



2014 CAS Seminar on Reinsurance  
C-4: Surety – How Do They Do That?

May 22, 2014

Shawn Lynch, Vice President Underwriting  
Liza Sheker, FCAS, Vice President and Associate Actuary





# Antitrust Notice

- The Casualty Actuarial Society is committed to adhering strictly to the letter and spirit of the antitrust laws. Seminars conducted under the auspices of the CAS are designed solely *to provide a forum for the expression of various points of view on topics* described in the programs or agendas for such meetings.
- Under no circumstances shall CAS seminars be used as a means for competing companies or firms to reach any understanding – expressed or implied – that restricts competition or in any way impairs the ability of members to exercise independent business judgment regarding matters affecting competition.
- It is the responsibility of all seminar participants to be aware of antitrust regulations, to prevent any written or verbal discussions that appear to violate these laws, and to adhere in every respect to the CAS antitrust compliance policy.



## Cautionary Statement

The information contained in this presentation and any discussions or statements made during its presentation are general in nature and intended to be used for informational purposes relating to this Seminar only and are not intended for any particular purpose.

The views expressed do not necessarily represent the views of Transatlantic Re, its affiliates, subsidiaries, management and/or shareholders, who along with the authors shall not be held responsible in any way for use or reliance on any of the information contained in or referenced during the presentation of this outline.

The information contained in this outline is not intended to constitute and should not be considered legal or professional advice, nor shall it serve as a substitute for obtaining legal or professional advice specific to any particular needs that may be presented.



## The Miller Act (1935)

### Insurance:

- The law of large numbers applies...
- Losses of a few are paid by the premium of many
- Players – Insurance Company & Insured

### Surety:

- 3<sup>rd</sup> Party Indemnity Contract...
- Surety agrees to perform on behalf of the principal in event of default
- In theory, the business is underwritten to 'zero' loss ratio
- Premium is fee for prequalification

Players – Surety (Insurer), Obligee (Owner) and Principal (Contractor / Corporation or Individual)



## Types of Bonds...

### Contract Surety:

- \* Bid Bonds
- \* Performance Bonds
- \* Payment Bonds (Labor & Material)

### Commercial Surety (Miscellaneous):

- \* License & Permit
- \* Court & Fiduciary
- \* Custom
- \* Workers Compensation

Principal Contractors: General, Subcontractors and Subdivision



## Underwriting the Principal (Contractor) ...The Three “C’s”



- Financial wherewithal – Balance Sheet
- Credit and Access to Capital
- Indemnification (Corporate & Personal)
- Work in Progress (Bonded and Unbonded)
- Management – Continuity
- Experience and Proven Track Record
- Risk Appetite – capital vs. capacity
- Job Selection – type and location

# Surety Premium and Loss Ratios



Period	DWP	DPE	Direct Loss	L/R
12/31/2013*	5,245,677,500	5,174,838,728	841,022,489	16.3%
12/31/2012	5,045,924,312	5,148,725,322	1,111,588,615	21.6%
12/31/2011	5,171,227,326	5,187,250,043	708,596,124	13.7%
12/31/2010	5,191,252,965	5,284,441,288	716,181,096	13.6%
12/31/2009	5,193,473,403	5,325,861,795	1,036,818,875	19.5%
12/31/2008	<b>5,502,077,912</b>	5,407,598,130	685,810,029	12.7%
12/31/2007	5,432,756,400	5,183,048,905	979,285,852	18.9%
12/31/2006	5,030,386,542	4,775,588,679	774,235,125	16.2%
12/31/2005	4,509,415,711	4,379,370,547	1,738,748,653	<b>39.7%</b>
12/31/2004	4,265,934,319	4,081,720,567	2,432,747,953	<b>59.6%</b>
12/31/2003	3,958,212,940	3,910,968,503	1,991,342,543	<b>50.9%</b>
12/31/2002	3,932,564,731	3,650,358,905	2,470,005,294	<b>67.6%</b>
12/31/2001	3,613,926,916	3,461,896,608	2,856,149,852	<b>82.5%</b>

(Source - The Surety and Fidelity Association of America / 2013 – Preliminary)

