



2014 CAS SEMINAR ON REINSURANCE C-4: SURETY — HOW DO THEY DO THAT?

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SFAA Loss Severity Study Goals

1. Identify and quantify contractor characteristics that impact loss severity.
2. Define an exposure base for estimating loss severity in current book of business on a prospective basis.
3. Support member companies' risk management measures, capital allocation by contractor and reinsurance cost-benefit analysis.

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SFAA Loss Severity Study Data Call



- Data voluntarily provided by SFAA members
- 75% surety market participation
- Losses & exposures on a per-principal basis
- Loss threshold of \$250,000 based on total incurred loss plus incurred expense minus salvage
- Fourth edition released April 1, 2013; 1,785 losses included
- Next edition due late 2014 or early 2015

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SFAA Loss Severity Study Data Adjustments



- Case incurred losses brought to ultimate values using industry loss development patterns.
- Where identifiable, co-surety losses combined into one claim.
- Trend is not applied. Loss & exposure trend assumed to offset.

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SFAA Loss Severity Study

The Model



- Iterative process that minimize the difference between the actual and modeled losses.
- Some smoothing where data elements are limited.
- Output:
 - Probable expected loss (50th percentile)
 - Probable maximum loss (90th percentile)

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SFAA Loss Severity Study

Goal #1 = Characteristics that impact Loss Severity



Characteristic	Comments
Exposure Base	= total open bond limit (= in-force + expired in last 12 months) More discussion on next slide
Type of Contractor	7 types
Maximum Individual Bond Limit	Ratio of the largest individual bond limit to the sum of the total bond limits.
Region of Operation	7 regions + multi-region

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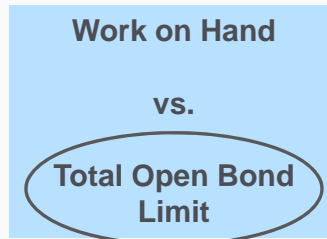
SFAA Loss Severity Study

Goal #2 = Define an Exposure Base



Exposure base criteria:

- A. Should vary in magnitude directly with the underlying exposure to loss
- B. Should be readily available in company systems
- C. Should be objective and measurable by the surety



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SFAA Loss Severity Study

Goal #3 = Support Member Companies



Potential Uses:

1. Risk Management
2. Capital Allocation
3. Reinsurance Pricing
4. Planning
5. Rating Agency Reviews

SFAA Loss Severity Study Reinsurance Pricing – Important Considerations

- Independent from individual company's experience

- Only includes losses \geq \$250K. Depending on intended use, may need to add a provision for losses $<$ \$250K.

- Similar to other “industry severity curves”:
 - Limited data at the top bands
 - Industry average means that individual company underwriting & claims handling may differ from the average.

Reinsurance Pricing Exposure Rating - Severity

- Two points (50th percentile, 90th percentile) from the Loss Severity Study
 - 95th Percentile also available (fixed % increase to 90th)

- Fit to a Distribution
 - Beta Distribution
 - See David Curtis's 2006 “Unique Applications of Exposure Rating: Surety” Presentation

Reinsurance Pricing Exposure Rating - Frequency

Two potential sources:

1. Surety Claims Data
2. Financial Instrument Probability of Defaults (e.g. Moody's)
 - Need to adjust reflect Probability of Loss as a Surety Product / Probability of Default as a Financial Instrument = α
 - See “Credit & Surety Pricing and the Effects of Financial Market Convergence” (Alwis, Steinbach)

Reinsurance Pricing Exposure Rating – Growth/Decline

- Starting point is often current total open bond limits
- Proxy for exposure change = Premium change net of rate change
- Understand how the client is growing:
 - More accounts that are similar to current book? Scale the frequency
 - More accounts that are not similar to current book? Create pro-forma exposures
 - Increase in the size of existing programs? Scale the total open bond limits

FREQUENCY

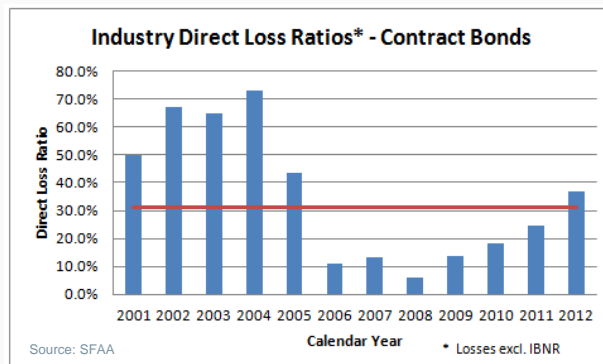
Exposure Rating

- What is the source of your default rates and what time period do they represent?
- If based on financial instrument defaults, how have you adjusted to reflect surety claims?
- How comfortable/confident are you in the credit ratings used in the model?
 - Not all credit models are created equally.

FREQUENCY

Experience Rating

- What time period is your selection representing?
- Have you applied frequency trend and if so, what is the source?



2006-12
Loss Ratio
= about 1/2
of the long-
term
average



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THANK YOU FOR YOUR ATTENTION

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