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## Modeling Professionalism, or Aren't We Modeling Pros Yet?

By Trevor Howes

Two remarkably similar events impacting the North American actuarial profession occurred this past summer: the twin Actuarial Standards Boards (ASBs) serving the Canadian and United States professions both released revised exposure drafts of intended guidance relating specifically to modeling (or *modelling*, as we Canadians prefer to spell it).

Let's start with the most fundamental and significant similarity: Both standards boards are treating the use and reliance on models as worthy of explicit guidance for professionals and, in particular, offer guidance on understanding, mitigating and communicating how model risk impacts the quality of their work. Despite some resistance in both national communities to yet more guidance (threats of discipline? unnecessary work of no benefit?), both ASBs insist this guidance is needed and persist with repeated drafts to get it right. There are a number of interesting aspects to these developments beyond their notable similarities and differences in approach and style.

This work has been in progress for a while. Canadians started in 2011 with a notice of intent leading now to a second exposure draft, while the American body started work a year earlier and now offer a third exposure draft. The Brits finalized their professional guidance on this topic in April 2010, about the time we were just getting going.

Why the delay in North America?

A lot of the discussion and debate may be driven by conflicting interpretations and usages of the word "model." For example, models to many actuaries mean software. This then implies the ASBs are trying to regulate the creation and use of software, including third-party modeling tools and simple spreadsheets.

This focus on software as a modeling tool leads to a discussion of whether simple programs or spreadsheets performing simple calculations, often reflecting a standard "method," should require this much professional effort and mandated compliance.

The teams drafting these new standards want them to apply to actuaries of all kinds doing actuarial work that might be quite different in nature; the fundamental principles being applied



are sound and useful guidance. Getting the right wording that communicates clearly to this wider audience is not an easy task.

The latest drafts in both countries clearly reflect these concerns, both in modified guidance wording and in the accompanying comments by the issuing bodies. The U.S. exposure draft now explicitly defines a "simple model" and excludes it from the scope of the standard. The Canadian draft similarly states that "some models are so simple or otherwise have such low model risk that the actuary is able to exercise appropriate diligence without formal documentation or reporting."<sup>1</sup>

The drafts in both cases repeatedly use phrases such as "heavily relied on," "material financial effect" and "professional judgment" to qualify the application of prescriptive guidance and emphasize the proportionality concept that requires effort and benefit to be aligned.

When should guidance for professional practice resort to such painstaking efforts to justify itself? Some objectors in both countries have pointed to the overarching rules of conduct that require the actuary to use professional skill, care and judgment, and to consider the practical benefit in relation to the additional documentation and disclosure that new standards are feared to be mandating.

As a life insurance actuary, I agree with the overall need for more detailed and explicit guidance on the use of models and specifically with the need for appropriate care and diligence in the maintenance and use of our increasingly complex software tools, which can mitigate model risk that may arise from errors in the implementation and operation of modeling tools.

However, I hope actuaries from all practice areas reading and reacting to these new standards take note of the care taken in defining models and their essential characteristics. Models are “simplified representation of relationships among real world variables, entities or events” used “to help explain a system, to study the effects of different parts of a system, and to derive estimates and guide decisions.”<sup>2</sup> Models always have a conceptual component as well as an operational, calculation-driven aspect.

Model risk is “the risk of adverse consequences resulting from reliance on a model that does not adequately represent that which is being modeled or that is misused or misinterpreted.”<sup>3</sup> Thus calculation errors arising from the ongoing maintenance of a model or the selection and definition of model data, assumptions and parameters are only part of the concern. Equally important is the consideration and validation of the underlying simplification of reality inherent in the model, and whether any limitations of the model from that simplification, by design or by errors in implementation and operation, have inappropriately impacted the ultimate work product of the actuary.

If actuaries remember this fundamental goal of understanding and mitigating the model risk and apply reasonable judgment in considering the significance and materiality of the models used to those who are relying on their work, the semantic differences and practice-specific interpretations of the standards cease to be roadblocks. We can then move on to adopting and applying this new guidance in a reasoned proportionate manner to improve the quality of our work as modeling professionals.

By the time this column is published, I expect to have passed the gavel as chair of the Modeling Section to Bruce Rosner, and hopefully he will be writing this column in the next newsletter. I am remaining on council for the rest of my term and look forward to working with Bruce as he leads the section forward. ■



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#### ENDNOTES

- 1 Canadian Institute of Actuaries, Second Exposure Draft for Standards of Practice—Use of Models, Section 1535.03, July 2014.
- 2 Actuarial Standards Board, Third Exposure Draft of the Proposed Actuarial Standard of Practice on Modeling, Definition 2.7, June 2016.
- 3 *Ibid.*, Definition 2.9.



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