



Motor Accident Insurance Commission

Retrospective profit study of Queensland CTP premiums as at
31 December 2017

09 April 2018

Version: **FINAL**

A handwritten signature in black ink that reads 'Richard Brookes'.

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Fellow of the Institute of Actuaries of Australia

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Peter Mulquiney
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1 EXECUTIVE SUMMARY

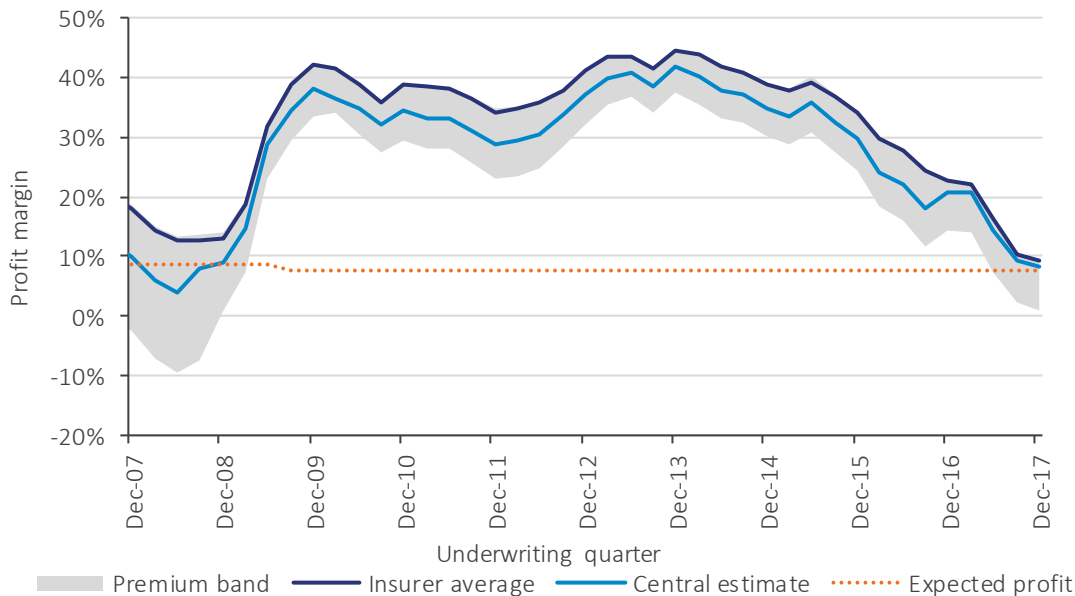
Table 1.1 shows our latest estimates of the average profits as a percentage of insurer premiums for three superimposed inflation scenarios as at 31 December 2017.

Table 1.1 Scheme retrospective profit margins for all classes as at 31 December 2017

Underwriting Period	Profit margin (at insurer average premium)		
	0% p.a. SI scenario	1% p.a. SI scenario	2% p.a. SI scenario
2013	43%	43%	43%
2014	42%	41%	41%
2015	38%	37%	36%
2016	28%	26%	25%
2017	17%	15%	12%
Most recent 3 years	28%	27%	25%
Most recent 5 years	34%	33%	32%
Most recent 10 years	33%	33%	32%

Figure 1.1 shows the Scheme profit margin, based on the 1% p.a. superimposed inflation scenario.

Figure 1.1 Scheme retrospective profit margin for MAIC central estimate, premium band and insurer average premiums at 1% p.a. superimposed inflation



Note: We assume that the reduction in costs for the claims transferred to NIISQ from 1 October 2016 is equal to our latest estimate of costs covered under NIISQ. This is different to the “NIISQ-offset” applied at premium setting. For policies underwritten before 30 September 2016, we have assumed that the reduction in cost of claims transferred to NIISQ is imperfectly offset by the amount of premium clawed back from insurers where the inconsistency arises from the difference between the previous and current estimate of costs covered by NIISQ.



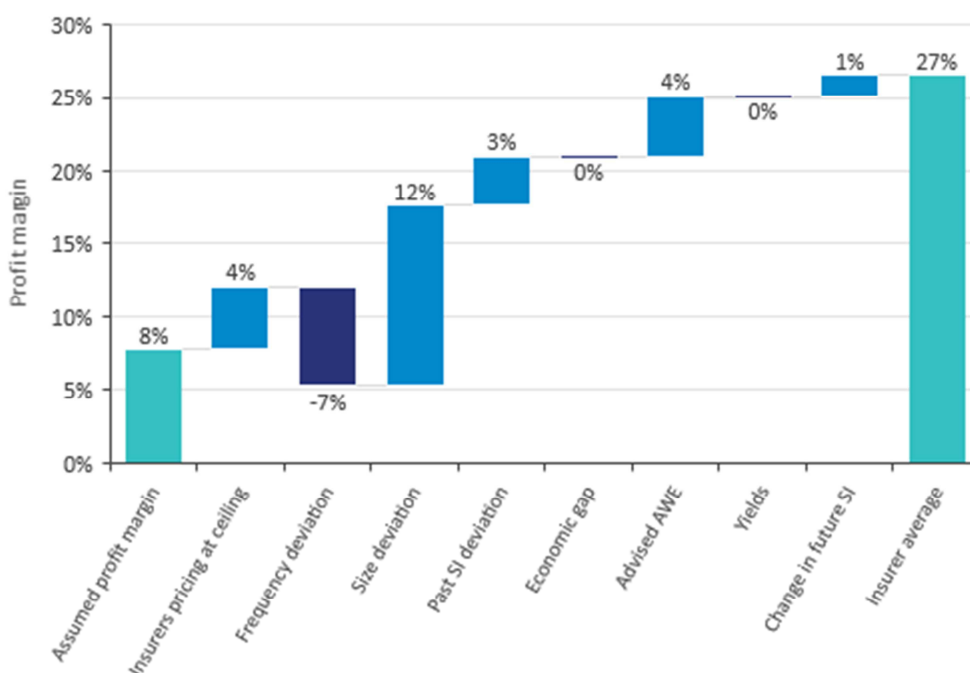
Insurers price at or close to the ceiling premium on average. The insurer average premium achieves a profit margin above the expected profit margin for all underwriting quarters. The central estimate premium – around which the floor and ceiling premiums are set – also achieves a positive profit margin for all underwriting quarters.

We have allocated the retrospective profit approximately to contributing factors, assuming the 1% p.a. superimposed inflation scenario. The components of the profit margin for the most recent three underwriting years are:

- » **+8%** assumed for a fair margin for insurers
- » **+12%** for average claim size (actual and the latest forecast) being lower than advised at underwriting
- » **+4%** for insurers charging at the ceiling rather than the MAIC central estimate
- » **+4%** for low wage inflation since premium setting
- » **+3%** for superimposed inflation not re-emerging
- » **+1%** for future superimposed inflation assumed at premium setting being revised down to 1% p.a. from 2.5% p.a. for policies written prior to 31 March 2017
- » **-7%** for claim frequency being higher than projected.

The components of profit margin for the most recent three underwriting years, as described above, are presented visually in Figure 1.2:

Figure 1.2 Components of profit margin for the most recent three underwriting years



Of interest is the estimated profit for the 2017 underwriting year. Despite being immature and hence almost entirely dependent on current assumptions, the estimated profit of 15% for the 1% p.a. superimposed inflation scenario can be broken into:

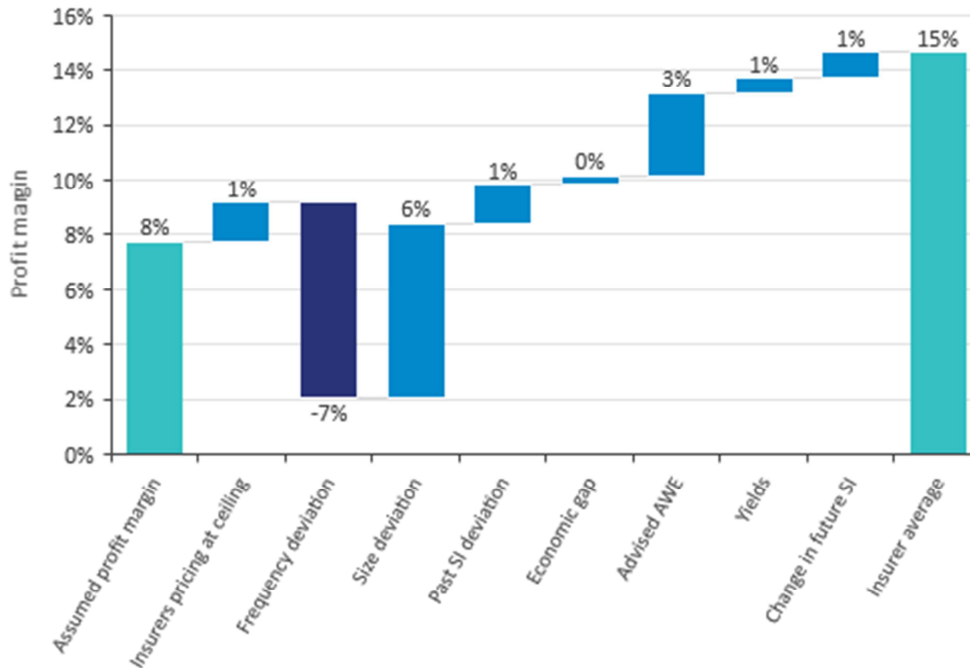
- » **+8%** assumed for a fair margin for insurers, as used in calculating the midpoint of the allowable premium band
- » **+6%** for average claim size (actual and the latest forecast) being lower than advised at underwriting. This reduction reflects:
 - A reduction in average claim size for severity 1Y
 - A weakening of the severity profile
- » **+1%** for insurers charging at the ceiling rather than the MAIC central estimate
- » **+3%** for low wage inflation since premium setting
- » **+1%** for superimposed inflation not re-emerging



- » **+1%** for future superimposed inflation being revised down to 1% p.a. from 2.5% p.a. at premium setting for policies written prior to 31 March 2017
- » **-7%** for claim frequency being higher than projected.

