RESERVE BANK
OF NEW ZEALAND
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# Report on insurer catastrophe risk survey 2016

Prudential Supervision Department
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# 1. Summary

In late 2016 / early 2017 the Reserve Bank conducted a short qualitative survey of licensed insurers on their assessment of exposure to catastrophe risk. Insurers were asked to provide information on their catastrophe risks in respect of governance, processes for assessment of risks, any modelling undertaken, the controls to limit exposures, and mitigation to reduce the effects of catastrophes.

This report provides some generalised feedback on the survey responses. There is no comment on the level of conservatism by insurers due to the simplicity of the survey.

Catastrophe risk for insurers is the accumulation of claims arising from a common cause over a short period of time. The nature of relevant catastrophe risks varies by type of insurer. This may arise from natural disasters (e.g. earthquake), man-made disasters (e.g. industrial accident), pandemics, and other accumulations.

The potential size of catastrophe claims, and therefore the significance to an insurer, varies from substantial (for property insurers), to none or limited (for some general and health insurers).

Some licensed insurers only conduct insurance business in New Zealand, while others are a subsidiary or branch of a much larger insurer or insurance group. Some insurers are captives (insuring only the risks of related businesses). These circumstances also affect the significance of catastrophe risks.

Therefore, the relevance of some aspects of feedback also varies considerably by insurer depending on their circumstances.

The survey responses indicate most insurers are assessing and managing their catastrophe risks appropriately for their own circumstances.

Insurers with significant exposure to catastrophe risks generally appear to have relatively strong assessment processes and governance, and manage catastrophe risk distinctly from other forms of insurance risk.

In contrast, insurers that consider they have nil or low exposure to catastrophe risks generally have simplified assessment processes and governance. For some of these insurers the approach taken appears reasonable considering their circumstances. For others there appear to be some shortcomings in the assessment processes and governance, which weakens the management of risk.

For many insurers, assessment of catastrophe risk is anchored to the solvency standards in terms of the types of catastrophe risks that are considered and their calibration. We recommend that insurers take a broader consideration of catastrophes as part of prudent risk management (including capital management). The solvency standards are generic and therefore do not take all circumstances into account.

Some insurers assess their catastrophe risk in light of recent experience. However, recent experience may not reflect the nature and severity of potential future catastrophes.

A good practice is to consider a range of outcomes – extreme events (e.g. expected to occur once every 200 years), reasonably likely events (e.g. expected to occur at least once a decade), and also the potential for cumulative impacts over time (e.g. aftershocks from a major earthquake).

## 2. Feedback

We encourage insurers to consider the feedback to the extent it is relevant to their own circumstances.

***Governance***

Relative to insurers' views of the significance of catastrophe risk to them, the balance between oversight by the board and delegation to management seems to be generally appropriate.

Insurers with very significant exposure to catastrophe risk (e.g. property insurers) generally have strong governance over the assessment of this risk. That is, the Board considers catastrophe risk distinctly from other types of insurance risk, frequently reviews the risks with regular monitoring, approves relevant formal policies and reinsurance purchases, considers the recommendations of senior management, and obtains advice from the appointed actuary and other experts (often external but may be internal for the very largest insurers).

For insurers that are part of a much larger group (whether as a branch or a subsidiary), there is often a considerable reliance upon either the parent or a related entity for assessment of catastrophe risk and also for much of the governance. While there is value in utilising the available expertise, these insurers should consider the relevance of group policies and decisions to the New Zealand business and the extent to which New Zealand catastrophe exposures need separate assessment. Some insurers appear to do this well, and a few not so well.

Some insurers consider they have nil exposure to catastrophe risk given the nature of the business they underwrite or the level of reinsurance obtained. Where this is due to reinsurance arrangements, the gross exposures remain important for risk management because the insurer will be liable if reinsurance fails to be fully effective. It is also possible that a net exposure could arise in future due to changes in reinsurance cover.

