



## Reinsurance Opinion Actuarial Function

22 January 2013

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### Introduction

#### The Actuarial Function Report (AFR)

- A reporting requirement that is new to many
- There are currently very few examples of full reports
- Requires the Actuarial Function Holder (AFH) to give an opinion on:
  - Technical provisions (TP)
  - Underwriting process
  - Reinsurance adequacy
- Will be mandatory under Solvency II
  - TP opinion of the AFR mandatory within Lloyd's since April 2012
  - Other two optional

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## Sources

### Sources of Information

- Lloyd's guidance
  - Issued March 2010 and taken from European Union guidance
  - October 2011 presentation including minimum underwriting standards
  - February 2012 Actuarial Function Holder report
- Solvency II Level 2 text
- Exposure draft of Groupe Consultatif Actuarial Standard of Practice 2 (GCASP 2)

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## Business plans

### In practice, the starting point of the process

- Used to model the underwriting risk
- Starting point for validating consistency

#### Gross Parameterisation Inputs (2013 UW Year)

All to GBP (£000s)

Class	Premium	Attritional Claims			Large Claims						Cat Claims		Agg FGU Claims	
	Ultimate Premium (GN)	Ultimate Amount	CV	Loss Ratio	Ultimate Numbers	Numbers CV	Threshold	Av Sev	Ultimate Amount	Loss Ratio	Ultimate Amount	Loss Ratio	Ultimate Amount	Loss Ratio
Property	40,000	9,600	30.0%	24.0%	15.0	25.8%	500	987	14,812	37.0%	7,357	18.4%	31,770	79.4%
Casualty	24,000	9,600	45.0%	40.0%	3.0	57.7%	500	1,615	5,114	21.3%	1,790	7.5%	16,504	68.8%
Marine Cargo	16,000	5,760	20.0%	36.0%	2.6	62.0%	500	1,570	4,434	27.7%	1,180	7.4%	11,374	71.1%
Marine Hull	16,000	5,760	20.0%	36.0%	2.6	62.0%	500	1,572	4,433	27.7%	0	0.0%	10,193	63.7%
Aviation	32,000	14,081	35.0%	44.0%	6.0	40.8%	500	1,805	10,827	33.8%	2,413	7.5%	27,320	85.4%
Total	128,000	44,801	17.8%	35.0%	29.2	20.2%	500	1,510	39,620	31.0%	12,740	10.0%	97,161	75.9%

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## Risk appetite

### Expressing risk appetite

- Risk appetite is one key element determining the reinsurance purchase and the reinsurance opinion
- Example statements:
  - Combined ratio
    - 80% no more than 1-in-3 years
    - 110% no more than 1-in-10 years
  - S&P rating over a one-year time horizon
    - A or higher with 97% probability
    - BBB or higher with 99% probability
  - Exposure to catastrophes
    - Absolute maximum of £100m any one cat

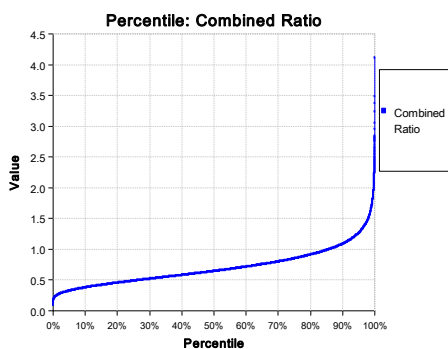
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## Assessing risk appetite

### Output report analysis

- For combined ratio target of 80% (1-in-3), 110% (1-in-10), review model output



	Combined Ratio
Mean	70%
CoV	43%
Standard Deviation	30%
Median	65%
Min	10%
Max	412%
0.1th percentile	18%
0.5th percentile	22%
1st percentile	25%
5th percentile	33%
10th percentile	38%
20th percentile	46%
30th percentile	52%
40th percentile	58%
50th percentile	65%
60th percentile	72%
70th percentile	80%
80th percentile	92%
90th percentile	109%
95th percentile	127%
99th percentile	168%
99.5th percentile	186%
99.9th percentile	193%

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## The reinsurance opinion

### A check-list of higher-level potential requirements

- An opinion on adequacy
  - Including concerns and recommendations
  - Addressing inconsistency or risk of under-performance
- Overview of arrangements
  - Covering all material contracts, including SPVs
  - Large exposures to individual reinsurers
- Key facts about arrangements used to form opinion
  - Significant events, such as claims or commutations
  - Reinsurance disputes
- Overview of process
  - Describing responsibilities and sign-off process
  - Other relationships with reinsurers or conflicts of interest

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## The reinsurance opinion (2)

