



March 13–15, 2023
San Diego, CA
Loews Coronado Bay Resort

Rate-making, Product and Modeling Seminar



Revision of ASOP 12 Risk Classification – and other related activities

- Mary Jo Kannon, ACAS, MAAA - Moderator
- Bob Miccolis, FCAS, MAAA, FCA – ASB General Committee and Academy Data Science and Analytics Committee
- Shawna Ackerman, FCAS, MAAA – Academy Data Science and Analytics Committee



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Learning Objectives

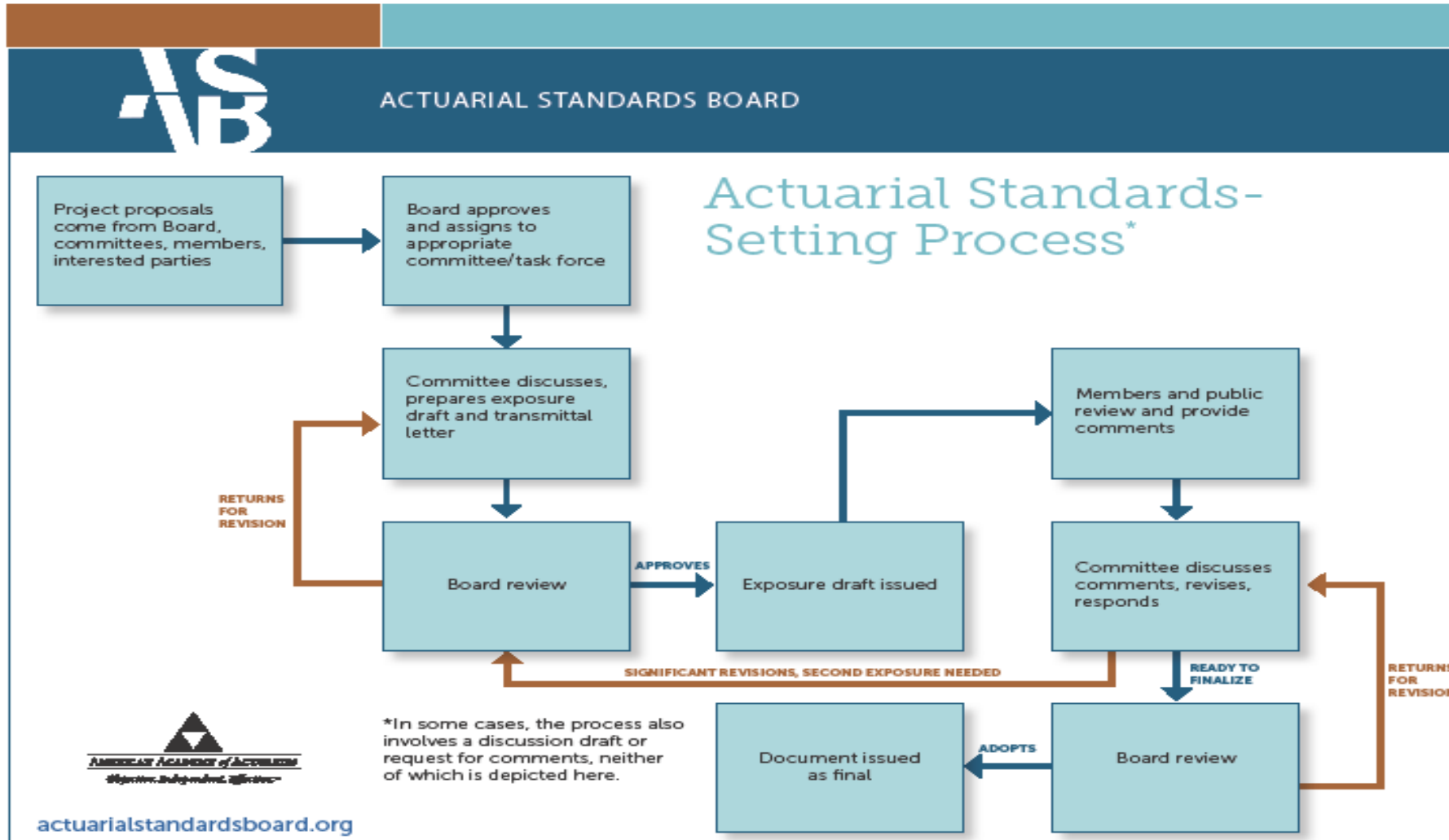
- Explain the process of revising ASOP 12 and the current status of that work
- Describe what guidance an ASOP could address for actuaries who develop, review or use risk classifications
- Detail some major challenges for actuaries developing, reviewing or using risk classifications
- Describe the work of the cross-practice actuarial committees focused on issues relevant to risk classification and related actuarial work

