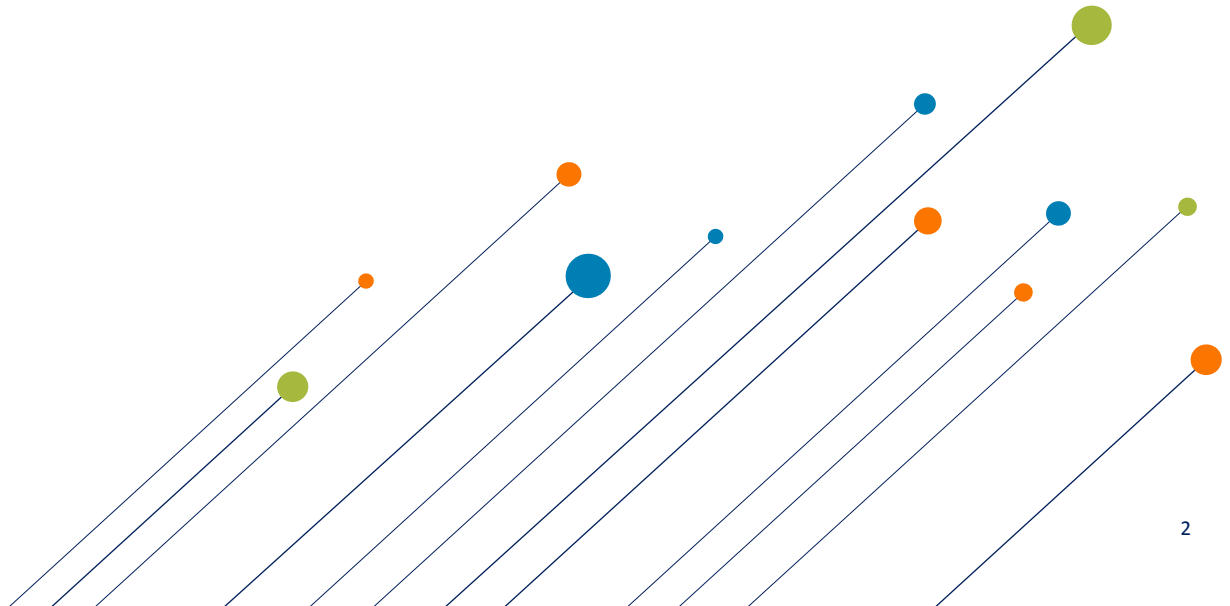


Analysing the disconnect between the reinsurance submission and global underwriters' needs

From an underwriter's prospective



➤ Underwriters prospective

Actuarial analysis is critical in your company's underwriting profitability

Companies that embrace the use of data and insurtech have the competitive advantage

This applies from personal line, commercial, reinsurance to ILS markets

- However, actuarial analysis cannot be used blindly
- Data quality varies
- Underwriters' opinion and guidance matters!

➤ Working Party Formation

- Joint effort between IFoA-GIRO and CAS-CARe
- Initially focus on Property Per Risk Reinsurance for 2015
- Goals of WP:
 - Analyse gaps between data and information presented in a standard reinsurance submission and data required by reinsurance actuaries and underwriters to thoroughly price a treaty.
 - Improve understanding across all parties (cedant, broker and reinsurer) of impact of incomplete submissions on pricing throughout a number of examples.
 - Create a reference framework for future property primary data collection and reinsurance submissions.

