



In our regular comment page, Jonathan Spry, senior vice president, GC Securities Ltd, discusses basis risk management

Mind the Gap (in Cover): Basis Risk Mitigation Strategies

The increasing popularity of catastrophe bonds is evident. The rapid growth of these instruments has indicated their viability for effective risk transfer, but risk-bearers are still seeking ways to address the flaws.

Basis risk has been a barrier to cat bond adoption, as issuers have sought techniques to narrow the gap between cover and payouts in the event of an insured loss. Fortunately, trigger-specific strategies can be implemented to lower basis risk, increasing the effectiveness of the cover that cat bonds provide.

Since 2005, every year has led to new records in the cat bond market. In 2007, 27 publicly disclosed new issuances resulted in an additional \$7bn of capital being brought to the property insurance market, bringing total capital outstanding to nearly \$14bn. But, they still only account for 8 percent of total estimated property limits globally.

Basis risk has been a factor.

Indemnity

Basis risk, essentially, is the disparity between an issuer's (or cedant's) insured losses and its offsetting coverage. While ultimate net loss (UNL) treaties have virtually no basis risk, most cat bonds rely on triggers that lead to inexact cover. For most carriers, the goal is to close the resulting gap, aligning cover as closely as possible with an actual insured loss. The cat bond's trigger type can lead to basis risk, as well as strategies for minimising it.

Indemnity-triggered cat bonds offer indemnity against modelled perils, which can result in efficient coverage. However, this advantage comes at a price. Structuring and selling indemnity-triggered cat bonds has been difficult, but there are signs that the market is becoming more receptive.

\$2.3bn of the cat bonds issued in 2007 had indemnity triggers, though nearly

half came from one transaction, State Farm's Merna Reinsurance Ltd. The largest issuance in the history of the market, Merna's indemnity trigger suggests the viability of this approach, but the likelihood of indemnity-triggered bond adoption is still uncertain, as investors remain cautious.

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Closing the gap

The other trigger types – parametric, industry index and modelled loss – refer to specific benchmarks. Parametric and industry index triggers refer to third-party indices defined in contract language, and modelled loss triggers rely on specific model output. The difference between the bond's reference point (either index or model output) and actual losses sustained is the gap in cover (i.e., basis risk) that issuers seek to avoid.

For cat bonds triggered by indices (both parametric and industry) and modelled losses, it is possible to narrow the gap and attain more efficient cover from cat bonds. In fact, trigger types often suggest the strategies necessary to keep basis risk to a minimum.

To narrow the potential discrepancy between a company's modelled losses and actual losses (i.e., for the modelled loss trigger), for example, the solution lies in model refinement.

Improved assumptions, ensuring that

no exposures are missed, and ensuring that data is properly coded will enhance model output, leading to an increased likelihood of modelled loss alignment with actual losses. Basis risk mitigation is only as effective as the preliminary modelling activity, and extra diligence up front can yield results in the event of an insured loss.

Indices

Basis risk mitigation for parametric-triggered and industry loss index-triggered cat bonds, on the other hand, requires care in the selection of an appropriate index. While ease of execution makes existing indices attractive, bespoke indices may result in more effective cover. The issuer's chosen index should also be supported by the catastrophe modelling firm engaged for the cat bond issuance. The goal, of course, is to ensure consistency among the model, index and actual losses in order to keep gaps to a minimum.

Frequently, efforts are made to manage basis risk at the structuring stage by applying catastrophe models and actuarial techniques in order to design the optimal trigger. For example, basis risk may be analysed in the context of an issuer's UNL by comparing the issuer's portfolios and industry exposures. Frequency and severity measures from the comparison can then be simulated by actuaries for the development of basis risk solutions.

For the cat bond market to continue its evolution from the exotic to the mundane, effective basis risk management will become crucial. As alternatives to UNL treaties, the basis risk inherent in certain types of cat bonds has to be manageable. Custom indices and modelled loss portfolios – in conjunction with improved modelling practices – help narrow the basis risk gap, enhancing the value of capital markets for reinsurance risk transfer.

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