

- **Developing  
Actuarial Judgment  
for P&C Actuaries**

# Agenda

- How to define Actuarial Judgment
- How to create Actuarial Judgment
- Indications of good Actuarial Judgment
- Managing good Actuarial Judgment under pressure



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What word(s)  
come to mind  
when you think of  
Actuarial  
Judgment?



# ● What is Actuarial Judgment?

Expert Judgment

Training/Knowledge

Experience

Expertise

Code of Conduct

Professional Judgment



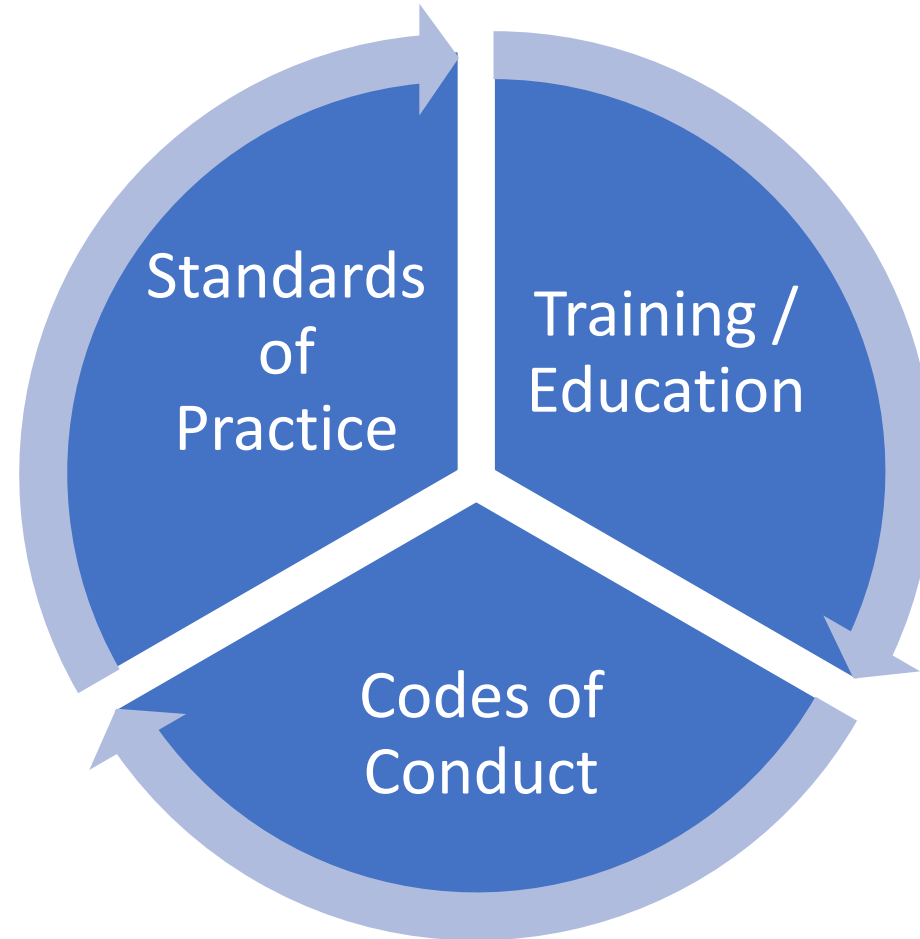
# ● When do we use Actuarial Judgment?

- The **choice of data** for an assignment
- How to deal with **missing or inappropriate data**
- The **selection/usage** of the **methodology/models**
- The setting of key **assumptions**
- **Testing** model outcomes for **reasonableness**
- The **interpretation of the model outcome**
- **Selecting** among **results** from multiple reasonable models
- When dealing with **constraints** on time and money





# Relationship between Training and Professionalism



# ● Relationships between ASOPs and Actuarial Judgment

- Professional judgment isn't subordinate to ASOPs.
- ASOPs don't give free rein to actuarial judgment. Particular ASOPs require what an actuary should “consider, do, document, and disclose.”
- An actuary should disclose when he deviates from an ASOP, addressing the nature, rationale and effect of his deviation.



