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Comment #24 – 10/31/16 – 5:01 p.m.

October 31, 2016

Actuarial Standards Board (ASB)
Maryellen Coggins, Chair
1850 M Street NW Suite 300
Washington, DC 20036

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

Dear Ms. Coggins,

First, let me thank the Actuarial Standards Board and its volunteers for its important work in preparing this new exposure draft on Modeling. Given the increasing reliance on complex models in actuarial work, we think it will be useful to establish professional standards applicable to designing and using models.

Accordingly, the SOA Leadership Team appointed an SOA Task Force of individuals with significant experience in modeling to review the exposure draft. That letter is attached.

We thank the ASB in advance for carefully considering these comments.

Sincerely,

A handwritten signature in black ink that reads "Jeremy J. Brown".

Jeremy J. Brown, FSA, MAAA, EA
President, Society of Actuaries



October 31, 2016

To: Actuarial Standards Board

SOA Comments on the Third Exposure Draft of proposed Modeling ASOP

We wish to thank the Actuarial Standards Board for the work effort that has been reflected from previous exposure drafts to develop this version of the Modeling ASOP. We appreciate the transparent manner that you allow actuaries to comment on the Exposure Draft.

The Society of Actuaries appointed a Task Force with leaders from the Modeling Section and the Predictive Analytics & Futurism Section to review this Third Exposure Draft and to develop the SOA's comments on it.

Growing importance of modeling – It is interesting to note that the newest section of twenty sections of the Society of Actuaries is the Modeling Section. Actuaries have been working with models for many years, and most actuarial work is model driven (pricing, reserving, risk management, investing, reinsurance, etc.). In recent years, the profession has increasingly relied on complex models for analysis and decision making. This has brought various stakeholders to ask questions about models and increased their scrutiny of model results. More and more regulations, both domestic and foreign, impacting US actuaries are based on the ability of companies to utilize the model results for drivers of business. Examples of changes to the regulatory framework that have increased the complexity of the models for actuaries include Comprehensive Capital Analysis and Review (CCAR), Solvency II, Risk Management and Own Risk Solvency Assessment (RMORSA), and Principle Based Reserves (PBR). Based on this environment, it is appropriate that one or several ASOP's on this topic are needed for actuaries.

Scope clarification and interaction with Assumption ASOP– The scope of this exposure draft as defined by Scope (Section 1.2) and the definition of Model (Section 2.7) is very broad and very large. Further, the considerations and requirements of the proposed standards are in some cases not consistent with the broad scope.

We appreciate that you describe the components: an input component, a processing component, and an output component. Further, there is an evident intent to draft a cross practice ASOP, and to cover all types of models regardless of their usage and nature. It appears that at times the scope that you are attempting to address could be viewed as confusing. For example, it is unclear whether assumption development is within the scope of the ASOP or not. We believe that the consideration and setting of assumptions is outside of modeling and fully deserves its own ASOP. However when models including but not limited to predictive models are used to develop or express assumptions derived from underlying data, it is not clear that the

language is this ASOP would be meaningful. The attempt to include predictive modeling in your scope may be useful but in certain sections the language used or even the principle being expressed may be inapplicable or confusing to those working with predictive models for example the language describing margins and parameters.

We are aware that the ASB has also announced that it has formed a Task Force to create a new Assumption ASOP. We are concerned with the interaction of that ASOP with the input component of this Modeling ASOP. We think it would be much preferred to have a Module approach with the Assumption ASOP and the Modeling ASOP created and released at the same time with clear references to each ASOP so there are no conflicts. We think that some of your definitions and statements about assumptions, parameters, and data to the model would be better defined in the Assumption ASOP. We do appreciate the work that you have done to address modeling as a new specific ASOP rather than just doing actuarial work. However, we request that the language be made precise so that it is meaningful and consistent to everyone.

Adaptation of language to predictive modeling – It is important to realize that the wide variety of models that are used by actuaries. Examples include actuarial projection models, risk and statistical distribution models, and now more recently predictive models. Some of these models have been developed by actuaries, some are developed by non-actuaries and some are developed by team with actuaries and non-actuaries working together. The goals, methodology, and uses of various types of models are quite varied and this results in great difficulty in fully covering this in one standard. As the task force discussed the various definitions, it was clear that different actuaries ascribe different meanings to the proposed ASOP as they are working with different and varied types of models and have different professional backgrounds.

