

An impressionist painting of a sunset over a body of water. The sky is filled with soft, blended colors of orange, yellow, and blue. A bright orange sun is visible in the upper right, casting a shimmering reflection on the water. In the lower center, a small, dark boat with a figure is visible on the water. The overall style is soft and atmospheric, characteristic of Impressionism.

# Risk Margins in General insurance



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- **NZ IFRS 4:**
- **“The outstanding claim liability includes, in addition to the central estimate of the present value of the expected future payments, a risk margin that relates to the inherent uncertainty in the central estimate of the present value of the expected future payments.”**
- **(similar words in Liability Adequacy test for unearned premiums)**



## Sample NZ risk margins

Insurer	Risk Margin	Likelihood of sufficiency
AA	5.9%	90%
ACE	22.5%	80%
Allianz	16%	75%
AMI	13.9%	80% - 90%
FMG	10.1%	75%
IAG	11.5%	87.5%
Lumley	1.4%	85%
Medical	17.8%	80%
Tower	15% - 20%	75%
Vero	31.7%	94%



## Australian claim risk margins (after diversification) – APRA survey 2008

<b>Class</b>	<b>Average RM % (weighted)</b>	<b>Standard Deviation %</b>
House / contents	5.6%	2.0%
Private Motor	5.6%	2.1%
Commercial motor	7.1%	3.1%
Travel	7.7%	1.9%
Commercial Fire	8.5%	3.7%
Marine	9.5%	9.5%
Aviation	5.8%	4.4%
Mortgage	9.5%	6.2%
Consumer Credit	8.2%	5.9%
Other accident	8.2%	3.6%
CTP	9.3%	2.0%
Public liability	11.2%	6.9%
Professional indemnity	13.7%	7.1%
Employer liability	12.5%	4.6%

**Australian premium risk margins (after diversification) – APRA survey  
2008**

<b>Class</b>	<b>Average RM % (weighted)</b>	<b>Standard Deviation %</b>
House / contents	8.8%	3.1%
Private Motor	7.0%	3.7%
Commercial motor	9.1%	4.4%
Travel	6.8%	4.8%
Commercial Fire	13.0%	8.7%
Marine	12.3%	6.7%
Aviation	5.8%	2.0%
Mortgage	18.5%	8.3%
Consumer Credit	14.5%	12.4%
Other accident	12.3%	5.3%
CTP	12.3%	3.0%
Public liability	12.6%	6.7%
Professional indemnity	17.0%	8.7%
Employer liability	11.7%	5.4%

**Bateup and Reed margins (\$50m) – BEFORE diversification, vs. APRA survey**

<b>Class</b>	<b>Margin (\$50m short-tail, \$100m long-tail)</b>	<b>APRA survey</b>
<b>House / contents</b>	<b>9.3%</b>	<b>5.6%</b>
<b>Private Motor</b>	<b>8.0%</b>	<b>5.6%</b>
<b>Commercial motor</b>	<b>8.8%</b>	<b>7.1%</b>
<b>Travel</b>	<b>9.3%</b>	<b>7.7%</b>
<b>Commercial Fire</b>	<b>9.8%</b>	<b>8.5%</b>
<b>Marine</b>	<b>12.5%</b>	<b>9.5%</b>
<b>Aviation</b>	<b>12.5%</b>	<b>5.8%</b>
<b>Mortgage</b>	<b>13.5%</b>	<b>9.5%</b>
<b>Consumer Credit</b>	<b>11.7%</b>	<b>8.2%</b>
<b>Other accident</b>	<b>10.3%</b>	<b>8.2%</b>
<b>CTP</b>	<b>15.3%</b>	<b>9.3%</b>
<b>Public liability</b>	<b>12.7%</b>	<b>11.2%</b>
<b>Professional indemnity</b>	<b>12.7%</b>	<b>13.7%</b>
<b>Employer liability</b>	<b>12.7%</b>	<b>12.5%</b>

## **Premium liability risk margins:**

### **Bateup and Reed:**

**Short-tail business: 1.75 x claim liability risk margin (for liabilities of the same size)**

**Long-tail business: 1.25 x claim liability risk margin**



**Diversification discount (Bateup and Reed):**

$$51\% \times (1 - 0.5 \times C)$$

$$+ 2.4\% \times N \text{ (if } N > 2)$$

$$- 0.139\% \times S \text{ if } S < \$550\text{m}$$

$$- .0013\% \times S - 7.0\% \text{ if } S \geq \$550\text{m}$$

**Where:**

**C = coefficient of concentration**

$$= \frac{\text{Net insurance liability for largest line of business (\$)}}{\text{Total net insurance liability (\$)}}$$

**N = number of lines of business**

**S = total insurance liabilities in \\$m**





## Items for possible discussion:

**Methodologies:** Rely on technical papers  
(Bateup & Reed , Collings & White, merits?)  
Mack / “Bootstrap” / Other

## Diversification approaches

Australian General Insurance conference feedback, taskforce on risk margins

Claim risk margins vs. premium risk margins – no need to be the same basis?

Tax – current position with tax bill before parliament

ACC partnership programme valuations – use ACC’s margin or individual scheme’s margin?