Insurers with limited or moderate exposure to catastrophe risk (e.g. life insurers) generally appear to treat the assessment as part of solvency calculation and reporting. These insurers typically assess their catastrophe risk using only the solvency standards (for the types of catastrophes and the calibration of the level of risk), and have very limited roles for senior management and the Board in the assessment. To appropriately manage catastrophe risks, it is important for insurers to consider their own circumstances and for Boards to determine their own risk appetites.

***Formal policies***

Insurers with very significant exposure to catastrophe risk all had specific formal policies for the management of this risk. Where these are group policies, the insurer should consider the extent to which they are appropriate for the New Zealand business.

Many insurers stated they have no specific policies for catastrophe risk but consider this is addressed more broadly as part of insurance risk in their risk management programme. This may be appropriate if the exposures are very limited. However, a better practice is to have a specific policy for catastrophe risk as this ensures there is some visibility of the risks for distinct consideration and periodic review.

Some insurers stated they have no policies in place. If there is an exposure to catastrophe risks, this suggests weakness in their risk management programme.

### *Use of experts*

Assessment of catastrophe risk by property insurers incorporated advice from experts – typically a reinsurance broker or specialist catastrophe modellers within the insurer or wider group. Some other general insurers and life insurers with moderate exposure to catastrophe risk also obtained expert advice.

Some general insurers and life insurers appear to have moderate exposure to catastrophe risk and rely heavily upon advice from the appointed actuary, without using more specialised expertise, and also with limited oversight by senior management and the board. These insurers may benefit from a review of their assessments by another expert at least every few years, or more often for large insurers and insurers with rapid growth and/or commencing new types of insurance. They will also benefit from stronger oversight by senior management and the board.

Other insurers with limited exposure to catastrophe risk relied upon advice from the appointed actuary without using more specialised expertise. This isn't unreasonable.

### *Assessment process*

Most insurers assess catastrophe risk at least annually, although as already noted, for many insurers this is done as part of solvency calculations rather than as a separate exercise.

Models vary considerably in sophistication from specialist property catastrophe models, adoption or adaptation of research into mortality and disability arising from pandemics and disasters, to the use of simple rules of thumb applied to exposure data.

The beter practices of the catastrophe risk assessments included:

- consideration of a range of types of catastrophes the insurer is exposed to
- consideration of a range of severities covering both extreme events and more likely events
- assessment for both gross and net of reinsurance
- use of appropriate models and/or expertise
- regular review of any models and assumptions
- appropriate allowance for identified deficiencies in data, models and assumptions
- consideration of the implications of future portfolio growth and changes along with the limitations of reinsurance cover (particularly if there are event limits on reinsurance)
- reconciliation or understanding of changes in the current assessment from the previous assessment

For some insurers, relevant catastrophes may extend beyond the obvious cases of property damage and deaths due to natural or man-made disasters. Other examples include disability, accumulations due to economic effects, and accumulations due to common practices by insureds.

Property insurers include most or all of these steps in their assessments. However, it is typical for the catastrophe risk assessment to focus on extreme events with little or no assessment of more likely events and the frequency of those smaller events. Furthermore, while earthquakes are considered it appears there is little consideration of tsunami and volcanic eruption which may also have extremely large impacts.

Other general insurers generally do not perform most of these steps, although some do. Typically these insurers base their assessment directly on the non-life solvency standard or their own past experience. These insurers could benefit from gaining an understanding of the likelihood or frequency that this assessment risk relates to, as well as considering a wider range of types and severity of catastrophes.

Life insurers have some areas of weaknesses in their assessments, which have negative implications for their risk management and more prudent practices should be considered.

All life insurers consider pandemic risks, although most limit this to extra mortality at one per thousand for one year, as prescribed in the life solvency standard. Variations that are not considered but which are relevant to the risks being borne include – severity, duration, varying mortality by age, wider impacts (e.g. redundancies), etc.

Some (but not all) life insurers consider natural disasters (e.g. earthquake) and man-made disasters (e.g. transport or industrial accident), although generally this is only considered in a very simplistic manner. The few life insurers which consider concentration risk do so by looking at group life policies or the aggregate of insurance cover for their own staff at head office. Life insurers that are subject to the Reserve Bank's life solvency standard are required to consider both pandemics and other extreme events.