## Top 10 Writers Calendar Year – 2013 (Preliminary)

Group	Direct WP	Direct L/R	Share
Travelers Bond	\$778,689,161	-10.4%	14.8%
Liberty Mutual	\$738,271,612	34.2%	14.1%
Zurich Insurance (F&D)	\$492,737,467	24.3%	9.4%
C N A Insurance	\$408,605,990	18.2%	7.8%
Chubb & Son	\$210,242,628	2.4%	4.0%
International Fidelity	\$167,316,158	11.1%	3.2%
HCC	\$166,419,402	4.9%	3.2%
Hartford	\$160,693,912	23.9%	3.1%
ACE LTD Group	\$143,061,872	19.3%	2.7%
RLI Insurance	\$110,594,591	11.4%	2.1%
<b>Results – Top 10</b>	<b>\$3,376,632,793</b>	<b>13.9%</b>	<b>64.4%</b>
<b>Industry</b>	<b>\$5,245,677,500</b>	<b>16.3%</b>	

(The Surety & Fidelity Association of America)



## **Principal (Contractor) – Premier Contracting, NY**

- 3<sup>rd</sup> Generation
- Steel fabricator / erector
- Tri-state area

**Obligee (Owner) – various**

**Surety – Indemnity Surety**

## **Claim Scenario:**

- Expanded outside normal territory
- Under estimated project costs
- Upgraded facilities / increased debt burden
- Competitive bid



# Contract Surety...Case Study (Premier Contracting Backlog)



Job	Estimated Contract Price	Cost to Date	Billings to Date	Estimated Gross Profit	Cost to Complete	Total Cost	Excess B/C	Percent complete	Gross Margin	Backlog
Times Square One, NY	25,000,000	23,000,000	24,500,000	1,250,000	750,000	23,750,000	1,500,000	96.84%	5.00%	789,474
Gramercy Park, NY	15,000,000	7,500,000	7,500,000	375,000	7,125,000	14,625,000	0	51.28%	2.50%	7,307,692
South Beach Tower II, FL	40,000,000	10,000,000	15,000,000	(10,000,000)	40,000,000	50,000,000	5,000,000	20.00%	-25.00%	32,000,000
Key Largo Tower, FL	7,500,000	6,000,000	7,000,000	(2,500,000)	4,000,000	10,000,000	1,000,000	60.00%	-33.33%	3,000,000
LA Towers, CA	12,500,000	0	0	500,000	12,000,000	12,000,000	0	0.00%	4.00%	12,500,000
<b>Total</b>	<b>100,000,000</b>	<b>46,500,000</b>	<b>54,000,000</b>	<b>(10,375,000)</b>	<b>63,875,000</b>	<b>110,375,000</b>	<b>7,500,000</b>			<b>55,597,166</b>

## **Remedies:**

- Step in the shoes of the principal
- Bring in a completion contractor
- Tender the penal sum of the bond

## **Indemnity Package:**

- Corporate
- Affiliates
- Personal & Trusts
- Secured (ILOC / Indemnity Deed of Trust)

## Evaluating the loss experience – Gross and Excess Losses

- Years available
- Large National program vs. Regional Program
- **Catastrophic claims**
- The Economic Cycle

## Pricing start-up Programs – there have been a lot lately!

- Proxy exposure portfolio
- Collaboration with the UW

## Commercial Surety

- Commercial and “Commercial low” category
- Credit ratings and Frequency Adjustments
- No industry loss severity study available

## The XOL Pricing Model

- Gross Loss Distribution
- Tail Risk

# Contract Surety Loss – Case Study Continued



Principal: Premier Construction, NY

Project	Bond Year	Bond	Expected Margin	Loss	Outcome
Times Square One, NY	2010	25,000,000	1,250,000	-	Financed to finish - no loss
Gramercy Park, NY	2011	15,000,000	375,000	-	Financed to finish - no loss
South Beach Tower II, FL	2010	40,000,000	(10,000,000)	(37,000,000)	Step into shoes, major cost overrun problems
Key Largo Tower, FL	2012	7,500,000	(2,500,000)	(2,500,000)	Step into shoes - loss as expected based on profit margin
LA Towers, CA	2013	12,500,000	500,000	(500,000)	Step into shoes - small loss as costs > expected
<i>2 bonds expired last 12 mo:</i>	<i>2010</i>	<i>25,000,000</i>	<i>2,000,000</i>		<i>Satisfied obligations - completed and closed - no loss</i>
Total In-force:		100,000,000	(10,375,000)	(40,000,000)	40.0% Loss as % In-force only
Total In-force + Expired last 12:		125,000,000	(8,375,000)	(40,000,000)	32.0% Loss as % In-force + Exp Last 12

*\*SFAA Uses In-force + expired last 12 as exposure base for construction loss severity study and the PEL and PML curves*

Loss Year:	2013	Year in which establish first reserve - bond basis
Discovery Year:	2013	Year in which reserve exceeds 50% of net retention - principal basis
Discovery Threshold:	5,000,000	50% of Attachment Point of \$10M

Where would this case fit on the SFAA Severity curve (PEL, PML)?





