# Reserve Ranges – Summary of Issue Brief from COPLFR

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Background

- History Behind the Issue Brief
  - 2006 CLRS Blanchard presentation (SRO)
  - SEC and disclosures
    - Comment letters asking for ranges and other measures of variability
    - Companies providing ranges in 10Ks
  - COPLFR view that "ranges" and "reserve ranges" can have multiple meanings but are rarely communicated effectively
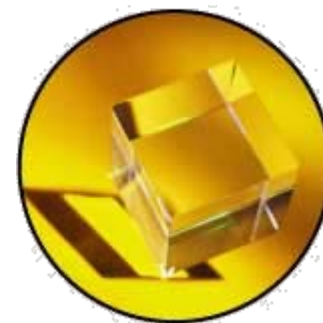
Background

- Logistics
  - Issue Brief is found at Academy website:
    - www.actuary.org/pdf/casualty/range_sept08.pdf
    - Issued September 2008
  - Focuses on communication of reserve ranges
  - Appendix discusses the interaction of uncertainty, conservatism, and bias

Topics

- Introduction

- Purpose & Use of Ranges

- Common Types of Ranges
  - Distributions of possible outcomes
  - Reasonable ranges

- Issues in Communicating Ranges

- Transparent Disclosure

- Selecting a Single Point Within the Range
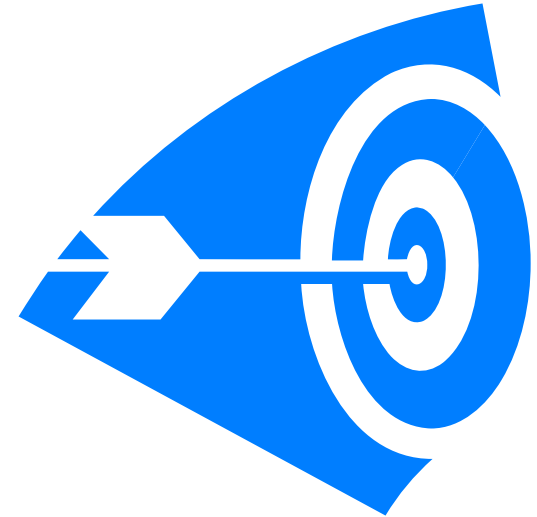
Introduction

- Issue Brief Available at Academy Website

- Focus is on Effective Communication
  - Ranges and Distributions add great value in communicating variability
  - Understand how the intended and unintended users will perceive the amounts
  - Be aware of the types of ranges used

Purpose & Use

- Ranges are used to communicate uncertainty in many settings:
    - Internal communications
    - Enterprise Risk Management
    - SEC filings
    - Pre-acquisition evaluations
    - Supporting financial statement audits
    - Rendering Statements of Actuarial Opinion

Common Types of Ranges

- Two common types:
    - Range of Reasonable Estimates
      AND
    - Range of Possible Outcomes

- Sometimes both are referred to in a generic way as a "reserve range," but these have very different meanings.
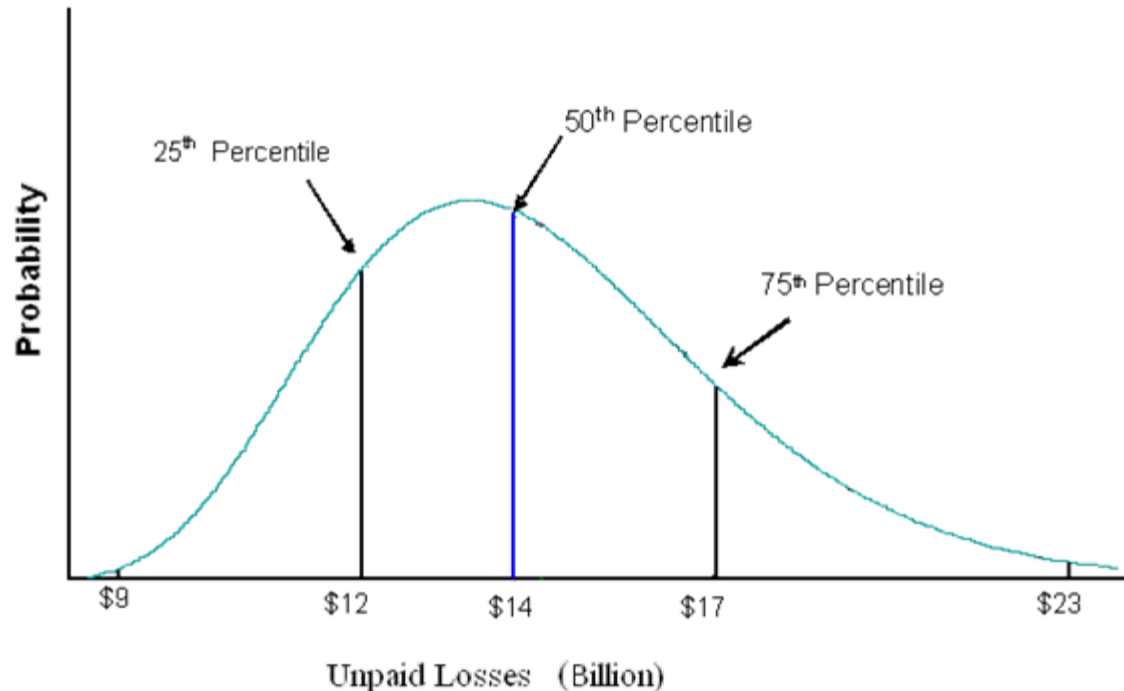
Common Types of Ranges

- Range of Possible Outcomes
  - Breadth of possible results of the claims process
  - Used to evaluate surplus needs and in ERM, among other purposes
  - Statistics and simulations are commonly used to generate estimates of a range or distribution of possible outcomes.

