
Swiss Re
Cat Pricing Considerations:
Underwriting Beyond the Black Boxes
150 YEARS
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Do NOT participate if you have any of the following conditions:
Recent Surgery or Illness
Heart Condition
Under the Influence of Drugs or Alcohol
Pregnancy
High Blood Pressure or Aneurysms
Recent large net losses
and inadequate reinsurance
Swiss Re
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The Market
Swiss Re
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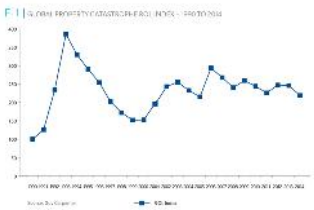
The Market Has Historically Been Volatile!



- "Recent" higher peak was post Andrew shock to the system
- Lesser peaks post major events such as WTC, 2004-5, 2008 hurricanes
- Softening after those highs
- This likely ignores T&C impacts that most rate indexes miss. We will touch on that later.

- Recently there has been quite dramatic softening in the cat market
  - WHY?
  - Let's hold that thought

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Drivers of Market Volatility - Losses

- Losses Impact
  - Drains capital from reinsurance and capital markets which decreases supply
  - Drains capital from insurers via retentions and reinstatement premiums which increases demand
  - "Payback" concept isn't dead entirely
  - Can change models/underwriting behavior:
    - WTC: Terrorism as a peril
    - Andrew: Saw loss potential from hurricane being high especially from a storm that "missed" Miami
    - Katrina: unmodeled exposure from wind/water debate
    - Ike: additional loss from merging with cyclone over Midwest

Swiss Re 5

Drivers of Market Volatility - Other

- Capital Flows Inward
  - Over last couple decades . the main push of capital was the generation of Bermuda companies post major events.
    - This didn't drive volatility – it dampened it
  - Alternative capital – has been attracted to the yields of the US Cat market lately
- Capital Flows Outward
  - Loss Activity from a cat – we covered that
  - Major investment losses. – think 2008. Can be as big of a balance sheet item as a major cat
  - Casualty reserve strengthening. It may occur over a few years but it can also impact supply.
  - Alternative capital – we haven't seen this tested

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More on Alternative Capital

- What is Alterative Capital Anyway?
  - Natural Catastrophe (Nat Cat) capacity provided by Insurance Linked Security (ILS) Funds, Mutual Funds, Pension Funds, Hedge Funds and Private Equity,
- How did they drive such a impact?
  - Even a small portion of their holdings they use to diversify their portfolio is a ton of cash.
- Where is the focus?
  - They generally concentrate on well-modeled risks with high margins and low entry barriers. US Nat-cat reinsurance/retrocession is a natural focus area.
- How long will this impact stay?
  - The staying power of these new investors has yet to be tested by a rise in interest rates, decreasing ILS returns or large catastrophe losses.

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Swiss Re 8

Swiss Re 9

Models Are Sophisticated, but.....

Everybody knows that: Garbage In =>Garbage Out...

So, what do we do about it?

- Check for missing lines, states, perils
- Granularity of geocoding –
  - just like in real estate: Location, Location, Location
- ITV, Values, Deductibles properly reflected
- Policy conditions represented by model
- Occupancy / Construction coded properly

Adjusting the Modeled Output

- Growth
  - exposures are typically "yesterday's" exposures
  - need to adjust to prospective treaty period
  - occasionally need to adjust for less "organic" changes
- ALAE – reflective of cat specific ALAE missing from model
- Pools and Fair Plans – reflect treaty wording
- Historical miss – compare actual hurricane losses to modeled return period losses or modeled footprint
- Data Quality – blanket load for non-corrected elements

Adjusting the Modeled Output

- If not included in Model results
  - Storm Surge
  - Post event demand surge – cost of labor and materials rises after major event
  - Pre event demand surge – prior event in general area already lead to increases in costs
  - EQ Fire Following
  - EQ Sprinkler Leakage
- "Unmodeled" Exposures

"Unmodeled" Exposures

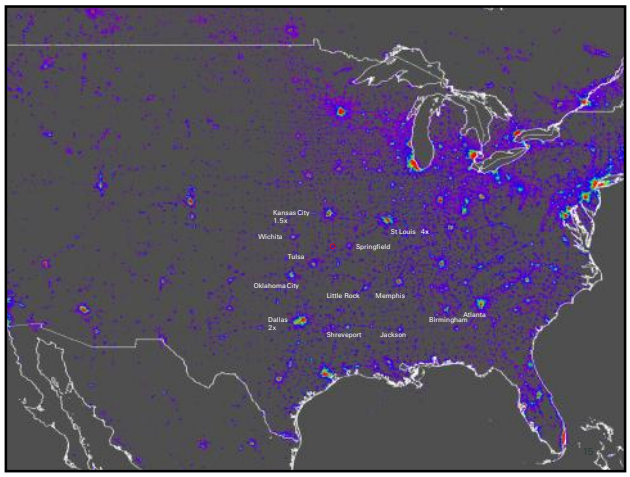
- Tornado/Hail/Wind
- Winter Storm
- Wildfire
- Flood
- Terrorism
- Fire Following
- Other

