

# Insurance Executive Review

Market Commentary on Current Developments within the P&C Insurance Industry

## Predictability in Insurance

## Part II

### PUBLIC AND PRIVATE CATASTROPHE RISK SHARING

In Part I of this series we looked at the exposure to catastrophe risks, essentially those arising from natural or weather related events. Earthquakes, tornadoes, wildfires, hurricanes and similar events have a tendency to repeatedly occur within certain geographical regions but are still considered random conditions. They can appear with little warning, varying intensity, unknown duration and uncertainty of direction. While cyclones/hurricanes can be tracked days in advance, we still do not know the precise path they will take or the point of landfall until it is virtually upon us. In our previous report we looked through the eyes of the insurance industry and the amount of "insured" losses that were generated from prior catastrophe events and tabulated by various insurance agencies. Since not all economic damages from catastrophes are "insured" we sought to find some macro-measurement of catastrophe losses.

### Measuring Economic Losses from Natural Catastrophes

We did find various sources and non-insurance related agencies that monitor or evaluate catastrophe losses but in each case there was a unique definition of what constituted "a catastrophe" event or the data collected was focused on only a limited aspect of such catastrophe losses. There was no single

#### Sample of Major Catastrophe Events 1998-2005

Losses of \$1 Billions or More

MAJOR EVENT LIST-BY YEAR		Billions in Nominal Dollars				Billions in Adjusted Dollars*			2006
		Insured	Federal	Total	Percent	Insured	Federal	Total	Losses
		Loss	Flood	Loss	Insured	Loss	Flood	Loss	Uninsured
4 Events	<b>2005 Total</b>	\$ 57.5	\$ 16.8	\$ 159.0	46.7%	\$ 62.7	\$ 18.3	\$ 173.3	\$ 92.3
4 Events	<b>2004 Total</b>	\$ 22.7	\$ 3.3	\$ 45.0	57.8%	\$ 27.0	\$ 3.9	\$ 53.6	\$ 22.6
4 Events	<b>2003 Total</b>	\$ 4.3	\$ 0.6	\$ 12.5	39.2%	\$ 5.4	\$ 0.7	\$ 15.5	\$ 9.4
1 Event	<b>2002 Total</b>	\$ 0.1	N/A	\$ 2.0	5.0%	\$ 0.2	N/A	\$ 3.0	\$ 2.9
4 Events	<b>2001 Total</b>	\$ 22.1	\$ 1.1	\$ 44.0	52.7%	\$ 32.5	\$ 1.6	\$ 66.8	\$ 32.7
1 Event	<b>2000 Total</b>	\$ 0.2	N/A	\$ 2.0	10.0%	\$ 0.4	N/A	\$ 3.6	\$ 3.2
3 Events	<b>1999 Total</b>	\$ 4.3	\$ 0.5	\$ 8.9	53.9%	\$ 8.0	\$ 1.0	\$ 16.8	\$ 7.8
5 Events	<b>1998 Total</b>	\$ 3.9	\$ 0.4	\$ 10.4	41.3%	\$ 7.4	\$ 0.8	\$ 20.6	\$ 12.3

"Total Loss": Federal Financial Exposure to Natural Catastrophe risk, J D Cummins Temple University (2007 Study Paper)

"Insured Losses": Insurance Services Office-Property Claims Service (data from private insurers)

"Federal Flood": US Department of Homeland Security- FEMA Agency

\*2006 Exposure and Price Adjusted but "Losses Uninsured" assumes same relative insurance purchases as during the original event

public or private agency that collected universal economic damages from all these events.

We did find one study paper of interest which looked at Major Catastrophe Events (i.e. over \$1 Billion) between 1998 and 2005 with an attempt to measure the uninsured losses that would be subject to federal or state disaster relief efforts. The Page 1 chart summarizes the findings over 26 major events both in nominal dollars and with 2006 exposure and price adjustments.