The components of profit margin for the 2017 underwriting year, as described above, are presented visually in Figure 1.3:

Figure 1.3 Components of profit margin for the 2017 underwriting year



Estimates of profit for CTP insurance are subject to considerable degrees of uncertainty due to the dynamic environment. CTP is a long-tailed class and it takes many years before an underwriting quarter’s claims cost can be known with a high degree of certainty. Actual results will be materially different from the results presented in this report, particularly for more recent underwriting quarters, because the present results are largely or wholly based on current model estimates.



2 BACKGROUND AND SCOPE

2.1 General

Queensland operates a common law “fault” based compulsory third party scheme, first introduced in 1936. The scheme provides motor vehicle owners with insurance policies that cover their unlimited liability for personal injury caused by, through, or in connection with the use of the insured motor vehicle anywhere in Australia. It is underwritten by private licensed insurers.

2.2 Relevant legislation

The Motor Accident Insurance Amendment Act 2000 (“the Amendment Act”) took effect from 1 October 2000. This implemented a number of changes, bringing in statutory limits, of which one of the most significant was a restriction on plaintiff costs.

From 1 October 2000, the insurers, operating in a competitive market, determine the premiums within a range between the maximum (“ceiling”) and minimum (“floor”) rates set by MAIC.

The accident periods subject to the Amendment Act, i.e. from October 2000, will be referred to as constituting “the New Scheme”. Earlier accident periods will be referred to as constituting “the Old Scheme”.

The Civil Liability Act 2003 (“CLA”) applies to all accidents occurring on or after 2 December 2002. It affects the type of claims that can be made as well as bringing in further statutory limits, restricting some of the damages that can be claimed.

In relation to the latter, it contains Injury Scale Values (“ISV”) used for calculating general damages arising from incidents on or after 2 December 2002. Under the Act, general damages are calculated after consideration of the application of the ISV set out in the regulations.

The Civil Liability and Other Legislation Amendment Act 2010 (“CLAA”) increased the ISV scale amounts for general damages and the maximum recoverable legal costs. These changes apply for injuries occurring on or after 1 July 2010. The CLAA also made provision for further indexation, linked to AWE increases.

The Civil and Criminal Jurisdiction Reform and Modernisation Amendment Act 2010 (“CCJRA”) increased the jurisdictions of the District and Magistrates Courts. The effect is that, from 1 November 2010, many of the claims which would previously been heard by the District Court will now be heard by the Magistrates Court and that some of those claims which would have been heard in the Supreme Court will be heard in the District Court.

2.3 Scope of this report

MAIC have requested that Taylor Fry conduct a review of the retrospective profitability of the premiums for the Queensland CTP Scheme for all vehicle classes. Of interest is the comparison of the hindsight non-ITCE premium with the floor and ceiling premiums, and the average filed insurer premium.

We have relied upon the advice given to MAIC on components of the risk premium for CTP insurance policies underwritten in the quarter 1 July to 30 September 2018. This advice was based on data to 31 December 2017 and is the latest complete annual advice given to MAIC. We will refer to this as “the Annual Advice”.

An abridged version of that advice, for circulation to insurers, appeared as “Queensland CTP Market Briefing: Insurer annex - Review of the risk premium for the 2018Q3 underwriting quarter”, dated 22 March 2018, by Richard Brookes, Ashley Evans and Peter Mulquiney. This will be referred to subsequently as “the Risk Premium report”.

All results in the report are presented on an all classes basis unless stated otherwise.



2.4 Previous report

The report titled “Retrospective profit study of Queensland CTP Class 1 premiums” dated 16 May 2017, by Richard Brookes and Ashley Evans (“the Previous Report”) was based on data to 31 December 2016 and is the counterpart to this present report. It calculated retrospective profit on a *Class 1 equivalent* basis whereas this report presents results on an *all classes* basis. However, the Insurer Retrospective Profit Study dated 13 July 2017 by Richard Brookes and Ash Evans contains the results as at 31 December 2016 on an all classes bases. So, for the purpose of reconciling the change in profit margins to the previous year, when we refer to the Previous Year’s results we mean those found in last year’s Insurer Retrospective Profit Study.



3 DATA

3.1 Items of data

3.1.1 General

In producing this report, we have relied on the following sources of data:

- » Numbers of vehicles registered by month from July 2000 to December 2017
- » Quarterly floor and ceiling premium rates
- » Premium assumptions
- » Insurers' rate and expense filings
- » Analysis from the Annual Advice.

3.1.2 Number of vehicles registered

This consists of total vehicle registrations, split by vehicle class for each month since 1 July 2000. The most recent twelve months of exposure was extracted and provided by MAIC on 29 January 2018. For exposure prior to this, we have relied upon the data from the Previous Report.

3.1.3 Quarterly floor and ceiling premium rates

Quarterly floor and ceiling premium rates for all classes were provided by MAIC for the period 1 July 2004 to 30 June 2018 on 29 January 2018.

3.1.4 Premium assumptions

The assumptions adopted by MAIC for the calculation of the central estimate of Class 1 premium were provided by MAIC on 27 February 2018. This information included the underlying assumptions for expenses, profit margin and vehicle class relativities for underwriting periods beginning 1 July 2017 to 1 April 2018. For periods before 1 July 2017, we have relied upon the data from the Previous Report.

Assumptions adopted by MAIC in the calculation of premium for other vehicle classes were provided by MAIC on 29 January 2018. This information included acquisition expenses factor for all classes and average seat numbers for Classes 10A, 10B and 11.

3.1.5 Insurers' rate and expense filings

Insurers' rate filings for all classes along with their expense filings were provided by MAIC for the period 1 July 2004 to 30 June 2018 on 29 January 2018.



4 METHODOLOGY

The aim of this study is to compare hindsight estimates of the non-ITCE premium with the floor and ceiling premiums set by MAIC, and the premiums filed by insurers, since the commencement of the New Scheme.

4.1 General

The estimation of the hindsight premium is as follows:

- » Hindsight estimates (as at 31 December 2017) of Scheme claim frequency and gross (of ITC/DAM) claim size by accident quarter were taken from the Risk Premium report. Estimates covered accident quarters from 31 December 2000 to 31 December 2017 and were in 31 December 2017 dollar values
- » The claim size estimates were inflated to the middle of the calendar quarter in which they belong
- » Estimates of the claim size and claim frequency by underwriting quarter were then derived
- » The claim size estimates were discounted to the middle of the underwriting quarter in which they belong
- » The net risk premium was calculated as the product of claim frequency and the net average claim size (gross average claim size net of GST)
- » The hindsight (non-ITCE) premium was then calculated using the claims handling expense, acquisition and reinsurance cost and profit margin assumptions as used by MAIC in the corresponding underwriting quarters
- » For the purposes of comparison, premiums excluding GST and levies have been used at all times.

All the underwriting quarters included in our analysis have some claims to be settled and most have some claims yet to be reported. Therefore, our calculation of hindsight premium depends on our projection of the number and size of claims to be settled for each underwriting quarter. The more recent the underwriting quarter, the more dependent is the estimated hindsight premium on the assumptions underlying our projection.

The National Injury Insurance Scheme Queensland (NIISQ) came into effect from 1 July 2016. All lifetime care and support costs for catastrophically injured claimants arising from accidents after 1 July 2016 will be covered under NIISQ. This is expected to reduce the average claim size for policies underwritten from 1 July 2015 due to the reduction in costs covered by CTP scheme after 1 July 2016. The claim frequency will remain unchanged as certain heads of damages (HOD) such as economic loss will still be covered by CTP scheme.

Some details of the calculation follow.

4.2 Inflating future payments

Future finalised claim payments have been inflated to the middle of the calendar quarter to which they belong using December 2017 Access Economics forecasts of QLD AWE and ABS QLD AWE results. The methodology for combining these AWE sources is discussed in the Risk Premium report. Future finalised claim payments are sourced from the Annual Advice.