### A check-list of detailed potential requirements

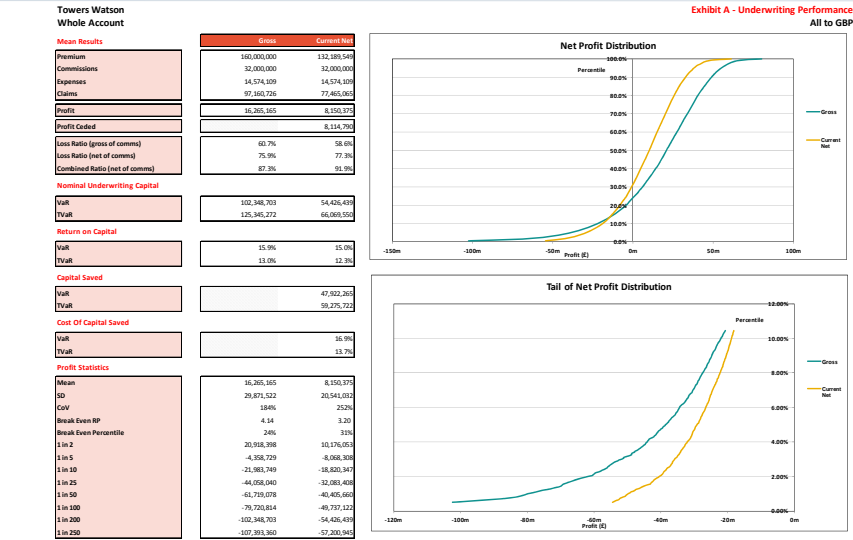
- Consistency
  - Risk appetite, underwriting policy, and calculation of TPs
  - Solvency II risk management policy
- Likelihood of exhaustion and/or default
  - DFA modelling or scenario-based discussion
  - Concerns or recommendations on back-year issues
  - Contingency plans
- Consideration of overall volatility
  - Measures of financial strength gross and net of reinsurance
  - Commentary on the balance sheet impact

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# Net profit distributions – current year

## Impact of reinsurance on net profit



# Catastrophe risk

- Heat map visualisation**
- Summarises risk of multiple cats of various sizes
  - Identifies reinsurance needs
    - By class
    - At whole account level
  - Assists in understanding capital drivers

Threshold	Prob of at least # cats > threshold				
	1	2	3	4	5
200,000,000	0.0%	0.0%	0.0%	0.0%	0.0%
175,000,000	0.0%	0.0%	0.0%	0.0%	0.0%
150,000,000	0.0%	0.0%	0.0%	0.0%	0.0%
125,000,000	8.0%	0.0%	0.0%	0.0%	0.0%
100,000,000	13.0%	0.0%	0.0%	0.0%	0.0%
80,000,000	20.0%	0.0%	0.0%	0.0%	0.0%
60,000,000	27.0%	0.0%	0.0%	0.0%	0.0%
50,000,000	33.0%	0.0%	0.0%	0.0%	0.0%
40,000,000	39.0%	1.0%	0.0%	0.0%	0.0%
30,000,000	43.0%	2.0%	0.0%	0.0%	0.0%
20,000,000	53.0%	4.0%	0.0%	0.0%	0.0%
15,000,000	56.0%	8.0%	1.0%	0.0%	0.0%
10,000,000	60.0%	13.0%	1.0%	0.0%	0.0%
7,500,000	62.0%	16.0%	3.0%	0.0%	0.0%
5,000,000	70.0%	22.0%	7.0%	1.0%	0.0%
4,000,000	73.0%	28.0%	12.0%	1.0%	0.0%
3,000,000	75.0%	32.0%	12.0%	3.0%	0.0%
2,000,000	80.0%	44.0%	18.0%	6.0%	0.0%
1,000,000	84.0%	58.0%	26.0%	12.0%	1.0%
500,000	89.0%	70.0%	40.0%	24.0%	9.0%

## Prior year reinsurance structure

### Prior year reinsurance

- Need to consider:
  - Program structure
  - Utilisation to date
  - Risk of exhaustion
  - Need to purchase additional cover

2008 Marine XL Programme

Layer 2 £15m xs £5m	Layer 2 £15m xs £5m	Layer 2 £15m xs £5m			
Layer 1 £4m xs £1m	Layer 1 £4m xs £1m	Layer 1 £4m xs £1m	Layer 1 £4m xs £1m	Layer 1 £4m xs £1m	Layer 1 £4m xs £1m
Retention	Retention	Retention	Retention	Retention	Retention

Outstanding
Paid

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## Questions or comments?

Expressions of individual views by members of The Actuarial Profession and its staff are encouraged.

The views expressed in this presentation are those of the presenter.

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