"Unmodeled" Exposures

Tornado/Hail/Wind

- National writers may not to include all exposures in model
- Models are always improving, but not quite there yet
- Significant exposure
  - Frequency: TX (for one)
  - Severity: 5 of top 20 US all time (untrended)

- Methodology
  - Experience and exposure rate
  - Compare to peer companies with more data
  - Determine use of longer term or shorter term averages
  - Weight methods
  - Percentile Matching with model depending on confidence



"Unmodeled" Exposures

Winter storm

- Not insignificant peril in some areas, esp. low layers
  - Several 1B+ industry events or cluster of events in last 20+ years
  - Separating occurrences in a cluster?????
  - Possible Understatement of PCS data
- Methodology
  - Degree considered in models
  - Evaluate past event return period(s)
  - Adjust loss for today's exposure
  - Fit curve to events
  - Aggregate Cover????? – Check the definition in the contract!

"Unmodeled" Exposures

Wildfire

- Bigger events in CA, smaller in TX, CO
- Most states can have losses!
- Oakland Fires: 1.7B untrended
- Austin "It Could Happen Tomorrow"
- 2003, 2007 Fires: multiple occurrences?
- Development of land should increase freq/severity
- Two main loss drivers
  - Brush clearance – mandated by code
  - Roof type (wood shake vs. tiled)
- Methodology
  - Degree considered in models
  - Evaluate past event return period(s), if possible
  - Incorporate Risk management, esp. changes
  - No loss history - not necessarily no exposure

"Unmodeled" Exposures

Flood

- Less frequent
- Development of land should increase frequency
- Methodology
  - Degree considered in models
  - Evaluate past event return period(s),if possible
  - No loss history – not necessarily no exposure

Terrorism

- Modeled by vendor model? Scope?
- Adjustments needed
  - Take-up rate – current/future
  - Post TRIA extension issues
  - Other – depends on data

"Unmodeled" Exposures

Other Perils

- Expected the unexpected
- Examples: Blackout caused unexpected losses
- Methodology
  - Blanket load
  - Exclusions, Named Perils in contract
  - Develop default loads/methodology for an **complete** list of perils
  - Be an underwriter!

Quick Note on Experience Rating For Cat

- Main purpose in for credible layers – usually 1st and 2nd or cat agg layers
- Can be used to extrapolate relativities later in the modeled curve
- Key difference from normal experience rating is need to volume adjust
  - cat losses are aggregate instead of per risk, so increases in exposure are important
  - Changes in exposure are important
    - geographic mix
    - deductible changes, coverage changes (ACV on roof), UW changes

Terms and Conditions – The Hidden Price

Hours Clauses

- Generally put in place to limit loss to one "event"
- Provides clarity and reduces disputes
- Generally consistent with the models
- If terms weaken or strengthen, that becomes a price lever that often becomes ignored

Terms and Conditions – The Hidden Price

Hours Clauses - Examples

- Expansion of winter storm this past year seen in cases well beyond 168 hour – price impact? Loss impact was seen. Winter Storm Bieber?
- Hurricane impacts – can we separate the losses from multiple storms. We could have a train of hurricanes and resulting flooding
- Tornado/Hail – if we get much beyond 168 hours, are we essentially providing aggregate cover due to seasonality

Tale of Two Ceding Companies

ABC Insurance

- Long track record
- Lost a lot of money in soft market for reinsurers in late 1990s
- Had huge WTC loss
- Kept panel that wanted to stay around
- Paid back combined deficit by 2004

XYZ Insurance

- Uses many markets based on layer
- Replaces insurers year over year based on price

Key Considerations beyond Technical Pricing

- Your capacity situation in a zone
  - Are you full in an area?
  - Can you do better later in the year?
  - Are there worse deals expiring on the books?
  - Can you hedge/retrocede?
- Your experience with the client
  - Can you take a longer term view (ABC Insurance)
- Line size willing to deploy with a client
  - comfort with transaction
  - comfort with client
- Layer involved
  - comfort with modeling up high/down low for peril(s)

Key Considerations beyond Technical Pricing

- The Underwriting Team
  - Did you do an audit?
  - Do you have faith in the underwriting standards?
  - Are the standards being met?
  - Will the team be stable?
- The Management Team
  - Are they competent?
  - Will they stay in place and support the UW team?
  - Will they support proper UW quality and capacity management?
- Claims Handling
  - Do they have an proper infrastructure in place?
  - Will they be able to properly handle a big event?

Incorporating Climate Prediction into Underwriting

How do you use this information in your underwriting?