4.3 Discounting payments

Claim payments have been discounted to the middle of the underwriting quarter using the Government bond yield curve as at the end of the underwriting quarter.



4.4 Expenses, allowances and expected profit margin

In their calculation of the floor and ceiling premiums, MAIC make assumptions regarding:

- » Claims handling expenses (percentage of risk premium)
- » Acquisition costs (dollar cost)
- » Reinsurance costs (dollar cost).

These assumptions vary by underwriting quarter and vehicle class. We have used the assumptions from the ceiling calculation in our calculation of hindsight premium, effectively assuming that they represent the actual experience of insurers. The changes in these over the recent past for class 1 vehicles are:

- » Claims handling expenses increased from 5.50% of the premium per policy to 5.74% of premium per policy at 1 October 2016 following the introduction of the NIISQ
- » Acquisition costs reduced from \$25 to \$5 per policy at 1 October 2010, increased to \$7 per policy at 1 July 2013 and increased to \$8 per policy at 1 July 2015
- » Reinsurance costs decreased from \$5 per policy to \$4 per policy at 1 July 2013 and decreased to \$1.60 at 1 October 2016 following the introduction of NIISQ.

MAIC sets an allowance for profit. This profit margin is defined as the percentage of the total premium that is profit (rather than the percentage loading on expected costs). We maintain this definition of profit margin throughout this report. This expected profit margin is 8.5% of the corresponding premium up to 30 June 2008, and 7.75% of the corresponding premium from 1 July 2008.

4.5 CLAA and 2012 tax changes

Since the underwriting quarter beginning 1 July 2010, MAIC has included an additional loading in the floor and ceiling premiums in anticipation of increases to Scheme costs due to the CLAA. Since the underwriting quarter beginning 1 July 2013, MAIC has also included an additional loading in anticipation of the increases to Scheme costs due to the 2012 income tax reductions. As the increases to Scheme costs flow through and are reflected in the risk premium recommended in Risk Premium reports, the loadings are progressively reduced. The CLAA and 2012 tax change loadings have been fully run off for the underwriting quarter starting 1 July 2017 and subsequent underwriting quarters. Central estimate, floor, ceiling and insurer average premiums in this report include the portion of both loadings which relate to experience which we already expect to be in the risk cost relevant to each underwriting quarter.

The CLAA loading was:

- » \$6.96 for the underwriting years 2010/11 to 2012/13
- » \$5.95 for underwriting year 2013/14
- » \$4.46 for underwriting year 2014/15
- » \$2.98 for underwriting year 2015/16
- » \$1.49 for underwriting year 2016/17
- » removed for underwriting year 2017/18 and later.

As at 31 December 2017, we estimate that the CLAA loading is completely observed in claims experience. Thus, we include the full loading for each underwriting year, mentioned above, in the premiums for the purpose of the retrospective profit study.

The 2012 tax change loading was:



- » \$4.69 for underwriting year 2013/14
- » \$3.52 for underwriting year 2014/15
- » \$2.35 for underwriting year 2015/16
- » \$1.17 for underwriting year 2016/17
- » removed for underwriting year 2017/18 and later.

As at 31 December 2017, we estimate that the 2012 tax change loading is completely observed in claims experience. Thus, we include the full loading for each underwriting year, mentioned above, in the premiums for the purpose of the retrospective profit study.

For consistency with MAIC's premium determination, the CLAA loading gets applied after inflation, discounting and the relativity adjustments. The 2012 tax change loading gets applied before these adjustments.

4.6 Superimposed inflation

The procedure as described above was repeated for different future finalisation period superimposed inflation ("SI") scenarios (i.e. from 31 December 2017), these being:

- » 0% per annum, which is what Taylor Fry measure as the current rate of finalisation period superimposed inflation
- » 1% per annum, which is what MAIC currently allow for in their calculation of ceiling and floor premium
- » 2% per annum, chosen as a higher amount to illustrate the sensitivity of the hindsight risk premium to the superimposed inflation assumption.

4.7 Adjustment for introduction of NIISQ

NIISQ came into effect from 1 July 2016. All lifetime care and support costs for catastrophically injured claimants arising from accidents after 1 July 2016 will be covered under NIISQ. This is expected to reduce the average claim size for policies underwritten from 1 July 2015 due to the reduction in costs covered by CTP scheme. The claim frequency will remain unchanged as certain heads of damages (HOD) such as economic loss will still be covered by CTP scheme.

The risk premium was explicitly reduced for policies underwritten from 1 October 2016 using a 'NIISQ offset'. For the impacted underwriting quarters prior to that, the expected cost of claims covered under NIISQ is to be retrospectively 'clawed back' from insurers.

In the recent annual advice, we revised down by 18.7% our estimate of the cost of claims that will be covered under the NIISQ. Since there have been no finalisations for claims covered by NIISQ, we assume the cost of claims covered under NIISQ will be equal to our *new* estimate from the current annual advice for past and future underwriting periods covered under the NIISQ scheme. As such:

- » For underwriting periods between 2016Q4 and 2017Q4, inclusive, we reduce the claim costs forecast by our new estimate of NIISQ cost which is lower than what was used to offset the premium at time of underwriting
- » For earlier underwriting quarters we assume that the reduction in costs is *less* than the amount clawed back from insurers. This difference is equal to the reduction from our *old* estimate of the cost of claims covered under NIISQ.

The consequence of these assumptions is that the retrospective profit margins for the affected underwriting quarters will decrease marginally relative to what the position would have been if the NIISQ had not been introduced.



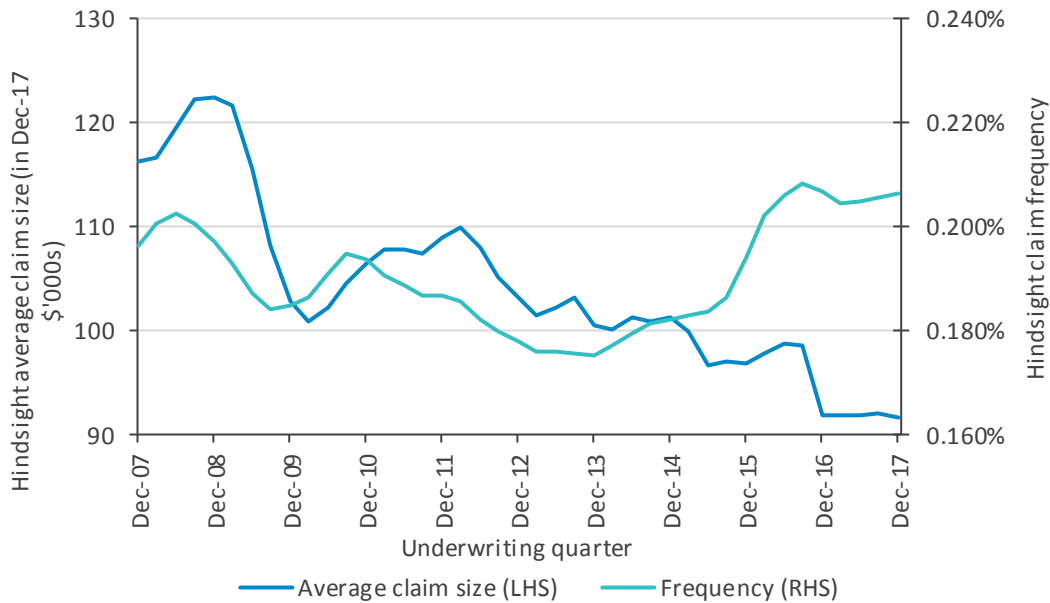
5 RESULTS

5.1 Hindsight premium

5.1.1 Hindsight risk premium

Figure 5.1 displays the Scheme hindsight claim frequency and average claim size, assuming no future superimposed inflation, from the 31 December 2007 to 31 December 2017 underwriting quarters.