➤ Working Party Steps thus Far

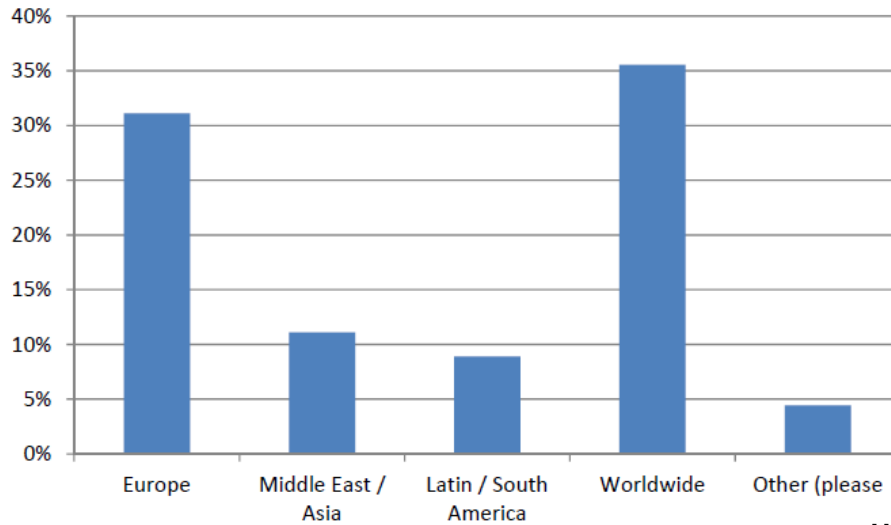
- Identified an ideal submission vs. most common submission.
 - A survey was prepared and circulated among reinsurance practitioners (actuaries and underwriters)
 - Results of the survey were presented at the annual CARE meeting in June 2015 in Philadelphia, USA.
- Preparation of a white paper with detailed examples showing illustrative price differences driven by lack of data
 - Work in progress
 - Will be ready in time for GIRO at the end of October
 - GIRO presentation

➤ Survey Overview

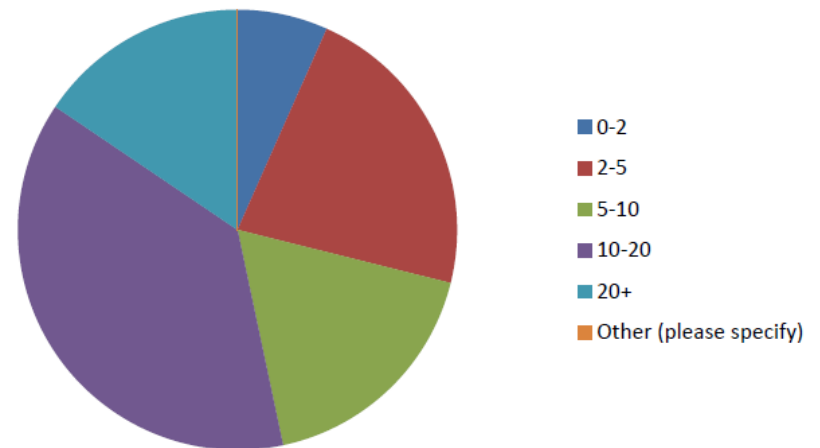
- 44 responses
 - 86% actuaries and 14% from other areas
 - 25 members of CAS, 16 members of IFoA, 13 members of other organisations (some members of multiple organisations)
 - Including representation from France, China and NZ.
- Wide variety of priced territories

➤ Respondent Demographics

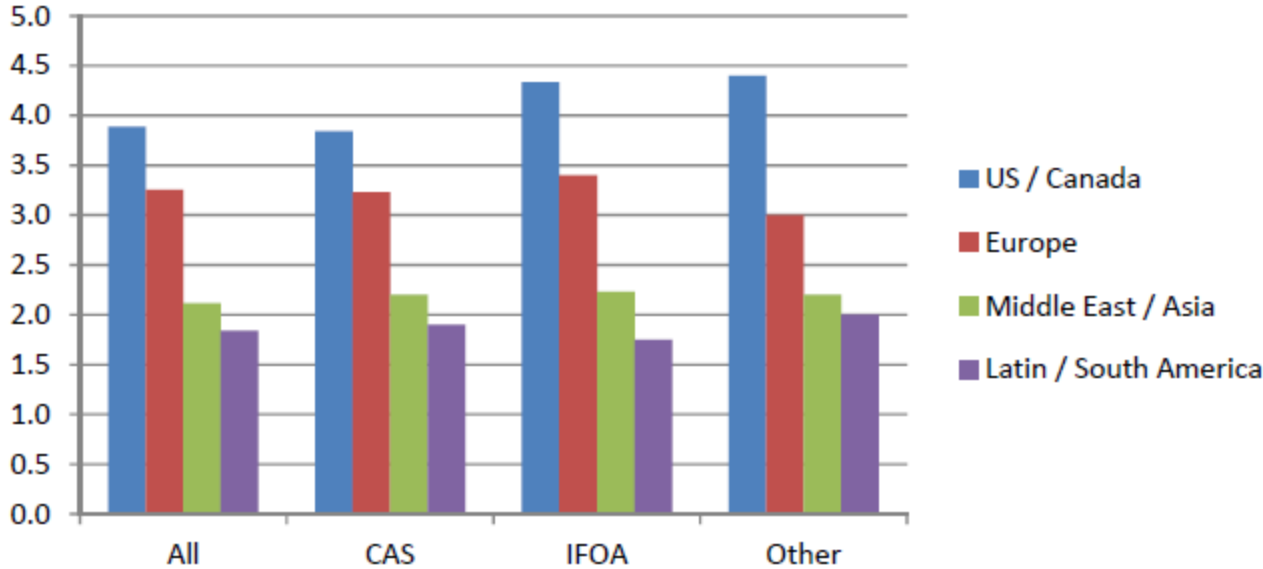
Which territories do you mainly price?