**GROWTH IN COASTAL POPULATION 1980 - 2003 (1)**

Rank		Chg in No.*	Rank		% Change
1	California	9.9	1	Florida	75%
2	Florida	7.1	2	Alaska	63%
3	Texas	2.5	3	Washington	54%
4	Washington	1.7	4	Texas	52%
5	Virginia	1.6	5	Virginia	48%
6	New York	1.6	6	California	47%
7	New Jersey	1.2	7	New Hampshire	46%
8	Maryland	1.2	8	Delaware	38%
9	Michigan	0.8	9	Georgia	35%
10	Massachusetts	0.7	10	So. Carolina	33%

source: Census Bureau; millions of persons  
 (1) includes coastal states in the northeast, southeast, gulf of mexico, pacific and great lakes regions

Nearly half of the major events in this study involved hurricanes with a high of \$92 Billion of uninsured losses (adjusted) based on events in 2005 that would require disaster relief assistance an essentially unbudgeted federal position. Although this study covered different kinds of events it was limited to occurrences of \$1 billion or more. The hurricane losses were recoverable or "insured" on average for 40.5% of the total losses incurred ranging from a low of 30% to a high of 66%. The reasons for uninsured losses are varied from deductibles, inadequate coverage and to public or private property that is not insured. The increase use of hurricane or windstorm deductibles based on a percentage of the insured property value (since 2004-2005) will further influence the rate of insurance recovery going forward.

**CLAIM DATA FROM HURRICANES IN THE U.S.**

	1998	1999	2000-2001	2002	2003	2004	2005
# of Claims <sup>(1)</sup>	729,450	695,850	No	133,700	527,800	2,259,150	3,315,550
Avg. Claims <sup>(1)</sup>			Hurricanes				
Personal	\$ 2,176	\$ 1,773	Made	\$ 2,554	\$ 3,061	\$ 9,049	\$ 12,515
Vehicles	\$ 2,124	\$ 1,856	Landfall	\$ 1,638	\$ 2,755	\$ 3,626	\$ 4,698

(1) does not include flood damage covered under federal National Flood Insurance Program  
 Source: Property Claims Services (ISO)

**LIVING IN HARM'S WAY**

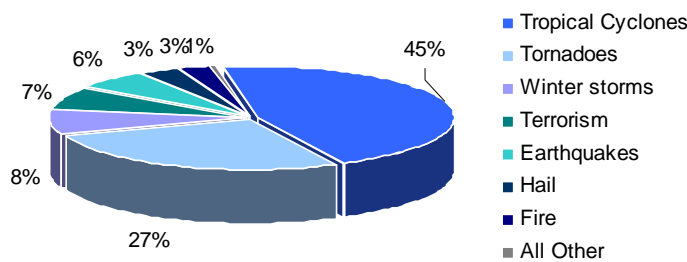
The frequency and severity of hurricane events has been compounded by the increase in habitational properties in coastal communities. This shift in population has had a direct influence on the number and size of losses from these tropical cyclones. (see top of page)

These population gains in coastal communities have placed more people and property in harm's way creating the additional exposures that would increase losses even if cyclone activity remained static-which it has not!

So claims (see 1998-2005 above) have increased as exposures from population growth have combined with increases in cyclone frequency and intensity to raise damage potential exponentially. This has raised concerns of the private insurance and reinsurance industry as well as various state governments in coastal states looking to protect its' citizens.

**HURRICANES-THE ILL WIND THAT BLOWS!**

**Inflation-Adjusted U.S. Catastrophe Losses**  
1988-2007 (2007 Total \$310.7 billion)



Using the insurance industry (commercial insurers) data for our initial look at the dominant causes of all catastrophe losses shows the overwhelming threat of hurricanes in the United States. With nearly half of the “insured” catastrophe losses over a 20 year period being tropical cyclones/hurricanes and the related involvement of government sponsored facilities at both the state and federal levels. Looking at the private and public participation in such disasters

was of interest to us. *Source: Insurance Information Institute/ ISO Property Claim Service Unit*

In addition, we could not find supporting discrete data that would suggest the level of total economic loss vs. insured losses from hurricanes. Tropical cyclones present an historical dilemma in separating losses that are commercially insured from damages that are typically excluded in residential and commercial insurance contracts. Such events usually involve three types of loss causation:

**Windstorm:** claims where the direct action of the wind causes damage to property. This also includes subsequent damage from water that enters a building through an opening caused directly by the action of the wind (i.e. rain that enters a building after the roof is damaged or blown off from the wind). Hurricanes usually spawn tornadoes (severe winds) and this has intensified in recent years;

**Storm surge:** claims from a coastal body of water that rises from a storm and inundates the property (i.e. typically a low pressure storm that causes a wall of water to form in coastal areas as much as 25 feet above normal high tide levels);

**Flooding:** claims from intense rainfall can cause extensive flood damage well inland from where a hurricane or tropical cyclone makes landfall.