Figure 5.1: Estimated hindsight claim frequency and average claim size

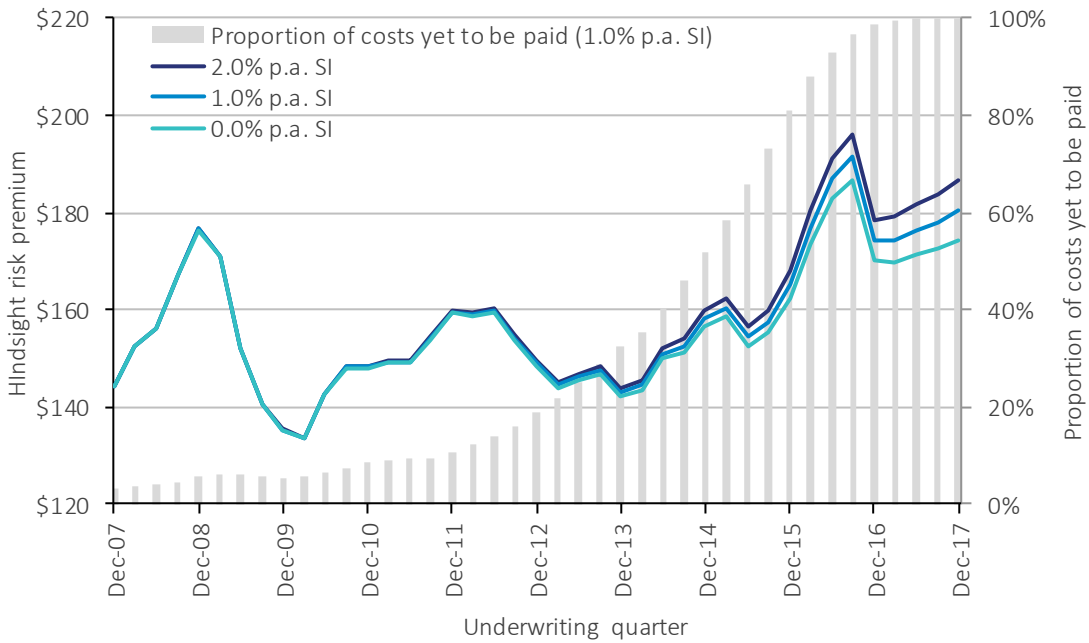


Frequency trended downwards up to 2014. We have observed an increase in notifications since 2015. The current estimate for the 2017 underwriting year is a claim frequency of approximately 0.205%. The average claim size has dropped sharply from its peak in early 2009. The average claim size has reduced steadily since 2011 with a sharp drop for policies underwritten since 1 October 2016 because the claim costs associated with the NIISQ are explicitly removed with the introduction of the NIISQ levy. Underwriting quarters from Sep-15 to Sep-16 have only been adjusted for the *revision* in our estimate of costs covered by NIISQ but not the *full amount*.

Figure 5.2 shows the resulting hindsight risk premium for the 31 December 2007 to 31 December 2017 underwriting quarters. We show this for three future finalisation period superimposed inflation scenarios:

- » 0% per annum, which is what Taylor Fry measure as the current rate of finalisation period superimposed inflation
- » 1% per annum, which is what MAIC allow for in their determination of premium
- » 2% per annum, chosen as a higher amount to illustrate the sensitivity of the hindsight risk premium to the superimposed inflation assumption.

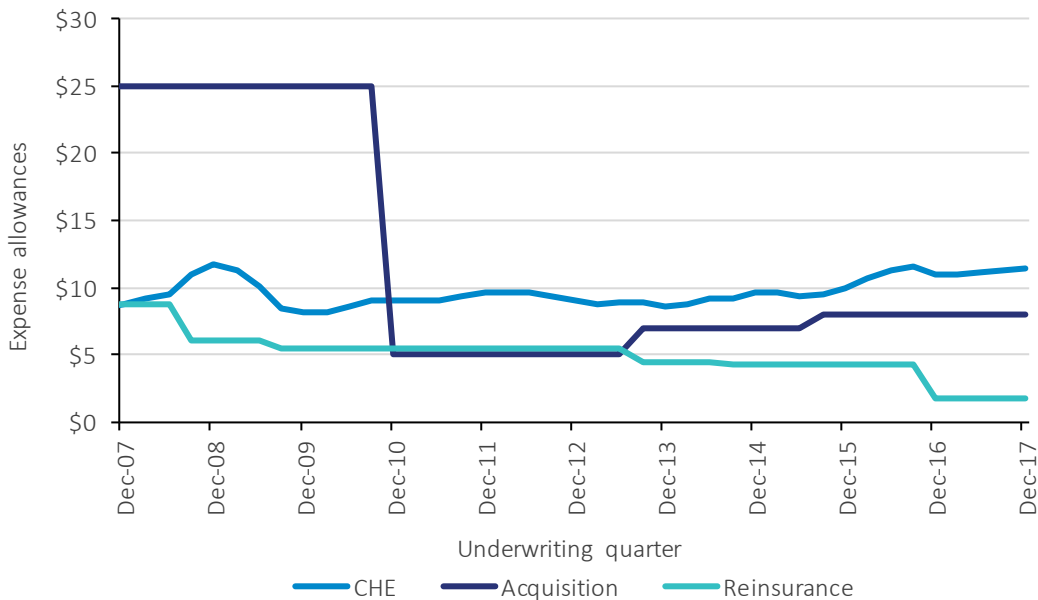
Figure 5.2 Scheme hindsight risk premium



5.1.2 Expenses and allowances

The dollar cost of the expenses and allowances to be included in the hindsight premium varies a little depending on the superimposed inflation scenario. Figure 5.3 shows the expenses and allowances for the 1% p.a. superimposed inflation scenario. The largest movement is the reduction in assumed acquisition costs from 1 October 2010.

Figure 5.3 Expenses and allowances (1% p.a. SI scenario)



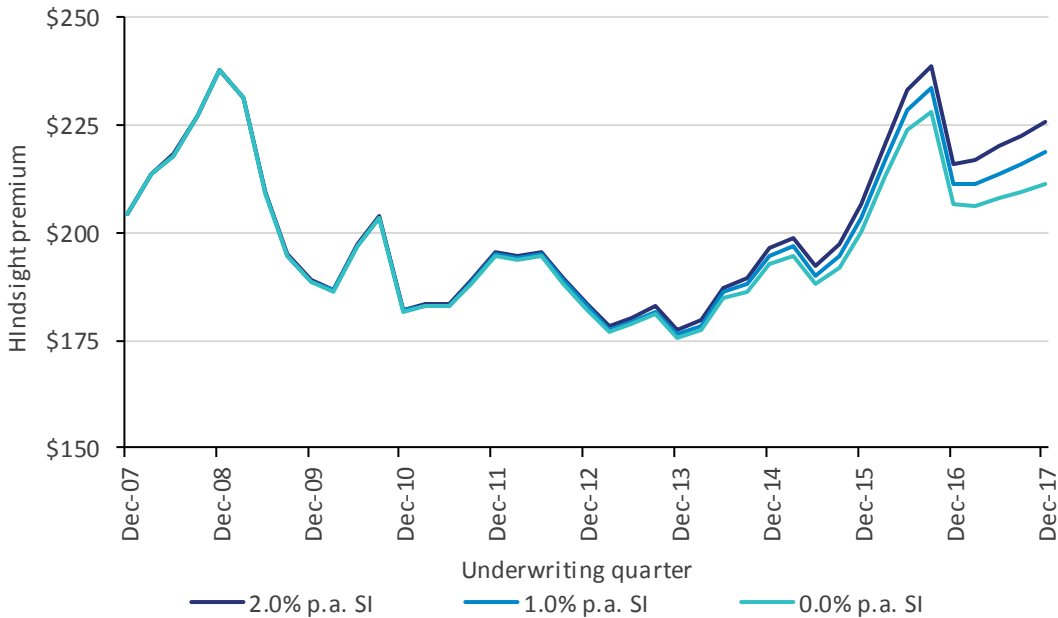
The claims handling expense and reinsurance cost allowances were decreased from 1 October 2016 as a consequence of the introduction of NIISQ.



5.1.3 Scheme hindsight premium

Combining the risk premiums, expenses and allowances and the expected profit margin gives the hindsight premiums under each superimposed inflation scenario illustrated below in Figure 5.4. This hindsight premium is a combination of the hindsight risk premium shown in Figure 5.2 and the expenses and allowances shown in Figure 5.3. These hindsight premiums do not include GST.

Figure 5.4 Scheme hindsight premium (incl. expected profit margin)

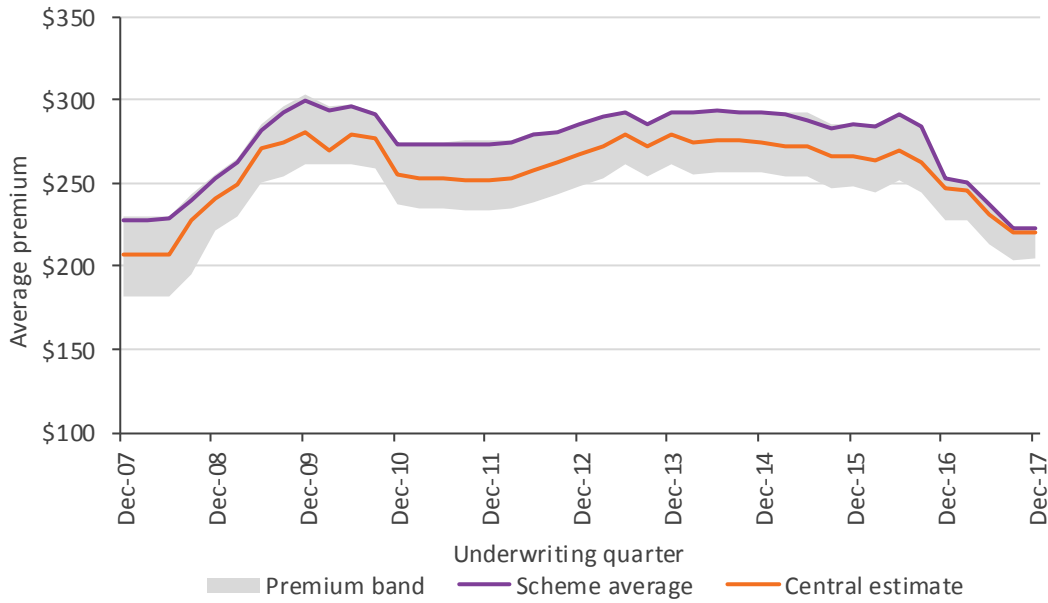


5.2 Central estimate, floor, ceiling and average insurer premiums

Figure 5.5 shows the central estimate premiums as set by MAIC and the premium band around these premiums within which the insurers can set premiums for the 31 December 2007 to 31 December 2017 underwriting quarters. The boundaries of the premium band are referred to as the premium floor and the premium ceiling. Additionally, Figure 5.5 shows average insurer premiums. The reduction in premium from 1 October 2016 is a result of the transfer of cost to the NIISQ (the “NIISQ offset”). Policies underwritten up to 30 September 2016 have not been adjusted for the introduction of the NIISQ.



