

Tweaking the Earthquake Regulations

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As discussed elsewhere in this issue, it has been the year of the flood in the Canadian insurance market with two certifiable catastrophes in Alberta and Toronto and numerous other smaller rainstorms and floods across the country. These are the events which have been giving the industry heartburn, but it is the “big one” yet to come which has consumed much of the attention of the policymakers at OSFI this year. I refer to the potential for a significant earthquake in either B.C. or Quebec. While the weather related events will play havoc with reported results in 2013, it is unlikely they will prove fatal to any major players in the industry. On the other hand, OSFI, quite rightly, has significant concerns about the systemic and individual company impact of a major seismic event. To this end they have issued two important documents this year which we will briefly consider in this article:

- (1) February 2013 – Revised Guideline B-9: Earthquake Exposure Sound Practices – http://www.osfi-bsif.gc.ca/app/DocRepository/1/eng/guidelines/prudential/guidelines/b9_e.pdf
- (2) July 2013 - Memorandum: Draft Revisions to Earthquake Financial Resource Formula and Earthquake Data Collection Form for Consultation - http://www.osfi-bsif.gc.ca/app/DocRepository/1/eng/guidelines/capital/guidelines/b9mem_e.pdf

OSFI’s objective, simply put, is to encourage companies to be financially, operationally and psychologically prepared should an earthquake hit one or more of the two seismically active areas of Canada – British Columbia and Quebec. Should we be worried? Consider that there have been between 15 and 30 globally significant earthquakes (Richter scale of 7.0 or higher or with loss of life) each year since the turn of the twenty-first century, including 23 in the year to August 31, 2013. The news reports from places such as Japan, Haiti, Chile and New Zealand have been chilling. Canada has largely dodged the bullet so far in densely populated areas, but the seismic science points to significant risk of earthquakes in both the BC and the Western Quebec seismic zones. Many have forgotten that in 1732 Montreal was hit by quake which, though relatively small (Richter scale 5.8), did very significant property damage. It is also not just B.C. and Quebec which are exposed. Unknown to me until researching this article was the devastation wrought on Atlantic east coast villages by the tsunami caused by the November 1929 Grand Banks Earthquake.

Earthquake Sound Business Practices:

The revisions to Guideline B-9 have now been issued in final form as part of OSFI’s “Prudential Limits and Restrictions” series of Guidelines. OSFI has indicated that the changes to B-9 were designed to “emphasize and strengthen the principles-based approach to managing earthquake exposure.” The revised Guideline no longer contains details of the capital formula for earthquake exposure which has been updated for inclusion in the Minimum Capital Test (MCT) Guideline (see discussion of the July 2013

Memorandum later in this article). The revised Guideline also removes references to outdated default loss estimates contained in the previous 1998 version of B-9; updates the description of best practices in earthquake exposure management; and increases OSFI's flexibility in the collection of relevant data. The document is organized around the following five key principles and also has sections on regulatory reporting and administration of the guideline:

- 1) Earthquake exposure risk management
- 2) Earthquake exposure data
- 3) Earthquake models
- 4) PML estimates
- 5) Financial resources and contingency plans

Earthquake exposure risk management:

The revised guideline emphasizes the importance of integrating earthquake risk with the company's overall risk management and having it subject to oversight by the Board. In fact, the Board or an authorized committee is now charged by OSFI with the responsibility to "oversee the development of earthquake policies and procedures" and also ensure that appropriate internal controls exist to monitor them. An annual declaration giving details on the company's earthquake exposure, how it is being managed and how Guideline B-9 is being complied with must also be presented annually to the Board by senior management. This will be a detailed declaration including details of Probable Maximum Losses ("PML") and the financial resources which support the exposure. Board review of the earthquake risk management program must be completed by January 1, 2014.

Elements of the policies and procedures include risk appetite and tolerance identification, data management practices, exposure aggregation and reporting, appropriate use of models, various PML related factors, understanding of the financial resources available in relation to the PML, contingency plans and post catastrophe operating considerations.

Earthquake Exposure Data

The Guideline identifies the many challenges a company faces in obtaining reliable data for exposure monitoring and earthquake modeling and highlights steps a company must follow to ensure data integrity.

Earthquake Models

OSFI also highlights that all earthquake models have "significant limitations and a high degree of inherent uncertainty", but acknowledge that they can provide a basis for PML estimation if used appropriately. Sound earthquake model practices are discussed in some detail.

PML Estimates

In addition to data and model uncertainty, the Guideline details other non-modelled exposures and risks and encourages companies to consider other "exposure limitation techniques such as limits by geography, occupancy and / or construction type". It will be interesting to see if this results in a reduction in the availability of earthquake coverage. At present it is estimated that only 60% of B.C. homes carry earthquake insurance and less than 10% of Eastern Ontario / Western Quebec homes.

Given the significant extra-contractual payments which companies are feeling pressured to commit to in the wake of recent floods as well as recent experiences of insurers in Florida and Louisiana with hurricanes, it is frightening to speculate on how such uninsured contingencies could impact the models.

Financial Resources

The three key sources of financial resources discussed in B-9 are capital and surplus, earthquake reserves and reinsurance. Given the tax inefficiency of earthquake premium reserves they have been used very sparingly by insurers. Based on 2012 MSA Researcher annual return data, only 17 companies carried Earthquake Premium Reserves at year end and only five of those increased the reserve in 2012. Only four companies held an Earthquake Reserve Complement.