Insurance policies from commercial insurers typically provide “windstorm” coverage but not flooding from storm surge or rising ground water. Therefore, so-called “insured losses” are only a portion of the total losses incurred from such storms with flood losses covered by National Flood Program policies. The increase in population in coastal communities as shown previously and the increase in storm intensity including tornado activity, has contributed to increased actual losses and the potential for future damage. The table on the following page shows the increased value exposures in just 3 years ( 2004 to 2007) in the most exposed tropical cyclone areas.

Florida represents the state with the highest coastal exposure and greatest potential exposure to catastrophe claims. In 2002 the State of Florida created Citizens Property Insurance Corporation that would combine its’ Joint Underwriting Association (market of last resort) and the Florida Windstorm Underwriting Association (wind only coverage). In 2007 Citizens was authorized to offer policies if voluntary market premiums are more than 15% higher than Citizens rates.

There is a complicated policyholder and private market assessment formula that would apply should

**Hurricanes Spawning Tornadoes**

	<b>Storm</b>	<b>Year</b>	<b>Count</b>
#1	Frances	2004	123
#2	Ivan	2004	117
#4	Rita	2005	86
#5	Katrina	2005	62
#8	Cindy	2005	33
AVE		1964-2005	11

*Source: National Oceanic and Atmospheric Ad.*

## CITIZENS PROPERTY INSURANCE CORPORATION

	2002	2003	2004	2005+	2006	2007
Policies in Force	564,107	820,223	873,937	810,017	1,298,922	1,304,949
Exposure*	142,912	193,178	204,841	222,020	431,122	485,073
Claims Reported	13,895	21,497	145,661	204,582	42,528	44,190
Claims Paid**	70,528	168,766	1,237,668	2,866,408	2,181,161	1,032,479

\* Millions \*\* Thousands

+ private market "takeout" policies increased to 158,416 from 28,219 the prior year

Source: Citizens Property Insurance Corporation

Citizen incur a deficit which has already been implemented following the 2004/2005 hurricane seasons. Simply stated the insurer currently has insufficient financial resources on hand to meet a major hurricane landfall without these assessments on resident policyholders and fund raising via State of Florida Bonds that could be authorized to meet any subsequent shortfall.

## VALUE OF INSURED COASTAL PROPERTIES

VULNERABLE TO HURRICANES BY STATE (1)