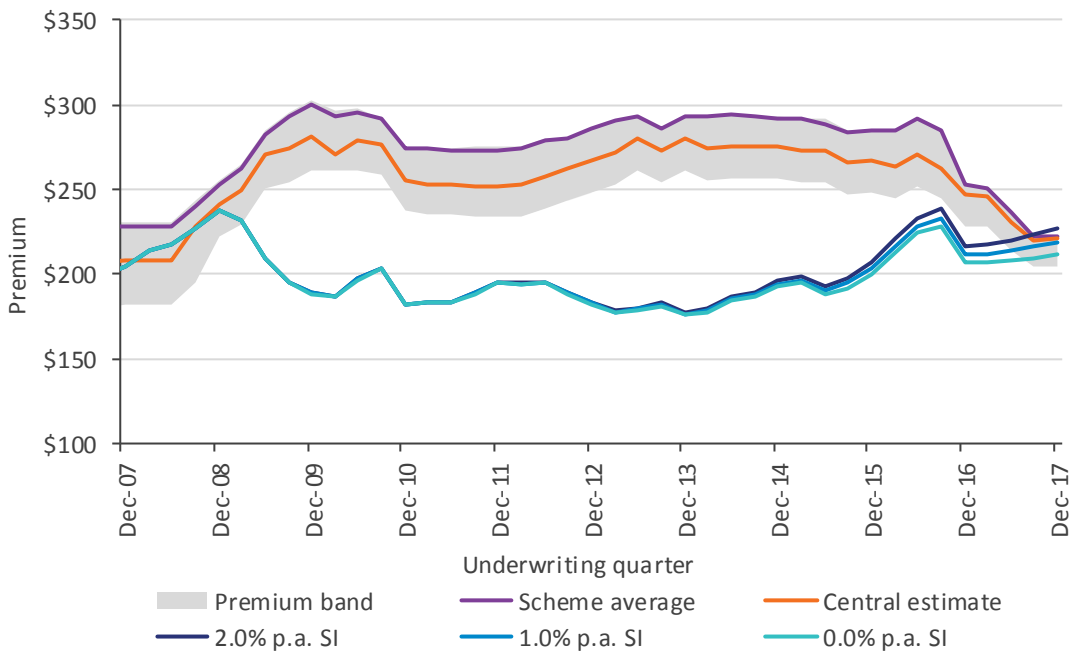
Figure 5.5 MAIC central estimate, premium band and insurer average premiums



5.3 Profit

Figure 5.6 shows the central estimate, insurer average premium and premium band versus the hindsight premiums for each of the future superimposed inflation scenarios. This is a combination of Figure 5.4 and Figure 5.5.

Figure 5.6 Scheme premium central estimate, premium band, insurer average premium and hindsight premiums



Insurer average premiums are above the hindsight premiums over all underwriting quarters for superimposed inflation scenarios 0.0% p.a. and 1.0% p.a. The hindsight premium under the 2.0% p.a. scenario exceeds the insurer average for underwriting quarters periods since 1 July 2017. This indicates that insurers, considered as a whole, have made profits above the expected profit margin in all underwriting quarters except the last two



quarters of 2017 where their profits are expected to be slightly less than the expected profit under the 2.0% p.a. SI scenario.

Pricing at the ceiling provides a similar result to the insurer average as most insurers have priced at this level most of the time.

Pricing at the floor has provided profit above the expected profit margin for most underwriting quarters before 2017, with 31 December 2007 to 31 March 2009 being an exception. However, we expect that pricing at the floor would have led to less than expected profits for underwriting quarters since 30 September 2017 under all three superimposed inflation scenarios. We expect the 30 June 2017 underwriting quarter to result in excess profits under a superimposed inflation scenario of 0% p.a. only. These observations in relation to pricing at the floor are not particularly relevant to the insurers, but we include them to show the degree of profit available to insurers if they had all chosen to price at the floor.

Figure 5.7 shows the profitability expressed as a profit margin for each superimposed inflation scenario. The most recent underwriting quarters are where superimposed inflation can cause the greatest variation. For the 31 December 2017 underwriting quarter, for example, the 0% p.a. superimposed inflation scenario leads to a 12% profit margin, whereas the 2% superimposed inflation scenario leads to a 6% profit margin.

Figure 5.7 Scheme profit margin for insurer average premium

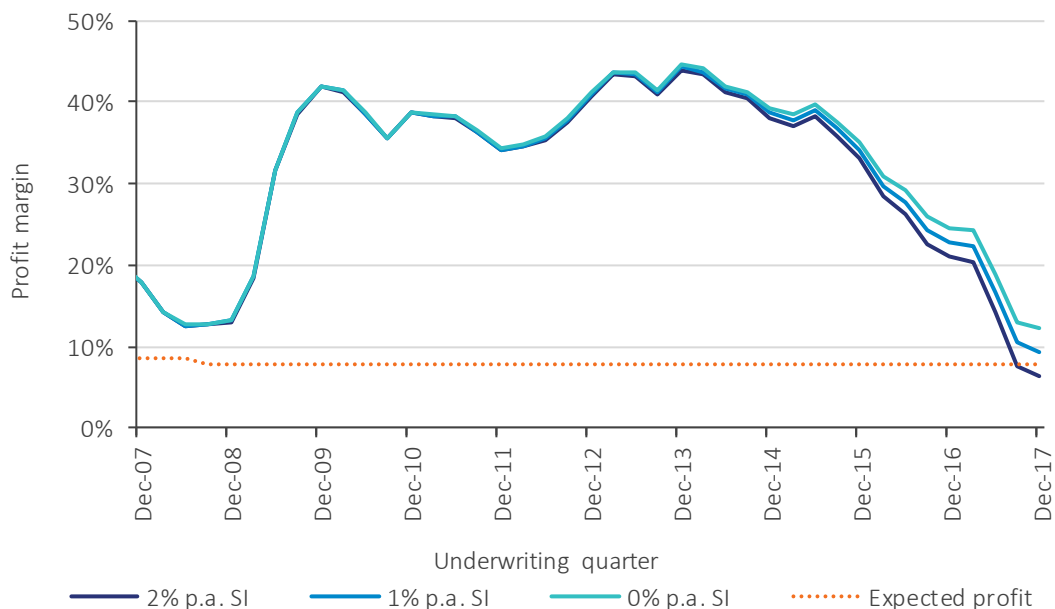
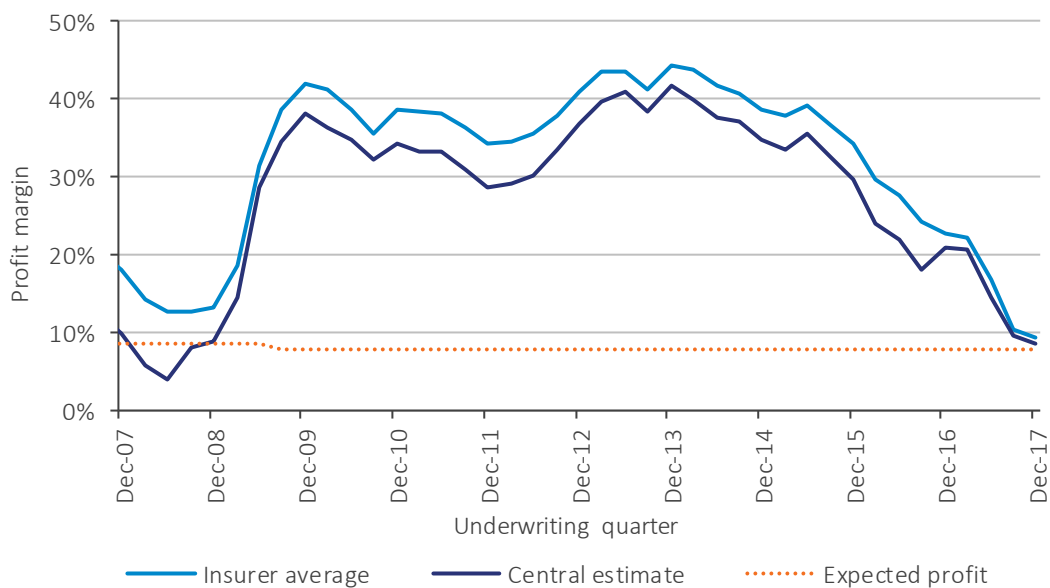


Figure 5.8 shows the central estimate alongside the insurer average premium for the 1% p.a. superimposed inflation scenario. For example, the 31 December 2009 underwriting quarter has an insurer average profit margin of 42%: 34% above the expected 7.75% profit margin. The 30 June 2008 underwriting quarter has a profit margin at the central estimate premium of 4%, but the insurer average – set at the ceiling premium – has a profit margin of 13%.



