

# Casualty Catastrophes

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## Presentation Structure

- Introduction and definition
- Issues with Casualty Catastrophes
- Survey of Market Practice
- Conclusions from past Casualty Catastrophes
- What does the future hold?

## Definitions

- **Property Catastrophes**
  - Natural or man-made disaster
  - Affect significant number of policyholders
  - Total loss size over \$25m (PCS def.)
  - Other definitions are out there (different sizes, business interruption or not?)
- Key point is that the “event” linking the losses is well defined (both in terms of its physical nature and in insurance wording)

## Definitions (cont'd)

- **Casualty Catastrophes**
  - No equivalent approach for Casualty Catastrophes (CCATs) definition
    - » “Event” much harder to define
    - » Wider source of perils, locations
    - » Less frequent (but often more severe)
    - » More complex and unpredictable interactions
  - The proposed definition is a loss of \$100m or more in direct insured losses from all causes to casualty policies of all types from one “event”
    - The trick is to define an “event” for CCATs

## Types of CCAT – defining the “event”

- 3 types of possible “event”
  - Single “negligent” occurrence (e.g. Exxon Valdez)
  - Single “negligent” industry practice
    - » Sudden (e.g. accounting practices)
    - » Latent (asbestos)
  - Multiple “negligent” occurrences linked by a common trigger (e.g. WTC, Katrina)
  - For some classes such as Workers Comp claims are non fault
- Note this is typically NOT the same as how events are defined in (re)insurance wordings.
- Other definitions are possible
  - Guy Carpenter categorisations

## Issues with CCATs

- Parameterisation
  - Frequency is low
    - » Little historical experience to draw on
    - » Negligence standards vary over time and between countries (and states in the US)
    - » Interactions varied and complex
  - Historical data has diminished relevance
    - » Changes to social, legal, technological environments
    - » Are CCATs more or less likely now than in the past?
    - » May be hard to establish date of loss
  - Cannot rely on the natural sciences to model the underlying events and associated probabilities

## Issues with CCATs (cont'd)

- Insurance wordings
  - CCAT “event” definition is different to insurance definition
    - » Therefore CCAT can affect multiple policy years and multiple classes
    - » Latency of claims
    - » Reinsurance performance is uncertain if event definitions do not match
  - Interpretations of wordings can be unexpected or vary over time
  - All legal aspects generate (unknown) fees!

## Issues with CCATs (cont'd)

- Exposure
  - Exposure is easier to measure for PCATs (mainly a data volume/quality issue)
  - Even with perfect data, how do we measure exposure to CCATs?
  - A wide variety of scenarios can affect any one policy (unlike PCATs)
- Probability
  - Impossible to estimate for most CCATs and policies

## What can be learnt from past losses?

- Interactions can be hard to predict
- Many years can be impacted
- Legal environment changes
- Legal fees can cost as much as the claims
- US legal system complicates issues, appeals process can last 15+ years
- Huge aggregation potential particularly if discovery of problem is slow
- Reinsurance is not always effective
- Punitive damages have had a huge effect
- Most of largest claims are mass tort

## Mass Tort Claims

- Generally the largest claims
- Mass tort claims need:
  - Large potential population of claimants (often spread over time)
  - Discovered health risks
  - Sympathetic juries
  - Discovery process needs to uncover a smoking gun
- What will the next mass tort claims be? Food additives, tobacco, mtbe, nanotechnology, ipods, ....

## Survey Results - Process

- Insurers believe monitoring and aggregation process working well
  - Various areas of business involved in monitor and estimation: underwriting, capital, pricing, risk management ...
  - Sign off of aggregation monitor process most likely to be Underwriter or Board
  - Most organisations believe process is effective
  - Organisations nearly all monitor by geographic area, industry and product type; some also aggregate by profession and insured name
  - One or two dimensional modelling is not sufficient though e.g. effects of Enron

## Survey Results - Pricing

- Some insurers use actuarial pricing, majority price judgementally
  - Product lines priced separately, so hard to price for global accumulations. If charged for, CCATS prices are one generic load
  - Generally underwriters do not believe they are heavily exposed to CCATS, so how many do actually make a charge?
  - Correlations and clashes ignored?
  - 25% believe they undercharge for CCATS, none believe they overcharge
  - Industry reluctance, underwriting data and difficulty in parameterisation seen as barriers, need central accumulation monitoring

## Survey Results - Reserving

- Insurers do not consider CCATs a significant reserving issue (current reserves or reserve deteriorations)
  - May be due to low frequency or problems estimating
  - Most believe their reserves are strong and their reserving process high quality
  - Some actuarial input into assessment, most use a multidiscipline approach (from claims, underwriting ,management and actuarial)

## Survey Results – Capital modelling

- CCATs do not have much of an impact on Capital, unlike PCATs
  - 1 in 200 numbers generally believed to be materially too low
  - Lloyd's RDS very vague in respect of CCATs
  - Most models do not include aggregation and modelling of CCATs
  - Parameterisation always involves judgement by management and underwriters due to lack of data and benchmarks, with some actuarial involvement
  - Very few would consider using capital markets to transfer casualty risk to reduce capital

## Survey Results – Risk Mitigation

- Most respondents believe reinsurance is effective in managing catastrophe exposures
  - Little market for clash or retro cover
  - Exclusions are not effective in eliminating losses
  - Some insurers believe ICA and/or RDS aid understanding of accumulations, a few are using technical experts such as risk engineers to track all exposures
- Most organisations will turn business down due to concerns over high casualty aggregations

## How can insurers mitigate their risks?

- Reinsurance provides limited protection against some types of CCAT
  - Cover is limited
  - Clash issues
  - Buy RAD cover – helps avoid exclusions which reinsurers quick to impose
  - Buy proportional cover?
  - More reinstatements
- Underwriting changes may be more effective
  - Use of annual aggregates as in product liability
  - Avoid transfer of cover when policies exhausted e.g. Asbestos
  - Avoid certain jurisdictions e.g. US, or some states
  - Tighten wordings
  - Make policies claims made and limits inclusive of costs



## How can insurers mitigate their risks?

- Try to avoid providing cover for back years on claims made as exposure impossible to evaluate
- Exclude certain types of coverage e.g. pollution changes made in the 1980s
- Exclude punitive damages
- Charge explicitly for CCATs
- Reduce aggregate written
- Change aggregation procedures
  - Aggregate exposure in as many ways as possible. Need to know much more info: who advisors are, suppliers, purchasers so can build picture of interactions
  - Use more stress and scenario testing
  - Try to identify emerging issues
  - Raise awareness

## Implications for Insurers

- Premiums will need to rise if CCATs are explicitly charged for, changes to inwards cover will also be needed
- Some form of equalisation reserve may need to be held to cover against currently unknown events
- Capital will need to rise, was Asbestos a 1 in 50 year event, 1 in 500 or what? What is the next huge CCAT, are they likely to be bigger or smaller than in the past; more or less frequent? It is impossible to derive probabilities for events
- Solvency II offers option of premium based (15% which is less than Marine and Property) or company's own methodology for catastrophe loading – is this enough

## Conclusions

- Insurers seem focused on small and medium sized losses affecting limited areas, ignoring the larger and more complex events
- Even if far more data is used when deriving aggregations not all interactions will be known and not all CCATs can be assessed in this way. If it is not possible to aggregate exposures and correlate between classes, should the business be written?
- Does profitability depend on the non occurrence of CCATs?
- If capital rises will casualty be worth writing in its current form
- What are the next claims and how could they aggregate?