# The Code of Conduct and Actuarial Judgment

Do I have the knowledge and experience?

Do I have access to other knowledgeable experts?

Can I devote the appropriate time and resources?

Does this conflict with my ethical/moral principles?

Did I adhere to regulations and professional standards?

Did I avoid undue pressure and conflicts of interest?

Can I keep professional skepticism towards data and other pieces of information?

Do I feel confident I can explain and communicate results?





**How did you create  
Actuarial Judgment?**

# Developing Actuarial Judgment

- Education and Qualifications
- Continued Learning
- Understanding of Business
- Practical Experience
- Critical Thinking
- Mentorship
- Ethics
- Communication Skills





# Developing Actuarial Judgment

## Education and Qualifications

- Need a solid foundation in mathematics and statistics
- Pass actuarial exams
  - Mathematics and statistics
  - Finance, accounting, law, regulation

## Continued Learning

- Professional development courses, seminars, readings
- Technology and techniques changes





# Developing Actuarial Judgment

## Understanding of Business

- Underlying risks (e.g., construction risk, retail, education, frame/masonry)
- Business environment (finance, accounting, regulatory, socio economic)
- Policy language/contract terms
- Meet w/ underwriting and claims units





# Statement of Principles Regarding Property and Casualty Insurance Ratemaking

(Adopted by the Board of Directors of the CAS May 1988)

The purpose of this Statement is to identify and describe principles applicable to the determination and review of property and casualty insurance rates. The principles in this Statement are limited to that portion of the ratemaking process involving the estimation of costs associated with the transfer of risk. This Statement consists of four parts:

**I. DEFINITIONS**

**II. PRINCIPLES**

**III. CONSIDERATIONS**



# Developing Actuarial Judgment

## Understanding of Business – P&C

- **Considerations**

- Future Cost Estimate – Losses, LAE, expenses, reinsurance costs, cost of capital
- Intended Measure – mean, mean + risk margin, percentile, distribution
- Data Organization - type of year (e.g. RY, CY, AY, UY, TY), segmentation
- Data Quality – missing data, data consistency, coding
- Methods, Models, Assumptions
- Exposure Base
- Risk Classification
- Use/Adjustments to Exposure/Premium Data (e.g., rate level adjustments, underwriting quality)





# Developing Actuarial Judgment

## Understanding of Business – P&C

- **Considerations (cont'd)**
  - Use/Adjustments to Loss/LAE (e.g., judicial, legislative, mix of business, case reserving practices, contract language, operational changes, reinsurance changes, accounting changes) Trends
  - Expenses
  - New Coverages/Exposures
  - Credibility/Complement of Credibility
  - Treatment of Catastrophes
  - Infrequent Events
  - Reinsurance
  - Profit & Contingency Provisions/Cost of Capital





# Developing Actuarial Judgment

## Understanding of Business – P&C

- **Considerations (cont'd)**
  - Additional Funding Sources (e.g., salvage, subrogation, and collateral sources)
  - Pools and Associations
  - Other External Influence
  - Other Internal Influences
  - International Considerations
  - Reasonableness
  - *Accounting Changes*
  - *Climate change*
  - *Contagion*





# Developing Actuarial Judgment

## Understanding of Business

- **Start with the end in mind**
- **Know your competition**





# Developing Actuarial Judgment

## Practical Experience

- **Know your data**
  - Jim Guszczka – “Data you use is more important than what you do with the data”
  - Data scrubbing is 60%-80% of a GLM or cat modeling assignment
  - Understand the data sources and changes over time
  - Look for missing incomplete, inconsistent or false data, missing data,
  - Test for outliers
  - Is the mix of business changing?
  - Are the type and size of losses changing
  - The Devil Is In The Details!
- **Know the strengths and limitations of your methods**
- **Review diagnostics**



