

CAS Seminar on Ratemaking

Is There A Need for State or National Catastrophe Funds for Homeowners Insurance?

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March 17, 2008
Boston, Massachusetts

Background – Homeowners Insurance Rates

- Cost of coverage for the hurricane peril
 - Expected loss
 - Net costs of reinsurance
 - Cost of exposing capital to large catastrophic event
 - Profit
 - Variable costs

Background – Homeowners Insurance Rates

■ Capital Markets

- 220 cat bond issues since 1999
- Profit multiple = the investor's expected excess return less the expected loss divided by the expected loss
- Average multiple for 220 cat bond issues is about 7
- Profit multiple ranges:
 - 2.7 @ 5% - 10% probability of attachment
 - 10.5 @ 0.2% - 0.3% probability of attachment
 - Higher @ probability of attachment less than 0.2%

Background – Homeowners Insurance Rates

- Reinsurance
 - Net cost similar to multiples observed for cat bonds in capital markets
 - Reinsurance premiums reflective of the risk of exposing reinsurers capital to catastrophic events
- Primary Insurers
 - Capital is exposed in layers not covered by reinsurance or cat bonds
 - Capital markets give some guidance on appropriate risk loads for catastrophic perils

Background – Homeowners Insurance Rates

- Cost of coverage for the hurricane peril
- Expected loss
- Plus some multiple of expected loss
- Costs of insuring hurricane peril in private markets can be significant

Background – Homeowners Insurance Rates

Homeowners Premium	\$1,000
Hurricane	\$500
Non-Hurricane	\$500
Expected Hurricane Loss	\$100
Risk Load/Reinsurance/Cat Bond	\$400

Insurable Risk

- Characteristics of an ideally insurable risk
 - Pure risk
 - Fortuitous loss
 - Definite and reasonable
 - Large number of similar exposure units
 - Independent and not catastrophic
 - Affordable for insured
- Is the hurricane peril an insurable risk?

Source: CAS Part 5 syllabus material, Nyce, Charles M., "Foundations of Risk Management and Insurance"

Affordability/Availability

- Florida/Citizens
- Massachusetts/Fair Plan
- Louisiana/Citizens
- Affordability and availability are becoming more of a public policy issue

Capacity

- Hurricane examples – personal lines only
 - Florida – 1 in 250 industry loss = \$70 billion
 - Florida Citizens alone would need approximately \$16 billion or more in reinsurance to cover layer from 1 in 10 to 1 in 250 year event
 - Texas – 1 in 500 year industry loss = \$25 billion
 - New York – 1 in 500 year industry loss = \$17 billion
 - This level of capacity does not appear to exist in reinsurance and cat bond market today

Current Situation – Natural Catastrophes

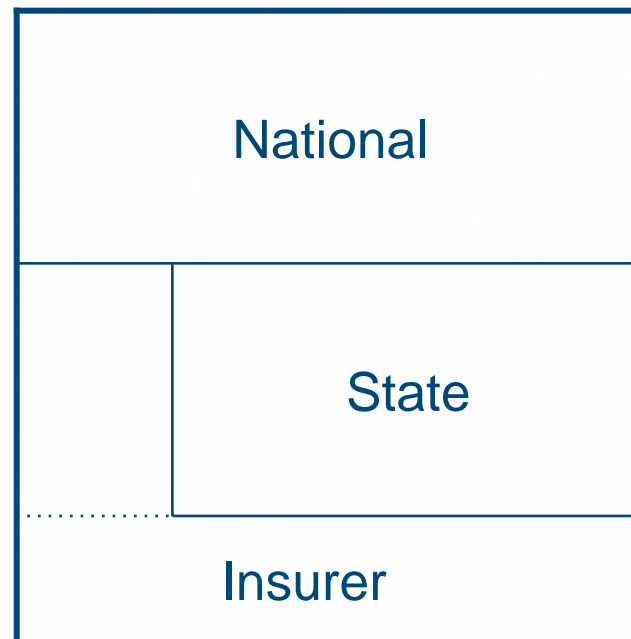
- Rates for homeowners insurance may not be affordable in many high potential cat areas
- Availability issues
- Lack of capacity in reinsurance/cat bond markets

National Catastrophe Fund Legislation

- Major provisions
 - State Cat Fund
 - National liquidity loans
 - National Cat Fund
 - Funds for mitigation

National Catastrophe Fund

Catastrophe Losses



National Catastrophe Fund

- Consumer Homeowners Premiums
 - Private sector
 - Expected loss + Risk load + Expense
 - Public sector
 - Expected loss + Expense
 - Consumer saving = Risk load

National Catastrophe Fund

- State Cat Fund
 - Mandatory participation
 - Offer reinsurance to primary insurers
 - Attach at 1 in 10 year industry event
 - Reinsurance up to 1 in 100 year industry event
 - 10% participation in cat fund layer
 - Reinsurance premium = expect loss and modest expense load
 - Timing risk – subsidy
 - Economic incentive to mitigate/retrofit/build on the coast

National Catastrophe Fund

- National Liquidity Loan
 - Loan from national cat fund to state cat fund
 - Loan amount for difference between covered state cat fund losses and cash available in state fund
 - Required payback 50% of pure premium for layer corresponding to loan amount
 - Payback continues until loan is repaid
 - Subsidy in state cat fund reduced

National Catastrophe Fund

- National Reinsurance
 - 100% of layer from 1 in 100 year to 1 in 500 year event
 - National cat fund charges reinsurance premium to state fund
 - Premium is expected loss plus modest expense load
 - State cat fund passes national cat fund premium to primary insurers
 - State cat fund offers reinsurance coverage to primary insurers from the 1 in 10 year event up to the 1 in 500 year event

National Catastrophe Fund

- Mitigation
 - Mitigation
 - Retrofitting
 - Assist/train first responders
 - Improve infrastructure
 - Building code enforcement
 - Land use management
- Can be administered at state or national level or both

National Catastrophe Fund

- Example of national cat fund cash flow

Year	Cat Fund Premium*	Investment Income*	Funds for Mitigation	Year End Cash*
1	\$0.9	\$0.0	\$2.3M	\$0.9
10	\$0.9	\$0.5	\$52.2M	\$11.3
25	\$0.9	\$1.9	\$193.7M	\$40.9

* In Billions

National Catastrophe Fund

- Example of state cat fund cash flow

Industry Layer \$5B x \$2B (1/15 to 1/50) Expected Loss in Layer \$207M 10% of Investment Income For Mitigation			
Year	Premium	Investment Income	Year End Balance
1	\$195.6	\$4.9	\$200.0
10	\$195.6	\$112.9	\$2,457.2
25	\$195.6	\$421.7	\$8,911.5

* In Millions