Figure 5.8 Scheme retrospective profit margin for central estimate and insurer average premium with 1% p.a. superimposed inflation



The most recent underwriting quarters are entirely dependent on projections and are likely to be revised in future reviews.

We summarise these profit results over selected periods in Table 5.1. We present these for each superimposed inflation scenario and for each of the insurer average premium, the premium ceiling and the premium floor.

Table 5.1 Scheme profit margins

	Insurer average	Ceiling	Floor
0% p.a. superimposed inflation			
Most recent 3 years	28%	29%	19%
Most recent 5 years	34%	34%	26%
Most recent 10 years	33%	34%	24%
1% p.a. superimposed inflation			
Most recent 3 years	27%	27%	17%
Most recent 5 years	33%	33%	24%
Most recent 10 years	33%	33%	23%
2% p.a. superimposed inflation			
Most recent 3 years	25%	25%	15%
Most recent 5 years	32%	32%	23%
Most recent 10 years	32%	33%	22%



6 RECONCILIATION

In this section, for the last five underwriting years we reconcile:

- » The Scheme all-class retrospective profit margin with the profit margin assumed by MAIC when setting the floor and ceiling
- » The Scheme all-class retrospective profit margin under the 1% SI scenario with the corresponding Scheme all-class retrospective profit margin from previous year using the Previous Report's rebased results.

Finally, we show how the estimated profit by underwriting year has changed over the last few measurement years.

6.1 Profit margin assumed by MAIC

Table 6.1 shows the reconciliation between the retrospective profit margin for all classes with the profit margin assumed by MAIC when setting the floor and ceiling. As seen, Table 6.1 shows nine changes, in more detail these changes are:

1. Insurers filing near ceiling – the additional profit resulting from insurers pricing at or near the ceiling premium rather than at the central estimate premium where the expected profit margin is applied
2. Claim frequency deviation – the change in profit resulting from a difference between the claim frequency expected at underwriting and the current expected claim frequency (actual and the latest forecast)
3. Average claim size deviation – the change in profit resulting from a difference between the average claim size expected at underwriting and the current expected average claim size (actual and the latest forecast)
4. Adopted superimposed inflation – the change in profit resulting from the difference between the adopted superimposed inflation rate at underwriting and the observed superimposed inflation since underwriting (with a floor of 0% p.a.)
5. Loadings – the change in profit resulting from assumed increase in claim size due to the CLAA and 2012 tax change not emerging
6. Economic gap – the change in profit resulting from the difference between the advised gap and the gap MAIC used to set the floor and ceiling
7. Advised AWE – the change in profit resulting from the difference between the single-rate AWE rate, based on forecasts from Deloitte Access Economics, advised by Taylor Fry prior to underwriting and the current wage inflation (actual and the latest forecast)
8. Yields – the change in profit resulting from any change between the Government bond yield curve as at the time MAIC sets the floor and ceiling and the Government bond yield curve at the end of the underwriting quarter
9. Change in future superimposed inflation – policies written prior to 31 March 2017, were priced under a floor/ceiling regime incorporating the assumption that claim payments would experience superimposed inflation (SI) of 2.5% per annum. However, since 31 March 2017 MAIC has revised the allowance for future SI used in the floor/ceiling down to 1% per annum. In light of this, we reviewed our previous assumption of 2.5% per annum and have used an assumption of 1% per annum applied to all future payments. This reduction in assumed future SI increases our estimates of profit.



Table 6.1 Reconciliation of profit margin per policy to expected profit

Period	Expected profit margin	Changes due to									All-class insurer average profit margin (1% SI) ^{1,2}
		Insurers filling near ceiling	Claim frequency deviation	Average claim size deviation	Superimposed inflation deviation	Loadings deviation	Economic gap	Advised AWE	Yields	Change in future super-imposed inflation	
2013	8%	5%	7%	12%	5%	2%	-1%	5%	1%	0%	43%
2014	8%	6%	3%	11%	5%	3%	0%	6%	-1%	1%	41%
2015	8%	6%	-5%	14%	5%	3%	0%	5%	0%	1%	37%
2016	8%	6%	-10%	11%	4%	2%	0%	4%	0%	2%	26%
2017	8%	1%	-7%	6%	1%	1%	0%	3%	1%	1%	15%
Mar-17	8%	2%	-10%	9%	3%	1%	0%	4%	1%	3%	22%
Jun-17	8%	2%	-7%	7%	1%	1%	1%	3%	0%	0%	17%
Sep-17	8%	1%	-6%	4%	1%	0%	0%	3%	1%	0%	10%
Dec-17	8%	1%	-6%	4%	1%	0%	0%	2%	0%	0%	9%
Most recent 3 years	8%	4%	-7%	10%	3%	2%	0%	4%	0%	1%	27%
Most recent 5 years	8%	5%	-2%	11%	4%	2%	0%	5%	0%	1%	33%

1. As seen in Section 5.3. May not sum due to rounding – both of the changes shown in this table and of the central estimate of premium by MAIC following the application of the expected profit margin
2. Note: We assume that the reduction in costs for the claims transferred to NIISQ from 1 October 2016 is equal to our latest estimate of costs covered under NIISQ. This is different to the “NIISQ-offset” applied at premium setting. For policies underwritten before 30 September 2016, we have assumed that the reduction in cost of claims transferred to NIISQ is imperfectly offset by the amount of premium clawed back from insurers where the inconsistency arises from the difference between the previous and current estimate of costs covered by NIISQ.

Of particular interest in Table 6.1 over the past five years:

- » The average claim sizes have been substantially lower than expected at underwriting, resulting in additional profitability of 11%
- » The complete unwinding of CLAA and 2012 tax change loadings resulted in additional profitability of 2%
- » Insurers filing at the ceiling results in additional profitability of 5% above the expected profit margin
- » The AWE growth has been lower than forecast at the time of premium setting, resulting in additional profitability of 5%
- » The superimposed inflation projection (2.5% per annum for policies written up to 31 March 2017 and 1% p.a. thereafter) has not emerged over the past five years, resulting in additional profitability of 4%
- » Change in adopted future superimposed inflation from 2.5% p.a. to 1% p.a. for policies written prior to 31 March 2017 results in an additional profit of 1%.

6.2 The previous report

Table 6.2 shows the reconciliation between the profit margin under the 1% SI scenario and the results from the Previous Report. We show five changes:

1. Claim frequency deviation – the change in profit resulting from a difference between the expected claim frequency in the previous report and the current expected claim frequency (actual and the latest forecast)
2. Average claim size deviation – the change in profit resulting from a difference between the average claim size in the previous report and the current expected average claim size (actual and the latest forecast)
3. SI during the year – the change between assumed SI at the Previous Report and the combination of actual SI since the Previous Report and assumed SI for this report
4. Past wage inflation – the change between assumed wage inflation at the Previous Report and the expected wage inflation observed over the year
5. Future wage inflation – the change between projected wage inflation at the Previous Report and current projected wage inflation.

Table 6.2 shows that there has been little change in the retrospective profit margin since the Previous Report for the older underwriting periods. More recent periods are prone to greater change because these have less realised experience and thus a greater reliance on valuation projections.



Table 6.2 Reconciliation of profit margin per policy to expected profit

Period	Previous Report (Class 1, 1% SI)	Previous Report (All class, 1% SI)	Changes due to					All-class insurer average profit margin (1% SI) ^{1,2}
			Claim frequency deviation	Average claim size deviation	SI during the year	Past wage inflation	Future wage inflation	
2012	34%	35%	0%	2%	0%	0%	0%	37%
2013	39%	40%	0%	2%	0%	0%	0%	43%
2014	37%	38%	0%	2%	0%	0%	0%	41%
2015	30%	32%	-1%	5%	0%	0%	0%	37%
2016	24%	24%	-6%	5%	1%	1%	1%	26%
2012-2016	33%	34%	-1%	3%	0%	0%	0%	37%

1. As seen in Section 5.3. May not sum due to rounding – both of the changes shown in this table and of the central estimate of premium by MAIC following the application of the expected profit margin
2. Note: We assume that the reduction in costs for the claims transferred to NIISQ from 1 October 2016 is equal to our latest estimate of costs covered under NIISQ. This is different to the “NIISQ-offset” applied at premium setting. For policies underwritten before 30 September 2016, we have assumed that the reduction in cost of claims transferred to NIISQ is imperfectly offset by the amount of premium clawed back from insurers where the inconsistency arises from the difference between the previous and current estimate of costs covered by NIISQ.

