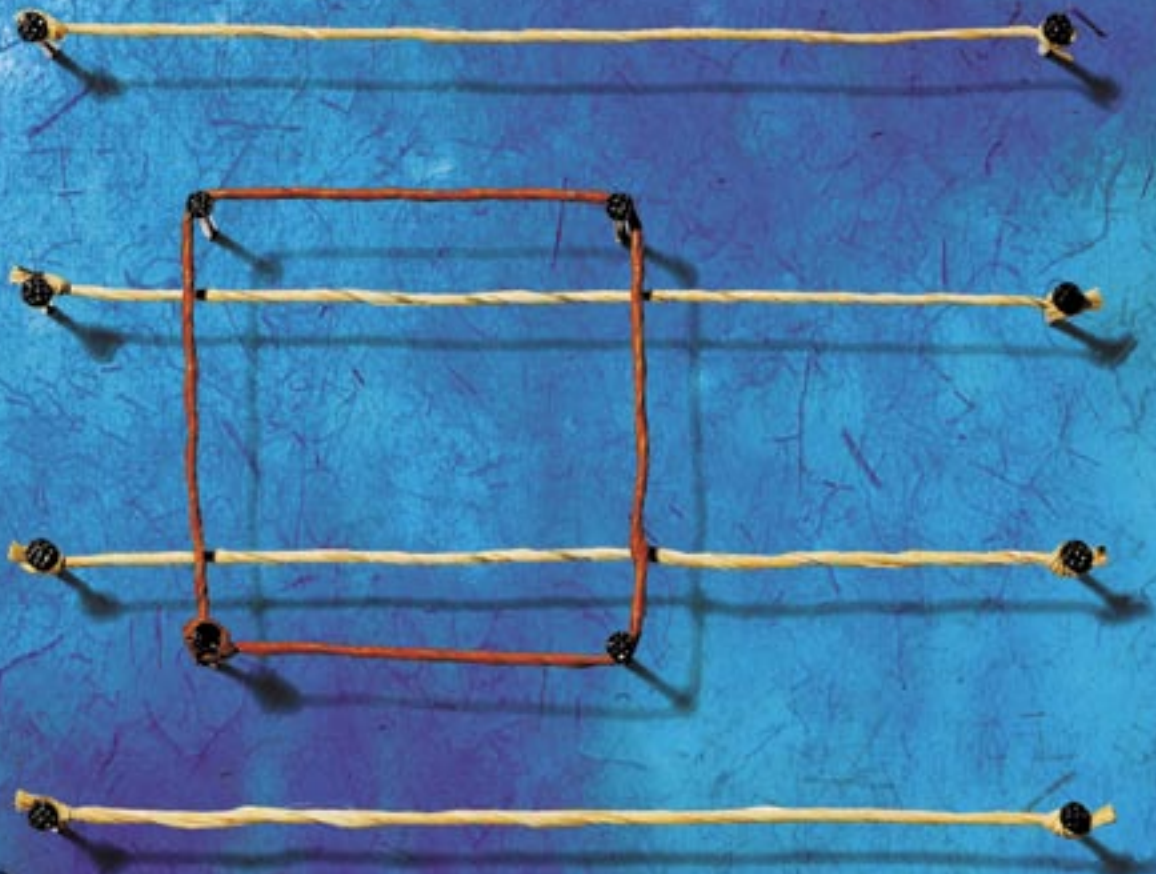




# General Insurance

## Risk Margins Industry Report

30 June 2004 (issued October 2005)



## Copyright

The material in this publication is copyright. You may download, display, print or reproduce material in this publication in unaltered form for your personal, non-commercial use or within your organisation, with proper attribution given to the Australian Prudential Regulation Authority (APRA). Other than for any use permitted under the *Copyright Act 1968*, all other rights are reserved.

Requests for other uses of the information in this publication should be directed to APRA Public Affairs Unit, GPO Box 9836, Sydney NSW 2001 or [Public.Affairs@apra.gov.au](mailto:Public.Affairs@apra.gov.au)

© Australian Prudential Regulation Authority (2005)

## Disclaimer

While APRA endeavours to ensure the quality of this Publication, APRA does not accept any responsibility for the accuracy, completeness or currency of the material included in this Publication, and will not be liable for any loss or damage arising out of any use of, or reliance on, this Publication.

# Contents

|   |           |
|---|-----------|
| <b>Introduction</b>   | <b>4</b>  |
| <b>Summary</b>  | <b>5</b>  |
| <b>Methodology</b>  | <b>6</b>  |
| <b>Data presentation</b>                                    | <b>7</b>  |
| <b>Risk margins analysis</b>                                | <b>8</b>  |
| Direct business   | 8         |
| Reinsurance business  | 10        |
| Premium liabilities   | 11        |
| <b>Appendix A – Detailed risk margin analysis</b>           | <b>13</b> |
| <b>Appendix B – Risk margins excluding run-off insurers</b> | <b>20</b> |
| <b>Appendix C – Calculation methodologies</b>               | <b>22</b> |
| <b>Glossary of terms</b>                                    | <b>23</b> |

## Introduction

The appropriate valuation of insurance liabilities is one of the most important issues facing a general insurer. It is important for the financial soundness of the insurer, and ultimately for the protection of policyholders, that insurance liabilities, including risk margins, are valued in a realistic and consistent manner.

In general insurance the risk margin is the component of the value of the insurance liabilities relating to the inherent uncertainty in the central estimate (the mean of the distribution of probable outcomes). Calculation of risk margins aims at ensuring the value of the insurance liabilities is established at an appropriate and sufficient level.

The derivation of risk margins has been a contentious topic since its adoption in July 2002 with the release of APRA's Prudential Standard *GPS 210—Liability Valuation for General* (GPS 210) which establishes a set of principles for the consistent measurement and reporting of the insurance liabilities.

Actuaries and other general insurance practitioners noted the difficulty of calculating risk margins given the lack of data and recognised methodologies. This then raised issues about the difficulty of producing 'correct' results in line with APRA's 75% probability of sufficiency requirement given the significant degree of professional judgement underlying the estimation process.

Risk margin levels in some classes of general insurance business have converged over the past years, however significant variations are still easily identifiable. The industry raised concerns about variations in risk margins adopted by the different actuaries and also their appropriateness in reflecting the uncertainties present in the underlying liabilities. What is APRA's concern—do we have any in response to industry concern?

APRA noted the concerns of the industry and accepted that there would be a period of uncertainty before any general consistency emerged. APRA noted also that the differing nature of general insurers' portfolios would always preclude the emergence of absolute consistency across the industry.

This report does not investigate the cause of these variations or seek to define an absolute level of risk margin for each class of general insurance business. It instead provides a comprehensive summary of the average risk margins adopted across various classes of general insurance to aid in identifying industry benchmark margins for each class of general insurance. These benchmarks should provide a meaningful 'check' of final risk margins. These benchmarks are selected in accordance with auditors own investigations into the underlying uncertainties of their liability estimates and the specific circumstance of their insurer as specified in GPS 210.

