

PML is just part of the picture

Insurers set too much focus on PML as a risk measure. Instead, the industry should make better use of new risk measures, says Jayant Khadilkar at TigerRisk.

Many insurers are too heavily dependent on the use of probable maximum loss (PML) as their key risk indicator. Instead, they should be migrating to the use of risk measures, better tailored to the unique needs of individual companies.

That is the view of Jayant Khadilkar, head of analytics at broker TigerRisk. He argues that the key stakeholders in the industry – including risk takers, regulators, rating agencies and brokers – must accept that no two companies are alike when it comes to their catastrophic risk exposures. “Every company is unique with a unique and complex set of risks,” he argues.

All catastrophe models generate a loss distribution curve but Khadilkar believes insurers have become too fixated on a single point on this distribution – the probable maximum loss. This has become the industry’s most commonly used measure of risk but he says he is no longer comfortable with setting so much store by this number.

“Many practitioners, myself among them, are increasingly uncomfortable reducing a model’s entire output down to a single point,” he says. “The credibility of a model’s loss estimates is significantly reduced when the focus is on a single point.”

As potentially misleading as it is, the PML remains popular for a variety of reasons. It represents a very simple way to express the output of a complex model and most models are designed to easily generate this number. Regulators and rating agencies also use the PML as a key number when calculating the financial strength of risk takers.

Yet there is some disparity about the exact definition of PML: it can vary from business unit to business unit and from company to company. “Some say it’s a 1-in-100 occurrence loss; another may say it’s a 1-in-250 aggregate loss,” Khadilkar says.

But using this measure alone when making underwriting decisions can be dangerous as it provides limited information, argues Khadilkar.

“Since it is a single point on the distribution, a PML is not additive across multiple risks,” he says. “Unless a portfolio’s PML is refreshed



Jayant Khadilkar, TigerRisk

every time a new risk is added, even a minor change could result in a radically different portfolio. Unfortunately, few of us are that diligent. Common industry practice is to refresh a portfolio once a month.”

Another risky industry practice is where companies will overemphasise the PML to help them optimise a portfolio. “The end result can be a hypothetical portfolio that performs well in theory, but is a disaster in practice,” says Khadilkar.

Because a PML has so much uncertainty surrounding it, the industry should become less reliant on it. “I’m not suggesting that we abandon cat models altogether, far from it. I’m just saying we should develop a new, better risk measure than the PML,” Khadilkar says.

In terms of alternatives the industry should consider, Khadilkar highlights a number of features all insurers should look to include in their analysis. “It should be transparent, easy to understand, stable and provide a consistent yardstick to measure risk across the entire organisation. It should also support day-to-day risk selection decisions, as well as corporate decisions, and be able to take into account the relevant or ‘right’ parts of the cat loss distribution.”

But much depends on the uniqueness of a company’s risk tolerance and risk appetite. “A mutual insurance company, for example, might be concerned about severe surplus ero-

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sion from a single event,” he explains. “So, for that company a measure capturing the extreme tail might be appropriate. On the other hand, a publicly-traded company for which quarterly earnings are a concern might want to adopt a measure that captures the near-term volatility of risk as well as the tail.”

He acknowledges that, for the time being, cat models will remain the primary tool for understanding, measuring and pricing catastrophe risk. “However, we must resist the trend for over-reliance and over-simplification of model results. We should understand their strengths and weaknesses,” Khadilkar says.

“One way we can improve the quality of our decision making is to reduce our reliance on the PML and develop new, more robust risk measures.”