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May 13, 2019

Actuarial Standards Board (ASB)
Modeling Task Force
1850 M Street NW
Suite 300
Washington, DC 20036

Re: Proposed Actuarial Standard of Practice on Modeling (Fourth Exposure)

Dear Colleagues:

The Professionalism Policy Review Council, a committee of the Casualty Actuarial Society (CAS), has discussed the current exposure draft of the proposed actuarial standard, “Modeling (Fourth Exposure Draft)” (the Standard), and offers the following comments. We do thank the Task Force for what has undoubtedly been a difficult task and hard work. As explained below, we think that task was made especially difficult due to the broad scope set out for the Standard.

We start with the observation that just about everything an actuary does involves a model. It is that broad scope that leads to the many concerns articulated in this letter. It is quite difficult indeed to have a high-quality Actuarial Standard of Practice (ASOP) that has exceptionally broad coverage, and consequently overlaps with almost all other ASOPs (which may also make it unduly onerous if the overlap is not carefully controlled).

The Scope of the Standard Is Too Broad: The comments represent strongly held views by many CAS members who are in the forefront of applying new modeling approaches, including advanced statistics, artificial intelligence, and machine learning. We suggest that creating one Standard to apply to financial reporting and enterprise risk management models as well as catastrophe models, more advanced statistical, pricing, and artificial intelligence or cognitive models, and all types of models that will be invented will inherently be less optimal to all these types of models than standards that are tailored to the new or different areas of analysis.

The “one Standard” challenge continues to create concerns, even while we can see the changes in approach, and expansion of points of view, of Task Force members. We see that the Task Force attempted to address the concerns in our comment letter to the third exposure draft. Despite the extensive change in the fourth exposure draft, our concerns remain. We think they are impossible to address with a one Standard approach.

Supporting the point, we observe that the broad nature of the proposed Standard is an outlier in ASB’s approach. Only eight ASOPs apply to all practice areas, of which one is the introduction to the ASOPs, six are very narrow in focus, and the outlier is ASOP 41,

Casualty Actuarial Society 4350 North Fairfax Drive, Suite 250, Arlington, VA 22203
office@casact.org 703.276.3100 tel 703.276.3108 fax
www.casact.org

which was specifically designed to reduce the repetition of routine language concerning communications that had come about in other ASOPs. In other words, the breadth of this ASOP is unprecedented.

We also note that the ASB itself still seems to support this point of view, in light of the fact that the separate standard on Catastrophe Models (ASOP 38) is currently under revision rather than the plan being to withdraw it if this Standard is promulgated.

We have concerns that such a broad scope as currently drafted could result in inappropriate guidance in some situations, which could harm the profession, cause modeling talent to leave the actuarial profession, and undermine the framework of the ASOPs overall.

Our strongly held view is that the Standard for models as exposed should be modified to apply only to financial reporting models and perhaps enterprise risk models: This would likely require defining the boundaries of the group of financial reporting models. Another approach to manage the scope would be to apply it only to life insurance or long duration contracts. The ASB can then consider whether additional standards should be created for other types of models, including those being made possible by advances in technology and modeling theory. These new and separate standards can be more tailored to those types of models.

If our strongly held view that this Standard is too broad is not accepted by the Task Force, we offer the following comments discussing the significant deficiencies that persist, but we do not intend this to detract from the main point that standards for models should be tailored to handle the unique situations and risks that arise in different types of models.

Applicability: Due to the broad nature of the Standard, applicability may need to be better defined. As with other ASOPs it is applicable when performing actuarial services. However, given the way the modeling field pushes the frontier of activities actuaries are involved in, a clearer and more complete definition is needed in this case than is already provided in ASOP 1's rather circular definition of "actuarial services". For example, if an actuary builds credit models for a bank, it is unclear whether this Standard applies.

Clarification of What Constitutes a Model Run: On the one hand, financial reporting models and enterprise risk models tend to be used by practitioners in periodic processes such as financial close, or in one-off circumstances such as evaluation of a proposed demutualization or reinsurance treaty. On the other hand, other types of models are often deployed in an operational mode, for example, a claims-triage or pricing-guidance model is often deployed to users who employ it without necessarily knowing how it works, and small revisions (often unrelated to the underlying "modeling" work) may frequently be put into production.

It is not clear in this situation what constitutes a "model run", which could be:

1. Initial development and testing of the model;
2. Periodic updates and related testing;
3. Each time the model is employed by a user, such as, for a pricing model, pricing a risk.