# Summary

## Key findings

The results of the latest round of analysis suggest that relativities between the risk margins for different classes of business are reasonable. As expected the short tail classes display lower margins than the long tail classes, and margins for premium liabilities are higher than those for the outstanding claims liabilities for the same class of business. The higher risk classes generally also exhibit greater volatility in risk margins results.

## Next steps

APRA expects that significant future analysis and research into the appropriate level of risk margins will be carried out by actuaries and general insurers in the next few years.

The recent development by APRA of the National Claims and Policies Database has established a valuable source of claims data that will, over time, provide statistical information from which actuaries and insurers will be able to better assess appropriate risk margins at both the company and the industry level.

APRA has also noted that some insurers have increased the level of analysis of the experience of their own portfolios with a view to providing better data for the assessment of their risk margins. The introduction of the Financial Condition Report requirement for general insurers from 2006 is likely to result in additional data analysis by insurers.

## Methodology

APRA's analysis of risk margins uses June 2004 quarter data extracted from quarterly statistical returns, *GRF 210.0: Outstanding Claims Provision* and *GRF 210.1: Premium Liabilities*, which are submitted to APRA by regulated general insurers.

This analysis incorporates all APRA-regulated general insurers who have submitted non-zero liabilities in their statutory returns to APRA, including run-off insurers. To avoid statistical distortions those submitting a zero risk margin, but a non-zero central estimate value, are excluded from all of the risk margin analyses.

All incorporated figures<sup>1</sup> are gross of reinsurance and non-reinsurance recoveries. This treatment differs from the analysis previously undertaken by APRA as at December 2002 and released through seminars of the Institute of Actuaries of Australia in May 2003, in which data was net of reinsurance and non-reinsurance recoveries. Following APRA's introduction of an enhanced statistical reporting framework for general insurers net figures are no longer collected. The new framework means it is no longer possible to meaningfully compare current and previous results.

Data in this report has been checked and identified anomalies removed from some sections of the analysis. These anomalies may be due to incorrect data submissions by insurers.

All data is separated by class of business—specifically outstanding claims liability, premium liability, direct and reinsurance classes as outlined in *GGN 110.3 Insurance Risk Capital Charge*<sup>2</sup> (GGN 110.3).

<sup>1</sup> These figures include central estimates, risk margins and total liability provisions.

<sup>2</sup> GGN 110.3 paragraph 5 states that for the purpose of capital reporting, APRA classes of business are divided into three categories for direct business and a matrix of three classes with four types of business for inwards reinsurance. Classes of business within the same category are regarded as having broadly similar levels of uncertainty in the estimation of both Outstanding Claims Liabilities and Premium Liabilities.

## Data presentation

The risk margin averages are presented in two different formats: weighted average and arithmetic average. Weighted averages are based on the principle that each insurer's risk margins should be standardised in accordance with the size of their central estimates. Effectively this allows insurers with relatively larger share of the total industry liability provisions to have a greater influence on the average risk margin figure. The arithmetic average, on the other hand, provides a simple average of the risk margins adopted for all the participating insurers within each class. The exact calculation methodologies under both approaches are included in Appendix C.

Appendix A includes a more comprehensive analysis of the risk margins for each class, including segmentation within different central estimate bands.

### Glossary of table terminology

- **'Average risk margins'** – provides an arithmetic average of the risk margin percentages adopted by the participating insurers.
- **'Central estimate (CE) band'** – defines the cut-off rule segmenting each class of business for each insurer. Separating a single class to different bands enables useful comparisons of central estimates levels among smaller or larger insurers. Those data without a defined band represent the total for that class.
- **'No. of insurers'** – is the number of participating insurers that have submitted non-zero liability provisions for each corresponding insurance class. Insurers with zero risk margin submissions and yet non-zero central estimates are excluded.
- **'Standard deviations'** – measure the degree of variations among the risk margins of the corresponding class. Note that the methodology of determining the variations under the weighted and arithmetic approaches differs slightly.
- **'Total CE for insurers in band'** – represents the sum of the central estimates by all the participating insurers falling within each defined band.
- **'Variance and standard deviations of risk margins'** – measures the degree of variations among the risk margins of the corresponding class. The methodology of determining the variations under the weighted and arithmetic approaches differs slightly.
- **'Weighted risk margins'** – measures the average risk margins per dollar of aggregate central estimates for each class of business. Insurers with relatively larger central estimate provisions will have a greater influence over the average figures.

## Risk margins analysis

This section provides summaries of the average risk margins and standard deviations across the classes of business in general insurance. Results are separated into direct and reinsurance businesses, as well as between outstanding claim provisions and premiums liabilities.

### Direct business

#### Outstanding claims liabilities

| Table 1 Outstanding claims liabilities for direct business |                 |             |                        |            |                        |
|--|-----------------|-------------|------------------------|------------|------------------------|
| Direct class of business                                   | No. of insurers | Weighted RM |                        | Average RM |                        |
|  |                 | Mean (%)    | Standard deviation (%) | Mean (%)   | Standard deviation (%) |
| Houseowners/Householders                                   | 39              | 6.90        | 7.19                   | 9.98       | 6.48                   |
| Domestic motor vehicle                                     | 39              | 4.49        | 6.94                   | 8.48       | 5.64                   |
| Commercial motor vehicle                                   | 35              | 6.58        | 32.84                  | 16.65      | 31.20                  |
| Travel   | 13              | 4.96        | 7.67                   | 9.87       | 5.72                   |
| Fire and ISR   | 45              | 6.81        | 9.09                   | 10.50      | 8.29                   |
| Marine   | 43              | 8.57        | 10.59                  | 13.37      | 9.41                   |
| Aviation   | 8               | 8.09        | 6.21                   | 10.06      | 5.84                   |
| Mortgage   | 11              | 8.97        | 16.53                  | 19.90      | 11.91                  |
| Consumer credit  | 17              | 7.45        | 18.46                  | 14.25      | 17.08                  |
| Other accident   | 41              | 7.09        | 8.94                   | 11.15      | 7.94                   |
| CTP motor vehicle  | 14              | 9.71        | 3.58                   | 9.41       | 3.57                   |
| Public and product liability                               | 54              | 10.08       | 24.01                  | 15.69      | 23.33                  |
| Professional indemnity                                     | 32              | 12.02       | 6.18                   | 11.27      | 6.13                   |
| Employers liability  | 27              | 11.16       | 14.71                  | 16.69      | 13.58                  |
| Other  | 40              | 11.64       | 30.29                  | 16.59      | 29.87                  |

### Weighted risk margin vs. arithmetic risk margin

For a majority of classes of general insurance business the weighted average risk margins are lower than those calculated using the arithmetic average approach. The difference is largely explained by the 'size effect' - in which the weighted results are heavily influenced by large insurers, who generally adopt relatively lower margins. Lower margins are to be expected and are a result of high volumes of data, less uncertainty and diversification due to a greater number of business classes underwritten.