# ● Developing Actuarial Judgment

## Practical Experience

- **Perform sensitivity tests**
  - Reserving examples
    - What is more important – a 24-36 factor or a tail factor – where to spend more time
    - Impacts of different LDF averages or selections
    - Are results tempered by methods, assumptions or selections
    - Understand biases in methods/selections relative to the data you have
- **Is the past representative of the future?**





# Developing Actuarial Judgment

## Practical Experience

- **Check your work**
  - Common mistakes
    - Partial year issues
    - Dealing with significant growth/shrinkage
  - Unreasonable results
    - Change in results vs change in data
    - Model is different than reality
- **If new area**
  - Do your research
    - Read articles
    - Seek out other experts
    - Be sure what you know and don't know





# Developing Actuarial Judgment

## Critical Thinking

- **Implications of growing or shrinking business**
- **Implications of credibility**
  - Credibility factor
  - Compliment of credibility
- **Reasonableness of assumptions/methods**
- **Are result changes reasonable**
  - w/ changes in data/methodology/assumptions
  - Actual vs Expected versus changes in ultimates
  - Smell test
    - e.g., square bottom of loss reserve triangle
- **Question everything**





# Developing Actuarial Judgment

## Critical Thinking

- **Understanding the uncertainty**
  - A range of reasonable results
- **“The Big Picture” or “Seeing the forest through the trees”**
- **Other insights? E.g.,**
  - Growth/deteriorating loss ratios
  - Retention rates
    - P/C – good risks stay, bad risks search for new carriers
    - Life – bad risks stay, good risks search for better deals
  - If it is too good to be true it probably is
  - Too complicated of rating schemes aren't received well





# Developing Actuarial Judgment

## Mentorship

- **A seasoned actuary or professional**
- **Peer review**
  - Learn how others think
  - Vary between someone familiar and someone unfamiliar
    - Unfamiliar feedback examples
      - Does mortgage guaranty have contagion risk?
      - What about hurricanes that make secondary landfall?
      - Will policy limits cap payouts?





# Developing Actuarial Judgment

## Ethics

- **Know the Codes of Conduct**
- **Consider “fairness” between risks**
  - E.g., territorial formation, credit scores, pooling
- **Consider “bias”**
- **Consider the Public**







# Developing Actuarial Judgment

## Communication Skills

- Be able to effectively communicate your findings and recommendations
- Explain complex concepts in simple ways
- Anticipate how others may react
- Focus on why you could be wrong versus why you are right
- Be “ok” with saying you don’t know
- You’ll learn more by listening than talking