Model Maintenance: The Standard is silent as to the responsibilities of an actuary who maintains a model. This creates the dilemma for some practitioners that the Standard is not possible to interpret and to follow when routine maintenance of a model is ongoing. Perhaps the Standard should describe that situation and clarify the responsibilities of an actuary who maintains a model in use. Some changes while performing maintenance would be quite minor. Therefore, we suggest interpretive guidance such as:

“When maintaining a model the actuary should apply this guidance proportionate to the scope and nature of work performed on the model.”

Margins: The term “margin” is not defined in the Standard. While in a traditional financial reporting sense, it is clear what a margin is if used as a component of a financial statement balance, it is unclear what is meant by putting a margin in a parameter, for example. Furthermore, “margin” in the financial reporting sense is foreign to most other types of models, where it might refer, for example, to return on sales, or to the separation between classes (e.g., “hard-margin” vs. “soft-margin” classifiers). Even if the term is defined, we feel that a margin in the financial reporting sense is not appropriate for most types of models, so its presence in the Standard concerns us. We would prefer 3.1.6(b) be deleted entirely (along with much of the rest of 3.1.6 – *vide infra*).

Data: We think it may be appropriate for data considerations to be more prominent, especially as data are critical when using models. We do understand the cross reference considerations to ASOP #23 on data. However, we found it surprising that there is no mention of data considerations or handling defects in the data in the model testing and validation sections, 3.5.1 and 3.5.2.

Actuaries Working in Teams with Non-Actuaries: We do not think the Standard addresses well how an actuary would comply when the actuary may be working on a model as part of a cross-functional team. The actuary may be a small part of that team, and perhaps not in the leadership of that team. We think the intent is not that the whole team of professionals who are not actuaries would need to comply with the Standard, so that leaves the dilemma of how to comply when doing work that is a contribution to a larger model. We suggest interpretive guidance such as:

“When working on a model with a team including other professionals the actuary should interpret this guidance proportionate to the scope and nature of the actuary’s role.”

Assumptions and Parameters Used as Input: We see 3.1.6 as perplexing in that for 3.1.1-3.1.5 the topics are either actions (designing, selecting, understanding, for example), or major considerations (structure and data). But 3.1.6 is different in that it has a narrow-sounding topic that is followed by a long list of very specific prescriptions. (3.1.6 is as long as 3.1.1-3.1.5 combined.) We also observe that “For models that use assumptions and parameters as input” is redundant, as all models use assumptions, and assumptions are inputs by definition.

3.1.6 does describe some good and reasonable practices for some types of models, but is not necessarily appropriate for a Standard broadly applicable to all models.

More specifically, this subsection could be made more broadly applicable and lead to much less confusion with the following changes:

- Here and throughout the Standard, replace “assumptions and parameters used an inputs” by “inputs” and other appearances of “assumptions and parameters” by “assumptions”. (Also, then the definition of “parameter” can be deleted.)
- Merge 3.1.6(a) and the second paragraph of 3.1.6(d) into a new 3.1.6 and call it “Setting Assumptions”
- Delete 3.1.6(b), 3.1.6(c), and the first paragraph of 3.1.6(d). These get into details that are specific to certain types of models, and in a standard of this breadth, we think they are covered by the requirement that the actuary correctly use the models. This also allows deletion of much lingo like “margins” and “model runs” that is specific to a small class of models and confusing in a general standard.
- Move 3.1.6(e)-(f) under 3.5.2 (Model Validation), preferably rephrasing the words currently in 3.1.6(e) to avoid the use of the phrase “model runs”.

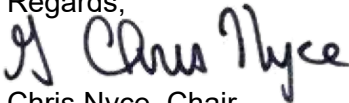
Actuarial Reports: We believe the Standard is unclear on whether an actuarial report is required. We believe it should be at the discretion of the actuary. For example, if an actuary participates on a modeling team with many other professionals and handles a minor component, it would not seem to be necessary. Perhaps this should be made explicit.

Conclusion: The broad scope of the Standard makes it an enormous challenge to make it relevant and appropriate to all models, especially when almost everything actuaries do involves models. Another approach would be to define different types of models, and when appropriate give a separate discussion and considerations for various model types. However, this would create a complex standard, and it still could create difficulties as different technologies, models, and the way models are used change.

This leads us to our strongly held view that the Standard's scope be restricted to the more homogeneous family of models used for financial reporting and perhaps enterprise risk models.

If this approach is adopted then the other comments provided earlier are still relevant for consideration by the Task Force.

Regards,



Chris Nyce, Chair

The Professionalism Policy Review Council of the Casualty Actuarial Society

Members:

Jeff Courchene

Chris Diamantoukos

Kevin Dyke

Ginda Fisher

Susan Forray

Kelly McKeethan

Chris Monsour

Vince Edwards, Staff Liaison