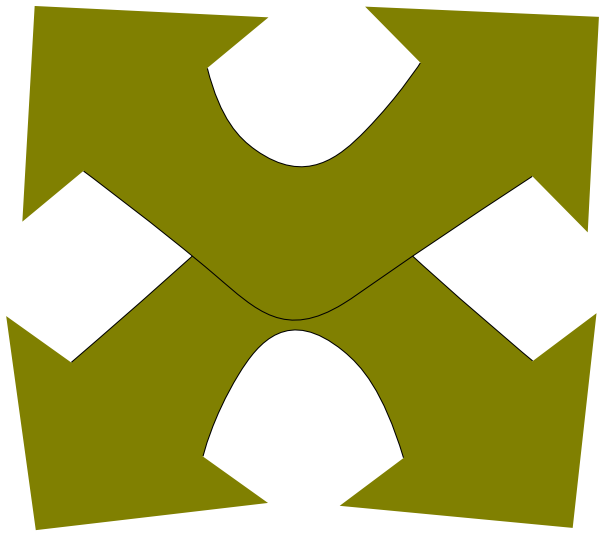
real-time

all terrain

Robust Processes & Controls

Exposure Leakage

- exposure growth
- non-geocoding exposures
- non-modelled accounts
- non-captured exposures



Catastrophe Modelling

- model selection
- data quality
- modelling assumptions/third party modelling
- non-modelled elements
- adjustments to modelling outputs

UW Silo Culture

- underwriting culture for certain classes
- class-specific aggregates monitoring
- becoming a business partner for UW

Controls Framework

- time consuming & complex processes
- quality assurance
- process automation

Real-Time & All-Terrain

- “macro” models:
  - → think “macro-economics vs. micro-economics”.
  - → based on hedge-fund risk assessment frameworks.
  - → decomposition of risk factors and key drivers.
  - → striking the right balance between accuracy, complexity and robustness.
  - → more easily expandable beyond pure catastrophe risks.
  - → faster analysis… real-time?
  - → still work in progress…
- a wider spectrum of risks.

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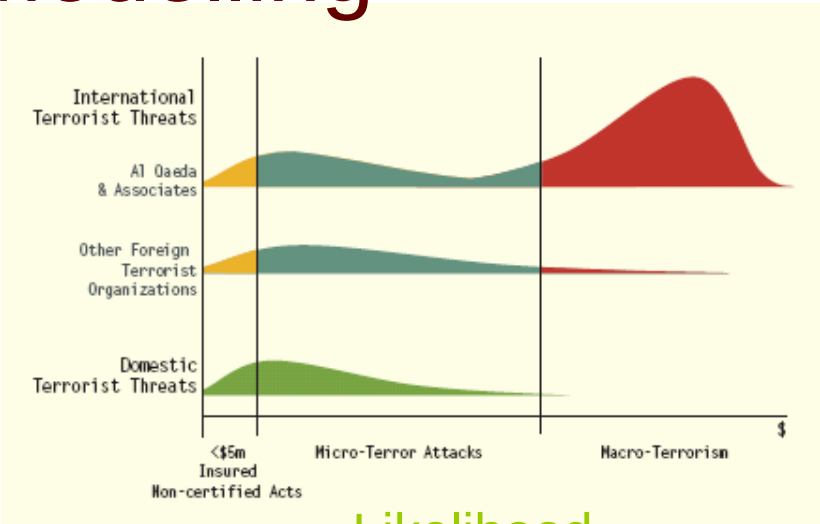
WIDER RISKS

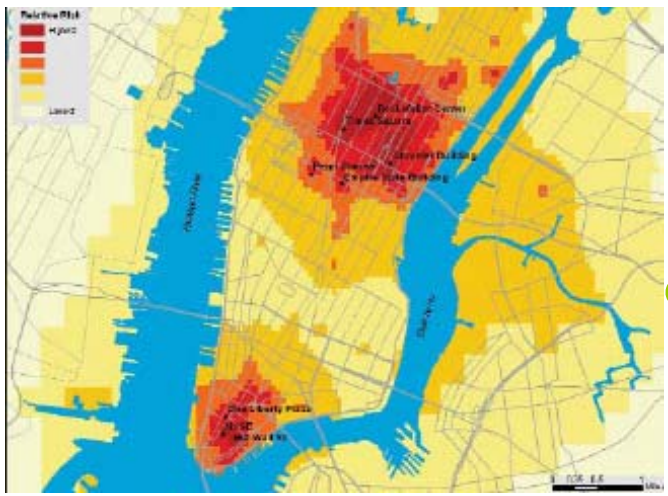
Terrorism



"Our enemies are innovative and resourceful, and so are we. They never stop thinking about new ways to harm our country and our people, and neither do we."

Terrorism Modelling

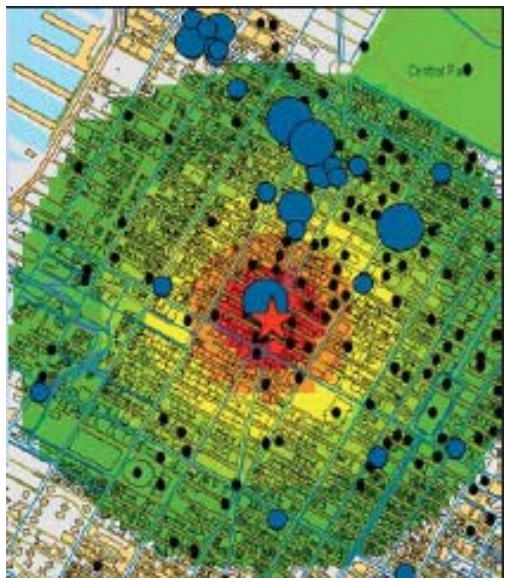




Likelihood

Geography

Damage



Source: RMS

Epidemics



- Influenza pandemics are recurring events.
- The world may be on the brink of another pandemic.
- All countries will be affected.
- Widespread illness will occur.
- Medical supplies will be inadequate.
- Large numbers of deaths will occur.
- Economic and social disruption will be great.

Source: World Health Organisation – Oct 2005

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CONCLUSIONS

Key things to take away

- Catastrophe risk aggregations monitoring is becoming increasingly important in the long term management of a cat exposed (re) insurer
- There are a number of external parties that want information on the level of catastrophe aggregations and how they are monitored. Examples include capital providers, rating agencies, regulators and Lloyd's.
- The market is evolving quickly and requires a more robust approach than has historically been used.