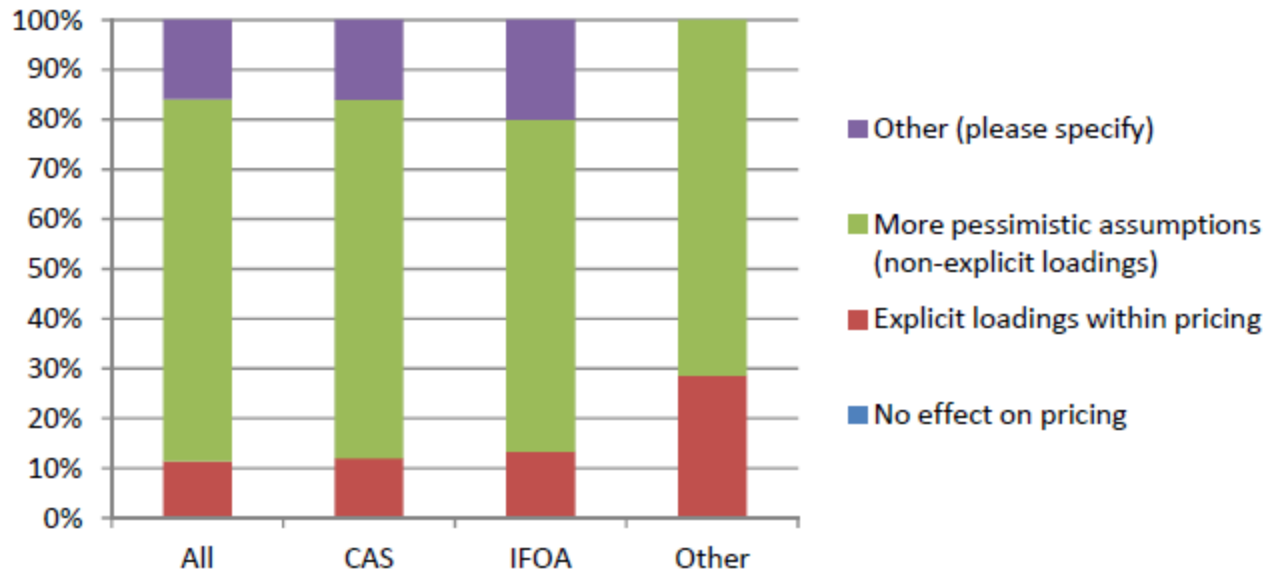
How many years have you been pricing reinsurance?