Agenda

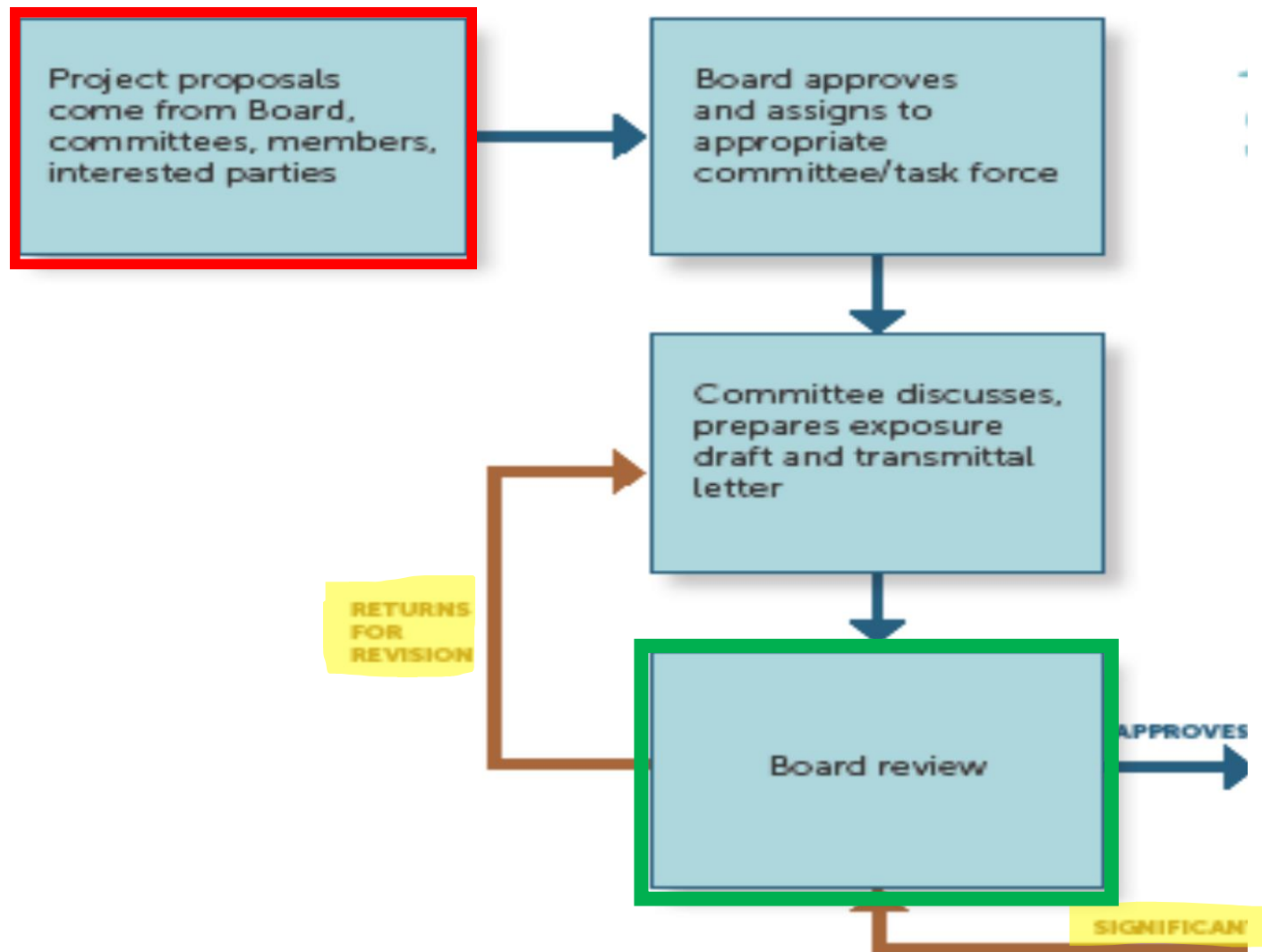
- ASB Process for Revising an ASOP
- A brief history of ASOP 12
- Areas of Possible Revision for ASOP 12
- Challenges for All-Practice Area ASOPs
- Major Challenges for Actuaries in Risk Classification
- How an ASOP Differs from Regulations and Laws
- Submitting Comments on Proposed Revisions to ASOP 12
- Academy's Data Science and Analytics Committee
- NAIC Developments around Regulatory Considerations