In general, it is not optimal when an ASOP creates different understandings for different actuaries. We believe that in various sections there is unclear direction for those that work with predictive modeling. We are concerned if the current drafted version were adopted for all aspects of modeling without any changes that there would be a lack of clarity for certain actuaries as some of the requirements are not meaningful to those performing predictive modeling. We request that the ASOP language is revised appropriately to those that are specifically working with predictive modeling so that it is useful in their modeling work, or alternatively revise the scope of the ASOP.

OTHER COMMENTS

While we trust the overall exposure process to alert the drafting team of granular comments to the document, the SOA would like to point out some elements for consideration.

- The validation section (Section 3.5.1) refers to validation of the model results to historical past. There are instances where the past is not relevant to this validation (e.g. disruption, shock sensitivities)
- The definition of model and model run (Section 2.7) could be refined to ensure common understanding of particular cases. For example, it is unclear if a validation spreadsheet is a model whose intended usage is to validate a larger model; and if it requires formal documentation on its own if it fails the simple model test. The concept of model run readily applies to stochastic models but it not as clear what that means for predictive modeling. If certain sections are not applicable, then language such as “if applicable” might be needed.
- One of the changes to this exposure draft was the introduction of the definition of “simple model” (Section 2.12) which is specifically excluded from the scope of the ASOP. The definition refers to the transparency of results and we do not believe this is a clear definition. Simple models do not necessarily eliminate model risk just because they are simple. We do see the value in excluding certain models but would suggest a different definition that looks at models where the underlying process and methodology applied is transparent to all users.
- Model usage outside the intended use (Section 3.4) may be allowed in specific cases to avoid stifling innovation, but should require rationale on the appropriateness of the new usage.
- It appears the language on Assumptions (Section 2.1) is not treated consistently. For the most part it seems that assumption development is treated as a process outside of modeling but assumptions once developed are inputs to a model and part of a model itself. The scope does intend to cover predictive models which often are for developing assumptions for the future. This appears to be inconsistent.
- The language also addresses margins (Section 3.4.7b). Margins are an important work of actuaries but it is not clear how it fits within the scope of this ASOP nor how they can be discussed without getting practice and application specific. Margins are dependent on the available financial reporting requirements and are a subtopic of assumption setting. We believe this is already addressed in other ASOPS and the discussion of margins might introduce confusion in this ASOP. It is also not clear that the concept of a margin applies at all to certain type of models such as predictive or statistical models.
- The Consistency section (Section 3.4.7d) is not clear. The requirement to use the assumptions consistent with the economic scenarios might be taken to require market-consistent measurement which might contradict current financial reporting requirements.
- The Experience Reflected in Setting Assumptions and Parameters (Section 3.4.7a) seems confusing with respect to sensitivity testing of assumptions. Often models are used to evaluate the range of impacts that result from various assumptions even if some of those assumptions are not realistic to current experience.

- Relation to Other ASOPs (Section 3.9) refers the reader to ASOPs 23 and 41 which are needed. However, we also think it is very important to recognize other standards as well so they are not inconsistent with those proposed ASOP. For example, ASOP 3 and ASOP 7 also speak to assumption setting and modeling.
- Parameters (Section 2.11) seemed to be defined as input to the model just as assumptions are an input. However, often the result of predictive modeling is to solve for parameters as the intended output. This definition should be modified for those in predictive modeling.
- It is also important to recognize that there are often prescribed steps and processes for models used in regulatory compliance versus other models. This should be acknowledged in the ASOP that actuaries need to be aware of all laws and regulations that could take precedence.
- Another terminology issue is partly addressed by the ASOP draft through the definition of specification, implementation and production phase of models. These separate dimensions of a model are important to distinguish and those expanded terms should be used more frequently in the draft as they may be applicable. Often people think only of the software implementation of a model, and then assume the standard is concerned with anything done by a computer program or spreadsheet. When model risk is addressed, and specifically when validation of a model is discussed, the validation of the conceptual design of a model, and consideration of the risk of misuse of a model based on inappropriate design, is not properly understood with the emphasis appearing to be on the accuracy and integrity of the calculations performed.

We do appreciate the opportunity to provide observations and comments to the ASB. We trust that you will carefully consider this input as you work to address the concerns that some of the requirements seem more directed and meaningful for those actuaries working with actuarial projection models than the scope that you have defined in this ASOP. We recommend that you make further revisions to this proposed ASOP and consider issuing another exposure draft for the important work of modeling.

Members of the SOA Task Force on the Third Exposure Draft of proposed Modeling ASOP

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