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Bulletin: Revised Canadian Earthquake Exposure Guideline About to Take Effect

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On February 28, 2013, the Canadian Office of the Superintendent of Financial Institutions ("**OSFI**") released its revised Guideline B-9, *Earthquake Exposure Sound Practices* (the "**Earthquake Exposure Guideline**"). This replaces the original Earthquake Exposure Guideline, issued in May 1998, and reflects modern best practices in managing earthquake exposure while emphasizing a principles-based, rather than a rules-based, approach to risk. While OSFI encouraged insurers (including Canadian-domiciled companies, branches in Canada of foreign companies, and reinsurers) to implement the Earthquake Exposure Guideline as soon as practically possible following release, OSFI expects insurers to comply with the expectations of the Earthquake Exposure Guideline, including board- level (or chief agent-level, in the case of foreign companies operating in Canada) review of the earthquake exposure risk management policy, by January 1, 2014. This policy should also be filed with the insurer's OSFI relationship manager.

The Earthquake Exposure Guideline recognizes that earthquakes pose a significant risk to primary insurers and reinsurers. Earthquakes are high-magnitude events with potentially severe losses and are very difficult to anticipate. Thus, earthquake risk is difficult to mitigate, and the high-profile nature of press coverage in the wake of an event can create major reputational threats to insurers.

With the new Earthquake Exposure Guideline, OSFI has established a set of common parameters to consider when calculating a policy's probable maximum loss in the event of a catastrophic earthquake. These objective parameters are intended to enable insurers to improve their assessment capabilities to address claimants in the direct aftermath of an earthquake. The new Earthquake Exposure Guideline also calls for insurers to create an exposure risk management policy specific to earthquake management.

The new Earthquake Exposure Guideline is built on five key principles:

1. **Risk management in forecasting earthquake exposure risk.**
   OSFI expects that insurers will have documented, board- or committee-approved (or chief agent-approved) earthquake policies and procedures including, among other things, risk appetite and tolerance for earthquake insurance; exposure assessment, evaluation, and monitoring; contingency plans, including potential increases in claims and operating costs following an earthquake event, and appropriate understanding, selection and use of earthquake models, including consideration of their limitations.

   These policies and procedures should be reviewed by the board (or the chief agent) at least annually, as part of the insurer's catastrophe risk management. Senior management, which is tasked with the implementation of the policies and procedures, should play a key role in earthquake exposure efforts.

2. **Comprehensive data upon which to build forecasts.**
   Insurer risk modeling, including assessing when to transfer or assume risks, is reliant on high quality data, regular and comprehensive reviews of the data, and investments in technology to improve data quality. It is accordingly an OSFI expectation that insurers will have processes that verify that databases are accurately capturing all data received, as well as an understanding of the impact of data limitations and inaccuracies, including conducting periodic reviews of both the data and the data collection methods.

3. **Modeling the potential likelihood of future earthquakes.**
OSFI expects insurers to use sound earthquake models as part of insurer exposure management. While models have been proven to have internal limitations and high levels of inherent uncertainty, users that account for these factors are better-able to estimate probable maximum loss and make reinsurance arrangements.

Regardless of the model selected, OSFI expects insurers to, among other things, validate the chosen model, understand model limitations, document how modeling fits within earthquake exposure risk management (including ceding and assuming policies through reinsurance), ensure that qualified staff or outside consultants run models and review results of modeling, understand the structure of the model and its sensitivity to various input conditions, and have evidence that the data used (both its granularity and quality) is appropriate for the model.

4. **Estimates of the probable maximum loss in the wake of an earthquake.**
The inherent limitation of models suggests that insurers should look to additional risk management techniques in order to develop high-quality estimates of probable maximum loss resulting from an earthquake.

One technique resulting from this uncertainty is a margin of safety to reflect the uncertainty of assumptions such as location of the event and associated risks, damage from secondary events, and damage levels themselves.

Another technique is to shift from the historical practice of estimating losses based on the larger of British Columbia or Québec probable maximum losses to Canada-wide or worldwide exposure, based on which is more appropriate for the insurer's business. This approach will produce a better estimate of the insurer's aggregate earthquake risk, in particular for insurers with significant earthquake-related exposures in more than one earthquake zone, and will allow senior management and the board of directors (or the chief agent) to make better decisions.

As well, insurers are advised to consider risks that are not, or not easily, factored within an earthquake model, such as claim handling expenses, the risk of aftershocks which can compound damage, exposure growth between the date of the subject data and the end of the exposure period, and coverage enhancements such as debris removal. While any one of these risk factors is relatively small, an earthquake event which has the effect of combining and compounding several risk factors may be significant to the insurer and should be considered as part of loss assessment.

While an upward adjustment to an insurer's probable maximum loss resulting from an earthquake may be desirable to accommodate deficiencies in data and/or the model, this adjustment should be grounded in data and logic, as opposed to being a mere "fudge factor".

5. **Contingency plans and financial resources prepared to address issues in real time.**
An insurer's earthquake-related policies and procedures should include and quantify the insurer's willingness to house earthquake insurance risk and outline how the insurer's financial resources will cover its gross probable maximum loss in an earthquake event.

This would include:

a) Insurer capital and surplus, as defined and set out in the insurer's Minimum Capital Test;

b) Earthquake reserves, as listed in the insurer's Minimum Capital Test;

c) Reinsurance coverage, but not including letters of credit or guarantee facilities from corporate parents, and including consideration of adequacy of coverage of other regions are impacted by the same event or similar events (e.g. a combination of earthquake damage and tidal wave damage); and

d) Capital market financing, provided that insurers will need to ensure that they will have access to this financing when they really need it, and that statutory and regulatory limits of borrowing – including the federal *Borrowing (Property and Casualty Companies and Marine Companies) Regulations* – are considered. In particular, OSFI approval is sometimes required before certain standby financing facilities can be recognized as a financial resource under the Minimum Capital Test guidelines.

Contingency plans must ensure continued business operations following an earthquake event. This would include emergency communications links, availability of suitable claims and adjustment service personnel, and off-site systems back-up, including reinsurance records.

Ultimately, the Earthquake Exposure Guideline is an additional risk management and corporate governance tool that OSFI is looking for insurers and reinsurers to use and fits within OSFI's recent regulatory guidance changes, including the *Corporate Governance Guideline*. OSFI will continue to require insurers to file with OSFI an annual Earthquake Exposure Data form, and will look to insurers to continue to include an earthquake event in their annual Dynamic Capital Adequacy Testing.

As well, a senior officer of the insurer is expected to report regularly to the board of directors (or the chief agent, in the case of a branch) details on earthquake exposure and how this exposure is being managed. This report would include an annual declaration that confirms that the insurer's earthquake practices and procedures meet the requirements in the Earthquake Exposure Guideline and would list any areas of non-compliance, as well as the probable maximum loss and insurer financial resources backing the insurer's earthquake exposure.

Insurers with material earthquake exposure risk are advised to:

- Establish board- or chief agent-approved policies for management of this risk;
- Build systems to ensure review of insurer earthquake exposure practices and alignment of these practices with the board- or chief agent-approved policies;
- Ensure regular meetings take place between various members of senior management responsible for implementation of earthquake-related policies, including relevant actuaries and outside vendors, and reviewing of probable maximum loss; and
- Continually review data quality and collection and analysis techniques, including the appropriateness and reliability of models.

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