ASB Process for Revising an ASOP



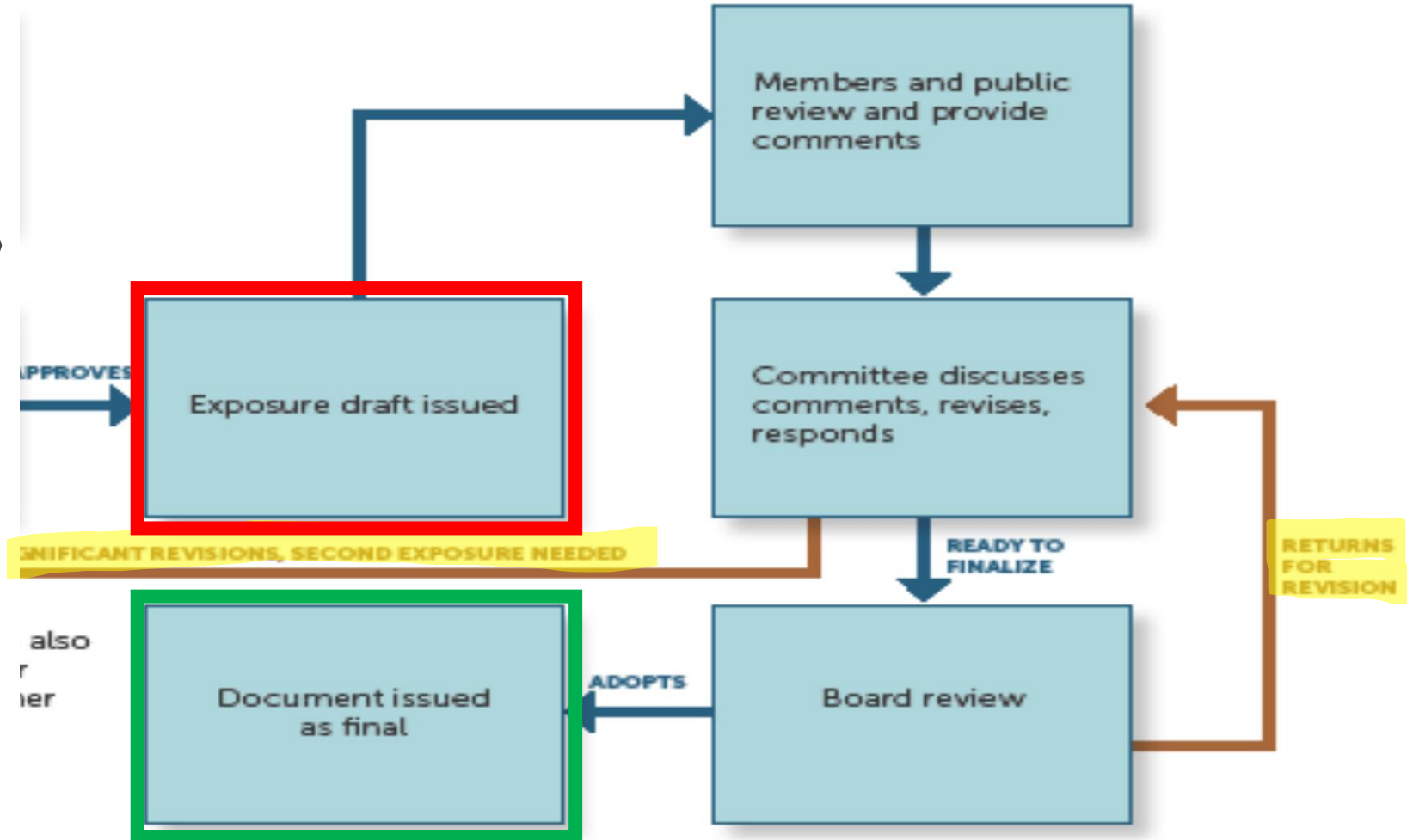
ASB Process for Revising an ASOP



*In some cases, the process also involves a discussion draft or request for comments, neither of which is depicted here.

Actuarial Standards-Setting Process*

ASB Process
for Revising
an ASOP



ASOP 12 – A Brief History

- Originally adopted in 1989 “*Concerning Risk Classification*”
“The original ASOP No. 12 was developed as the need for more formal guidance on risk classification increased as the selection process became more complex and more subject to public scrutiny.”
- Revision adopted December 2005
“In light of the evolution in practice since then...”