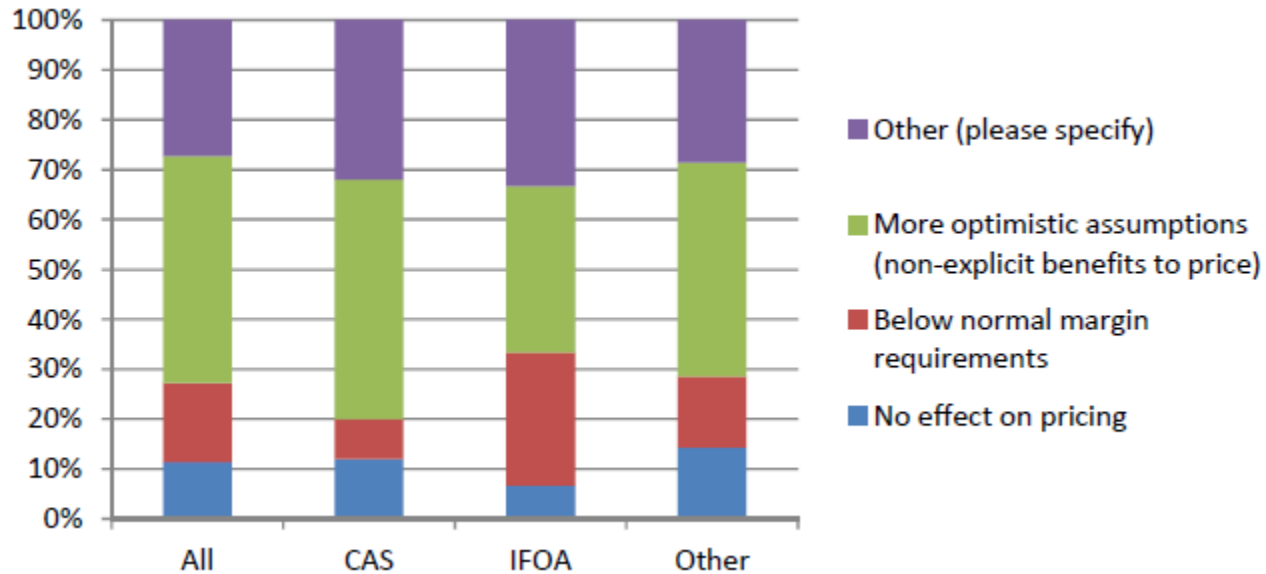
➤ Respondent Demographics



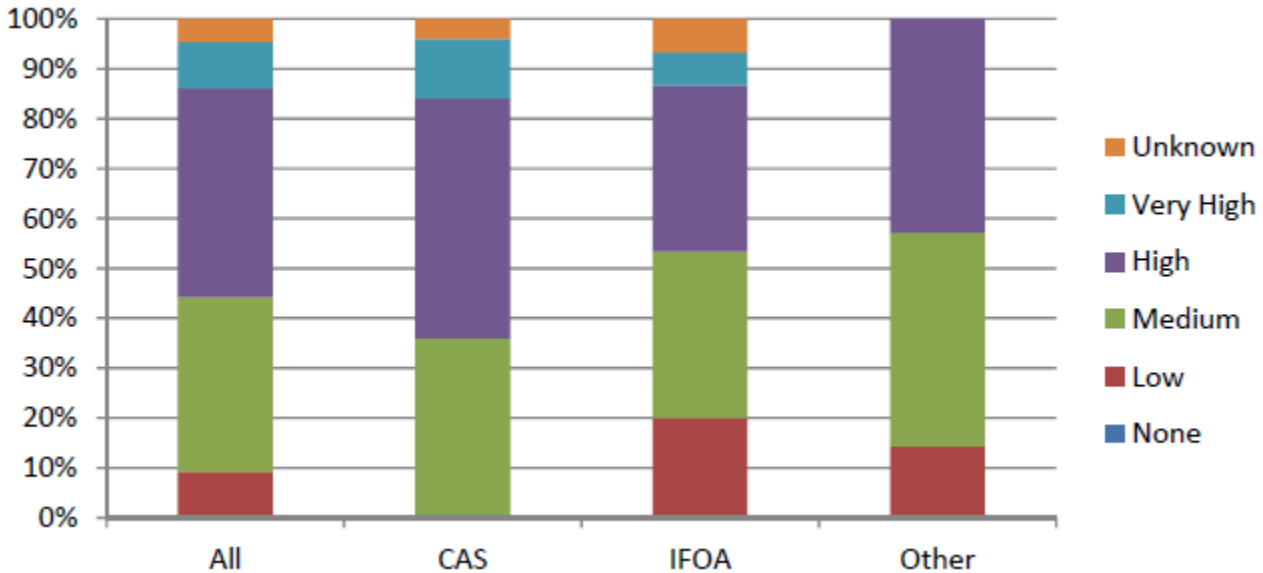
➤ How does a poor quality submission impact price?



➤ How does an excellent quality submission impact price?



➤ How much does quality of submission impact your price?



