

 **Reserving for Unusual Coverages**
 Tips for Solving the Puzzle




Casualty Loss Reserve Seminar – 2010
 Concurrent Session SI-2
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The Challenge

- *How does the actuary estimate reserves that are a reasonable approximation of the expected value of the unpaid loss and loss adjustment expenses with limited or no historical claims experience and perhaps very limited industry experience?*
- If the actuary is estimating reserves, then some of work in quantifying the expected cost of insuring the exposure has already been done.
 - ✓ Feasibility Study
 - ✓ Development of Premiums or Funding Levels
 - ✓ Reinsurer Due Diligence
- I assume for this presentation that the actuary has little or no experience with the coverage at hand.


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Examples of Unusual Coverages

- Solar Panel Performance Warranty coverage is triggered when the energy generated by the solar installation in excess of the users energy needs is insufficient to make bank payments on the loan for the equipment
- Vaccine Bodily Injury Liability
- Cemetery "Care" Fund Liability
- Product Recall Liability
- Standard Coverages for Non-Standard Exposures
- ✓ Professional Liability for Fitness Program Design
- ✓ Product Liability for Weapons/Self-Defense Products Mfg


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Understand the Exposure – Due Diligence

- Read policy forms
- Discuss the coverage with interested parties –risk managers, underwriters, captive owners, captive managers, claims adjusters, attorneys, etc.
- Has reinsurance/excess insurance been placed? If so, what do the insurers know?
- Are any admitted carriers writing the coverage? If so, obtain the filed rates, rating plans and forms.
- If no one is writing this coverage that you can find, can a similar coverage be identified that might be used as a proxy?


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Information You Will Have

- Exposures/Premiums
- Claims Data
- Knowledge of Reinsurers and Reinsurance Structure
- Deductibles
- Knowledge of Insurer and/or Claims Administrator
- Anecdotal information obtained from interviews
- ASOP No. 23 Data Quality


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Information You May Not Have

- Useful Loss Development History
- ✓ Expected Claim Reporting Lag
- ✓ Claim Payment Pattern
- ✓ Knowledge of Case Reserve Adequacy
- Expected Loss Rate/Ratio
- Claim Severity Distribution
- Claim Frequency Distribution


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Alternative Data Sources - Schedule P

- Statutory Annual Statements are Public Documents
- Can you obtain your program's excess or deductible insurer's Statutory Annual Statement?
- Most useful if an ASLOB is determined to be a reasonable proxy for your program's coverage. While your program may have exposure specific aspects to reporting and payment patterns, at least the sch p data will reflect the carriers case reserving and claim payment practices
- Schedule P will provide a possible source for:
 - ✓ Loss and DCCE Development Factors
 - ✓ Claim Count Development Factors
 - ✓ Average Loss and DCCE Severity
 - ✓ Average Claim Frequency (to Premium only)
 - ✓ Information on Claims Disposal Rate and Changes in Case Reserve Adequacy

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Alternative Data Sources - Insurer Rate Filings

- Does an admitted insurance company write the coverage for which you are attempting to calculate a reserve?
- There will likely be information in regulatory filings that will provide information about *elements* of the coverage at hand.
- Review Policy Forms to Validate Coverage Similarity
- Insurer Rate Filings are a possible source for:
 - ✓ Rates and Pure Premium Rates (try to assess the adequacy of the rates using supporting docs, if possible)
 - ✓ Development Factors, Frequency and Severity Statistics
 - ✓ Trend Assumptions
 - ✓ State, Territory, Class Relativities
 - ✓ Increased Limits Factors

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Alternative Data Sources – Insurer/Reinsurer/TPA/Program Mgr.

- A program's deductible/excess insurer or TPA may be willing to provide historical claims data for the same or similar coverage.
- Insurer or TPA may not have data specific to the coverage at hand, but it may still be useful.
- A program's reinsurer may have experience with the coverage.
- Program manager or agency may have experience for the same or similar coverage that it may be willing to share.

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Alternative Data Sources – Rating Bureaus

- Bureaus such as ISO and NCCI have flexible data products which can provide some useful information if you have access to it as a member, subscriber or purchaser.
- Rate Change Circulars
 - ✓ Loss Development Data
 - ✓ Trend Data
 - ✓ Loss Costs
 - ✓ Class Relativities
- Increased Limits Factor Circulars (Liability Lines)
- Retrospective Rating Plan Circulars (Workers Compensation)

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Alternative Data Sources – Other

- Government Sources
 - ✓ Bureau of Labor Statistics
 - ✓ Occupational Safety and Health Administration (OSHA)
 - ✓ National Highway Traffic Safety Administration (NHTSA)
 - ✓ Centers for Disease Control and Prevention (CDC) has numerous databases: Web-based Injury Statistics Query and Reporting System (WISQARSTM), Vaccine Adverse Event Reporting System (VAERS), etc.
 - ✓ U.S. Census
- Other Studies
 - ✓ Insurance industry-sponsored organizations
 - ✓ Government-sponsored
- Internet Search Engine


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Documentation and Disclosure

- More assumptions than an analysis of a standard coverage, therefore a greater burden on the actuary with respect to documentation and disclosure.
- Added uncertainty in estimates due to data limitations and use of proxy data must be disclosed.
- Ranges/probability distributions are likely appropriate.
- Were reports or analyses relied upon peer reviewed?
- Do you suspect bias in reports or analyses referenced? The actuary is not required to determine whether data or other information supplied by others are fabricated or intentionally misleading (ASOP 23)


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Documentation and Disclosure (cont.)

- Will be reviewed by other actuaries and non-actuaries. (excess/reinsurers, regulators, etc.)
- *ASOP No. 9 Documentation and Disclosure in Property and Casualty Insurance Ratemaking, Loss Reserving and Valuations* (states that "the documentation should describe clearly the sources of data, material assumptions, and methods. Also states that documentation should be sufficient for another actuary practicing in the same field to evaluate the work.)

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Select your Methods – Deterministic Methods

- Provide a best estimate or actuarial central estimate, but cannot help quantify the certainty in the estimate
- Provide range of reasonable estimates; uncertainty left to judgment
- Easy to understand and explain
- Familiar to third party audiences
- Requires historical data
- Reliant on parameter selection

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Select your Methods – Stochastic Methods

- Provide both a best estimate and a measure of variability- a probability distribution of estimates
- Provide a best estimate and a measure of uncertainty
- Can be more difficult to explain
- Less familiar to third party audiences
- Requires historical data or loss distributions & parameters
- Reliant on parameter selection
- Can use both deterministic and stochastic methods



Deterministic Methods – The Usual Suspects

- Chain Ladder Methods or Variations
- Bornhuetter-Ferguson Methods
- Frequency and Severity Methods
- Loss Rate/Loss Ratio Methods
- Other



Stochastic Methods

- Established methods most likely inappropriate (due to lack of data)
- One approach is to use Monte Carlo simulation based upon independent frequency and severity distributions
- ✓ Lognormal, Beta, or Gamma severity based upon benchmark or proxy
- ✓ Poisson or Geometric frequency with parameter estimate implied by the deterministic aggregate loss estimate
- ✓ Apply resulting confidence level factors to the deterministic aggregate reserve estimate
- ✓ Accounts for process variance only; ignores parameter variance and model errors



Thank You !