ASOP 12 – A Brief History

The State of Risk Classification

1989

- Fewer risk characteristics
- Fewer risk classes
- Fewer external data sources
- Straightforward analyses
- Public / regulatory scrutiny

2005

- Increasing granularity of risk classes
- More external data sources
 - Credit related data
 - Insurance Scores
- Telematics
- Predictive modeling prevalent (GLM)
- More public / regulatory scrutiny

ASOP 12 – A Brief History

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Today

- Proliferation of available data (Big Data)
- Machine learning / AI
- Even more public / regulatory scrutiny
 - Proxy discrimination
 - Correlation v. Causation
 - Reasonable explanation
 - Bias – data and algorithms

Areas of Possible Revision for ASOP 12

- Changes to wording as practice has evolved across practice areas
- Broader consideration of what is included in risk classification
- Expansion of scope
- Guidance to include discussions of current important topics:
 - Multi-variate effects
 - Unintentional bias
 - Protected and restricted classes
 - Unfair Discrimination
 - Rational explanation
 - Actuarial soundness
- Broader notions of risk measures beyond expected value

Areas of Possible Revision for ASOP 12

LIVE POLL

Polling Question

1. Rate the importance of MULTI-VARIATE EFFECTS being addressed in a revised ASOP 12

(5 = Most Important)

(1 = Least important)

Areas of Possible Revision for ASOP 12

LIVE POLL

Polling Question

2. Rate the importance of UNINTENTIONAL BIAS being addressed in a revised ASOP 12

(5 = Most Important)

(1 = Least important)

Areas of Possible Revision for ASOP 12

LIVE POLL

Polling Question

3. Rate the importance of PROTECTED CLASSES being addressed in a revised ASOP 12

(5 = Most Important)

(1 = Least important)

Areas of Possible Revision for ASOP 12

LIVE POLL

Polling Question

4. Rate the importance of UNFAIR DISCRIMINATION being addressed in a revised ASOP 12

(5 = Most Important)

(1 = Least important)

Rational Explanation

- “A plausible narrative connecting the variable and/or treatment in question with real world circumstances or behaviors that contribute to the risk of insurance loss in a manner that is readily understandable to a consumer or other educated layperson. A ‘rational explanation’ does not require strict proof of causality...” *Regulatory Review of Predictive Models* NAIC
- “The explanation should go beyond demonstrating correlation. Considering possible causation may be relevant, but proving causation is neither practical nor expected.” *ibid*
- Not a new or unreasonable concept

Areas of Possible Revision for ASOP 12

LIVE POLL

Polling Question

5. Rate the importance of RATIONAL EXPLANATION being addressed in a revised ASOP 12

(5 = Most Important)

(1 = Least important)

Actuarial Soundness

- “Actuarial Soundness does not require strict proof of causality...” *Regulatory Review of Predictive Models* NAIC
- Not a new or unreasonable concept
- ASOP No. 1, Section 2.3 Actuarial Soundness

The phrase “actuarial soundness” has different meanings in different contexts and might be dictated or imposed by an outside entity. In rendering actuarial services, if the actuary identifies the process or result as “actuarially sound,” the actuary should define the meaning of “actuarially sound” in that context.

Areas of Possible Revision for ASOP 12

LIVE POLL

Polling Question

6. Rate the importance of ACTUARIAL SOUNDNESS being addressed in a revised ASOP 12

(5 = Most Important)

(1 = Least important)

Challenges for an ASOP covering All-Practice Areas

- Practice areas: differing specific issues, terminology or practices
- Crafting ASOP language that includes all practice areas yet is specific enough to give guidance to members
- Differing applications of risk classification across practice areas

Major Challenges for Actuaries in Risk Classification

- Varied and changing legal and regulatory landscape for various activities which use risk classifications broadly
- Correlation versus Causality
- Black box processes
 - Artificial intelligence
 - Machine learning
 - Proxy discrimination
 - Multi-variate interdependencies
 - Big data

Current ASOP 12 Correlation v. Causation

SECTION 3.2.1 RELATIONSHIP OF RISK CHARACTERISTICS AND EXPECTED OUTCOMES

The actuary should select **risk characteristics** that are related to expected outcomes. A relationship between a **risk characteristic** and an expected outcome, such as cost, is demonstrated if it can be shown that the variation in actual or reasonably anticipated experience correlates to the **risk characteristic**.