State	2004 in Billions of Dollars			2007 in Billions of Dollars			'04 - '07
	Coastal	Exposure	% Total	Coastal	Exposure	% Total	
Florida	\$1,937.4	\$2,443.5	79.3%	\$2,458.6	\$3,119.6	78.8%	\$521.2
New York	\$1,901.6	\$3,123.6	60.9%	\$2,378.9	\$3,851.1	61.8%	\$477.3
Texas	\$740.0	\$2,895.3	25.6%	\$865.1	\$3,493.0	24.8%	\$125.1
Massachusetts	\$662.4	\$1,223.0	54.2%	\$772.8	\$1,426.4	54.2%	\$110.4
New Jersey	\$505.8	\$1,504.8	33.6%	\$635.5	\$1,875.2	33.9%	\$129.7
Connecticut	\$404.9	\$641.3	63.1%	\$479.9	\$750.4	64.0%	\$75.0
Louisiana	\$209.3	\$551.7	37.9%	\$224.4	\$638.4	35.2%	\$15.1
So. Carolina	\$148.8	\$581.2	25.6%	\$191.9	\$698.2	27.5%	\$43.1
Virginia	\$129.7	\$1,140.2	11.4%	\$158.8	\$1,409.4	11.3%	\$29.1
Maine	\$117.2	\$202.4	57.9%	\$146.9	\$250.0	58.8%	\$29.7
No. Carolina	\$105.3	\$1,189.3	8.9%	\$132.8	\$1,431.8	9.3%	\$27.5
Alabama	\$75.9	\$631.3	12.0%	\$92.5	\$744.8	12.4%	\$16.6
Georgia	\$73.0	\$1,235.7	5.9%	\$85.6	\$1,573.3	5.4%	\$12.6
Delaware	\$46.4	\$140.1	33.1%	\$60.6	\$170.8	35.5%	\$14.2
New Hampshire	\$45.6	\$196.0	23.3%	\$55.7	\$237.4	23.5%	\$10.1
Mississippi	\$44.7	\$331.4	13.5%	\$51.8	\$394.6	13.1%	\$7.1
Rhode Island	\$43.8	\$156.6	28.0%	\$54.1	\$189.3	28.6%	\$10.3
Maryland	\$12.1	\$853.6	1.4%	\$14.9	\$1,078.4	1.4%	\$2.8
<b>Coastal States</b>	<b>\$7,203.9</b>	<b>\$19,041.0</b>	<b>37.8%</b>	<b>\$8,860.8</b>	<b>\$23,332.1</b>	<b>38.0%</b>	<b>\$1,656.9</b>

(1) Includes residential and commercial properties ranked by value of insured coastal properties

(2) Exposure is an estimate total replacement value in the state that is insured or can be insured

Source: AIR Worldwide

## PUBLIC FINANCING OF WEATHER CATASTROPHES

In addition to private insurance coverage for weather related catastrophe losses the financial burden from these events are increasingly falling on public entities both federal and state. This means that taxpayer funding is increasingly exposed to sudden and substantial cash calls. The study noted on page 1 of this newsletter came to the conclusion that the federal exposure for disaster relief\* would be expected to range from an annual average of \$20 Billion to more than \$100 Billion. This is inde-

\*Disaster Relief Act of 1950

pendent of federally backed programs such as:

National Flood Program (FEMA)- although promoted as self-funding via insurance premiums charged to policyholders, the program has borrowing authority which after Hurricane Katrina it borrowed \$20.8 Billion to cover claims;

Federal Crop Program (USDA)-sells crop insurance using 16 designated insurers to administer the program that insures \$67.2 Billion of crop values via 1.13 million policies. From 1989 to 2006 USDA spending on farm disaster aid above premiums collected equaled \$54.4 Billion in supplemental appropriations;

Small Business Administration- provides low cost subsidized loans to business organizations to assist with restoration for uninsured losses as part of the disaster relief program.

In addition to federal programs, many states have disaster relief efforts that are hard to quantify as there is no central database that collects such information. Some pending proposals would expand the National Flood Program to include "windstorm" as an effort to eliminate the current controversy and litigation that arises from separating wind vs. flood losses after a hurricane.

#### WHAT NEXT?

The private global insurance market has become increasingly concerned with U.S. tropical storm exposures as shifts in population and property values place more property in harms way. Policyholders are concerned with the rising cost of insurance (i.e. deductibles and premiums) and issues of separating wind/flood damage at time of loss. Government entities are growing concerned with resident's frustrations over the total cost of insurance and claim litigation that fall back to blaming regulators. States want to create mechanisms that address the problem but spread the cost of any mandated solution back to the private insurance market as an assessment. The Federal government appears ready to make any number of regulatory changes that will place the insurance industry under some federal jurisdiction or oversight as part of the financial services industry regulatory overhaul. There may be a push to mandate greater private insurance participation in covering disaster funding rather than adding more potential for federal unfunded liabilities given current economic budget circumstances. The recent introduction of House legislation to remove the insurance industry's exemption from antitrust laws allowing action for "anticompetitive behavior by insurance companies" has it's origin tied to the AIG collapse. In reality it was the contentious situation presented by Hurricane Katrina that gave birth to removing these protections.

A new regulatory environment for the insurance industry is dead ahead!



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