OSFI makes reference to Guideline B-3 – Sound Reinsurance Practices and Procedures and the need to consider the recoverability of reinsurance should other regions be impacted (e.g. a cross border west coast quake). Mention is made of potential Capital Market Financing (referring to the ILS market – see separate article on that in this issue) but without much guidance given. The importance of contingency plans is also emphasized.

Regulatory Reporting

Reference is made to the requirement for annual Earthquake Exposure Data reporting but the details are left for elsewhere (see below). They also specify that an earthquake event be considered in the annual DCAT.

Guideline Administration

The Guideline also articulates some of the powers which OSFI could exercise should they be unhappy with an insurer's policies, procedures or preparedness for an earthquake.

Memorandum: Draft Revisions to Earthquake Financial Resource Formula and Earthquake Data Collection Form for Consultation, July 2013

As noted above, Guideline B-9 did not provide a specific methodology for measuring earthquake exposure or an earthquake financial resource formula and did not describe exactly how earthquake exposure data should be reported. The July Memorandum proposes such formats and is intended to further engage the industry in discussion about the methodology and reporting. The comment period ended August 31, 2013 but it is possible that late submissions may still be considered. The proposed implementation date is January 1, 2015. The Memorandum is a follow-up on the consultation paper issued in 2012. Three Appendices are included in the Memorandum:

- Appendix A – Wording for the Minimum Capital Test (MCT) Guideline
- Appendix B – OSFI Earthquake Filing Form
- Appendix C – Data Study

Minimum Capital Test (MCT) Guideline

The new Section 4.6 of the MCT Guideline contains two main sections, one explaining how to measure Earthquake Risk Exposure and a second detailing the Financial Resources which may be used to cover the earthquake exposure.

Earthquake Risk Exposure

The proposed guideline retains the graduated increase (still over a period to 2022) to a 500 year return period for PML estimation. What is new is that insurers with country-wide exposure may no longer select the higher of their BC or Quebec PML, but must now calculate a “country-wide” PML taking into account the potential for events occurring in both zones. The approximation formula proposed by OSFI for the country-wide 500 year PML is based on an adjustment to the “square root of sum of squares” with the parameter 1.5 substituted. This formula achieves the OSFI notion that a company writing in two zones should have a higher earthquake PML than a purely regional company and also produces a result which is less than the sum of the PML’s of the multiple regions. This formula integrates relatively easily with modeling software and current approaches.

Financial Resources

Allocated capital and surplus is limited to 10% of total equity for Canadian companies (Branches may, with appropriate representations use 10% of worldwide equity). The lightly used Earthquake Premium Reserve (EPR) remains and the ERC is has been renamed the Earthquake Reserve Component (rather than Earthquake Reserve Complement as in the 1998 Guideline). Reinsurance credit should be based on coverage in force the day after the reporting period end. No guidance with respect to Capital Market Financing exists other than to seek OSFI’s approval.

OSFI Earthquake Filing Form

The new earthquake data reporting form provides a format for reporting extensive information about the earthquake models, data and model quality control processes, non-modelled perils, formulas and model results (separate forms for direct companies and reinsurers).

Data Study

The Data Study results are gleaned from data from 2012 Earthquake Data Filings and AA Reports. Of 167 companies studied, 18 were excluded due to perceived data errors in their filings. Another 57 were excluded due to immaterial exposure to B.C. or Quebec. A total of 82 companies were used for the total analysis and another 10 for the capital adequacy study.

Rather than try to summarize the detailed findings of the Appendix C Data Study the best approach may be to simply quote directly from the memorandum’s summary findings:

- The overall PML regulatory requirement for the year 2022 will increase by \$2.8 billion or 8.9% from the current \$31.3 billion to \$34.1 billion. The changes have the largest impact on the national writers where their BC and QC exposure are similar. Foreign companies, companies without personal property or large-sized companies (i.e. those with equity greater than \$500 million) are more likely to have a greater than 15% increase in PML.

- More than half of the affected companies already have financial resources related to earthquake risk at a level higher than the proposed 2022 regulatory requirement. Therefore, only \$1.5 billion out of \$2.8 billion will require additional financial resources. Further, the annual cost of an additional reinsurance requirement of \$1.4 billion is likely to be less than \$50 million.

OSFI takes a lot of heat these days from the industry for additional layers of regulation. Should an earthquake occur, one can almost imagine them being asked if they caused the quake or simply failed to prevent it from happening. With these new guidelines and expectations they have taken important steps toward encouraging companies to thoroughly understand the financial implications. It will be interesting to see if the additional capital requirements and pleas from the regulator for prudent underwriting result in any reduction in earthquake capacity in the market.

It is expected that these regulations, coupled with changes in the cat models and hardening in catastrophe reinsurance will result in product changes, some price hardening and increased pressure on government to beef up building codes and strengthen infrastructure. And not a moment too soon. Much of Vancouver is a forest of shimmering glass clad condo towers, many of the utility poles there are still made of wood and, as Alister Campell, now CEO of the The Guarantee Company of North America, said at the 2011 NICC: "Montreal is crumbling even without a quake!"