Life insurers do not appear to have much consideration of random effects on all of these risks. An insurer may be significantly more or less impacted than other insurers (relative to market share) due to differences in insured population or by chance, and the severity of catastrophes may also vary widely. The implications of future growth and portfolio changes (e.g. in terms of any limits to reinsurance) are also generally not included in the assessment.

Assessments by health insurers were simple, reflecting the low exposure to catastrophe risk, but also varied widely. Most health insurers have not considered accumulations of death claims, but some have. One health insurer considered the potential for multiple large claims for the same individual.

The appendix contains some additional comments.

### *Monitoring*

Property insurers monitor their business volumes and geographic concentrations for impacts on their exposure to catastrophe risk. For some property insurers the monitoring is infrequent (e.g. annual), which creates the potential for poor outcomes, while for most the monitoring is quarterly or monthly.

Some life insurers with pandemic and/or catastrophe reinsurance also monitor their business volumes and geographic concentrations on a regular basis (e.g. six monthly).

Other life insurers appear to monitor exposures only when assessments of catastrophe risk are performed. This may be appropriate if the portfolio is stable or reinsurance protection is insensitive to changes in the portfolio, but might not be better practice in some other circumstances.

### *Controls and mitigations*

Controls are actions to limit the exposure to catastrophe risk. Controls for property insurers included insurance policy design (use of sub-limits, terms and conditions), as well as underwriting (active management of high risks and concentrations). For other insurers controls were generally limited or non-existent.

Mitigations are actions to offset the impacts of catastrophe risk. Most insurers with moderate or higher exposure to catastrophe risk have reinsurance, typically (but not always) catastrophe reinsurance. Most insurers with nil or limited exposure to catastrophe risk have no mitigations, which appears reasonable.

Some insurers reported a mitigation of post-catastrophe management actions – such as reducing bonus rates on participating business, varying premiums, and limiting future cover. This shouldn’t be seen as strong mitigation of catastrophe risk because it is reliant upon the ability of the insurer to make those changes in a post-catastrophe environment. This may not be possible (e.g. if the insurer fails before it can do this). Alternatively changes may be limited (e.g. the inability to limit future exposure on current business, market constraints on pricing, and a zero floor on future bonuses).

Some survey responses for controls and mitigations were neither controls nor mitigations. This raises a concern that catastrophe risk may not be appropriately managed by those insurers.

## 3. Next steps

This report provides generalised feedback on the catastrophe risk survey 2016. We will discuss with some insurers more specific feedback relating to their own survey responses.

The Reserve Bank has found the exercise useful and envisages a repeat survey in a year or two.

## Appendix – additional comments

- For some insurers, the use of a secondary model may provide additional insights compared to reliance upon a single model.

- For some insurers, the calibration for the scenario(s) used in the assessment is unclear.

- For some insurers, the assessment is based upon a recent actual event. Given the event has occurred recently, it might not be particularly extreme nor consider the full extent of exposures underwritten.

- For some insurers, the assessment is based on overseas experience with no adjustment for the differing circumstances of New Zealand insurers. This might not be appropriate.

- For some insurers, the assessment could benefit from a periodic independent review of methodology and assumptions.

- For some overseas insurers, the New Zealand branch is a very small proportion of the insurer and the survey states there is no assessment of catastrophe risk for their New Zealand business. The appointed actuary is required to comment in the financial condition report on New Zealand catastrophe exposures in line with the relevant solvency standard. If there is no assessment the basis for the appointed actuary's comments is unclear.

- For some insurers, the assessment excluded some products. A periodic review of the reasonableness of this approach (e.g. to reconfirm lack of materiality) could be useful.

- For some insurers, the implications for catastrophe risk of their rapid growth or expansion into new markets and new products do not appear to have been explicitly considered.

- For some insurers, some types of catastrophes may simultaneously affect more than one type or class of insurance and thus exacerbate the impacts. Catastrophe risk assessment should consider all types and classes of insurance likely to be involved in a single event.