Comment #13 – 9/8/13 – 9:40 p.m.

ASB COMMENTS

RE: *Modeling* Exposure Draft - Additions to Guidance

September 8, 2013

Dear ASB:

These comments relate to the substantive guidance in the *Modeling* ASOP Exposure Draft. (I plan to send a separate note with a few broader comments.)

Note: In another comment I suggest using capitalization instead of bold to highlight defined terms, and I tried that here.

Your Question 1 is: ADoes the proposed standard provide sufficient guidance to actuaries working with Models?@
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(1) The proposed ASOP sets an excellent tone of general applicability as well as definitional precision.

(2) I believe the ASOP needs to be expanded in Section 3.3.2, AGovernance and Controls@.

This section follows 3.3.1, AValidation, Checking, and Analysis@, which comprehensively addresses checking a particular Realization of the Model. Then 3.3.2 reads:
AThe actuary should use appropriate Model governance and controls to minimize Model Risk, to maintain the integrity of the Model and to avoid the introduction or use of unintentional or untested changes.@
The section goes on to give limited specific examples, AFor example, if the Model is deterministic, Implementations and Realizations used in reports should be Reproducible. For stochastic simulations in Models that are not deterministic, the actuary should consider if similar Inputs will produce similar outputs. The actuary may want to confirm that different simulations or random number generator seeds produce similar distributions of results.@

I ask the committee to consider expanding this section after the first sentence in 3.3.2, along the following lines.

AThese controls may include:

a. Protection of access to use and modify the Model Implementation and Input;
b. Rules for modification of the Model Implementation, Input, and output, and maintenance of audit trails;
c. Specification, documentation and programming standards for the Implementation;
d. Procedures for secure back-up of the media storing the Implementations and Data;
e. Appropriate staff training or cross-training for continuity of use;
f. Plans for periodic consideration of the Organization=s continued ability to access and maintain the Model, including Data, software, staff, hardware, and vendor relationships; and
g. Plans for periodic updating of Model Input.@

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(3) Section 3.2.1, Designing, Building, or Developing the Model for the Intended Application and Section 3.2.5, Model Structure

I found the need for a more complete list of considerations in each of these sections, but the result was duplication. I suggest eliminating 3.2.5, “Model Structure” and moving it into 3.2.1; other approaches could be used. Here is a combined, expanded and slightly reorganized list. Suggested additions are italicized.

AThe actuary should consider how the structure of the Model meets its Intended Purpose. For example, where applicable and where appropriate for the Model=s Intended Purpose, the actuary should consider the following:

a. which provisions and risks specific to a contract, plan or *asset* are material and appropriate to reflect in the Model, *including consideration of factors which could change these risks over time;*

b. *the degree of approximations used,* including the Granularity *and completeness* of contracts, *assets*, or Model Inputs; *event timing*; *replicating portfolios*; *and future company actions (such as selection of disinvestment assets)*;

c. the causal relationships recognized;

d. whether deterministic or stochastic results are needed and whether there is capability for stress testing, sensitivity analysis, and *other* identification of volatility around expected results;

e. whether the projection of future results might be materially influenced by the existence of choices and options available to the Organization and its members (that is, company management and policyholders, or plan sponsors and plan participants) and counterparties (such as debtors whose bonds are assets of the Organization);

f. *whether the time needed to complete a Realization will meet the Intended Purpose;*

g. *whether the Organization has the resources to use and maintain the Model for its Intended Purpose;* and

h. whether documenting the rationale *for any of the above* would be appropriate.@

(4) Section 3.2.4, Understanding the Model

I think that the *Modeling* guidance should particularly remind actuaries to understand programs which may be automatically assumed sound, such as standard software components.

Add between the current a. and b.:

Aunderstand any elements of the Model not developed by the actuary, such as stochastic economic scenarios and software package built-ins, like random number generators and statistical analyses@

(5) This Exposure Draft addresses the appropriateness and integrity of the Model structure and Input. Did the Committee consider any need for guidance in considering how any quantitative measures or analyses meet the Project=s Objective, or are those assumed to be a given in the definition of the Project=s Objective?

(6) The Scope of an ASOP is very important. This ASOP purports to cover Aall Models@ that actuaries use.

I wonder if the Committee had in mind principally the following type of Model:
A projection over future time periods of the cash flows of existing or hypothetical assets and/or liabilities. These projection models could have an Intended Purpose of Asset Adequacy Analysis, PBR, or RBC determination; pricing; ERM or economic capital determination; ORSA; GAAP DAC amortization or loss recognition, and so on. The Exposure Draft even mentions Model Aprojection@ in Section 3.3.1, a.3.

As seen from this list of potential applications, cash flow projection Models are of paramount importance and represent the preponderance of actuarial activity in fields such as Life and Annuities. So, it is valid to have an ASOP for this type of projection model.

But I am not sure if this ASOP addresses different types of models that an actuary in, for example, Life or Annuities might use, such as 1) economic scenario generators, 2) binomial, Black-Scholes or similar Models to value asset derivatives, and 3) various statistical analyses. If these were to be included in a standard, there might be some guidance as to selection of mathematical algorithms or constructs and probabilistic methods, for example. Model validation methods might be different.

I suggest proceeding with the ASOP in current form and then updating later if needed. Perhaps the Scope could address any limitations that are foreseen.

Note: The recommendations in (2) and (3) above are based on personal experience and study, with some additional influence from the 12/11 SOA *Global ERM* Webcast.

Thank you very much for considering these comments. I am available for questions or further discussion or development of any thoughts here.

Sincerely,

Mary Jo Napoli, FSA, MAAA