RMS model release 2016

A long awaited update with serious implications for New Zealand insurers

MJW Topix

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Risk Management Solutions, a global catastrophe risk modelling company, has finally released their updated New Zealand Earthquake HD model. RMS models are used by insurers, reinsurers, reinsurance brokers and actuaries to assess, price and place catastrophe risk.

RMS's new HD model is considerably more sophisticated than its predecessor with the inclusion of extreme liquefaction modelling and a number of previously unknown faults. The model builds upon new information learned from the Canterbury events of 2010-2011.

By and large the new model results in significantly higher estimated catastrophe claims than the previous version. How much higher depends upon the type and location of the risks in an insurer's portfolio as well as the particular 'lines' of cover (see the section on EQC below).

Implications for reinsurance costs

So what does this mean for the cost of reinsurance for NZ insurers? The market has been anticipating this new model for some time now, and there was a general understanding that the numbers were going up. Reinsurers have been pricing in higher seismic risk in NZ since the Canterbury events and reinsurance premiums have included loadings (implicit or explicit) over and above the results of the old RMS model.

To the extent that the results of RMS's new model are within market expectations, reinsurance costs should remain stable. However, the overall feeling around the market is that we're talking about a very significant increase in modelled claims, and reinsurers may see this as justification for increasing premiums.

Implications for solvency

The Reserve Bank requires insurers to hold catastrophe cover for a 1 in 1,000 year event. Estimating that 1,000 year level is no trivial task; a common approach was to use the old RMS model with a loading for uncertainty. The challenge for the Appointed Actuary in signing off the solvency calculation was to assess whether the loadings were appropriate.

In many cases, the results from RMS's new model will exceed the old model plus loadings. Insurers are then left with limited options:

1. Accept that the risk is now higher than previously thought and purchase cover to a higher limit.
2. Continue to use the old RMS model with the old loadings, effectively disregarding the new model.
3. Use the new RMS model with negative loadings, or use alternative modelling software.

Option 1 means spending more money. Options 2 and 3 mean taking the view that RMS's new model is overly conservative and shouldn't be used as is. Alternative catastrophe modelling software exists, and the RMS model is usually considered in the context of other models when estimating an insurer's catastrophe cover needs. However, until now RMS has been regarded as the industry standard for NZ earthquake modelling, particularly out at the 1,000 year level. To form a view otherwise would be a change in approach that needs to be accepted by the Appointed Actuary and the Reserve Bank.

Perhaps most importantly, solvency is a continuous obligation. If the Appointed Actuary accepts that the new RMS model is appropriate then is the insurer's current programme really adequate?

On the other hand, for some insurers the results of the new RMS model will be within their previous expectations. Also, some insurers choose to purchase cover beyond the 1,000 year level which may leave some wiggle room in the programme.

The EQC interaction

NZ insurers only cover earthquake risk above the first $100k per claim for domestic building. This means that an increase in modelled damage is likely to be muted for EQC's line and exacerbated for insurers. For example, if the modelled ground-up annual aggregate loss for a portfolio were to increase by 40%, then the corresponding increases for EQC and the insurer would likely be somewhat less and more than 40% respectively.

Further reading

RMS's website provides more detail on the model.

ABOUT MELVILLE JESSUP WEAVER

Melville Jessup Weaver is a New Zealand firm of consulting actuaries providing advice on superannuation, insurance and asset consulting. The firm, established in 1992, has offices in Auckland and Wellington and is an alliance partner of Willis Towers Watson, a leading global services company and is located on the web at willistowerswatson.com.

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