### 'Long tail' business vs. 'short tail' business

Based on the weighted results, 'long tail' classes (public liability and professional indemnity) have higher risk margins with a range of 9 per cent to 12

per cent, in comparison with 4 per cent to 9 per cent for the 'short tail' classes of business (householders and domestic motor vehicle). As expected, the three liability classes (public and product, professional indemnity and employers' liability) represent classes with the highest weighted risk margins, while domestic motor vehicle represents the lowest.

### Spread of risk margins

Commercial motor vehicle and public and product liability are the classes of general insurance business with the highest volatilities of risk margins. The compulsory third party motor vehicle (CTP MV) class, as expected, encompasses the lowest spread of risk margins. This may be explained by the high regulatory involvement of the state authorities.

## Premium liabilities

| Direct class of business     | No. of insurers | Weighted RM |                        | Average RM |                        |
|------------------------------|-----------------|-------------|------------------------|------------|------------------------|
|                              |                 | Mean (%)    | Standard deviation (%) | Mean (%)   | Standard deviation (%) |
| Houseowners Householders     | 38              | 8.74        | 12.49                  | 14.28      | 11.16                  |
| Domestic motor vehicle       | 35              | 6.83        | 10.22                  | 11.97      | 8.79                   |
| Commercial motor vehicle     | 26              | 8.75        | 13.15                  | 14.97      | 11.52                  |
| Travel                       | 12              | 10.08       | 6.81                   | 13.38      | 5.88                   |
| Fire and ISR                 | 37              | 11.76       | 13.65                  | 17.14      | 12.51                  |
| Marine                       | 35              | 11.97       | 13.47                  | 18.07      | 11.96                  |
| Aviation                     | 3               | 5.92        | 20.70                  | 14.29      | 17.98                  |
| Mortgage                     | 13              | 26.88       | 23.03                  | 35.64      | 21.16                  |
| Consumer credit              | 15              | 14.90       | 21.30                  | 23.70      | 19.25                  |
| Other accident               | 33              | 10.03       | 12.80                  | 16.24      | 11.13                  |
| CTP motor vehicle            | 10              | 12.89       | 2.76                   | 12.04      | 2.61                   |
| Public and product liability | 41              | 11.65       | 11.26                  | 17.49      | 9.59                   |
| Professional indemnity       | 23              | 17.51       | 33.23                  | 27.20      | 31.72                  |
| Employers liability          | 16              | 12.26       | 6.28                   | 13.21      | 6.20                   |
| Other                        | 35              | 17.04       | 9.43                   | 17.13      | 9.43                   |

### Weighted risk margin vs. arithmetic risk margin

For premiums liabilities, the risk margins are larger than the corresponding outstanding claims liability (OCP) figures. The result is expected due to the larger degree of uncertainty in determining the potential liabilities developing during the unexpired period of the policies.

### 'Long tail' vs. 'short tail'

Weighted risk margins for the long-tail classes are higher than the short-tail classes of business. For most long-tail classes, margins converge closely within the 11 per cent to 13 per cent range, with the exception of professional indemnity at 17.5 per cent. Margins for

short-tail classes fall within the 6 per cent to 27 per cent range. Mortgage insurance dominates with the highest weighted average risk margin of 26.9 per cent. Again the growing uncertainty of future economical conditions, property markets and the lack of historical claim experience may contribute to this result.

### Spread of risk margins within each insurance class

Professional indemnity dominates with a standard deviation of 33.2 per cent, followed by mortgage insurance at 23 per cent. The extent of high regulatory involvement in the CTP class may contribute to the significant convergence of margins adopted by participating insurers.

## Reinsurance business

### Outstanding claims liabilities

| Table 3 Outstanding claims liabilities for reinsurance business |                 |             |                        |            |                        |
|---|-----------------|-------------|------------------------|------------|------------------------|
| Reinsurance classes   | No. of insurers | Weighted RM |                        | Average RM |                        |
|   |                 | Mean (%)    | Standard deviation (%) | Mean (%)   | Standard deviation (%) |
| <b>Casualty</b>   |                 |             |                        |            |                        |
| Facultative excess of loss                                      | 11              | 15.80       | 56.47                  | 33.61      | 53.29                  |
| Facultative proportional  | 8               | 9.81        | 7.75                   | 12.40      | 7.24                   |
| Treaty excess of loss   | 28              | 17.63       | 42.04                  | 31.32      | 39.66                  |
| Treaty proportional   | 32              | 12.68       | 99.97                  | 44.86      | 94.48                  |
| <b>Marine and aviation</b>                                      |                 |             |                        |            |                        |
| Facultative excess of loss                                      | 6               | 11.58       | 22.16                  | 16.32      | 21.54                  |
| Facultative proportional  | 5               | 7.43        | 2.85                   | 8.16       | 2.73                   |
| Treaty excess of loss   | 17              | 12.36       | 363.54                 | 100.16     | 352.09                 |
| Treaty proportional   | 26              | 11.35       | 187.27                 | 50.99      | 182.85                 |
| <b>Property</b>   |                 |             |                        |            |                        |
| Facultative excess of loss                                      | 11              | 9.92        | 14.62                  | 16.11      | 13.11                  |
| Facultative proportional  | 13              | 7.08        | 684.25                 | 193.35     | 656.21                 |
| Treaty excess of loss   | 26              | 9.93        | 32.40                  | 25.88      | 28.02                  |
| Treaty proportional   | 32              | 6.32        | 51.97                  | 26.24      | 47.86                  |
| Reinsurance non-split   | 7               | 17.30       | 14.83                  | 19.43      | 14.65                  |

### Weighted risk margin vs. arithmetic risk margin

For all reinsurance classes, the weighted risk margins are lower than the arithmetic averages. For several classes, the difference is significant.<sup>3</sup> Again, the 'size effect' may have contributed largely to this trend. Considering the lower number of participating entities in comparison to direct business, the weighted results are influenced by the few large reinsurers who adopt relatively lower risk margins.

Property classes have lower risk margins than the two other reinsurance categories. Weighted risk margins range between 6 per cent and 10 per cent for the property classes, 7 per cent and 12 per cent for marine and aviation and 10 per cent and 18 per cent for casualty. Treaty XoL has the highest risk margins under all of the three reinsurance categories, while facultative proportional reflects the lowest risk margin for all classes except the property classes.

### Spread of risk margins within each reinsurance class

The spread of risk margins within each reinsurance class is difficult to explain. For facultative proportional business, the standard deviations are significantly low for both casualty and marine and aviation business at 7.8 per cent and 2.9 per cent respectively. This compares to a standard deviation of 684 per cent for property business. It is difficult to provide a reasonable explanation of this trend. Results can be distorted by the small number of participating reinsurers in each class and the significantly different margins adopted by run-off reinsurers.

Appendix B shows the risk margins averages excluding entities in run-off. It shows considerable reductions in risk margin variations among most classes, thus providing evidence of the effects of the likely higher volatility of risk margins resulting from the greater volatility of the specialised, closed books of the run-off reinsurers.

