

Swiss Re



Reinsurance Structures and Pricing Pro-Rata Treaties

Care Reinsurance Boot Camp

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SWISS RE
150
YEARS



Motivations for Purchasing Reinsurance

- 1) Limiting Liability [on specific risks]
- 2) Stabilization / Smoothing of Results
- 3) Catastrophe Protection
- 4) Increase Capacity / Surplus Relief



Types of Reinsurance

- Quota Share (Q/S)
- Excess of Loss (XOL)
- Combo: Q/S & XOL
- Other



Quota Share

- 'Straight' Q/S
- Variable Q/S



'Straight' Q/S Example

	<u>Written Premium</u>	<u>Expected Loss Ratio</u>	<u>Expected Losses</u>	<u>Expense Ratio</u>	<u>Expenses</u>	<u>Expected Combined Ratio</u>
Gross	100,000,000	60%	60,000,000	25%	25,000,000	85%
Ceded [to Reinsurer]	70,000,000	60%	42,000,000	28%	19,600,000	88%
Net [to Cecant]	30,000,000	60%	18,000,000	18%	5,400,000	78%

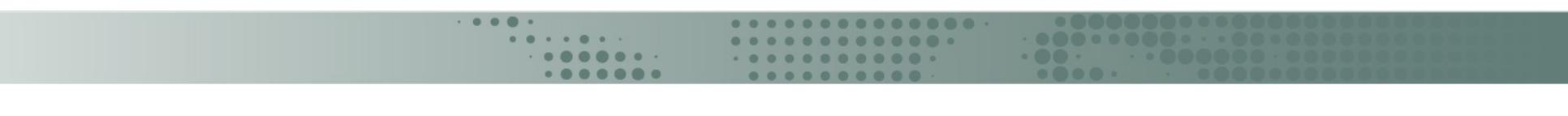
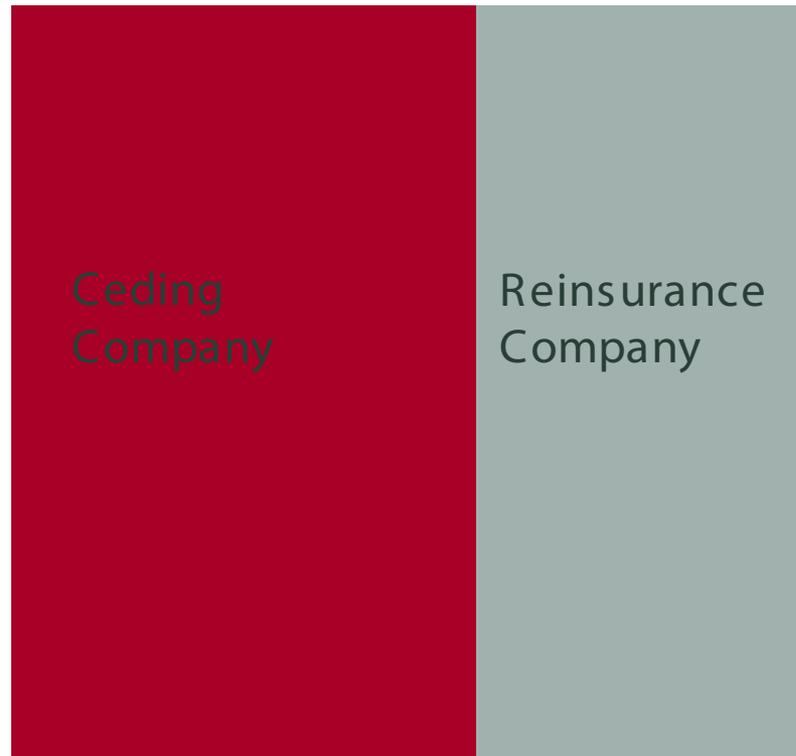
70% Ceded
28% Ceding Commission
Cedant's Expenses are 25%

The Combined Ratio displayed for the Reinsurer is prior to brokerage and internal expenses.



Quota Share Reinsurance

- Share of Loss





Excess of Loss

- Per Claim
- Per Occurrence
- Per Policy
- Per Risk
- Combination



XOL – Premium Determination

- Rate
- Cessions Rated
 - ILFs
 - Cession Factors
 - Pricing of Each Policy



Combo Structure

- Vertical
- Horizontal



Combo Structure: Vertical

- Underlying Q/S
- XOL Layers on Top

Example:

- 1 M Q/S
- 4 M xs 1 M
- 5 M xs 5 M



Combo Structure: Horizontal

- Allocate/Prorate a Policy/Limit
- Each Piece would be subject to different treaties

Example:

- Allocate a 10M policy limit on a 60/40 basis
- 60% Allocation → 6M Q/S
- 40% Allocation → 3M xs 1M XOL ***

*** This part is equivalent to 40% of a 7.5M xs 2.5M on a ground-up basis.



Other Types of Reinsurance

- Aggregate Stop Loss
- Financial Market



Loss Ratio Calculation

On-Leveled,
Trended,
& Developed

LOSS RATIO

** For The Prospective Treaty Structure**



On-Leveling Premium

- Essentially Same as in Primary Pricing Analysis
 - Rate Changes (NOT PREMIUM CHANGES)
 - Exposure Trend



Components of Rate Changes (1)

- Base Rate Changes
- LCM Changes
- ILF Changes
- Schedule Mod Changes



Components of Rate Changes (2)

- Renewal Rate Monitor
- Monitoring of New Business
 - Deviation from 'Manual'
 - Comparison to Rates Charged on Renewals



Losses

- Essentially Same as in Primary Pricing Analysis
 - Develop Losses to Ultimate
 - Trend Losses from Average Accident in Experience Period to Average Accident Date in Treaty Period



Premium and Losses – Types of Data

- Experience Period
 - Policy Year
 - Accident Year
- Treaty Period
 - Risks Attaching
 - Losses Occurring
- Experience Period and Treaty Period → 12 Month Block
 - 1/1 – 12/31
 - Other (e.g., 4/1 – 3/31, 9/1 – 8/31, etc.)



Quota Share Reinsurance

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Year	Premium	On Level Factor	On Level Premium	Reported Losses	Loss Trend	Trended Reported Loss	Loss Developm ent Factor	Developed and Trended Loss	Ultimate Loss Ratio
2008	7,173	1.500	10,760	4,873	1.104	5,380	1.036	5,572	51.8%
2009	7,970	1.350	10,760	6,030	1.082	6,527	1.072	7,000	65.1%
2010	8,276	1.300	10,759	4,874	1.061	5,172	1.150	5,949	55.3%
2011	8,987	1.250	11,234	3,996	1.040	4,157	1.323	5,500	49.0%
2012	11,023	1.050	11,574	3,619	1.020	3,691	1.750	6,460	55.8%
	43,429		55,086	23,392		24,928		30,480	55.3%

* Data is for illustrative purposes only and does not represent any specific company

- (1) Premiums provided by cedant
- (2) Rate and exposure changes to bring premium to current level
- (3) Current Level Premium (1)*(2)
- (4) Losses provided by cedant
- (5) Loss trend to bring losses to current level
- (6) Current level losses (4)*(5)
- (7) Loss development factor
- (8) (6)*(7)
- (9) (8)/(3)



Mix of Business Changes

- Subdivide Historical Experience into Relevant Homogeneous Segments (e.g., by state, class, business unit, etc.)
- Project Loss Ratios for each Segment
- Weight Projections on Prospective Treaty Year Premium



Responsiveness vs. Stability

- Not an Exact Science
- Need to Consider the Following:
 - Premium Volume by Year
 - Magnitude of the LDFs
 - Limits and Attachment Points of the Business
 - Any Changes in the Book
 - (with respect to the items above, other types of mix changes, and changes in management)
 - Quality of the Information





Catastrophes and Large Losses

■ Two Potential Situations

- No Catastrophes or Abnormally Large Losses [Relative to the Limit] Have Occurred in the Experience Period
- Catastrophes or Large Losses Occurred During the Experience Period



Large Loss Load Procedure

- Limit Large Losses or Remove Cats from the Experience (if they are present)
- Model the Load
 - For Property Cat business, use one of the Cat Models (e.g., RMS).
 - For Other Lines, Model it via an Exposure Rating Model
- Compare Experience Load to Modeled Load and Make a Selection



Start-ups and Limited Data

Potential Items to Assess:

- 1) Analyze Experience from Management's Former Company
- 2) Assess Rating Plan and Rating Factors as well as their Business Plan
- 3) Compare Rates to Similar Companies
- 4) Assess Pricing via an Audit

*** For items 1) and 3), any comparison to another company should make an attempt to convert the benchmark company to an apples-to-apples basis (with respect to rate level, class mix, etc.).



Start-ups: Other Considerations

- Current State of the Underwriting Cycle
- Business Plan vs. Realistic Likelihood of Success
- Amount of Risk Being Retained by Decant
- Number and Size of Competitors
- Ability/Plan to Obtain Business from Competitors Other Than Based on Price



Final Thoughts

- Prior to Pricing Analysis, Make Sure Deal Makes Sense From an Underwriting Perspective
- Understand the Structure
- Make Sure All of the Data is Clear and Complete
- Compare Projections to Other Similar Treaties
- Document Assumptions

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Thank you

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