6.3 Changes over the last few measurement years

Finally, we note that our estimates of the projected ultimate average claim size for future underwriting quarters have been decreasing in real terms for at least the last five years, as evidence of a weakening severity profile and lower than expected finalisation sizes has emerged. At any point in time, our measurement of the emerging claim size for the most recent underwriting periods will be almost the same as our then current projected ultimate average claim size for future underwriting quarters. As the latter falls, our assessment of profit increases. The result is that our measurement of profit for any given underwriting quarter has grown at each successive measurement. For so long as the current trends in severity profile and claim size continue, this pattern of increasing profit assessment is likely to continue. Table 6.3 shows our assessment of profit for the last few measurement years.

Table 6.3 Assessments of profit by measurement year

Underwriting year	Measurement year					
	2012 (2.5% p.a. SI)	2013 (2.5% p.a. SI)	2014 (2.5% p.a. SI)	2015 (2.5% p.a. SI)	2016 (1% p.a. SI)	2017 (1% p.a. SI)
2012	12%	18%	27%	31%	35%	37%
2013		17%	29%	35%	40%	43%
2014			24%	28%	38%	41%
2015				18%	32%	37%
2016					25%	26%
2017						14%

Note: The profit estimates in Table 6.3 use the future superimposed inflation scenario consistent with the allowance for superimposed inflation made by MAIC which was current at the time of measurement.



7 RELIANCES AND LIMITATIONS

In producing this report, we have relied on data supplied by MAIC on vehicle registrations, underwritten premium, premium filing and claims data without audit or independent verification. The accuracy of the results is dependent on both the accuracy and completeness of the data provided. However, in the course of the analysis, internal checks have been carried out which would be expected to find gross inconsistencies. None have come to light and we have accepted the data at face value.

In carrying out this analysis we have made a number of assumptions. For example, we have assumed that the claims handling expense ratio and the acquisition and reinsurance costs included by MAIC in the ceiling calculation are reasonable proxies for the actual expenses. To the extent that this assumption is false, the profit estimates would change.

Our analysis is heavily dependent on our estimates of total claims cost from each accident quarter. These are derived from the Annual Advice and so this report is subject to the same reliances and limitations as that advice.

Due to limitations on data availability, a number of approximations have been made. Should these turn out to be materially inaccurate then our results would also be affected. In particular, our re-calculation of the ceiling premium based on perfect advance knowledge of the claim frequency is approximate. We have also extrapolated current experience to estimate claim frequency and sizes for a number of future accident quarters to enable us to produce estimates of hindsight premium for underwriting quarters beginning 1 January 2017 to 31 December 2017. Underwriting quarters with exposure after 31 December 2017 are subject to increased uncertainty since they are based on no actual experience, but rather projections based entirely on model assumptions.

In our judgement we have employed techniques and assumptions that are appropriate, and the conclusions presented herein are reasonable given the information currently available. However, it should be recognised that the actual ultimate profit may deviate, perhaps materially, from our estimates.

Detailed judgements about the methodology, analyses, assumptions and estimated profits should be made only after considering this report in its entirety.

The report has been prepared for the Commission for the specific purpose stated in Section 2.3. No reliance should be placed on this report for any other purpose without confirming with us that such a purpose is appropriate. No other distribution of this report to parties outside of the Commission is permitted without the prior written permission of Taylor Fry. This report is to be considered in its entirety, as parts of the report considered in isolation may be misleading. If any part of this report is to be distributed or provided to other parties, then the entire report including all appendices and not excerpts must be distributed or provided.

Appendix A Economic Assumptions

A.1 Historical Government yields

A.2 Future rates of wage inflation



Appendix A

Appendix A.1 Commonwealth forward rates

Underwriting	1	2	3	4	5	6	7	8	9	10
Dec-07	6.90%	7.10%	6.82%	6.44%	6.15%	6.01%	5.99%	5.99%	5.99%	5.99%
Mar-08	6.45%	6.18%	6.10%	6.10%	6.10%	6.10%	6.10%	6.10%	6.10%	6.10%
Jun-08	7.04%	6.86%	6.56%	6.40%	6.39%	6.39%	6.39%	6.39%	6.39%	6.39%
Sep-08	5.23%	5.08%	5.18%	5.34%	5.54%	5.69%	5.71%	5.71%	5.71%	5.71%
Dec-08	2.78%	3.01%	3.72%	4.21%	4.45%	4.49%	4.49%	4.49%	4.49%	4.49%
Mar-09	2.74%	3.39%	4.11%	4.67%	5.04%	5.22%	5.25%	5.25%	5.25%	5.25%
Jun-09	3.40%	4.86%	6.02%	6.18%	6.18%	6.18%	6.18%	6.18%	6.18%	6.18%
Sep-09	4.04%	5.28%	5.75%	5.77%	5.77%	5.77%	5.77%	5.77%	5.77%	5.77%
Dec-09	4.37%	4.92%	5.53%	5.98%	6.25%	6.35%	6.35%	6.35%	6.35%	6.35%
Mar-10	4.51%	5.51%	6.07%	6.09%	6.09%	6.09%	6.09%	6.09%	6.09%	6.09%
Jun-10	4.46%	4.52%	4.70%	4.96%	5.31%	5.63%	5.74%	5.75%	5.75%	5.75%
Sep-10	4.75%	4.91%	4.96%	5.02%	5.08%	5.13%	5.17%	5.21%	5.24%	5.27%
Dec-10	4.97%	5.36%	5.58%	5.73%	5.80%	5.81%	5.81%	5.81%	5.81%	5.81%
Mar-11	4.85%	5.09%	5.35%	5.57%	5.74%	5.86%	5.93%	5.95%	5.95%	5.95%
Jun-11	4.80%	4.91%	5.06%	5.27%	5.53%	5.79%	5.83%	5.83%	5.83%	5.83%
Sep-11	3.80%	3.50%	3.72%	4.02%	4.31%	4.56%	4.76%	4.93%	5.05%	5.13%
Dec-11	3.33%	3.10%	3.21%	3.38%	3.60%	3.89%	4.20%	4.46%	4.67%	4.83%
Mar-12	3.54%	3.54%	3.63%	3.75%	3.92%	4.12%	4.37%	4.66%	5.00%	5.32%
Jun-12	2.60%	2.36%	2.47%	2.65%	2.88%	3.16%	3.49%	3.78%	4.01%	4.19%
Sep-12	2.56%	2.46%	2.53%	2.63%	2.77%	2.94%	3.15%	3.39%	3.67%	3.98%
Dec-12	2.66%	2.63%	2.76%	2.94%	3.19%	3.45%	3.70%	3.93%	4.14%	4.34%
Mar-13	2.83%	2.87%	2.99%	3.16%	3.39%	3.64%	3.87%	4.09%	4.29%	4.48%
Jun-13	2.48%	2.71%	3.17%	3.58%	3.95%	4.27%	4.55%	4.77%	4.95%	5.08%
Sep-13	2.42%	2.75%	3.25%	3.70%	4.09%	4.42%	4.70%	4.92%	5.07%	5.17%
Dec-13	2.45%	2.96%	3.53%	4.03%	4.48%	4.85%	5.16%	5.40%	5.57%	5.67%
Mar-14	2.61%	3.08%	3.53%	3.93%	4.29%	4.60%	4.87%	5.09%	5.27%	5.40%
Jun-14	2.46%	2.68%	3.03%	3.36%	3.66%	3.93%	4.16%	4.36%	4.53%	4.67%
Sep-14	2.57%	2.71%	2.99%	3.29%	3.57%	3.82%	4.04%	4.24%	4.42%	4.56%
Dec-14	2.19%	2.13%	2.24%	2.41%	2.64%	2.92%	3.19%	3.43%	3.62%	3.79%
Mar-15	1.71%	1.74%	1.84%	1.99%	2.19%	2.43%	2.71%	2.95%	3.14%	3.27%
Jun-15	1.94%	2.03%	2.26%	2.60%	3.03%	3.41%	3.73%	3.99%	4.18%	4.30%
Sep-15	1.87%	1.94%	2.10%	2.35%	2.67%	3.01%	3.29%	3.53%	3.73%	3.87%
Dec-15	1.98%	2.02%	2.19%	2.46%	2.81%	3.19%	3.50%	3.75%	3.94%	4.06%
Mar-16	1.91%	1.92%	2.04%	2.21%	2.43%	2.64%	2.85%	3.03%	3.21%	3.37%
Jun-16	1.58%	1.53%	1.61%	1.74%	1.90%	2.10%	2.29%	2.47%	2.64%	2.79%
Sep-16	1.56%	1.52%	1.58%	1.69%	1.82%	1.99%	2.19%	2.38%	2.55%	2.71%
Dec-16	1.74%	2.00%	2.29%	2.56%	2.82%	3.06%	3.29%	3.50%	3.69%	3.87%
Mar-17	1.63%	1.94%	2.23%	2.51%	2.76%	3.00%	3.21%	3.41%	3.59%	3.75%
Jun-17	1.68%	1.95%	2.20%	2.44%	2.66%	2.87%	3.07%	3.25%	3.41%	3.56%
Sep-17	1.83%	2.14%	2.41%	2.67%	2.90%	3.11%	3.31%	3.49%	3.64%	3.78%
Dec-17	1.93%	2.14%	2.34%	2.53%	2.70%	2.87%	3.02%	3.16%	3.29%	3.41%

Notes; These are 1-year forward rates extracted from yields on Commonwealth bonds quoted at the end of the underwriting quarter.

