

Response to the ASB's fourth exposure of a proposed new ASOP on "Modeling"
 Collection of comments from MetLife
 5/14/19

Comment #22 – 5-15-19 – 4:43 p.m.

Section 1. Purpose, Scope, Cross References, and Effective Date	
Paragraph 1.2. (On Top of Page 2) "...If the actuary determines that such specific guidance from an applicable ASOP conflicts with the guidance of this ASOP, the guidance of such other ASOPs will govern."	
Comment	What if the actuary judges that the guidance of this ASOP makes better sense than that of other ASOPs? The actuary should be able to judge which ASOP guidance is appropriate to a situation and document the decision.
Section 2. Definitions	
Definition 2.5. "Intended Purpose—The goal or question, whether generalized or specific, addressed by the model within the context of the assignment."	
Comment	I understand the use of this definition for all actuarial roles except when the actuary is the developer. Here, I think there should be a consideration of other purposes to be efficient with modeling efforts and less siloed in approach.
Definition 2.6. "Intended User—Any person whom the actuary identifies as able to rely on the actuarial findings."	
Comment	The word "findings" seems to indicate that there is an issue. Suggest the following: 2.6 Intended User—Any person whom the actuary identifies as able to rely on the output of an actuarial model findings .
Section 3. Analysis of Issues and Recommended Practices	
Section 3.1. Model Meeting the Intended Purpose	
Comment	This section focuses on intended purpose (as defined). However, actuaries will often 'repurpose' models for different intended purposes. While the ASOP recognizes this to some extent in 3.1.3, 3.1.4c and 3.3, it does not explicitly require the actuary developing, selecting, or evaluating the model to identify and document the specific purposes or ranges of parameters/inputs, etc., for which the model is valid/applicable. It states more generically in 3.1.3 and 3.1.4 that the actuary should be aware of limitations in general. It also does not require actuaries to identify what aspects of the model would need to be adjusted to eliminate the limitations, which is useful as the use/requirements of the model evolve. I think that this is an important emphasis to add. As an example - a model might use a regression to fit output but this regression would not be valid outside of the sample data used to calibrate the function.
Comment	Though this may not be suited to the intent of ASOPs and might belong in a practice note- Actuaries developing models should work to anticipate/consider model uses/modeling changes that will develop in the near future to avoid having very rigid models. An example is the use of two digit years as the new millennium approached (Y2K issues). This will reinforce our commitment to being forward looking and thoughtful problem solving professionals.

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Paragraph 3.1.2. “Selecting, Using, Reviewing, or Evaluating the Model—When selecting, reviewing, or evaluating the model, the actuary should confirm the model reasonably meets the intended purpose. When using the model, the actuary should make reasonable efforts to ensure that any revisions to the input and formulas, documentation, governance and controls, validation, and presentation of output are consistent with the intended purpose.”	
Comment	I would replace the word “ensure” with “validate”. “Ensure” is to make certain, sure or to guarantee. This is an onerous requirement even moderated by the provision that the actuary must only make reasonable efforts to do so.
Comment	What does the standard require with respect to the determination of reasonability? Could an example be provided?
Paragraph 3.1.3. “Understanding the Model—When expressing an opinion on or communicating results of the model, the actuary should understand the following...”	
Comment	I don’t think that the only times when an actuary should understand the model would be when they need to express an opinion on or communicate results. This conditional statement seems somewhat misleading. Rewording would be helpful here.
Paragraph 3.1.4. “Model Structure—The actuary should assess whether the structure of the model (including judgments reflected in the model) is appropriate for the intended purpose. The actuary should consider the following, as applicable, for a particular model...”	
Comment	I suggest replacing “consider” with “evaluate and document”.
Paragraph 3.1.4.a. “...a. which provisions and risks specific to a business segment, contract, or plan, if any, or interactions more broadly, are material and appropriate to reflect in the model...”	
Comment	Suggest adding wording that requires actuary to indicate how, if at all, modeling of these provisions, risks and interactions are simplified and therefore appropriate only in certain situations.
Paragraphs 3.1.5. Data, Paragraphs 3.1.6. Assumptions and Parameters Used As Input	
Comment	The actuary should consider what transformations of input data and assumptions, if any, are required and how these affect results. This might include creating model points or mapping data to codes. These transformations should be documented and tested as part of the modeling effort if this is not already documented or tested elsewhere. Note this is covered (though not explicitly and in a more extreme version) in ASOP 23 3.4c. Because appropriate data that are accurate and complete may not be available, the actuary should make a professional judgement about data. Judgmental adjustments or assumptions that can be applied to the data should be disclosed.
Paragraphs 3.1.6. “Assumptions and Parameters Used As Input— For models that use assumptions and parameters as input, the actuary should use, or confirm use of, assumptions and parameters that are appropriate in light of the model’s intended purpose. The following	