➤ Exposure Rating

	All		CAS		IFOA		Other	
	% Receiving	Rank	% Receiving	Rank	% Receiving	Rank	% Receiving	Rank
a. In-force risk profile (banded)	93%	1	92%	1	87%	1	86%	1
b. Historic risk profiles (banded)	23%	5	8%	6	60%	4	29%	3
c. Individual risk listing (all cat/non-cat exposures)	30%	3	24%	2	33%	2	43%	6
d. Individual risk listing (above certain threshold)	48%	7	48%	7	53%	5	29%	8
e. Historic from ground up loss ratios (cat and non-cat)	57%	2	68%	3	40%	3	71%	2
f. Written explanation of risk profile	25%	4	20%	5	27%	5	29%	4
g. Risk profile detail	34%	6	32%	4	40%	7	29%	5
h. Link of claims to risk profiles	7%	8	4%	8	7%	8	29%	7

➤ Exposure Rating

	All		CAS		IFOA		Other	
	% Receiving	Rank	% Receiving	Rank	% Receiving	Rank	% Receiving	Rank
a. Large loss listing (no triangle)	100%	1	100%	1	100%	1	100%	1
b. Historic large loss listing (triangle)	30%	3	24%	3	33%	2	29%	4
c. Large loss claim description including cat/non-cat indicator	82%	4	96%	4	73%	4	71%	3
d. Historic premium	93%	2	96%	2	87%	3	100%	2
e. Historic exposures (# of risks, # of exposures / risk)	30%	6	20%	6	40%	5	57%	5
f. Projected rate change	43%	7	56%	6	27%	7	29%	7
g. Historic rate change	59%	5	84%	5	33%	6	57%	6
h. Rate monitor (renewal policies)	18%	8	24%	8	20%	8	0%	8

White Paper Table of Contents

IFoA / CAS International Pricing Research Working Party - 2016 Analyzing the Disconnect Between the Reinsurance Submission and Global Underwriters' Needs - Property Per Risk

Contents

Foreword.....	6
1. Abstract.....	7
1.1 Keywords.....	8
1.2 Key Contact.....	8
2. Introduction.....	9
2.1 Joint International Pricing Research Working Party.....	9
2.2 Survey preparatory work.....	9
2.3 Anticipated audience.....	10
2.4 Section Overview.....	10
3. Primary Company Considerations.....	12
3.1 Relevance / benefits to primary markets including agents and brokers.....	12
3.1.1 The Beginning.....	12
3.1.2 The Details.....	13
3.2 Impact on Primary Actuaries and Underwriters.....	13
3.3 Other Market Considerations.....	13
4. Reinsurance Company Considerations.....	15
4.1 Relevance / benefits to excess and reinsurance markets including reinsurance brokers.....	15
4.2 Impact on Reinsurance Actuaries and Underwriters.....	16
4.3 Other Market Considerations.....	16
5. Exposure and Experience Data Elements.....	17
5.1 Exposure Elements.....	17
5.2 Experience Elements.....	18
5.3 Survey Importance of Exposure and Experience Elements.....	19
5.4 Interconnection between Exposure and Experience.....	20
6. Amount of Insurance Definitions.....	21
6.1 What Is Meant by Amount of Insurance.....	22
6.2 Varying Terminology: AOI, TIV, MPL, MFL, PML, SOV.....	22
6.3 Additional Terminology Details.....	24
6.4 Business Interruption Exposure.....	26
6.5 Shared, Layered and Ventilated Policies.....	26
6.6 Detailed Exposure Information – Knowing the Business That You Write.....	28
6.7 The Impact of PML on Reinsurance Pricing.....	29
7. AOI Submission Types.....	31
7.1 Individual Risk Listing.....	31
7.2 Banded Limit Profile.....	32
7.3 Banded Attachment / Limit Profile.....	33
8. Loss ratio information.....	35
8.1 Premium x Expected Loss Ratio Method.....	35

➤ White Paper Table of Contents (cont.)