# ● Indications of good Actuarial Judgment?

Consistent  
Decision-  
Making

Confidence  
from Others

Ability to  
Anticipate  
Outcomes

Critical  
Thinking Skills

Ability to  
Learn from  
Mistakes

Ethical  
Decision-  
Making

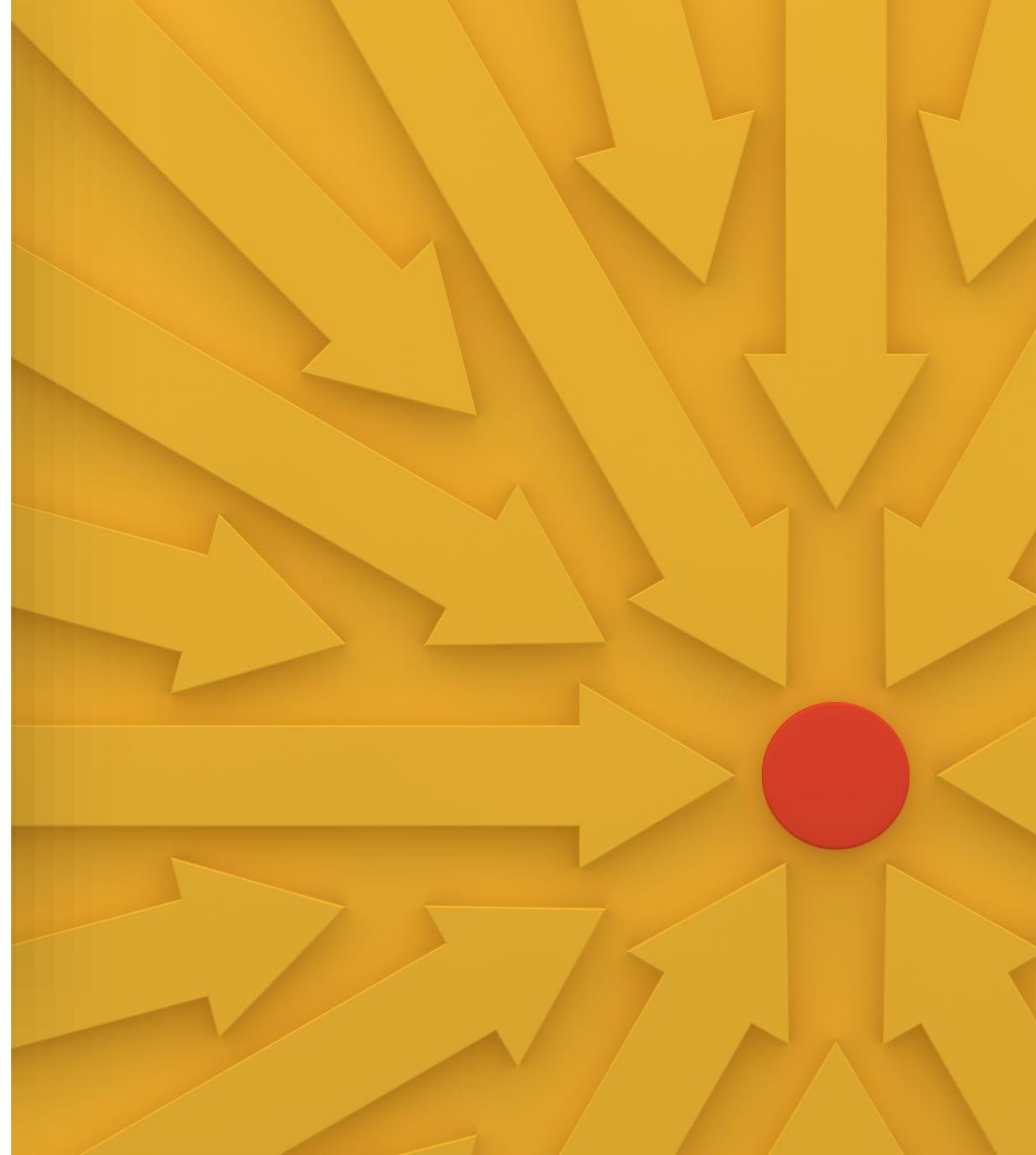
Flexibility

Peer Review



# Maintaining good Actuarial Judgment under pressure

- Adherence to Professional Standards
- Transparent Communication
- Critical Thinking
- Ethical Decision-Making
- Seeking Advice
- Continuing Education
- Documentation





**Other thoughts?**





# Do ASOPs or Codes of Conduct define Actuarial Judgment?



- Actuarial Association of Europe

Professional Judgment is the judgment of the actuary, based on actuarial (or other relevant) training and experience, bound by the Standards and Code of Conduct of the profession.



- American Academy of Actuaries

ASOPs do not define “professional judgment,” but rather explain it by referring to what is needed to exercise it. They provide an analytical framework for exercising professional judgment.

“Professional judgment—Actuaries bring to their assignments not only highly specialized training, but also the broader knowledge and understanding that come from experience.”

“For example, the ASOPs frequently call upon actuaries to apply both training and experience to their professional assignments, recognizing that reasonable differences may arise when actuaries project the effect of uncertain events.”