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guidance applies only for models that use assumptions and parameters as input.”	
Comment	Models, by definition, use assumptions and parameters as input. The way it is stated here sounds like there might be “models” that do not use assumptions and parameters, which is confusing. Suggest the following changes: 3.1.6. Assumptions and Parameters Used As Input— As For models that use assumptions and parameters as input, the actuary should use, or confirm use of, assumptions and parameters that are appropriate in light of the model’s intended purpose. The following guidance applies only for models that use assumptions and parameters as input.
Paragraphs 3.1.6.a. “Setting Assumptions and Parameters—When setting assumptions and parameters, the actuary should consider using the following.”	
Comment	Assumption setting and parameterization of assumptions should be mentioned separately for clarity as they are different activities and imply different risks.
Paragraphs 3.2. “Reliance on Data or Other Information Supplied by Others—When relying on data or other information supplied by others, the actuary should refer to ASOP No. 23 and ASOP No. 41, Actuarial Communications, for guidance.”	
Comment	Suggest adding the title of ASOP 23, i.e. “Reliance on Data or Other Information Supplied by Others—When relying on data or other information supplied by others, the actuary should refer to ASOP No. 23, Data Quality , and ASOP No. 41, Actuarial Communications, for guidance.”
Paragraph 3.5. “Mitigation of Model Risk—The actuary should evaluate model risk and, if appropriate, take reasonable steps to mitigate model risk. The type and degree of model risk mitigation that is reasonable and appropriate may depend on the following...”	
Comment	When and how often should an actuary evaluate model risk? There should be guidance to explain ASB’s expectation on this.
Paragraph 3.5.1.a. “reconciling relevant input values to the relevant system, study, or other source of information, addressing and documenting the differences appearing in the reconciliation, if material.”	
Comment	Materiality should be addressed. What is ASB’s expectation on what is considered material and what is not? What approach does ASB expect an actuary to take in the determination of materiality?
Paragraph 3.5.1. Model Testing, Paragraph 3.5.2. Model Validation	
Comment	What is the difference between testing and validation? It is not clear to me when an actuary should be engaged in which activity.
Paragraph 3.5.3. “Review by Another Professional — The actuary may consider obtaining a review by a second, qualified professional, depending upon the nature and complexity of the model.”	
Comment	Not clear to me if getting a review is more likely with higher or lower complexity. Suggest the following:

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	3.5.3 Review by Another Professional — The actuary may consider obtaining a review by a second, qualified professional. Use of another review would increase depending upon the nature and complexity of the model as well as with the materiality of the intended use(s).
Paragraph 3.5.1. Model Testing, Paragraph 3.5.2. Model Validation	
Comment	What is the difference between testing and validation? It is not clear to me when an actuary should be engaged in which activity.
Paragraph 3.5.5., Paragraph 3.6.	
Comment	There are references to particular sections in another ASOP (in this instance, ASOP 41). I suggest mentioning the headings/titles of the section in other ASOPs in addition to the section numbers when they are being used as reference in case that the section numbers got changed in another ASOP for any reason.
Paragraph 4.1.f. “...extent of reliance on experts, if any, as discussed in section 3.4.”	
Comment	Do you mean outside experts or both outside and in-house? Could you add clarification?
Appendix 1. Background and Current Practices	
Current Practices (Page 11) “The use of margins in model assumptions may differ by practice area. In some practice areas, the ideal model would use only assumptions without margins. In other practice areas, the current practice is to use assumptions that may include margins. Possible reasons for using margins include adding an element of conservatism or adjusting for the cost of bearing risk. The size of the margins may be driven by future unpredictability, experience data that are not fully reliable, or both.”	
Comment	The use of margins in model assumptions may differ by practice area. In some practice areas, the ideal model would use only assumptions without margins. In other practice areas, the current practice is to use assumptions that may include margins. Possible reasons for using margins include, but not limited to , adding an element of conservatism or adjusting for the cost of bearing risk. The size of the margins may be driven by regulatory mandates , future unpredictability, experience data that are not fully reliable, or combinations of these and other items both .

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