
REI-2: Incorporating Reinsurance Costs and Risk Loads into Personal Lines Rates
Rade T. Musulin
Vice President – Operations, Reinsurance, & Public Affairs
Florida Farm Bureau Insurance Companies
CAS Ratemaking Seminar
Salt Lake City, March 13, 2006


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CAS Ratemaking Seminar
New Orleans, March 11, 2005
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FEMA

Hurricane Pam Exercise Concludes

Release Date: July 23, 2004
Release Number: R6-04-093

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"We made great progress this week in our preparedness efforts," said Ron Castleman, FEMA Regional Director. "Disaster response teams developed action plans in critical areas such as search and rescue, medical care, sheltering, temporary housing, school restoration and debris management. These plans are essential for quick response to a hurricane but will also help in other emergencies."

"Hurricane planning in Louisiana will continue," said Colonel Michael L. Brown, Deputy Director for Emergency Preparedness, Louisiana Office of Homeland Security and Emergency Preparedness. "Over the next 60 days, we will polish the action plans developed during the Hurricane Pam exercise. We have also determined where to focus our efforts in the future."

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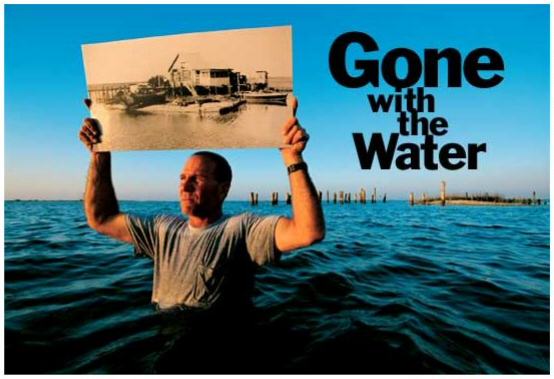

Photograph by Tyrone Turner

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By Joel K. Bourne, Jr.

Photographs by Robert Caputo and Tyrone Turner

The Louisiana bayou, hardest working marsh in America, is in big trouble—with dire consequences for residents, the nearby city of New Orleans, and seafood lovers everywhere.

The Post Katrina World

- Significant "improvements" in models.
- Confused situation with demand surge and flood/wind disputes.
- Reinsurance: Upward demand pressure and downward supply pressure.
- Primary company and public capital depleted.
- Significant cost volatility for capital.
- Rating agencies exacerbating problems.

Questions to Consider

- Is it possible to calculate a rate that will "clear" the market and assure that all risks desiring coverage can obtain it?
- If the cost of capital plays a large role in the price of hurricane insurance and if the price associated with that capital is set through a market process, rather than an actuarial calculation, can such prices be regulated effectively at all?

Current Modeling Problems

- Addressing the lessons of 2004/2005:
  - Multi-event demand surge.
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- How to incorporate cycle?
- Whether to incorporate climate change?
- Can model output be used to develop "indicated" risk loads to regulators?

What Does a Risk Load Do?

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- Compensates the insurer for variance in results.
- Increases the price of the insurance product such that the supply of and demand for capital are in balance.
- Compensates for the economic inefficiency of risk concentration.

The Problem

- The risk may have change as the insurer's portfolio changes.
- Rates should account for:
  - Market concentration (cost of reinsurance).
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  - Insurer risk tolerance (risk of ruin).
  - Expected loss cost (modeled losses).
  - Expense (financial data).
- Prices for "identical" risks will differ!

Concentration Costs $$$

- Concentration is inefficient as to the cost of rebuilding after catastrophes.
- Markets will tend to drive up insurance prices in areas of concentration due to economic inefficiency.
- Additional growth in concentrated areas increases PML; growth in non-concentrated areas does not. The marginal cost of an additional house to the system differs due to more than loss costs!

Traditional Views…

- A future rate is based on the output from a catastrophe model run on an insurer's current exposures adjusted for trend, plus some flat profit load discounted for investment income.
- Marginal Cost = Average Cost.
- Every similar risk written by an insurer should receive the same price.
- Prices should be adjusted periodically and based on filed rate tables calculated using formula based actuarial methodologies.

But In Cat Prone Lines…

- A future rate should be based on the insurer's future distribution of risks.
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In An Unregulated World…

- Base price based on "standard" actuarial techniques.
- Initial price reflects assumptions about the market concentration of risk and the insurer's anticipated portfolio.
- Initial insureds pay less than average price, as insurer has "excess" capacity.
- Once insurer's capacity is "full", insurer can only accept more risks at a higher price.
- Eventually, market will reach an equilibrium.