SECTION 3.2.2 CAUSALITY

While the actuary should select **risk characteristics** that are related to expected outcomes, it is not necessary for the actuary to establish a cause-and-effect relationship between the **risk characteristic** and expected outcome in order to use a specific **risk characteristic**.

Proxy Discrimination

- “Consistent with the risk-based foundation insurance, AI actors should...avoid proxy discrimination against protected classes.”

NAIC Principles on Artificial Intelligence 2020

- “‘Proxy discrimination’ means the intentional substitution of a neutral factor for a factor based on race, color, creed, national origin or sexual orientation for the purpose of discriminating against a consumer to prevent that consumer from obtaining insurance or obtaining a preferred or more advantageous rate due to that consumer’s race, color, creed, national origin or sexual orientation.” *NCOIL Property/Casualty Modernization Act 2021*

Issues Surrounding ASOP 12

LIVE POLL

Polling Question

7. Which of the following is the BIGGER ISSUE that needs to be addressed in a revised ASOP 12

A - Correlation vs. Causality

B – Proxy Discrimination

Issues Surrounding ASOP 12

LIVE POLL

Polling Question

8. Which of the following is the BIGGER ISSUE that needs to be addressed in a revised ASOP 12

A – Risk Characteristics may be defined in a way that is biased

B – Risk cannot always be measured simply by Expected Outcomes

How an ASOP Differs from Regulations and Laws

- ASOP - describes the procedures an actuary should follow when performing actuarial services
- ASOP - identifies what the actuary should disclose when communicating the results of those services
- ASOP - offers evidence of appropriate professional performance, which constitutes a defense in any civil or professional disciplinary action
- The ABCD is a disciplinary authority for the actuarial profession in the US
 - The ABCD considers complaints against members of the profession concerning allegations of unethical conduct or unprofessional work products
 - The ABCD may recommend actions ranging from counseling to expulsion
 - The ABCD relies on the Code of Conduct and the ASOPs



Submitting Comments on Proposed Revisions to ASOP 12

- Use the ASB Comment Template
 - <http://www.actuarialstandardsboard.org/asb-comment-template/>
- Purposes of the template
 - Standardize the format of comments and suggested edits
 - Streamline process for reviewing and for ASB responses to comments
 - Designed to encourage suggested edits along with the rationale for edits
 - General comments are welcome, but alternative wording and rationale helps the ASB to understand the commentator's concern

Comments Template for an ASOP ED

I. Identification:

Name of Commentator / Company

Sample Actuary, FSA / XYZ Insurance Carrier

II. ASB Questions (If Any). Responses to any transmittal memorandum questions should be entered below.

Question No.	Commentator Response
2	Yes, the expanded scope of the ASOP is appropriate for the current practice within the industry.
5	I agree that the actuary should be required to provide the requested information within the disclosure documents.

III. Specific Recommendations:

Comments Template for an ASOP ED

III. Specific Recommendations:

Section # (e.g. 3.2.a)	Commentator Recommendation (Please provide recommended wording for any suggested changes)	Commentator Rationale (Support for the recommendation)
3.5	The actuary should consider incorporating <u>incorporate</u> retroactive adjustments in the development ...	Retroactive adjustments are an important adjustment in the overall development of the rates and to normalize the data. Therefore, the actuary should be required to reflect the adjustments.
4.2	Add a disclosure of the discount rate used in the valuation	The discount rate is an important part of the calculations in the valuation. The actuary should disclose the discount rate so the reader of the report

IV. General Recommendations (If Any):

Commentator Recommendation (Identify relevant sections when possible)	Commentator Rationale (Support for the recommendation)

Submitting Comments on an ASOP Exposure Draft

- General Guidance about Submitting Comments
 - All comments are posted to the ASB website to encourage transparency and dialogue (comments unsigned or lacking the submitter's identity are rejected)
 - Comments may not be submitted anonymously
 - Any individual, group, or organization may submit comments
 - Non-actuaries can submit comments
 - Comments must be submitted by the deadline to be considered
 - Comment Deadline is posted when an Exposure Draft is released

ASOP 12 Related Updates



American Academy of Actuaries Data Science and Analytics Committee

Committee Charge

- To further the actuarial profession's involvement in the use of artificial intelligence, data science, other analytics and modeling capabilities
- To monitor federal and state legislation and regulatory activities
- To develop papers intended to educate stakeholders