Common Types of Ranges

- Statistical Output – graphical example of a range of possible outcomes:

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Common Types of Ranges

- **Common Challenges with Statistical Ranges**
  - Dealing with and communicating uncertainties with parameter and model risk

- **Other approaches to determine possible outcomes**
  - Scenario testing
  - Historical observation

Common Types of Ranges

- Range of Reasonable Estimates
  - Produced by appropriate actuarial methods or alternative sets of assumptions that the actuary judges to be reasonable
  - Used for SAO preparation
  - Typically narrower than a range of possible outcomes
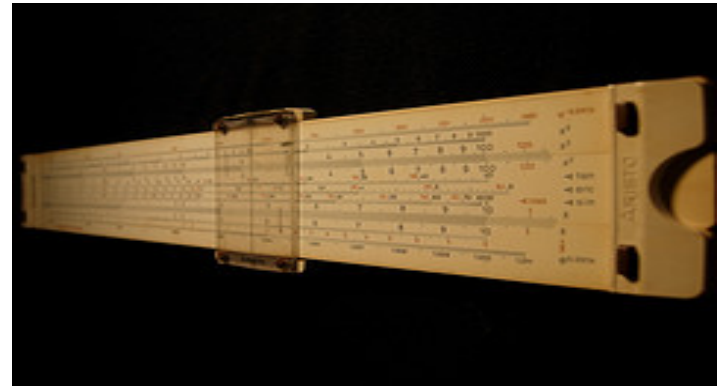
Issues in Communicating Ranges

- **Measurement Objectives**
  - What is the metric the actuary is intending to measure?

    - Mean, median, mode?
    - Fair value?
    - Actuarial central estimate?
    - Set percentile?

  - ASOP 43 now guides the actuary to state the measurement objective

Issues in Communicating Ranges

- **Other Key Issues**
  - **Reasonable range endpoints**
    - No objective boundary exists
    - May be clearer to discuss "a" range of reasonable estimates, since it may be impossible to state "the" range of reasonable estimates.
  - **Aggregating reasonable ranges from individual line ranges**
    - Matter of covariance

Issues in Communicating Ranges

- **Other Key Issues**

  - **Speculative Outcomes / Reliability**
    - Example * $N = R^* \times f_p \times n_e \times f_l \times f_i \times f_c \times L$
    - This equation produces an answer as to how many advanced civilizations there are in our galaxy
    - However, the parameters cannot be verified
    - Hence, the ability to produce an outcome does not mean that the estimate is reliable

    * The Drake Equation (Sagan, Carl, *Cosmos,* Random House, New York, 1980, pp 298-302*)*

Transparent Disclosure

- **Communicating Ranges**
  - Understanding / perspective of user(s)
  - Clarity as to type of range
  - Reliability of the range

Transparent Disclosure

- **Understanding / Perspective of User(s)**
  - Tailor the communication to the audience
  - Address the necessary points by making sure the following questions are answered:
    - Who are the intended users of the information?
    - What experience do the intended users have?
    - Are there likely to be additional unintended users?

Transparent Disclosure

- **Clarity as to Type of Range**
  - Address key questions in the communication:
    - Is it a range of reasonable estimates?
    - Is it a range of possible outcomes?
    - How was the range calculated?
    - If it is a range of reasonable estimates, what is the measurement objective of the estimates?

Transparent Disclosure

- **Reliability of the Range**
  - Address key questions in the communication:
    - How comfortable is the actuary with the reliability of the estimates that define the range or the models and/or model parameters that estimate the distribution?
    - What is the likelihood of outcomes outside the disclosed range?
    - Does the width of the range appropriately reflect the breadth of uncertainty, given the measurement objective?
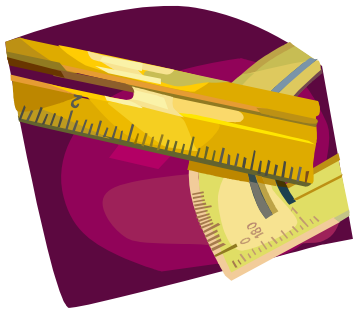
Selecting a Single Point Within the Range

Interaction of Uncertainty, Conservatism, and Bias

- Complicated by accounting frameworks
  - US GAAP
  - IFRS
  - US statutory

- The possibility of differing guidance between U.S. GAAP, U.S. statutory accounting, and other accounting bases may create confusion and conflict, increasing the need for effective transparency in communication of ranges.

Questions and Open Discussion