## Premium liabilities

| Table 4 Premium liabilities for reinsurance business |                 |             |                        |            |                        |
|--|-----------------|-------------|------------------------|------------|------------------------|
| Reinsurance classes                                  | No. of Insurers | Weighted RM |                        | Average RM |                        |
|  |                 | Mean (%)    | Standard deviation (%) | Mean (%)   | Standard deviation (%) |
| <b>Casualty</b>                                      |                 |             |                        |            |                        |
| Facultative excess of loss                           | 6               | 33.61       | 33.38                  | 36.29      | 33.25                  |
| Facultative proportional                             | 4               | 11.93       | 4.32                   | 9.73       | 3.50                   |
| Treaty excess of loss                                | 11              | 23.64       | 27.44                  | 32.59      | 25.79                  |
| Treaty proportional                                  | 13              | 28.54       | 16.63                  | 23.63      | 15.82                  |
| <b>Marine and aviation</b>                           |                 |             |                        |            |                        |
| Facultative excess of loss                           | 2               | 22.61       | 0.62                   | 22.43      | 0.56                   |
| Facultative proportional                             | 3               | 20.02       | 10.30                  | 19.20      | 10.25                  |
| Treaty excess of loss                                | 7               | 19.30       | 32.07                  | 33.67      | 28.06                  |
| Treaty proportional                                  | 12              | 14.10       | 11.58                  | 19.62      | 10.04                  |
| <b>Property</b>                                      |                 |             |                        |            |                        |
| Facultative excess of loss                           | 4               | 13.77       | 7.47                   | 17.03      | 6.45                   |
| Facultative proportional                             | 8               | 11.92       | 18.80                  | 20.59      | 16.36                  |
| Treaty excess of loss                                | 11              | 20.02       | 46.40                  | 40.56      | 41.10                  |
| Treaty proportional                                  | 19              | 9.25        | 21.57                  | 21.33      | 17.64                  |
| Reinsurance non-split                                | 7               | 15.33       | 13.73                  | 17.43      | 13.54                  |

<sup>3</sup> Significant disparities between the average and weighted risk margins for marine and aviation: treaty XoL and property: facultative property classes are due to the presence of a small reinsurer with margins well above 1000 per cent.

Premium liability risk margins for reinsurance are greater than the corresponding OCP figures. The degree of uncertainty in projecting liabilities within the unexpired period, coupled with the nature of reinsurance makes this result somewhat predictable.

Only a handful of participants are included within each class, in comparison to the OCP analysis. This is due to the exclusion of run-off reinsurers, which do not have unexpired exposures, and require no premium liabilities provisioning. The significant reduction in participant numbers also shows that run-off reinsurers may have had large influences over the OCP risk margin results.

Using the weighted results, property reinsurance classes again exhibit the lowest average risk margin percentages falling within the range of 9 per cent and 20 per cent, compared to 14 per cent and 23 per cent for marine and aviation and 12 per cent and 34 per cent for casualty.

## Appendix A – Detailed risk margin analysis

This section provides a more comprehensive breakdown of the average risk margins and standard deviations across the insurance and reinsurance classes of business. Participants are separated into different central estimate bands for each class of business. This enables comparisons to be made between the small and large entities. Risk margin averages are presented in both the weighted average and arithmetic average formats.

**Table 5 Outstanding claims liability for direct business**

| Direct class of business    | No. of insurers | Central estimate band (\$'000) | Total CE for insurers in band (\$'000) | Weighted risk margin |                |                              | Average risk margin |                |                              |
|-----------------------------|-----------------|--------------------------------|--|----------------------|----------------|------------------------------|---------------------|----------------|------------------------------|
|                             |                 |                                |  | Weighted RM (%)      | Variance of RM | Standard Deviation of RM (%) | Average RM (%)      | Variance of RM | Standard deviation of RM (%) |
| Houseowners<br>Householders | 39              |                                | 721,501                                | 6.90                 | 51.74          | 7.19                         | 9.98                | 41.99          | 6.48                         |
|                             | 20              | < 5,000                        | 41,447                                 | 10.88                | 53.54          | 7.32                         | 13.49               | 46.42          | 6.81                         |
|                             | 19              | 5,000–<br>130,000              | 680,054                                | 6.65                 | 11.74          | 3.43                         | 6.29                | 11.60          | 3.41                         |
| Domestic<br>motor vehicle   | 39              |                                | 970,687                                | 4.49                 | 48.11          | 6.94                         | 8.48                | 31.80          | 5.64                         |
|                             | 20              | < 5,000                        | 29,347                                 | 8.54                 | 42.02          | 6.48                         | 11.31               | 33.90          | 5.82                         |
|                             | 19              | 5,000–<br>220,000              | 941,340                                | 4.36                 | 14.32          | 3.78                         | 5.49                | 12.98          | 3.60                         |
| Commercial<br>motor vehicle | 35              |                                | 415,132                                | 6.58                 | 1078.20        | 32.84                        | 16.65               | 973.61         | 31.20                        |
|                             | 22              | < 5,000                        | 18,563                                 | 14.31                | 1534.80        | 39.18                        | 22.71               | 1460.78        | 38.22                        |
|                             | 13              | 5,000–<br>90,000               | 396,569                                | 6.21                 | 21.01          | 4.58                         | 6.40                | 20.98          | 4.58                         |
| Travel                      | 13              |                                | 124,590                                | 4.96                 | 58.78          | 7.67                         | 9.87                | 32.68          | 5.72                         |
| Fire and ISR                | 45              |                                | 1,057,041                              | 6.81                 | 82.63          | 9.09                         | 10.50               | 68.66          | 8.29                         |
|                             | 21              | < 10,000                       | 61,896                                 | 9.60                 | 103.36         | 10.17                        | 13.26               | 89.35          | 9.45                         |
|                             | 24              | 10,000–<br>170,000             | 995,145                                | 6.63                 | 42.88          | 6.55                         | 8.09                | 40.66          | 6.38                         |
| Marine                      | 43              |                                | 245,877                                | 8.57                 | 112.19         | 10.59                        | 13.37               | 88.57          | 9.41                         |
|                             | 24              | < 2,000                        | 12,756                                 | 14.95                | 111.21         | 10.55                        | 15.98               | 110.10         | 10.49                        |
|                             | 19              | 2,000–<br>55,000               | 233,121                                | 8.22                 | 49.08          | 7.01                         | 10.08               | 45.44          | 6.74                         |
| Aviation                    | 8               |                                | 39,801                                 | 8.09                 | 38.58          | 6.21                         | 10.06               | 34.14          | 5.84                         |
| Mortgage                    | 11              |                                | 28,499                                 | 8.97                 | 273.31         | 16.53                        | 19.90               | 141.88         | 11.91                        |

