Insuring Catastrophes: Finding Risk Transfer Savings and Capacity; It's All in the Data!

INTEGRO INSURANCE BROKERS

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The Storm after the Storms

The 15 hurricanes spawned in the Atlantic in 2005 made that year's storm season catastrophically unique. Seven of those hurricanes were "major" (Category 3 or higher) and four reached Category 5 strength. Of the six strongest hurricanes ever recorded, three (Wilma, Rita, and Katrina) occurred in 2005. Not surprisingly therefore, 2005 was a year of record catastrophe insurance losses as Atlantic hurricanes alone claimed over 2,280 lives and over $100 billion in property damage.

The storm season of 2005 became the *ultimate test*, raising serious questions about the effectiveness of government disaster response and the ability of insurers to provide protection against "catastrophe" (CAT) risk. The resulting exodus of windstorm insurance capacity has inhibited financing for new coastal development and left insureds with "take-it-or-leave-it" pricing for the coverage that remains.

As the ultimate test of insurers has become the ultimate test for those seeking coverage from them, it is now crucial to understand how underwriters will model your CAT risks at your next property insurance renewal.

Impact of Catastrophe Modeling

Drastic changes in the frequency and severity patterns of catastrophe losses have driven insurers to completely revise their CAT loss forecasting models. As the catastrophe exposure has been re-defined, so also have underwriters' assumptions and risk analytics.

CAT models correlate physical characteristics of locations to loss probabilities. The more risk data that is entered into the model, the more refined the results. Like the underwriters they serve, CAT models will err on the cautious, conservative side when little risk data is made available. When, as happens surprisingly often, only basic information such as location and occupancy is entered into the models, the results can skew the underwriting perception in a way that inflates insurance costs and reduces available capacity.

While emergency response and disaster recovery planning play a critical role in mitigating the potential ultimate impact of your CAT risk, these have relatively little influence on the cost of property insurance for wind, flood or earthquake. Because the underwriters' models are prescriptive (i.e., leave little, if any, room for interpretation), it's the data that the models measure that counts. Communicating the key information on your properties (a.k.a., secondary characteristics) that the underwriting models are programmed to digest can

significantly reduce both the loss estimates as well as the range of uncertainty in the modeling. This, in turn, can lower your insurance cost and increase the amount of insurance ultimately made available to you.

A Windstorm Example…

Insurers use loss event model outputs to determine how much capacity they will offer to underwrite for you. Your average annual loss and corresponding range of uncertainty measured in the models determine the pricing. Our coastal windstorm CAT modeling of a sample portfolio of properties illustrates how important secondary characteristics data can impact both sets of results.

Our sample portfolio is comprised of buildings of mixed construction with a total insured value (TIV) of approximately $6.6 billion, of which 40% is located in coastal (Tier 1) counties within the United States.

Windstorm CAT Model		**Capacity Factors**			**Rate Factors**	
Scenario	*Data*	*1000 year loss event*	*500 year loss event*	*200 year loss event*	*Average annual loss*	*Range of uncertainty*
1	Primary Data	$244MM*	$199MM	$146MM	$8.8MM	$23.0MM
2	Secondary Data: Realistic physical attributes (% reduction)	$104MM (57%)	$85MM (57%)	$61MM (58%)	$4.3MM (51%)	$9.6MM (58%)
3	Secondary Data: Ideal physical attributes (% reduction)	$83MM (66%)	$60MM (70%)	$36MM (75%)	$2.8MM (68%)	$5.9MM (74%)

*****MM = million*

The simple *Scenario 1* shows the baseline results of the modeling using only the portfolio's primary data – location and occupancy.

Scenario 2 supplements the basic information with realistic secondary data on other reasonable physical characteristics that might typically be engineered into one's properties. The secondary data can include characteristics such as: the age and type of roof system, its method of anchoring, roof maintenance programs, proper anchoring of roof mounted equipment, factors addressing other missile type exposures, etc. The addition of this secondary data in our example dramatically *lowers all of the model's outputs by over 50%.*

Scenario 3 models an ideal situation involving additional factors in areas such as roof design (geometry and framing), types of glass, exterior cladding, and

architectural elements such as ornamentation that are not as readily implemented for existing buildings but that can be addressed in new construction. The impact of this data is equally dramatic.

Conclusion

The physical locations of properties in your portfolio may play the greatest role in underwriting CAT models, but as our modeling scenarios clearly demonstrate, if you simply convey the secondary data on your properties to your underwriters, you can easily improve the models' conclusions, and thereby lower your premiums and maximize capacity.

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