Happy after Larry?

A comparison of modelled losses and insurance payouts

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Contents

• Insurance/Reinsurance
• Catastrophe Modelling
• Cyclone Larry
• Claims Statistics
• Modelled Losses
• Reinsurance is insurance for insurance companies

• To determine reinsurance needs an insurer must estimate their potential losses

• Catastrophe models allow us to determine:
  - Potential losses
  - How much reinsurance is needed
  - How much premium is required
Catastrophe Modelling
The Anatomy Of A Catastrophe Model

Hazard
- Event Generation
- Intensity Calculation

Exposure
- Risk Characterisation

Vulnerability
- Damage Calculation
- Policy Conditions

Financial
- Insured Loss
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Catastrophe Modelling

- Different types of catastrophe models are employed by the market:
  - Proprietary
  - Commercial

- The results from these different models require that a decision be made on which model to choose

- How is a decision made
  - Gut feel . . . . . .
  - Scientific validity
  - Ground testing
Cyclone Larry

- Clean event
- A significant number of losses
- A good cross section of the insurance market

Cyclone Tracy

Newcastle Earthquake

Sydney Hail
Newcastle Storms

Cyclone Larry

www.riskfrontiers.com
Cyclone Larry Claims Analysis

1. Claim Sampling: Select/scan claim files

2. Claims Database: Record selected files into a database

3. Summary Statistics: Analysis of claims database

4. Mapping: Match sampled policies to modelling data

5. RMS Modelling: Sampled and QLD portfolios at varying resolutions

6. Statistical Inference: Comparing modelled loss vs. actual loss
Selecting The Claims
Queensland Affected Region
This document is a screenshot of a Claims Database format for recording insurance claims. The form includes sections for personal information, cause of damage, building damage, contents damage, interruption loss, other costs, and general comments. Each section contains fields for detailed input, such as street names, causes, types of damage, and monetary values. The form aims to systematically record all relevant aspects of a claim to facilitate accurate processing and compensation. The document is marked as proprietary and confidential.
• All sampled claims were closed at time of analysis

• Information was recorded in our database at policy level

• Information captured included: account details, coverage, building/contents/business interruption (BI) losses, location, dates, construction types and fees

• Selected sample of 16% of policies from the entire claims database

• Total loss equating to 13% from total Cyclone Larry losses
Claims Statistics
Loss Size & Time to Reporting Correlation

$R^2 = 0.0383$

Individual Loss Value vs. Time to Reporting (Days)

- Orange: Loss
- Green: Time to Reporting
- Black: Linear (Time to Reporting)

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Claims Statistics
Loss Size & Time to Settlement Correlation

$R^2 = 0.085$

Individual Loss Value vs. Time to Settlement (Days)

- Loss
- Time to Settlement
- Linear (Time to Settlement)
Replicating Larry in RMS

- Modelling results comparison conducted using RMS v6.0
- Six events were selected within RMS with similar characteristics to Cyclone Larry
RMS Modelling Results
Queensland Scaled Loss modelled at Lat/Long

Ground Up Loss

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RMS Modelling Results
Larry Events: Sampled Portfolio Losses

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Actual vs Modelled Loss

Actual Loss vs RMS Modelled Loss
Conclusions

• From an aggregate risk/portfolio level the model produces losses that are similar to those experienced from Cyclone Larry

• This similarity is encouraging given the complexity of the losses generated by the event and the simplicity of the data used for modelling