| Table 5 Outstanding claims liability for direct business (cont.) |                 |                                |  |                      |                |                              |                     |                |                              |
|--|-----------------|--------------------------------|--|----------------------|----------------|------------------------------|---------------------|----------------|------------------------------|
| Direct class of business   | No. of insurers | Central estimate band (\$'000) | Total CE for insurers in band (\$'000) | Weighted risk margin |                |                              | Average risk margin |                |                              |
|  |                 |                                |  | Weighted RM (%)      | Variance of RM | Standard Deviation of RM (%) | Average RM (%)      | Variance of RM | Standard deviation of RM (%) |
| Consumer credit  | 17              |                                | 51,519                                 | 7.45                 | 340.81         | 18.46                        | 14.25               | 291.66         | 17.08                        |
|  | 10              | < 1,000                        | 3,750                                  | 18.75                | 439.15         | 20.96                        | 19.58               | 438.37         | 20.94                        |
|  | 7               | 1,000–20,000                   | 47,769                                 | 6.56                 | 5.19           | 2.28                         | 6.64                | 5.18           | 2.28                         |
| Other accident   | 41              |                                | 388,778                                | 7.09                 | 79.90          | 8.94                         | 11.15               | 62.98          | 7.94                         |
|  | 18              | < 2,000                        | 9,749                                  | 12.43                | 69.20          | 8.32                         | 13.33               | 68.35          | 8.27                         |
|  | 23              | 2,000–65,000                   | 379,029                                | 6.95                 | 61.29          | 7.83                         | 9.45                | 54.77          | 7.40                         |
| CTP MV   | 14              |                                | 7,953,494                              | 9.71                 | 12.84          | 3.58                         | 9.41                | 12.74          | 3.57                         |
| Public and product liability                                     | 54              |                                | 4,740,486                              | 10.08                | 576.37         | 24.01                        | 15.69               | 544.30         | 23.33                        |
|  | 39              | < 100,000                      | 913,990                                | 13.76                | 751.68         | 27.42                        | 17.97               | 733.52         | 27.08                        |
|  | 15              | 100,000–600,000                | 3,826,496                              | 9.20                 | 18.05          | 4.25                         | 9.78                | 17.69          | 4.21                         |
| Professional indemnity   | 32              |                                | 2,581,490                              | 12.02                | 38.21          | 6.18                         | 11.27               | 37.63          | 6.13                         |
|  |                 | < 100,000                      | 907,464                                | 11.89                | 39.84          | 6.31                         | 11.28               | 39.45          | 6.28                         |
|  |                 | 100,000–330,000                | 1,674,026                              | 12.09                | 38.36          | 6.19                         | 11.24               | 37.57          | 6.13                         |
| Employers liability  | 27              |                                | 2,606,532                              | 11.16                | 216.29         | 14.71                        | 16.69               | 184.54         | 13.58                        |
|  | 20              | < 100,000                      | 399,100                                | 9.75                 | 314.52         | 17.73                        | 18.19               | 239.56         | 15.48                        |
|  | 7               | 100,000–710,000                | 2,207,432                              | 11.41                | 13.20          | 3.63                         | 12.40               | 12.07          | 3.47                         |
| Other  | 40              |                                | 274,880                                | 11.64                | 917.23         | 30.29                        | 16.59               | 892.08         | 29.87                        |
|  | 18              | < 2,000                        | 9,148                                  | 11.78                | 2044.37        | 45.21                        | 23.58               | 1897.16        | 43.56                        |
|  | 22              | 2,000–70,000                   | 265,732                                | 11.63                | 45.45          | 6.74                         | 10.87               | 44.84          | 6.70                         |

| Table 6 Premiums liabilities for direct business |                 |                                |  |                      |                |                              |                     |                |                              |
|--|-----------------|--------------------------------|--|----------------------|----------------|------------------------------|---------------------|----------------|------------------------------|
| Direct class of business                         | No. of insurers | Central estimate band (\$'000) | Total CE for insurers in band (\$'000) | Weighted risk margin |                |                              | Average risk margin |                |                              |
|  |                 |                                |  | Weighted RM (%)      | Variance of RM | Standard Deviation of RM (%) | Average RM (%)      | Variance of RM | Standard deviation of RM (%) |
| Houseowners                                      | 38              |                                | 1,185,026                              | 8.74                 | 156.00         | 12.49                        | 14.28               | 124.45         | 11.16                        |
| Householders                                     | 26              | < 25,000                       | 154,923                                | 11.97                | 180.06         | 13.42                        | 17.27               | 150.84         | 12.28                        |
|  | 12              | 25,000–250,000                 | 1,030,103                              | 8.25                 | 9.28           | 3.05                         | 7.81                | 9.07           | 3.01                         |
| Domestic motor vehicle                           | 35              |                                | 2,363,535                              | 6.83                 | 104.40         | 10.22                        | 11.97               | 77.18          | 8.79                         |
|  | 20              | < 20,000                       | 100,831                                | 9.64                 | 132.36         | 11.50                        | 14.95               | 102.70         | 10.13                        |
|  | 15              | 20,000–530,000                 | 2,262,704                              | 6.70                 | 20.18          | 4.49                         | 7.99                | 18.40          | 4.29                         |
| Commercial motor vehicle                         | 26              |                                | 604,703                                | 8.75                 | 172.88         | 13.15                        | 14.97               | 132.75         | 11.52                        |
|  | 13              | < 10,000                       | 18,937                                 | 22.11                | 150.91         | 12.28                        | 21.72               | 150.75         | 12.28                        |
|  | 13              | 10,000–125,000                 | 585,766                                | 8.32                 | 26.88          | 5.18                         | 8.21                | 26.87          | 5.18                         |
| Travel   | 12              |                                | 71,741                                 | 10.08                | 46.38          | 6.81                         | 13.38               | 34.53          | 5.88                         |
| Fire and ISR                                     | 37              |                                | 881,387                                | 11.76                | 186.19         | 13.65                        | 17.14               | 156.49         | 12.51                        |
|  | 23              | < 20,000                       | 130,835                                | 15.07                | 224.77         | 14.99                        | 20.39               | 195.11         | 13.97                        |
|  | 14              | 20,000–140,000                 | 750,552                                | 11.19                | 54.05          | 7.35                         | 11.79               | 53.66          | 7.33                         |
| Marine   | 35              |                                | 135,860                                | 11.97                | 181.37         | 13.47                        | 18.07               | 143.14         | 11.96                        |
|  | 19              | < 2,000                        | 8,753                                  | 25.15                | 159.70         | 12.64                        | 23.09               | 155.24         | 12.46                        |
|  | 16              | 2,000–20,000                   | 127,107                                | 11.07                | 69.46          | 8.33                         | 12.11               | 68.31          | 8.27                         |
| Aviation   | 3               |                                | 22,969                                 | 5.92                 | 428.47         | 20.70                        | 14.29               | 323.36         | 17.98                        |
| Mortgage   | 13              |                                | 475,371                                | 26.88                | 530.60         | 23.03                        | 35.64               | 447.54         | 21.16                        |
| Consumer credit                                  | 15              |                                | 116,137                                | 14.90                | 453.60         | 21.30                        | 23.70               | 370.70         | 19.25                        |
| Other accident                                   | 33              |                                | 370,767                                | 10.03                | 163.82         | 12.80                        | 16.24               | 123.95         | 11.13                        |
|  | 19              | < 5,000                        | 18,589                                 | 16.84                | 145.17         | 12.05                        | 20.55               | 130.67         | 11.43                        |
|  | 14              | 5,000–115,000                  | 352,178                                | 9.67                 | 60.93          | 7.81                         | 10.40               | 60.35          | 7.77                         |

