

EXAM 6 – CANADA, SPRING 2016

17. (2 points)

The Earthquake Exposure Sound Practices Guideline sets out OSFI's expectations for policies and procedures applicable to insurers that have material earthquake exposure.

a. (0.5 point)

Briefly describe two methods to test the completeness, accuracy and consistency of the exposure data.

b. (0.75 point)

Briefly describe three best practices that insurers are expected to have in order to ensure that their earthquake models are appropriately used.

c. (0.75 point)

Identify three non-modelled exposure and risk factors that should be considered as part of an insurer's earthquake PML.

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SAMPLE ANSWERS AND EXAMINER'S REPORT

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| QUESTION 17 | |
| TOTAL POINT VALUE: 2 | LEARNING OBJECTIVE: C1 |
| SAMPLE ANSWERS | |
| Part a: 0.5 point | |
| <ul style="list-style-type: none">• Sample answer #1<ul style="list-style-type: none">○ Summarize data and review key statistics○ Look at year-to-year changes in exposures (and compare with historical data)• Sample answer #2<ul style="list-style-type: none">○ Portfolio-specific data sensitivity analysis can be done regularly to ensure the quality of data○ Aggregating data by key occupancy, geocode, etc. and compare them with known attributes to test reasonableness of the data• Sample answer #3<ul style="list-style-type: none">○ Compare the data on key metrics to last years data to ensure reasonability○ Look at the historical data for any evidence on consistent mistakes/issues | |
| Part b: 0.75 point | |
| <ul style="list-style-type: none">• Sample answer #1<ul style="list-style-type: none">○ Knowledge of assumptions, limitations & methods to interpret the results○ Understand inherent uncertainty in the model output and effects on capital reqs & reinsurance reqs.○ If two models give different PML, must reconcile and explain any subsequent model adjustment• Sample answer #2<ul style="list-style-type: none">○ Understand alternative models and know why selected model is the most appropriate one○ Sound knowledge of assumptions and methodologies○ Ensure qualified staff to run the model• Sample answer #3<ul style="list-style-type: none">○ To encounter the inherent risk of the model, can use several different models to evaluate the result○ Only qualified staff are allowed to run the model, he/she need to know the assumptions and methodologies of using the model○ To regularly review and update the model to ensure the model is still valid | |
| Part c: 0.75 point | |
| <ul style="list-style-type: none">• Sample answer #1<ul style="list-style-type: none">○ Increase seismicity after event○ Claims handling expenses○ Exposure growth between data is extracted and model is run• Sample answer #2<ul style="list-style-type: none">○ Claim handling expenses○ Marine and auto insurance○ Adequacy of insurance-to-value• Sample answer #3 | |

SAMPLE ANSWERS AND EXAMINER'S REPORT

- Exposure growth
- Debris removal
- Contingent interruption of business operations

EXAMINER'S REPORT

Few candidates received full credit for this question. Part a) was the most challenging part mostly because the candidates didn't answer the question asked although their answers were relevant to the OSFI Earthquake guideline. Candidates generally did well on parts b) and c).

All three parts of this question were really about knowing the correct lists of methods/practices from the OSFI Earthquake guideline.

Part a

Candidates are expected to describe methods to test the accuracy of data. Some candidates received full credit for this part.

Many candidates provided quality control process that should be implemented to ensure data completeness, accuracy, and consistency. However, the question was asking for methods to test the exposure data. So, many candidates received no credit, or at least partial credit, on part a) for this reason.

Common error:

- Describing a quality control process. For example:
 - Have internal controls in place that ensure data systems record data properly
 - Data audits
 - Invest in technology to ensure accurate data is entered in the system

Part b

Candidates are expected to know the best practice to ensure the model are appropriately used. They generally did well on part b).

Most candidates were able to give at least one best practice to ensure earthquake models are appropriately used and many provided three.

Common error:

- Describing a practice an insurer should have in validating an earthquake model (i.e. test output of models against actual event or historical data)

Part c

Candidates are expected to identify non-modelled factors. Most candidates received full credit for this part. It was largely a "hit or miss" question where candidates provided 3 good answers or no good answers.

Common error:

- Identifying exposures that are usually modeled (i.e. social inflation, demand surge, post-event inflation, exposure to multiple region)