Models a la mode

Risk model technology is getting faster, more reliable and easier to customize, says Richard Clinton, president of EQECAT.

Exposure management is a big concern for reinsurers as the market softens: what demands does that place on modelling tools?

As markets soften, reinsurers must select risks more carefully and manage portfolios to optimize their use of capital. Differentiation of risk becomes the key to writing a profitable book. Rate adequacy becomes problematic in some cases, where previously rates were not an issue. Exposure management tools must be able to differentiate and quantify risk sources in detail to enable reinsurers to negotiate contract terms and allow them to write the risk. Sometimes this means offsetting lower rates with exclusions, limits and deductibles that affect the components driving the risk. Models with high resolution hazards and strong engineering-based vulnerability components provide significant value and advantages – particularly in soft markets.

How can models contribute to more effective capital management?

Capital requirements are a function of the individual risk and its correlation to the risk of the book of business. In other words, a very risky piece of business viewed on its own would require a substantial amount of capital to write the business. However, if that same risk is not correlated with the rest of the business it would have a minimal impact on the overall portfolio and therefore probably not require additional capital to write it. Because our models provide regionally correlated loss exceedance curves, reinsurers can understand the geographic spread of risk and manage their capital more effectively.

Models enable accumulation managers to compare risk transfer strategies to see where capacity can be increased more efficiently through capital allocation and/or risk transfer actions. Cat models also allow comparison of rate adequacy for regions, perils and layers based upon probabilistic loss cost simulations versus premium. Thus cat models help users to limit their regional exposure to manageable levels and optimize return on capital through underwriting discipline.

Securitisation is an increasingly useful catastrophe management tool: are models keeping up with investors' and issuers' needs?

Earlier this year, EQECAT introduced eCAT™, a specialised modelling service that enables potential investors to evaluate cat bond offerings and manage portfolios of such investments. Such tools help to broaden the market for these instruments by enabling more organizations to evaluate and manage risk investments. The eCAT™ product is very fast and easy to use: an aspect which is critical for investor users, who have neither the time nor detailed data for the analysis process. The most critical risk metrics are analysed in advance and therefore easily and quickly accessible. The availability of tools like this for the investment community and others will help to further develop this important market.

The last active hurricane season revealed inadequacies in many reinsurers' models. Have they fixed them?

We won't speculate as to how well other modellers have addressed the deficiencies revealed by the 2004 and 2005 hurricane seasons. EQECAT clients told us that the model generally performed well in those difficult years. We did note from subsequent public information, such as Florida Commission filings, that other modellers seem to have adjusted their loss exceedance curves upward to be more consistent with the traditional EQECAT estimates. Nevertheless, we did find opportunities to improve our model based on lessons learned. EQECAT developed and released a storm surge and flood model component for coastal exposures and adjusted Gulf area vulnerability functions and demand surge functions based upon an extensive review of claims data.

Flood risk is increasingly significant for reinsurers in the US and in Europe. Have reinsurers got to grips with it?

Whether due to the impact of new land use policy, climate change or claims settlement practices after Katrina, flood risk can no longer be ignored. Flood models are particularly complex and require the integration of very high resolution data for rivers, streams, flood plains, elevation data, defences, historical occurrences of water height, velocity and correlation for basins along with Lat/Lon geocoding for exposure sites. The more detailed the model and the exposure data, the more useful the analysis information. EQECAT has developed flood and storm surge models for both underwriting and portfolio applications in the US and Europe and will continue to expand and improve those models in accordance with market demand for them.

Model technology is evolving all the time. Where will the next important developments be?

We expect models to become more reliable indicators of risk as we learn from experience and available data, as well as advances in science and engineering. However, it is also apparent that our clients want to see better integration of the models with other systems to improve workflow and efficiency. EQECAT has taken successful steps in this direction by creating published APIs that enable seamless integration and automation of many of the modelling workflow steps. We support the introduction of common data standards. At a minimum, the modeller's data standards and formats should be open-platform items since there is nothing proprietary about this information.

The ability to customise models to reflect the user's view of the risk is something that we are investigating. In fact, we have provided some tools in our Insurance Linked Security™ software for adjusting aspects of the risk to reflect the user's view. ●

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