

## INSURANCE SPECIAL

### RMS

# Is the transferring of catastrophe risk to capital markets, different from transferring credit risk, spliced and diced... in what ways and why?

*Answered by Peter Nakada, Managing Director of RMS Consulting*



Transferring catastrophe risk to the capital markets is conceptually similar to transferring credit risk through credit-linked securities. Yet, the alternatives available for transferring catastrophe-linked securities have not developed as quickly as those for credit-linked securities.

#### For example, the cat-linked securities market has:

- A small number of unique deals with issuer-specific characteristics
- A specialised investor base with heavy reliance on rating agencies
- No “synthetic” underlyings
- A limited secondary market
- Pricing that reflects concentration and illiquidity premiums.

#### By contrast the collateralised debt obligation market has:

- Risk depends on structure more than issuer
- A broad investor base, research-driven rather than expert-driven
- Trading and hedging isolating secondary parameters (e.g., volatility, correlation)
- Synthetic structures that allow volume to outstrip primary issuance
- Pricing based on market-derived parameters (price = cost to hedge)

#### We believe that the path to a more mature catastrophe-linked securities market is:

- Through intermediaries helping to reduce the all-in cost of issuance through more standardisation of structures
- Issuers would then issue more, because it would be incrementally more attractive vs. traditional reinsurance
- Larger issuance would attract more main stream investors, who would not have the concentration issues that the specialists have
- Risk premiums in the market would be bid down, further reducing the all-in cost of issuance

Notice that there is a chicken-and-egg problem here – the market won’t get bigger until it gets cheaper – but the way to make it cheaper is to make it bigger. Once the market gets larger and more liquid, it won’t be long before the same types of “particle finance” that exist in the credit markets work their way into the catastrophe-linked markets as well.

#### Simplification of natural catastrophe risk (eg. a hurricane): total cat risk = hazard risk + vulnerability risk + other basis risk.

To better understand the different components of risk, let’s consider an example of hurricane risk for a homeowner’s portfolio:

- **Hazard risk** = the risk that the wind blows 120 mph on that house
- **Vulnerability risk** = the risk that there is insured loss given that the wind blows 120 mph on a given house
- **Other basis risk** = the risk that political pressure causes the insurer to pay for flood even though the policy only covers wind

If we were to think about where each component of risk belongs, you would guess that the **vulnerability risk** belongs with the insurer who is underwriting the property – that is, deciding which houses will fall over and which ones will stand up in 120 mph winds. Because this is their “value added”, they should keep this risk along with its associated return.

The other **basis risk** should probably stay with the insurer as well, since this is something that is at least

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partly under the insurer's control (it's the insurer's decision to give in to the political pressure).

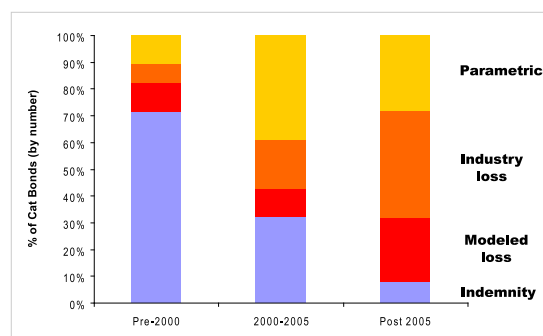
However, the **hazard risk** (which is transferred through "parametric" risk transfer) is one that should logically find its way into the grand casino of the capital markets. It's not likely that insurers believe that they have a competitive advantage in meteorology or seismology (although there are some Bermuda-based reinsurers that do invest in this capability). Furthermore, this is the risk that it most difficult to diversify because it is so lumpy (75% of all of the hurricane risk in the US is in the state of Florida).

There has been an increasing trend toward parametric transfer of risk to the capital markets (see chart below).

**However, there are a couple of things holding back the development of this market:**

- The industry has not become fully comfortable with basis risk
  - Insurers and reinsurers are not comfortable with the risk that they could sustain actual losses that are not covered by the parametric instrument
  - Insurers and reinsurers have not historically thought about separating hazard and vulnerability/basis risk – it will take some time for them to change their business models
  - Rating agencies are still conservative about how much credit they give for risk transfer that leaves basis risk
- There are not standardised parametric indices for all perils
  - In the past, there wasn't a reliable parametric index for US hurricane because existing stations (mostly operated by NOAA) were not designed to withstand hurricane force winds
  - However, RMS in partnership with WeatherFlow is developing a new network of weather stations called WindX – scheduled to be ready for the 2008 hurricane season

The hope is that parametric securities will allow a less specialised investor to enter this market. Specialist investors and hedge funds understand the mechanics of how insurance losses are incurred – many are as sophisticated as reinsurers. However, investors in parametric securities would only need to understand the odds of, say, the wind blowing 120mph in South Miami. This simpler trigger should attract more main stream investors, and will likely jump-start the virtuous cycle of growth in the catastrophe-linked securities market.



Cat bonds are moving away from indemnity triggers

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