Regulation

- Rate regulated rates tend to be:
  - Uniform for similar risks.
  - Set over the period of the rate filing.
  - Formula, rather than auction, driven.
  - Difficult to change.
- Reinsurance costs are sometimes allowed, but are out of sync with approved rates.
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Regulated Insurer Behavior

- Filed rates reflect past levels of loss exposure.
- Overall growth must be slow.
- Overuse of reinsurance; underuse of internal capital.
- Since price is fixed, quantity is the variable that can be adjusted. Strict concentration controls are necessary to fit within pricing constraints.

Bond Market Analogy

- "Junk" bonds pay higher yields because they represent a greater risk of default.
- Suppose a regulator forced all bonds to yield the "T-Bill" rate.
  - No one would buy high risk bonds.
  - Regulator might form a "residual bond fund" that would buy bonds unable to secure coverage in the voluntary market and assess (tax) holders of T-Bills to cover deficits.
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Risk Load Alternative

- Allow insurers to file for a "profit factor" for hurricane based on the standard deviation of their net losses times a scaling factor (k) that could be based on their actual reinsurance.
- Similar to method used by some reinsurers.
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Calculating the Rate

- Run 10,000 year storm set.
  - Calculate reinsurance recoveries for each event.
  - Calculate net loss after reinsurance for each event.
  - Calculate μ and σ for net and ceded losses.
  - Adjust for differences in layers between retained and ceded.
- Compare σ of ceded losses to reinsurance cost in excess of μ for the same ceded losses, est. k, then apply a tempering factor for k'.
- Hurricane rate = $(\mu + k'\sigma)_{\text{retained}}$ + expense + cost of reinsurance.
- Same dataset could be used to allocate risk adjusted rates to territory.

Advantages

- Provides regulators with a tool to test insurer risk loads:
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  - Is mechanical, as is discounting for investment income.
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- One parameter needs to be estimated, (k); could be adjusted to k′ to yield a proportion of the market risk load for internal capital.
- Provides a way to test for a "reasonable" profit factor for internally generated capital.
- Provides an incentive for insurers to expose capital.

Limitations

- Standard deviation is not "state of the art".
- k has to be estimated, then tempered to determine the correct relationship for internal vs. reinsurer capital.
- Calculations must be done by layer.
- Does not address the MC ≠ AC issue.
- Risk load still must be allocated to classification, territory, etc.
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A Comment on Inflation

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  - Rapidly rising home prices.
  - Moderate Materials inflation.
  - High premium trend, low loss trend.
- What is likely to happen:
  - Economy is entering an inflationary cycle.
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  - Traditional trending annoyed by inflection.

What We Face

- $80 a barrel insurance capital and regulated rates at the pump at $1.49[9].
- Significant model changes on the horizon.
- Instability and volatility.
- Lack of consensus on appropriate methods for regulation of risk load.
- Lurking inflation.
- Exploding demand for and limited supply of capital.

Conclusions

- Traditional actuarial primary ratemaking practices and rate regulation paradigms are fundamentally at odds with economic reality in catastrophe prone lines.
- The market has developed a system of rationing to respond to these constraints.
- There are opportunities for regulators to lower prices and increase availability by modernizing how risk loads are reflected in rates.
- Watch the inflation problem!

Posted on Thu, Feb. 02, 2006

HOMEOWNERS INSURANCE

Homeowners decry Citizens rate hike

BY BEATRICE E. GARCIA
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South Florida homeowners gave officials from Citizens Property Insurance an earful, vehemently voicing their concerns about its rate hike that could double their insurance rates.

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G'Day, Friends

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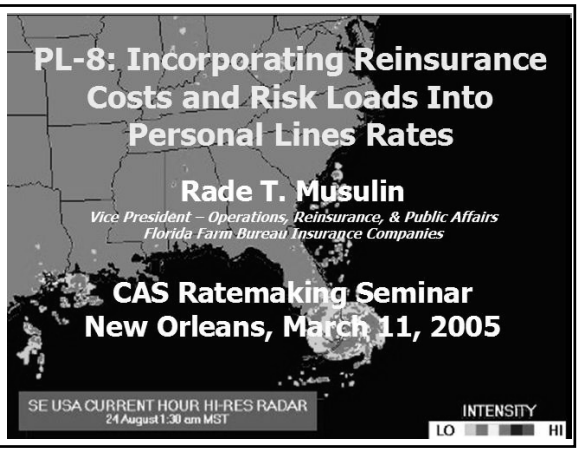

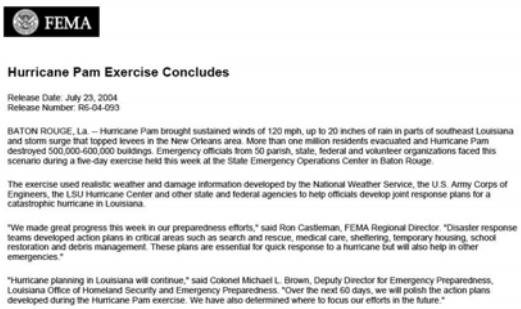
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