# Observed Loss Compared to Predicted Loss Using SFAA Model



## Information from SFAA 2012 CONSTRUCTION LOSS SEVERITY MODEL

$$PEL\% = (BASE\ PEL\% + CONC\ FACTOR\%) \times (1 + REGION\ FACTOR\%)$$

WHERE BASE PEL% = F(TOTAL LIMIT, TYPE CONTRACTOR)

		<u>Description</u>
Contractor:		Premier Construction
Type of Contractor:	Type - 5	Sub-Contractor - Building
Total Bond Limit:	125,000,000	In-force + Exp last 12
Max Bond Limit:	40,000,000	Largest open bond
Concentration:	32.0%	Max bond as % total
Region Factor:	NY	Region of operation

	<u>Base</u>	<u>Conc Factor</u>	<u>Region</u>	<u>Factor</u>
PEL factor:	14.2%	0.0%	3.0%	14.6%
PML Factor:	28.4%	0.0%	0.0%	28.4%
95th %ile (new in 2012):				35.6%

Observed Loss as % Exposure:	32.0%
Point on cumulative distribution curve (est.):	93.0%

<u>Questions:</u>
Does this claim fit into the aggregate distribution implied by the SFAA study?
Credit rating implication?
How does this fit into the context of a surety program?
Was this claim in a large national portfolio with 500M in premium or a regional with 50M?

**Is this a National Surety Program with \$500M in premium or a Regional with \$50M?**

- National: Points on loss ratio = 8%
- Regional: Points on loss ratio = 80% (!)

**Was the probability of such a claim reflected in the pricing model?**

- Check the model output!
- *1 in 50? 1 in 500?*

**Experience – how credible is it?**

- For a large national program...
- For a smaller regional surety...

**How is the cat experience addressed if have 10-15 years of data?**



# Contract Surety Loss – Case Study Continued



## Case Study - Premier Construction, NY Allocation of \$40M principal cat loss to various reinsurance structures

Gross Incurred	BY	12	24	36	48	60	TOTAL as of 2014
(assume no payments yet)	2010	-	-	-	10,000,000	37,000,000	37,000,000
	2011	-	-	-	-	-	-
	2012	-	2,500,000	2,500,000	-	-	2,500,000
	2013	-	500,000	-	-	-	500,000
	TOTAL:						40,000,000

Quota Share	BY	12	24	36	48	60	TOTAL as of 2014
50% all bonds	2010	-	-	-	5,000,000	18,500,000	18,500,000
	2011	-	-	-	-	-	-
	2012	-	1,250,000	1,250,000	-	-	1,250,000
	2013	-	250,000	-	-	-	250,000
	TOTAL:						20,000,000

Surplus Share	BY	12	24	36	48	60	TOTAL as of 2014
Retains 100% of bonds <=10M; 20% of bonds >10M	2010	-	-	-	8,000,000	29,600,000	29,600,000
	2011	-	-	-	-	-	-
	2012	-	-	-	-	-	-
	2013	-	400,000	-	-	-	400,000
	TOTAL:						30,000,000

Excess of Loss	DY	12	24	TOTAL as of 2014
Ground-up Losses:	2013	12,500,000	40,000,000	40,000,000
30x10 Losses:	2013	2,500,000	30,000,000	30,000,000

**Notes:**

Not indicative of an entire portfolio; Does not show future impacts of recoveries for simplicity  
 For pro rata structures - a catastrophic loss can impact multiple bond years  
 For XOL structures - the discovery year trigger shortens the tail and impacts a single year



- **Treatment of losses within first 250K has changed**
  
- **Where have we encountered problems with relating experience to the exposure pricing model?**
  
- **How have we dealt with this situation?**
  - Allocate...
  - Adjust...
  - Rebalance...