Insurance Executive Review

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

Predictability in Insurance Part I

Society, both individuals and organizations, face any number of risk exposures that can cause a financial loss even financial ruin. Decisions are made every day that have a certain amount of risk attached to these alternative choices. The ability to deal with the financial consequences of these choices assumes that we have properly identified the risk exposures and quantified the level of associated risk. Depending upon our risk aversion level, they can simply be retained or attempts can be made to mitigate them or contractually avoid or transfer them to another party. The latter is typically done through an "insurance contract" whereby for a financial consideration all or part of the risk is assumed by a third party. These contractual assumptions of risk transfer may carry their own particular "contract risks" that may restrict or reduce the financial recovery against actual financial loss. Contracts by their very nature are not absolute assumptions of risk but contain restrictions, conditions and limitations each of which may encumber the ultimate recovery to the beneficiary. Care must be taken to understand these conditions and any warranties either direct or indirect that may apply since a breach may void the contract. So much for Insurance 101!

Pure and Speculative Risks

Virtually all of the above commentary dealt with "Pure Risk" that exists when there is a chance of loss but no chance of gain….if the risk exposure does not materialize, the individual or organization's financial position has not changed. In "Speculative Risk" there exists an opportunity for gain as well as loss and except for games of chance, are not amenable to predictability as they are not generally repeatable under essentially the same conditions. This notion of predictability in pure risk exposures means that we can assign some measure of probability to the frequency and severity of events either directly from the organization's history (assuming it has sufficient prior outcomes) or indirectly from a number of organizations that have very similar exposures. Variability in the actual outcome can occur anywhere along the probability distribution expectations. The greater the number of observations the higher the confidence level assigned to the expected outcome. Insurance of pure risk exposures is based upon this predictability of outcomes or the law of large numbers. The lower the confidence level attached to the possible outcome the higher the premium insurers will charge for that exposure.

Catastrophes Worldwide

Most but not all catastrophic events are from natural events such as storms, earthquake and wildfires. Global insurers and re-insurers must deal with the variability that can come from such events. There are areas of the world that are exposed to events that are unfortunately repeatable under very similar

conditions such as tornadoes in the Midwestern US and hurricanes in the Atlantic basin.

This is apparent when looking at just the past 2 years. *Source: Swiss Re*

The "insured losses" generally account for only about 25% of the total, as catastrophes from natural disasters outside the United States are less likely to be insured. Over time we see the variability of worldwide insured losses from the average of $38 Billion annually.

WORLD CATASTROPHE EVENTS

	2008	2007
Total Property Losses	$200 Billion	$82 Billion
Total Insured Losses	$45 Billion	$28 Billion
Deaths	220,000 *	10,200
Number of Events	750	960

* Cyclone Nirgis in Myanmar claimed 135,000; Sichuan Province China Earthquake claimed 70,000

WORLD INSURED CATASTROPHE EVENTS

YEAR	IN 2008 BILLIONS OF US DOLLARS
1998	$24.88
1999	$43.01
2000	$15.04
2001	$41.80
2002	$16.71
2003	$21.58
2004	$52.84
2005	$113.89
2006	$16.87
2007	$27.56
2008	$45.51

The ability to predict the cost of catastrophe events on a worldwide basis is extremely difficult as most are weather related claims and most of these catastrophe models are built on a regional or limited geographical basis to project potential damageability if an event was to take place.

Natural Catastrophes

The predictability of natural weather related events and the resulting damage that might occur from any one event had less then serious attention for decades. The industry's wake-up call came in August 1992 with Hurricane Andrew destroying a large community in Southeastern Florida. The storm intensity and landfall location caused massive destruction. In current dollars it still ranks as the second most costly catastrophe ever recorded even ahead of the 2001 Terrorist Attacks….Hurricane Katrina is number 1. Insurer potential claim estimates (i.e. maximum foreseeable loss) from Andrew were terribly wrong partly because of poor construction and modeling deficiencies that underestimated damageability. In addition, it failed to recognize changes in local market prices for materials and labor to rebuild following a widespread disaster.

So insurers and re-insurers subsequently have spent millions of dollars to develop computer models that can help determine the amount of potential damage in their business portfolio depending upon such factors as the intensity, direction and duration of the event. These factors are fundamentality different depending upon the whether the event focus is earthquakes, tornadoes, hurricanes, etc. and it is a complex issue for insurers and re-insurers to measure with precision.

Insured Property Losses from Catastrophes

The US insurance market will generally see about $20 Billion of insured catastrophe losses per year as based on the arithmetic average of 1998-2008 historical data. However the chart below shows the

wide variance of $68 to $5.6 Billion that make up this 11 year history. These losses will be produced from about 26 events that will occur during the course of the year with anywhere from 4.4 million to 1.2 million claims being filed. Particular events have skewed data to the extent of half the average.