| Table 6 Premiums liabilities for direct business (cont.) |                 |                                |  |                      |                |                              |                     |                |                              |
|--|-----------------|--------------------------------|--|----------------------|----------------|------------------------------|---------------------|----------------|------------------------------|
| Direct class of business                                 | No. of insurers | Central estimate band (\$'000) | Total CE for insurers in band (\$'000) | Weighted risk margin |                |                              | Average risk margin |                |                              |
|  |                 |                                |  | Weighted RM (%)      | Variance of RM | Standard Deviation of RM (%) | Average RM (%)      | Variance of RM | Standard deviation of RM (%) |
| CTP motor vehicle  | 10              |                                | 1,048,291                              | 12.89                | 7.61           | 2.76                         | 12.04               | 6.82           | 2.61                         |
| Public and product liability                             | 41              |                                | 775,076                                | 11.65                | 126.87         | 11.26                        | 17.49               | 92.01          | 9.59                         |
|  | 23              | < 10,000                       | 57,657                                 | 14.65                | 128.23         | 11.32                        | 19.52               | 103.45         | 10.17                        |
|  | 18              | 10,000–150,000                 | 717,419                                | 11.41                | 82.75          | 9.10                         | 14.89               | 69.93          | 8.36                         |
| Professional indemnity                                   | 23              |                                | 421,375                                | 17.51                | 1104.46        | 33.23                        | 27.20               | 1006.38        | 31.72                        |
|  | 10              | < 10,000                       | 45,602                                 | 18.31                | 2595.60        | 50.95                        | 39.13               | 2114.00        | 45.98                        |
|  | 13              | 10,000–60,000                  | 375,773                                | 17.42                | 50.09          | 7.08                         | 18.02               | 49.70          | 7.05                         |
| Employers liability                                      | 16              |                                | 481,568                                | 12.26                | 39.41          | 6.28                         | 13.21               | 38.43          | 6.20                         |
| Other  | 35              |                                | 277,279                                | 17.04                | 88.85          | 9.43                         | 17.13               | 88.85          | 9.43                         |

| Table 7 Outstanding claims liabilities for reinsurance business |                 |                                |  |                      |                |                              |                     |                |                              |
|---|-----------------|--------------------------------|--|----------------------|----------------|------------------------------|---------------------|----------------|------------------------------|
| Reinsurance class of business                                   | No. of insurers | Central estimate band (\$'000) | Total CE for insurers in band (\$'000) | Weighted risk margin |                |                              | Average risk margin |                |                              |
|   |                 |                                |  | Weighted RM (%)      | Variance of RM | Standard Deviation of RM (%) | Average RM (%)      | Variance of RM | Standard deviation of RM (%) |
| <b>Casualty</b>   |                 |                                |  |                      |                |                              |                     |                |                              |
| Facultative excess of loss                                      | 11              |                                | 429,215                                | 15.80                | 3188.50        | 56.47                        | 33.61               | 2839.52        | 53.29                        |
| Facultative proportional  | 8               |                                | 80,660                                 | 9.81                 | 60.03          | 7.75                         | 12.40               | 52.38          | 7.24                         |
| Treaty excess of loss   | 28              |                                | 1,970,030                              | 17.63                | 1767.42        | 42.04                        | 31.32               | 1573.18        | 39.66                        |
|   | 21              | < 100,000                      | 396,907                                | 36.43                | 1959.28        | 44.26                        | 37.44               | 1958.22        | 44.25                        |
|   | 7               | 100,000–500,000                | 1,573,123                              | 12.89                | 27.83          | 5.28                         | 12.97               | 27.82          | 5.27                         |
| Treaty proportional   | 32              |                                | 1,224,765                              | 12.68                | 9994.83        | 99.97                        | 44.86               | 8925.90        | 94.48                        |
|   | 26              | < 40,000                       | 175,393                                | 21.43                | 11736.55       | 108.34                       | 52.92               | 10705.50       | 103.47                       |
|   | 6               | 40,000–330,000                 | 1,049,372                              | 11.22                | 82.60          | 9.09                         | 9.95                | 12.68          | 3.56                         |
| <b>Marine and aviation</b>                                      |                 |                                |  |                      |                |                              |                     |                |                              |
| Facultative excess of loss                                      | 6               |                                | 13,423                                 | 11.58                | 491.07         | 22.16                        | 16.32               | 464.18         | 21.54                        |
| Facultative proportional  | 5               |                                | 46,875                                 | 7.43                 | 8.14           | 2.85                         | 8.16                | 7.47           | 2.73                         |
| Treaty excess of loss   | 17              |                                | 329,713                                | 12.36                | 132160.89      | 363.54                       | 100.16              | 123970.36      | 352.09                       |
| Treaty proportional   | 26              |                                | 116,320                                | 11.35                | 35069.41       | 187.27                       | 50.99               | 33435.55       | 182.85                       |
|   | 17              | < 5,000                        | 21,096                                 | 15.85                | 54218.30       | 232.85                       | 72.50               | 50807.92       | 225.41                       |
|   | 9               | 5,000–20,000                   | 95,224                                 | 10.36                | 29.79          | 5.46                         | 10.36               | 29.79          | 5.46                         |
| <b>Property</b>   |                 |                                |  |                      |                |                              |                     |                |                              |
| Facultative excess of loss                                      | 11              |                                | 148,829                                | 9.92                 | 213.85         | 14.62                        | 16.11               | 171.74         | 13.11                        |
|   | 6               | < 10,000                       | 7,900                                  | 13.94                | 322.31         | 17.95                        | 21.06               | 261.35         | 16.17                        |
|   | 5               | 10,000–60,000                  | 140,929                                | 9.69                 | 21.84          | 4.67                         | 10.16               | 21.57          | 4.64                         |

