7th EU Loss Data Workshop
The Role of the Private Sector: Insurance Initiatives
Background
Catastrophe re/insurance industry transformed

- In the early 1990s the global catastrophe industry was in crisis
  - A series of large catastrophe events
  - Failure of the secondary reinsurance market
  - There was serious concern of market collapse
- But now the industry has a very different problem
  - Too much capital
  - Pension funds and capital markets are swamping the market looking for uncorrelated return
  - The market is desperately seeking new sources of risk to insure

So what caused the change?

- Well partially luck
- But mainly by a much more profound understanding of risk
- And a much greater engagement with science and engineering
- In 1985 there was one mathematician working in the London market working on such models
- Now there are thousands (over 100 in Willis Re London alone)
Catastrophe Modelling
An established science

- The groundwork was laid out back in 1984 in *Natural Hazard Risk Assessment for an Insurance Program, Don Friedman*
- In 1987 Karen Clark built first Hurricane model funded by reinsurance broker Blanch (but smartly she kept the IP)
- In early 1990s London reinsurance broker Greig Fester built first UK wind and flood models, then first European wind model
- By late-90s 3 large modelling firms dominated the market – all US based from engineering routes
  - Risk Management Solutions (UK owned but California based)
  - Applied Insurance Research (founded by Karen Clark)
  - EqeCat (now CoreLogic)
- We had the solution, confidence grew!
  - But in truth days of “the computer says no” or yes
  - Over-reliance on modelling
- But now we are (much) smarter
  - Largely encouraged by EU regulation (Solvency II)
  - Companies must show that they have their own view of catastrophe risk (not someone else’s)
  - Growth in Chief Risk Officers
  - Much greater engagement with science (eg Willis Research Network – 50 academic partners)
  - Now many firms have chief Scientific Officers
  - Models are smarter but crucially their use is much, much smarter (and Europe is the centre of that expertise)
Insurance Initiatives

Loss Data

- One drive to collect market loss data is to build a basis for derivative products
  - Insurance Loss Warranties
  - Tradeable on secondary markets
- In US Property Claim Services collect and consolidate data across the market
  - But there was no equivalent elsewhere
  - Many relied upon reinsurers reports (eg Swiss Re Sigma)
- PERILS – a European initiative
  - Supported by Swiss Re, Willis Re and others and others
  - Now collects loss and exposure data across 12 countries for storm, 3 for flood and 2 for earthquake
  - Split between residential, commercial, industrial and agricultural (property not crop)
  - Split between buildings, contents and business interruption
  - Split by Cresta Zone (broadly 2 digit postcode)
- Perils allows firms to develop derivative products that match their portfolio
  - Weighting by their class of business and geographic splits
- But the data collected by perils is little help in model development
  - Data not collected with attributes allowing proper analysis of loss drivers
Catastrophe /Resilience Modelling
Basic requirements: Portfolio

• Need detailed portfolio knowledge
  • Where properties are at a fine level
  • Type of building (residential, commercial etc)
  • Occupation of building
  • Construction of building
  • Others (eg how many stories, basement?)
• Big 3 model data requirements provide a defacto standard
  • Or rather 3 standards
  • But arguably lowest common denominator and insurance focussed
• New platforms are emerging:
  • OASIS – an open access catastrophe modelling
  • Creating new data standards arguably a super-set of the commercial firms’ requirements
  • OASIS currently working with Climate Finance Lab on requirements for low and medium countries in Asia; for governmental and municipal use; guidelines for exposure Data collection
Catastrophe/Resilience Modelling

Loss data

- For model validation need far more detail on loss events
  - Property affected (with all attributes mentioned earlier)
  - Event characteristics at property level
  - For example for flood:
    - Water depth
    - Duration of inundation
    - Flow rate of water
    - Contamination of water
- In reality it is often difficult to collect such data with any accuracy
  - Focus is rightly on preservation of life
  - Little local measurement
- In most countries, aggregation of data is ad-hoc
  - Detailed data not reported to normal aggregators (eg reinsurers, reinsurance brokers)
  - Modelling firms (including brokers and reinsurers) gather hat they can
  - Some market-led studies
Insurance Development Forum
New global initiative

- Creation reflects a growing market need
  - High levels of under-insurance in developed and developing worlds (domestic property, governmental, cities, agriculture)
  - Growing recognition of the value of insurance and the insurance industry’s risk management and risk modelling capabilities developed over 30 years
  - Growing recognition from the insurance industry of the prime role of governments and extra-governmental institutions in driving insurance demand

- IDF aims to be a forum to unblock common issues
  - Lack of modelling: aim to provide access to resilience modelling or all states and major perils by 2020
  - Legal and regulatory barriers to catastrophe scheme development
  - Capital and premium subsidy restraints

- IDF structure
  - 3 co-chairs: World Bank, United Nation and Insurance Industry
  - 30/40 member board, but perhaps 400+ associates
  - Most work though will be via empowered sub-committees
  - EU participation, both at Commission, member state and institution level, is vital

- Resilience Modelling and Mapping Forum
  - Sub-group chaired by CRO of Renaissance Re, arguably the smartest catastrophe reinsurer
  - Already operational
  - Charged with encouraging creation and access to models beyond current model scope (eg governmental risk, new countries and perils)