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Actuarial Standards Board  
1850 M Street, NW, Suite 300  
Washington, DC 20036  
Via email to [comments@actuary.org](mailto:comments@actuary.org)

**Re: Modeling (Third Exposure)**

Members of the Actuarial Standards Board,

Thank you for the opportunity to comment on the third exposure draft of a proposed ASOP titled *Modeling*, organized into the issues requested by the Committee,

1. *Does the proposed standard provide sufficient and appropriate guidance to actuaries working with models? If not, what suggestions do you recommend for improving the guidance?*

No the way in which the current ASOP draft is set up it does not provide sufficient and appropriate guidance to P&C actuaries working on ratemaking models.

As mentioned in the response to item 2 below, it would be more appropriate to split out a separate ASOP applicable to P&C ratemaking models that are not scenario or financial models, because much of the jargon and requirements in the ASOP draft are not relevant to P&C and therefore confusing. An alternative would be to clarify which sections of the ASOP are only relevant to scenario or financial models, because it is not appropriate to expect a P&C ratemaking actuary that is not familiar with scenario or financial modeling to understand what these requirements are that are not applicable to the kind of work they do.

As also mentioned in the response to item 2, the ASOP draft is missing fundamental modeling requirements for P&C ratemaking work.

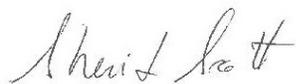
2. *Does the proposed standard provide sufficient and appropriate guidance to actuaries working with all types of models, including financial projection models, predictive models, and statistical models?*

For P&C ratemaking models, this ASOP does not appear to provide appropriate guidance, for the following reasons:

- It appears that the ASOP draft is most focused on financial modeling and not P&C predictive modeling. I am an experienced P&C ratemaking predictive modeler and am unfamiliar with many of the terms and requirements discussed in the draft ASOP, because

they appear to be financial modeling related and not P&C ratemaking related. It is hard to follow an ASOP rule if you are unfamiliar with the term and don't understand what it is asking you to do. I do not feel that it is reasonable to ask P&C ratemaking actuaries to learn financial model terms or life / health model terms to follow an ASOP. I would propose that the ASOP be split into a separate ASOP for financial modeling versus ratemaking / reserving, or split the ASOP into life/health versus P&C if the financial modeling is only applicable to life/health.

- The ASOP already asks to document the intended user and goal of the model which is great but not enough. I recommend that the ASOP documentation requirements be expanded so a P&C actuary can follow what was done, how it was done, and evaluate the model for the intended purpose of the model. Documentation should also include:
  - Source of data used including valuation date
  - All adjustments made to data after received from sources listed (if loss development was applied or not and if so where the loss development factors came from; if premium was onleveled and how; etc.)
  - Data dictionary for input, derived variables, and target variables
  - What portion of data used for training vs model validation (hold out)
  - Model validation
  - Why methods used are appropriate
- Section 3.6.2.b requires documentation of all significant uncertainty. For P&C ratemaking, there is significant uncertainty throughout the entire modeling process, including what modeling approach is selected, what loss development assumptions, on leveling assumptions, distribution of risks included are representative of future, binning of predictor variables, target variable selected, statistical distribution if used, etc. I am unsure what the ASOP is looking for here and recommend clarification or examples. If this section doesn't apply to P&C rate or marketing models, then it should say so.
- The ASOP is inadequate for use in governing P&C rate modeling since it is missing fundamental concepts we use including: not borrow data from the future by reviewing and adjusting predictor variables that are correlated with time, and an appropriate hold out sample, and validation methods. I would recommend that documentation be required on how this was done or why it was not done. This may be good for all types of modeling, but financial modelers and life/health modelers would have to comment on whether that is the case since I am unfamiliar with financial, life, and health modeling.



Respectfully,  
Sheri Scott, FCAS, MAAA