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RISK MANAGEMENT
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ASOP 56, Modeling, and the Practicing ERM Professional

By Ken Williams

Editor's note: In a previous issue of this newsletter we highlighted the importance of the new Actuarial Standard of Practice 56 that is coming into effect Oct. 1, 2020. While the focus of the earlier article was broader model governance, this article from Ken Williams tailors specifically to enterprise risk management practitioners.

Shelia is an FCAS for a midsize multiline insurance company responsible for a small enterprise risk management (ERM) department. Her department is tasked with developing and maintaining capital enterprise risk models that are used to evaluate extreme risk and to allocate capital to different financial units. Her department is also responsible for monitoring and mitigating all financial risk for the organization. Shelia has a small staff: two aspiring actuarial candidates and an analyst with a background in statistical modeling.

Shelia's department created an ERM capital allocation model that uses many inputs, such as an economic scenario generator to assist with interest rate and market projections. The ERM capital allocation model also uses information from catastrophe models that were developed by a consulting firm the company hired.

What are Shelia's professional requirements in her duties? What type of guidance is available for her to ensure that she is meeting applicable standards of practice?

In compliance with the Code of Professional Conduct, all actuaries are bound to apply all applicable standards of practice within the areas of their assignments. For actuaries practicing in the United States in the area of ERM, compliance often means knowing and applying three Actuarial Standards of Practice (ASOPs): ASOP 46, Risk Evaluation in Enterprise Risk Management; ASOP 47, Risk Treatment in Enterprise Risk Management; and the recently introduced ASOP 55, Capital Adequacy Assessment. But these are not the only ASOPs that the ERM actuary is responsible for knowing. For developing and using models, Shelia needs to be aware of the new ASOP 56, Modeling, which is effective Oct. 1, 2020.

BACKGROUND ON ASOP 56

ASOP 38, Using Models Outside the Actuary's Area of Expertise, is currently the only ASOP that addresses modeling. ASOP 38 was developed in 2000, a time when catastrophe models were just starting to work their way into property ratemaking. Notably, ASOP 38 applies only to property-casualty work, rendering it less useful to ERM practitioners who often take more holistic views of multiline organizations.

As modeling became more prevalent in actuarial work, the Actuarial Standards Board (ASB) began developing a more robust set of ASOPs and looked at expanding ASOP 38 to apply to more practice areas. Through the work of the ASB, ASOP 56 was developed. ASOP 56 went through several drafts over many years before being approved in December 2019 and effective for actuarial work after Oct. 1, 2020. In addition to the new ASOP

56, the current ASOP 38 is in the process of being revised to be Catastrophe Modeling for All Practice Areas, but the changes are yet to be approved.

HOW THE MODELING ASOP APPLIES TO ERM PRACTITIONERS

ASOP 56 has the important distinction of applying not only to actuaries who are building models, but also to actuaries who use models developed by others. The first line of ASOP 56 states: "This actuarial standard of practice (ASOP or standard) provides guidance to actuaries when performing actuarial services with respect to designing, developing, selecting, modifying, using, reviewing, or evaluating models (1.1)." ASOP 56 goes on to read: "An actuary using a model developed by others in which the actuary is responsible for the model output is subject to this standard." In this statement, ASOP 56 declares that any actuary using model results in their actuarial work must follow the standard of practice in reviewing and using the model.

As with almost all standards of practice promulgated by the ASB, ASOP 56 defines several important terms that are used throughout the standard, including *data*, *input*, *intended purpose* and *model risk*.

After the definitions follows the requirements and considerations an actuary must adhere to. The reviewing actuary's first requirement is to know the model's intended purpose. The standard sets forth several requirements for the actuary who is building or reviewing the model, including evaluating model structure (3.1.4), verifying data appropriateness (3.1.5) and completing an assumptions review (3.1.6).

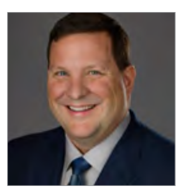
Once comfortable with the model's intended purpose, the actuary is required by ASOP 56 to have a basic understanding of the model whether the actuary is expressing an opinion or communicating the model results. Among the considerations an actuary must understand about the model used are important dependencies, major sensitivities and known weaknesses or limitations that could have material implications.

Often when using models, the ERM actuary will rely on models that others have used or will rely on experts who are more familiar with the field being modeled. This may be the case for Shelia when using the catastrophe models developed by the consulting firm. The modeling standard allows for such reliance but does set forth requirements that the actuary have a basic understanding of the model. Documenting one's reliance on others when using the model is also an important requirement.

Just as ERM practitioners evaluate all risk through the ERM control cycle, a similar process must be done for models, including an ERM model whose intent may be to evaluate risk of the company. Two of the most important pieces of reviewing a model—and possibly the most important considerations for an ERM actuary—are evaluating and mitigating model risk. The standard has several requirements for model evaluation and mitigation, including model testing, validating output, peer reviewing the model, evaluating governance and controls, and reviewing potential opportunities for model misuse. For most ERM actuaries, these processes and functions are what they are doing every day as part of the ERM control cycle.

ASOP 56 concludes with requirements for documentation and disclosures. For the modeling standard of practice, Shelia is **required** to disclose several things, such as stating the intended purpose of the model, any material inconsistency in the assumptions, any unreasonable output based on the assumptions, material limitations and weaknesses, and the extent of reliance on others or experts. Beyond the ASOP, these disclosures should also be extremely helpful for Shelia in answering the first wave of questions from model users.

As a self-regulated profession, it is of utmost importance that actuaries follow our professional standard. This new modeling ASOP is an important addition to our standards of practice and gives all actuaries, including Shelia, a valuable resource to ensure that their modeling work is completed with actuarial skill and care. ■



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