| Table 7 Outstanding claims liabilities for reinsurance business (cont.) |                 |                                |  |                      |                |                              |                     |                |                              |
|---|-----------------|--------------------------------|--|----------------------|----------------|------------------------------|---------------------|----------------|------------------------------|
| Reinsurance class of business   | No. of insurers | Central estimate band (\$'000) | Total CE for insurers in band (\$'000) | Weighted risk margin |                |                              | Average risk margin |                |                              |
|   |                 |                                |  | Weighted RM (%)      | Variance of RM | Standard Deviation of RM (%) | Average RM (%)      | Variance of RM | Standard deviation of RM (%) |
| Property (cont.)  |                 |                                |  |                      |                |                              |                     |                |                              |
| Facultative proportional  | 13              |                                | 201,859                                | 7.08                 | 468199.52      | 684.25                       | 193.35              | 430612.58      | 656.21                       |
| Treaty excess of loss   | 26              |                                | 411,322                                | 9.93                 | 1049.75        | 32.40                        | 25.88               | 785.19         | 28.02                        |
|   | 18              | < 10,000                       | 50,260                                 | 13.43                | 1369.08        | 37.00                        | 31.95               | 1006.19        | 31.72                        |
|   | 8               | 10,000–140,000                 | 361,062                                | 9.44                 | 61.70          | 7.85                         | 12.22               | 52.85          | 7.27                         |
| Treaty proportional   | 32              |                                | 1,371,368                              | 6.32                 | 2700.49        | 51.97                        | 26.24               | 2290.95        | 47.86                        |
|   | 27              | < 100,000                      | 273,804                                | 11.79                | 2976.38        | 54.56                        | 30.33               | 2619.58        | 51.18                        |
|   | 5               | 100,000–300,000                | 1,097,564                              | 4.96                 | 7.80           | 2.79                         | 4.19                | 7.05           | 2.66                         |
| Reinsurance non-split   | 7               |                                | 53,632                                 | 17.30                | 220.01         | 14.83                        | 19.43               | 214.75         | 14.65                        |

| Table 8 Premiums liabilities for reinsurance business |                 |  |                      |                |                              |                     |                |                              |
|---|-----------------|--|----------------------|----------------|------------------------------|---------------------|----------------|------------------------------|
| Reinsurance class of business                         | No. of insurers | Total CE for insurers in band (\$'000) | Weighted risk margin |                |                              | Average risk margin |                |                              |
|   |                 |  | Weighted RM (%)      | Variance of RM | Standard deviation of RM (%) | Average RM (%)      | Variance of RM | Standard deviation of RM (%) |
| <b>Casualty</b>                                       |                 |  |                      |                |                              |                     |                |                              |
| Facultative excess of loss                            | 6               | 34,974                                 | 33.61                | 1114.17        | 33.38                        | 36.29               | 1105.55        | 33.25                        |
| Facultative proportional                              | 4               | 10,664                                 | 11.93                | 18.68          | 4.32                         | 9.73                | 12.22          | 3.50                         |
| Treaty excess of loss                                 | 11              | 83,550                                 | 23.64                | 753.07         | 27.44                        | 32.59               | 664.97         | 25.79                        |
| Treaty proportional                                   | 13              | 203,501                                | 28.54                | 276.43         | 16.63                        | 23.63               | 250.27         | 15.82                        |
| <b>Marine and aviation</b>                            |                 |  |                      |                |                              |                     |                |                              |
| Facultative excess of loss                            | 2               | 1,738                                  | 22.61                | 0.38           | 0.62                         | 22.43               | 0.31           | 0.56                         |
| Facultative proportional                              | 3               | 2,313                                  | 20.02                | 106.04         | 10.30                        | 19.20               | 105.03         | 10.25                        |
| Treaty excess of loss                                 | 7               | 4,580                                  | 19.30                | 1028.20        | 32.07                        | 33.67               | 787.21         | 28.06                        |
| Treaty proportional                                   | 12              | 39,075                                 | 14.10                | 134.12         | 11.58                        | 19.62               | 100.83         | 10.04                        |
| <b>Property</b>                                       |                 |  |                      |                |                              |                     |                |                              |
| Facultative excess of loss                            | 4               | 19,430                                 | 13.77                | 55.78          | 7.47                         | 17.03               | 41.59          | 6.45                         |
| Facultative proportional                              | 8               | 52,324                                 | 11.92                | 353.38         | 18.80                        | 20.59               | 267.58         | 16.36                        |
| Treaty excess of loss                                 | 11              | 56,568                                 | 20.02                | 2153.13        | 46.40                        | 40.56               | 1688.93        | 41.10                        |
| Treaty proportional                                   | 19              | 1,380,437                              | 9.25                 | 465.34         | 21.57                        | 21.33               | 311.14         | 17.64                        |
| Reinsurance non-split                                 | 7               | 6,027                                  | 15.33                | 188.41         | 13.73                        | 17.43               | 183.26         | 13.54                        |

## Appendix B – Risk margins excluding run-off insurers

The following results relate only to insurers able to issue new and renewable policies. Run-off insurers are excluded from the overall averages to remove the distortion caused by their respective margins.

| Table 9 Outstanding claims liabilities for direct business |                 |                      |                        |                     |                        |
|--|-----------------|----------------------|------------------------|---------------------|------------------------|
| Direct class of business                                   | No. of insurers | Weighted risk margin |                        | Average risk margin |                        |
|  |                 | Mean (%)             | Standard deviation (%) | Mean (%)            | Standard deviation (%) |
| Houseowners Householders                                   | 37              | 6.89                 | 7.24                   | 9.85                | 6.58                   |
| Domestic motor vehicle                                     | 37              | 4.48                 | 6.58                   | 8.12                | 5.45                   |
| Commercial motor vehicle                                   | 26              | 6.49                 | 9.33                   | 10.95               | 8.15                   |
| Travel   | 10              | 4.93                 | 4.80                   | 8.02                | 3.53                   |
| Fire and ISR   | 37              | 6.85                 | 9.66                   | 10.72               | 8.83                   |
| Marine   | 36              | 8.13                 | 8.15                   | 12.15               | 7.06                   |
| Aviation   | 3               | 6.85                 | 9.80                   | 9.48                | 9.25                   |
| Mortgage   | 11              | 8.97                 | 16.53                  | 19.90               | 11.91                  |
| Consumer credit  | 15              | 7.46                 | 19.71                  | 15.31               | 17.96                  |
| Other accident   | 32              | 6.85                 | 8.92                   | 10.78               | 7.98                   |
| CTP motor vehicle  | 10              | 9.69                 | 2.62                   | 8.86                | 2.47                   |
| Public and product liability                               | 43              | 9.96                 | 6.55                   | 12.34               | 6.09                   |
| Professional indemnity                                     | 24              | 12.17                | 6.41                   | 11.62               | 6.39                   |
| Employers liability  | 17              | 11.11                | 6.76                   | 11.41               | 6.75                   |
| Other  | 36              | 11.59                | 7.88                   | 11.37               | 7.88                   |