8.2 Extended Exposures Method	36
9. Historical AOI Profiles	38
9.1 Adjusting experience for changes in exposure	38
9.2 Practical example	39
10. Traditional COPE and Portfolio Extensions	43
10.1 Properly Utilizing COPE Data to Underwrite Packaged Commercial Property Submissions	43
10.2 Construction "C"	43
10.2.1 Construction Materials	44
10.2.2 Mixed Construction Problems.	45
10.2.3 Other Construction Material Considerations.	45
10.2.4 Maximum Possible Loss (MPL) vs. Probable Maximum Loss (PML)	45
10.2.5 International Building Code Considerations.	46
10.2.6 Size of the Structure.....	46
10.2.7 Age of the Structure.....	46
10.2.8 The Importance of "Construction" Information	47
10.3 Occupancy "O"	47
10.3.1 Occupancy Classifications: What the Insured Does	47
10.3.2 SIC/NAICS Codes and Occupancy Classes	48
10.3.3 How the Insured Manages Its Operations	48
10.4 Protection "P"	49
10.4.1 Sprinkler Systems	49
10.4.2 Fire Extinguishers	49
10.4.3 Alarm Systems	50
10.4.4 Fire Doors and Fire Walls	50
10.4.5 Public Protection.....	51
10.5 Exposures "E"	51
10.6 Finishing Up Underwriting Individual Risks.....	52
10.7 COPE Expansion to Portfolio Analysis (FARM)	52
11. Large Claim Information and Link of AOI to Claims	53
11.1 Common challenges in linking claims and exposures	53
11.2 The Imperial-IICI dataset	55
11.3 The IRFRC LCR dataset	56
12. Rate Monitoring Information.....	57
12.1 Why do reinsurers need credible rate change information from the cedent?	57
12.2 What is/should be included in the rate change calculation?.....	58
12.3 New Business Rate Monitoring	62
12.4 Rate Changes - Level of Detail.....	62
12.5 Rate Monitor - Using Extended Exposures	63
13. Other Market Considerations	65
13.1 Winner's Curse.....	65
13.2 Submission Bias.....	69
13.3 Managing Overconfidence	71
13.4 Summary of Other Market Considerations.....	73
14. Using property cat submission information	74

➤ White Paper Table of Contents (cont.)

14.1 Using and reconciling Property Risk Submissions with Cat Submissions.....	74
14.2 Why Use Cat Model Input Data?.....	74
14.3 Does the Cat File Represent ALL or only PART of the Business?	74
14.4 Is the File Coded with the Proper Limits and Deductibles?	75
15. Various Country Issues.....	76
15.1 US Specific issues - Valued Policy Statutes and Probable Maximum Loss	76
15.2 Other Markets Issues	77
15.3 The Impact of Inuring Reinsurance Treaties and “As-If” Data	78
16. Conclusions	80
References	81
GIRO Working Party and CARE Links.....	82
Appendices.....	83
Appendix A Survey Results.....	83
Appendix B Raw Survey Data.....	87
Appendix C Blended Exposure / Experience Method	88
Appendix D Additional COPE Details.....	92
Appendix E Property per Risk Acronym Reference.....	95

➤ Potential data issues for Asian Treaties

- Risk profiles:
 - Sometimes simply not available, or
 - Only gross, no net retained, or
 - Number of risks / policy or Rate change not available, or
 - Definition of risk / policy is unclear, or
 - Poor formatting e.g. lower bound & upper bound in the same column, or
 - Information not consistent (e.g. the sum of premiums in risk profiles deviates from GNPI significantly)
- Large loss:
 - Split among ground-up, gross and retained not available
 - No information on cedant share of the loss in the market
 - Event losses are shown individually, not combined
 - Information not consistent
- As-if statistics:
 - What assumptions applied? (Change in retention? Change in underwriting guideline?)
 - No statistics provided to compare with the as-if one

➤ Probable data issues for China, Hong Kong and Taiwan (cont.)

- Triangles:
 - Sometimes only the diagonal is available
 - No split between paid and outstanding claims
 - Direct commission not provided
 - Insufficient number of years of data
- Top 10 risks and expiring leader are sometimes not provided
- Sometimes, only PML is provided for catastrophe exposures
- Information about coinsurance / inward facultative rarely provided

Conclusion

- Actuarial analysis is critical in your company's underwriting profitability
- Companies that embrace the use of data and insurtech have the competitive advantage
- This applies from personal line, commercial, reinsurance to ILS markets
- However, actuarial analysis cannot be used blindly
- Data quality varies
- Underwriters' opinion and guidance matters!