INSURED LOSSES, U.S. CATASTROPHES, 1998-2008

Year	Number of Catastrophes	Number of Claims (millions)	Dollars when occurred (Billions)	In 2008 dollars (Billions)	Excluding Major Events (Billions)	
1998	37	3.6	$10.1	$13.1	$13.1	
1999	27	3.2	$8.3	$10.6	$10.6	
2000	24	1.5	$4.6	$5.6	$5.6	
2001	20	1.5	$26.5	$32.6	9.7	Terror Attacks
2002	25	1.8	$5.9	$7.2	$7.2	
2003	21	2.7	$12.9	$16.1	$16.1	
2004	22	3.4	$27.5	$32.6	$18.2	Hurricanes Charley/Fran
2005	24	4.4	$62.3	$68.1	$12.8	Hurricanes Katrina/Wilma
2006	33	2.3	$9.2	$10.1	$10.1	
2007	23	1.2	$6.7	$7.3	$7.3	
2008	37	3.9	$25.2	$25.2	$11.1	Hurricane Ike/Gustav
Total	293	29.5	$199.2	$228.5	$121.8	
Average	26.6	2.7	$18.1	$20.8	$11.1	

Source: Insurance Information Institute

These insured property losses that were blamed for the industry's poor underwriting performance in 2008, were high on frequency (37 events) tying 1999 and the 4th worst year total loss year during

THE TEN MOST COSTLY CATASTROPHES IN THE UNITED STATES

RANK	DATE	EVENT	INSURED LOSS($ MILLIONS) $ WHEN OCCURRED	IN 2008 DOLLARS
1	AUG 2005	Hurricane Katrina	$41,100	$44,125
2	AUG 1992	Hurricane Andrew	$15,500	$23,102
3	SEP 2001	World Trade Center	$18,779	$22,881
4	JAN 1994	Northridge, CA EQ	$12,500	$17,985
5	OCT 2005	Hurricane Wilma	$10,300	$11,253
6	SEP 2008	Hurricane Ike	$10,655	$10,655
7	AUG 2004	Hurricane Charley	$7,475	$8,401
8	SEP 2004	Hurricane Ivan	$7,110	$7,957
9	SEP 1989	Hurricane Hugo	$4,195	$7,201
10	SEP 2005	Hurricane Rita	$5,627	$6,013

Source: Insurance Information Institute

this period. It had the 6th rank loss (Hurricane Ike)* among the most costly catastrophes on record.

Note: "insured losses" in these exhibits excludes claims under Federal Flood Program as well as State sponsored pools or wind facilities.

This catastrophe event list is dominated by hurricanes (8 out of 10) as they remain the leading event that can contribute to enormous insured losses. Insurers having property risks particularly along the Gulf of Mexico coast and Eastern seaboard have (since 2004) been (1) cautious about their value

accumulations; (2) raised pricing and deductible factors; (3) relinquished market-share to government sponsored insurers; (4) had their risk retention and cost of reinsurance increased, and (5) more closely scrutinize property valuations (insurance to value).

*Note: Latest January 2009 estimates suggest that insured losses from Hurricane Ike will be closer to $12-15 Billion rather then the early estimate shown above.

Hurricane Forecasting

There are several sources that forecast tropical storms for the Atlantic Basin with the most widely used coming from Colorado State University since 1992. Their early forecast is released the December prior to the Atlantic storm season each year and although it is updated several times (April-August) it is one of the earliest indications of what might be expected. First, let us look at the prediction made in December 2007 about the 2008 tropical storm season.

HURRICANE FORECAST FOR 2008 SEASON
EXTENDED RANGE FORECAST
Atlantic Basin Region

Category (wind velocity)	2008 Forecast	**2008 Actual**	2007* Estimate	2007 Actual	1950-2000 Average Season
Named Storms (39 MPH Minimum)	13	**16**	14	14	9.6
Named Storms Days	60	**84.75**	70	33.5	49.1
Hurricanes (over 74 MPH)	7	**8**	7	6	5.9
Hurricanes Days	30	**29.50**	35	11.25	24.5
Intense Hurricanes** (111-155 MPH)	3	**5**	3	2	2.3
Intense Hurricanes Days	6	**8.50**	8	5.75	5

* released December 8, 2006

** Category #3,4 and 5 hurricanes

Source: Phillip Klotzbach and William Gray, Colorado State University; December 7, 2007: actual released December 10, 2008

The forecast for 2008 was very close to the actual result with a variance in the number of Named Storms and Intense Hurricanes accounting for the much higher Named Storm Days.

The chart on the following page shows the forecast for the 2009 Atlantic Basin Season.

So the estimate for 2009 bears a close similarity to last year that on a historical basis is significantly above the long term average (1950-2000). In the recent decade the US Insurance Industry must assume that they will be responsible for a minimum of $7 Billion to the average of $20 Billion of annual losses with hurricanes being most often the wild card on exactly where these losses will land. Another factor that must be considered is the availability of foreign insurers and reinsurance which has in the past picked up anywhere from 40% to 50% of these losses through direct or reinsurance contracts. That has served to supplement the capacity of US domiciled carriers in catastrophe risk situations.

Conclusion

The United States property risks to which domestic insurers and world reinsurance markets are exposed is increasing. In addition the number of natural catastrophe risk events while erratic is trending

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higher as are incidence of severity. While building standards and codes are becoming more stringent it only affects new construction and not existing older structures some of which are vulnerable from a damageability standpoint. The decades of migration of the population to coastal areas aided by inadequate land use governance, has further exposed more property units to catastrophe risks. These properties tend to be more expensive or high-end residential risks that further expand the amount of potential loss as hurricanes alone account for nearly 50% of all insured catastrophe losses (excluding Federal Flood and windstorm pools) in the period 1988-2007. Through these federal and state sponsored/reinsured programs as well as disaster relief appropriations following an event, some believe that government should be shifting more of this financial responsibility to the private insurance market. Will this lead to mandating the inclusion of broader coverage requirements on insurers? Could this be more easily accomplished through national insurance charters that could by-pass a state-by-state implementation?

In Part II, we will take a look at the total cost of catastrophes and how risk sharing between the public and private sectors contribute to picking up the cost of rebuilding. We will also look at how this might change in the future.

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