| Table 10 Outstanding claims liabilities for reinsurance business |                 |                      |                        |                     |                        |
|--|-----------------|----------------------|------------------------|---------------------|------------------------|
| Reinsurance classes  | No. of insurers | Weighted risk margin |                        | Average risk margin |                        |
|  |                 | Mean (%)             | Standard deviation (%) | Mean (%)            | Standard deviation (%) |
| <b>Casualty</b>  |                 |                      |                        |                     |                        |
| Facultative excess of loss                                       | 6               | 15.73                | 8.51                   | 15.69               | 8.51                   |
| Facultative proportional   | 4               | 9.74                 | 9.92                   | 11.76               | 9.65                   |
| Treaty excess of loss  | 11              | 14.51                | 24.04                  | 25.96               | 20.83                  |
| Treaty proportional  | 14              | 11.29                | 36.65                  | 21.71               | 35.02                  |
| <b>Marine and aviation</b>                                       |                 |                      |                        |                     |                        |
| Facultative excess of loss                                       | 2               | 28.15                | 38.74                  | 32.26               | 38.30                  |
| Facultative proportional   | 3               | 7.43                 | 3.51                   | 7.96                | 3.44                   |
| Treaty excess of loss  | 7               | 13.53                | 14.65                  | 16.11               | 14.38                  |
| Treaty proportional  | 12              | 9.27                 | 4.66                   | 9.43                | 4.66                   |
| <b>Property</b>  |                 |                      |                        |                     |                        |
| Facultative excess of loss                                       | 5               | 8.59                 | 4.73                   | 9.34                | 4.65                   |
| Facultative proportional   | 7               | 6.69                 | 9.24                   | 11.39               | 7.72                   |
| Treaty excess of loss  | 11              | 11.49                | 21.29                  | 21.63               | 18.44                  |
| Treaty proportional  | 20              | 5.94                 | 11.72                  | 12.35               | 9.70                   |
| Reinsurance non-split  | 4               | 14.46                | 8.18                   | 13.16               | 8.05                   |

## Appendix C – Calculation methodologies

### Key

- $i$  = line of business  $i_1, i_2, i_3 \dots i_m$ .
- $j$  = participating insurer  $j_1, j_2, j_3 \dots j_n$
- RM = risk margin in absolute dollar amounts
- %RM = risk margin as a percentage of central estimate
- CE = central estimate in absolute dollar amounts
- %WARM = weighted average risk margin
- %AARM = arithmetic average risk margin

For a defined insurance/reinsurance class  $i$ :

#### 1. Mean

$$\text{Weighted average risk margin } i = \frac{\sum_{j=1}^n RM_{ij}}{\sum_{j=1}^n CE_{ij}}$$

$$\text{Arithmetic average risk margin } i = \frac{\sum_{j=1}^n \frac{RM_{ij}}{CE_{ij}}}{n}$$

#### 2. Variances

Variance of weighted risk margin  $i$  =

$$\frac{1}{n-1} \sum_{j=1}^n (\%RM_{ij} - \%WARM_i)^2$$

Variance of average risk margin  $i$  =

$$\frac{1}{n-1} \sum_{j=1}^n (\%RM_{ij} - \%AARM_i)^2$$

## Glossary of terms

**Arithmetic average risk margin**—provides an arithmetic average of the risk margin percentages adopted by the participating insurers.

**Central estimate (CE) band**—defines the cut-off rule segmenting each class of business for each insurer. Separating a single class to different bands enables useful comparisons of central estimates levels among smaller or larger insurers. Where no bands are specified the figures reflect the total for the class of business.

**Commercial motor vehicle**—a type of insurance policy covering motor vehicle insurance (including third party property damage) other than insurance of vehicles defined under domestic motor vehicle below. It includes long and medium haul trucks, cranes and special vehicles and policies covering fleets.

**Consumer credit**—insurance to protect a consumer's ability to meet the loan repayments on personal loans and credit card finance in the event of death or loss or income due to injury, illness or unemployment.

**CTP motor vehicle**—all insurance policies providing compulsory third party motor vehicle (CTP) insurance.

**Domestic motor vehicle**—a type of insurance policy covering motor vehicle insurance (including third-party property damage) covering private-use motor vehicles including utilities and lorries, motor cycles, private caravans, box and boat trailers and other vehicles not normally covered by business or commercial policies.

**Employer's liability**—a type of insurance policy which includes workers' compensation, seamen's compensation and domestic workers compensation.

**Facultative excess of loss**—individual, non-treaty arrangements where the reinsurer agrees to pay the part of a reinsured's loss that exceeds an agreed deductible.

**Facultative proportional**—individual, non-treaty arrangements where the reinsurer shares an identical proportion of the losses of the reinsured.

**Fire and ISR**—includes all insurance policies normally classified as 'fire' and includes: sprinkler leakage, subsidence, windstorm, hailstone, crop, arson, loss of profits and any extraneous risk normally covered

under fire policies e.g. flood. Industrial special risks (ISR) policies are policies which contain a particular standard policy wording or where the wording is substantially similar to that standard wording.

**Householders/houseowners**—covers the common domestic policies inclusive of contents, personal property, arson, burglary and public liability normally attached to such policies.

**Lines of business**—the types of insurance products available

**'Long tail' business**—business written by a general insurer where there is a significant delay between the event giving rise to the claim and the notification of the claim to the insurer.

**Marine and aviation**—include marine hull (including pleasure craft), marine cargo (including sea and inland transit insurance) and aviation (including aircraft hull and aircraft liability) insurance policies.

**Mortgage**—covers insurance against losses arising from the failure of debtors to meet financial obligations to creditors.

**Other**—includes all insurance business not specifically mentioned elsewhere. It includes, for example: trade credit: extended warranty (includes insurance by a third party for a period in excess of the manufacturer's or seller's normal warranty); legal expense; kidnap and ransom; and contingency.

**Other accident**— includes the following types of insurance: miscellaneous accident (involving cash in transit, theft, loss of money); all risks (baggage, sporting equipment, guns); engineering (when not part of ISR or fire policy); plate glass; guarantee (insurance bonds); live stock; pluvius; construction: fidelity guarantee; and sickness and accident.

**Professional indemnity**—covers the liability of professional persons to clients through negligence etc. Includes directors' and officers' liability insurance.

**Public and product liability**—covers legal liability to the public in respect of bodily injury or property damage arising out of the operation of the insured's business. Product liability includes policies that provide compensation for loss or injury caused by, or as a result of, the use of goods. This also include

environmental clean-up of pollution spills where not covered by fire and ISR policies.

**Risk margin**—the component of the value of the insurance liabilities relating to the inherent uncertainty in the central estimate (the mean of the distribution of probable outcomes).

**‘Short tail’ business** – business written by a general insurer where there is no significant delay between the event giving rise to the claim and the notification of the claim to the insurer.

**Travel**—covers insurance against losses associated with travel including loss of baggage and personal effects, losses on flight cancellations and overseas medical costs.

**Treaty excess of loss**—reinsurance arrangements written under a treaty where the reinsurer shares an identical proportion of the losses of the reinsured.

**Treaty proportional**—reinsurance arrangements written under a treaty where the reinsurer shares an identical proportion of the losses of the reinsured.

**Weighted average risk margin**—measures the average risk margins per dollar of aggregate central estimates for each class of business. Insurers with relatively larger central estimate provisions will have a greater influence over the average figures.



Telephone  
1300 13 10 60

Email  
[contactapra@apra.gov.au](mailto:contactapra@apra.gov.au)

Web site  
[www.apra.gov.au](http://www.apra.gov.au)

Mail  
GPO Box 9836  
in all capital cities  
(except Hobart and Darwin)