American Academy of Actuaries Data Science and Analytics Committee

Monitor federal, state and regulatory activities

- DC Department of Insurance, Securities and Banking Request for Comment – Draft Data Call on Unintentional Bias in Automobile Insurance
- NAIC – AI/ML Model and Data Regulatory Questions Exposure
- Colorado – Insurer’s use of external consumer data and information sources, algorithms and predictive models

American Academy of Actuaries Data Science and Analytics Committee

Published Committee Papers

- Big Data and Algorithms in Actuarial Modeling and Consumer Impacts in Actuarial Modeling (October 2022 & November 2021)
 - Ethics and AI
 - How AI is being used in risk classification
 - Evaluating Data

American Academy of Actuaries Data Science and Analytics Committee

Published Committee Papers

- An Actuarial View of Correlation and Causation - From Interpretation to Practice to Implications (July 2022)
 - Key questions for actuarial work in the risk classification domain
 - Actuarial practices around data, predictive modeling, and risk classification
 - Key considerations for public policy and regulatory oversight of insurance practices which are not “unfairly discriminatory.

American Academy of Actuaries Data Science and Analytics Committee

Future Committee Papers

- Technical Paper Series (under development):
 - Evaluating Data as an Asset
 - Auditing Algorithms for Bias
 - Discrimination
 - Natural Experiments
 - Defining Big Data
 - Defining Data Biases

American Academy of Actuaries Data Science and Analytics Committee

Future DSAC Committee Efforts

- Possible Practice Notes (under consideration):
 - Applying ASOP 12 in practice (perhaps separate notes by practice area)
 - Examples of applying technical concepts in practice, e.g., testing for bias
 - Data science and predictive analytics applications to actuarial work in specific practice areas
 - Possible approaches to auditing algorithms for unfair discrimination or bias
 - REMINDER: Practice Notes are non-binding guidance
 - Code of Conduct and ASOPs provide binding guidance, when applicable

Support for Practice Notes

LIVE POLL

Polling Question

9. Rate your support for a P&C Practice Note (possibly supplementing ASOP 12) on DEFINING ALGORITHMIC BIASES

(5 = High Support)

(1 = Low Support)

Support for Practice Notes

LIVE POLL

Polling Question

10. Rate your support for a P&C Practice Note (possibly supplementing ASOP 12) on ACTUARIAL AUDITING OF ALGORITHMS FOR BIAS

(5 = High Support)

(1 = Low Support)

Support for Practice Notes

LIVE POLL

Polling Question

11. Rate your support for a P&C Practice Note (possibly supplementing ASOP 12) on UNFAIR DISCRIMINATION

(5 = High Support)

(1 = Low Support)

American Academy of Actuaries

NAIC Activities and Efforts

- Big Data and Artificial Intelligence (H) Working Group
 - Research the use of big data, AI/ML in insurance, and evaluate existing regulatory frameworks.
 - Review current audit/certification programs and/or frameworks oversee insurers' use of consumer and non-insurance data and models using intelligent algorithms.
 - Assess data and regulatory tools for insurance regulators to monitor the marketplace, and evaluate the use of big data, algorithms, and AI/ML in underwriting, rating, claims, and marketing.
 - Meets next at NAIC Spring Meeting - Wednesday, March 22, 2023
- AI/ML Survey Work
 - NAIC surveys indicated that underwriting models are used for tiering and company placement, input into denials and approvals, renewals and reinstatements, and policy anomaly detection.
- Collaboration Forum on Algorithmic Bias
 - Regulators' concerns noted about fairness, unintended discrimination, transparency



References / Resources

- NAIC Regulatory Review of Predictive Models [CA-WP_1.pdf \(naic.org\)](#)
- NAIC Principles for AI 2020 [Materials - Innovation and Technology \(EX\) Task Force \(naic.org\)](#)
- NCOIL P/C Modernization Act 2021 [PC-Modernization-Model-Adopted-4-18-21.pdf \(securerserver.net\)](#)
- Big Data and Algorithms in Actuarial Modeling and Consumer Impacts in Actuarial Modeling [BigData and Algorithms in Actuarial Modeling and Consumer Impacts.pdf \(actuary.org\)](#)
- An Actuarial View of Correlation and Causation – From Interpretation to Practice to Implications [Correlation.IB .6.22 final.pdf \(actuary.org\)](#)
- NAIC Big Data and Artificial Intelligence (H) Working Group https://content.naic.org/cmte_h_bdwg.htm (naic.org)

Questions?

