Creating Value Through Increased Transparency

Post-Catastrophe Loss Inflation

IUA Catastrophe Modelling Seminar Oct 2010



Agenda

Outlining the Problem
 Evidence and Impact
 Demand Surge Component
 Marco-economic Complications
 EQECAT SApproach



Problem Complexity

Economic Factors

□ Supply and demand

Dependence on infrastructure

□ Macro-economy

Delayed Repairs

□ Delayed access, e.g. owing to flooding

□ Business interruption

□ Heightens demand further

Claims Management

□ Volume levels

□ Lack of investigation/adjustment, ready settlement

Ex-gratia settlements

Political Factors

Pressure to pay/resume operations
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Market Evidence Some Examples

Andrew (1992)
Northridge (1994)
Sydney Hailstorm (1999)
Europe Flood Event (2002)
Katrina & Rita (2005)





Wind vs. Flood - Katrina

What % damage would this house in Biloxi, MS have sustained from wind alone?



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Demand Surge

Definition

A sudden and usually temporary increase in the cost of materials, services, and labor due to the increased demand for them following a catastrophe. Actuarial Standard of Practice S.39)

Characteristics

□ An economic phenomenon that is triggered by large losses resulting from cat events

□ Costs of repairing damage increase owing to imbalance of supply of and demand for labour and materials

□ Raised costs resulting from increased cost of travel, transport, worker accommodation, shipping, etc.

Densely populated areas with high value concentrations are particularly prone if there are difficulties in supplying goods and services from outside the affected area



Demand Surge Market Impact Examples

Northridge (1994) Actual event 20% (gross loss - CEA) Similar event today: -15% (gross loss - EQECAT) Loma Prieta (1989) Actual event Small Similar event today: -2.5% (gross loss - EQECAT)



Northridge (1994): Initial USGS map of probable shaking intensities used for relief effort planning. (Source: USGS)

All per cent figures are approx. increases

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Demand Surge: Widespread Potential



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Demand Surge Methodology Example: US EQ

Methodology Components

□ Demand

□ Ground-up Ibss per event (ground-shaking/fire following)

□ Supply-demand relationships for key components

□ Labour supply in affected area

 \Box Construction materials supply in affected area

□ Calibration

Based on assessment of key historical events

□ Key Data Sources

Employment data

□ Wholesale/retail data

Building stock data

Other national data



Macro-economic Considerations

Demand-Supply Relationship

Typically lower inflationary pressure on wages and goods

□ Increased slack capacity and competition

□ Underlying Moral Hazard?

□ Indication of rising claims in a recession:

□ E.g. fire losses on businesses and homes in the UK increased 16% between 2007 and 2008 to a record £1.3 billion (ABI)

□ Some evidence of increase in claims from 2008

□ Professional indemnity, E&O insurance concerns

E.g. Hanekamp et. al, 2009

🗆 Public debt

□ Increased pressure on insurance industry?

□ Fundamental Assumptions

 Wall Street indexes predicted nine out of the last five recessions. Paul Samuelson



EOECAT Approach

Start with Engineering Principles

Stable basis

- **Review Claims Data**
 - □ Assess quality

□ Incorporate where useful to capture post-cat claims inflation elements

 \Box Relate to severity of source events

Explicitly model demand surge

□ Where tenable for specific high-exposure areas, e.g. US, Japan, Canada



Summary

A Highly Complex Phenomenon

Potentially high variability in impact plus difficulty in assessing accurately

□ Some elements/areas may be more robustly modelled than others

Economic impact uncertain

□ Reducing uncertainty

Engineering assessment for stable basis

□ Use quality claims data for calibration

□ Monitor and apply other data where judged useful

□ Model demand surge where suitable