Appendix A

Appendix A. 2 Future rates of wage inflation

Quarter	QLD AWE	Inflation rate p.a.
Dec-17	1,140.11	
Mar-18	1,145.47	1.86%
Jun-18	1,150.65	1.90%
Sep-18	1,156.30	2.09%
Dec-18	1,162.61	2.30%
Mar-19	1,169.54	2.55%
Jun-19	1,177.33	2.84%
Sep-19	1,186.01	3.03%
Dec-19	1,195.04	3.11%
Mar-20	1,204.31	3.17%
Jun-20	1,213.82	3.24%
Sep-20	1,223.63	3.32%
Dec-20	1,233.78	3.40%
Mar-21	1,244.26	3.47%
Jun-21	1,255.00	3.50%
Sep-21	1,265.87	3.50%
Dec-21	1,276.76	3.47%
Mar-22	1,287.63	3.45%
Jun-22	1,298.61	3.47%
Sep-22	1,309.80	3.51%
Dec-22	1,321.17	3.51%
Mar-23	1,332.57	3.46%
Jun-23	1,343.84	3.37%
Sep-23	1,354.87	3.27%
Dec-23	1,365.66	3.18%
Mar-24	1,376.28	3.12%
Jun-24	1,386.82	3.09%
Sep-24	1,397.35	3.07%
Dec-24	1,407.93	3.08%
Mar-25	1,418.68	3.12%
Jun-25	1,429.74	3.20%
Sep-25	1,441.21	3.30%
Dec-25	1,453.11	3.38%
Mar-26	1,465.39	3.46%
Jun-26	1,478.01	3.51%
Sep-26	1,490.90	3.56%
Dec-26	1,504.06	3.59%
Mar-27	1,517.42	3.60%
Jun-27	1,530.88	3.58%
Sep-27	1,544.31	3.37%
& later		

Notes; Queensland forecasts from Access Economics 'Business Outlook' for December 2017
Assumed long term inflation rate is derived by averaging over the preceding 6 years

Appendix B Ultimate Incurred Costs

- B.1 Historical finalised uninflated claim payments (gross of ITC/DAM)
- B.2 Outstanding claims liability uninflated/undiscounted (gross of ITC/DAM)



Appendix B

Appendix B.1 Historical finalised uninflated claim payments (gross of ITC/DAM)

Accident	Development (\$ millions)																																								
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40 Later
Dec-07	0.1	0.5	0.6	0.8	2.5	4.5	7.1	8.7	9.0	7.9	8.6	9.8	11.3	9.7	10.2	11.8	6.4	3.8	3.6	6.0	2.3	0.9	1.1	1.4	0.6	1.0	0.1	1.4	1.4	0.4	0.3	0.6	0.0	0.1	0.1	0.1	0.0	0.1	0.5	0.1	0.0
Mar-08	0.0	0.6	0.8	1.1	2.0	5.4	6.1	7.4	6.3	8.1	8.9	9.7	8.7	12.1	6.3	8.3	8.0	3.3	3.1	8.1	1.5	3.8	2.1	1.5	1.5	1.2	1.4	0.6	0.0	0.3	7.6	0.0	0.1	3.1	2.0	0.2	0.0	0.2	0.0	0.2	
Jun-08	0.1	0.7	1.0	1.1	2.3	7.3	11.6	16.1	12.0	15.0	8.9	9.2	9.1	14.0	7.7	6.8	7.6	3.9	2.6	1.3	4.0	6.5	1.9	1.8	1.7	5.7	0.9	0.3	0.2	0.1	0.2	0.0	0.0	2.9	0.7	0.3	0.3	0.0	0.0		
Sep-08	0.2	0.9	1.0	1.2	2.8	7.5	8.1	14.1	12.9	13.1	14.2	14.1	12.7	11.2	10.0	13.8	14.2	13.1	3.9	5.1	1.7	2.0	2.6	1.0	1.3	0.8	0.3	0.3	0.8	0.4	0.2	0.2	0.0	0.9	0.0	0.3	0.0	0.1			
Dec-08	0.1	0.6	0.8	1.3	2.9	5.1	11.0	14.3	10.3	11.7	10.2	12.5	15.6	9.1	7.7	8.2	10.4	5.4	4.3	3.1	8.3	4.8	1.4	1.3	1.0	1.6	0.7	1.8	0.0	0.5	0.0	0.0	0.5	0.3	0.0	0.1	0.0				
Mar-09	0.1	0.6	1.0	0.9	2.3	7.5	15.7	13.4	9.4	13.2	9.9	14.4	11.2	12.0	7.5	7.5	4.4	2.9	2.6	3.1	1.5	1.7	1.8	1.0	0.8	0.5	4.9	1.9	0.2	0.1	1.3	1.7	0.0	0.0	0.0	0.1					
Jun-09	0.1	0.8	1.3	1.1	2.6	8.3	10.4	10.8	15.4	13.6	15.6	16.8	11.8	15.8	8.1	8.6	7.6	23.3	9.5	2.9	12.3	2.9	2.8	1.8	1.1	1.7	0.0	0.1	2.3	0.5	0.2	0.3	1.9	0.0	0.1						
Sep-09	0.1	0.8	0.9	1.5	3.7	7.9	10.9	17.0	10.9	13.3	9.9	11.7	13.7	18.2	9.8	4.8	8.5	2.7	5.1	2.3	1.3	4.1	0.9	0.5	0.6	1.2	1.0	4.7	0.0	0.8	0.3	0.0	0.2	0.4							
Dec-09	0.1	0.6	0.9	1.7	3.6	8.1	10.9	11.4	12.2	11.8	10.8	13.9	14.4	11.4	7.8	6.3	2.9	4.0	3.3	2.6	3.1	9.5	4.8	0.8	0.4	4.2	0.4	0.8	0.3	0.2	2.3	0.5	0.5								
Mar-10	0.1	0.6	1.5	1.7	2.9	7.3	10.7	8.9	12.0	15.0	10.8	6.5	9.3	11.9	4.3	3.9	4.4	2.6	1.2	3.2	2.1	1.5	1.3	0.7	0.5	2.1	0.4	0.9	0.0	0.2	0.0	0.0									
Jun-10	0.1	0.5	0.8	1.3	2.1	8.5	12.5	11.3	11.5	14.1	8.6	7.9	13.2	12.5	7.0	4.4	2.8	2.6	4.4	2.5	2.8	3.0	2.0	1.4	0.3	0.7	0.3	0.9	0.4	0.0	0.0										
Sep-10	0.2	0.7	0.8	1.1	4.1	10.9	13.9	16.7	15.2	14.1	11.7	9.6	8.1	6.2	5.2	8.1	4.5	4.5	4.4	1.9	2.3	1.0	1.1	0.3	0.6	0.7	2.7	1.1	0.6	0.3											
Dec-10	0.1	0.5	1.0	1.3	3.6	9.1	13.5	12.8	25.1	8.6	12.7	8.8	9.2	8.3	3.4	4.7	5.7	2.9	0.9	3.0	1.8	2.1	1.6	0.3	0.8	0.0	0.3	1.7	0.0												
Mar-11	0.1	0.9	1.0	1.6	4.1	10.6	13.7	15.4	12.1	10.5	12.8	7.5	8.3	9.3	7.2	3.8	4.8	4.1	5.1	6.6	1.4	0.4	2.7	0.8	1.5	0.7	0.6	0.0													
Jun-11	0.1	0.7	1.2	1.3	5.0	12.0	15.4	12.0	15.1	11.5	10.2	10.9	13.0	14.2	8.4	4.2	4.7	7.7	9.5	6.3	2.0	2.6	0.9	1.6	0.6	0.5	0.1														
Sep-11	0.1	0.7	0.9	1.8	5.1	12.5	13.1	14.8	15.1	13.3	20.4	10.8	11.3	8.2	9.1	8.1	8.2	4.8	2.9	3.2	0.4	5.1	2.0	1.4	0.0	1.3															
Dec-11	0.1	0.6	0.7	2.3	4.6	7.2	14.6	8.8	13.0	9.1	10.2	12.5	9.8	7.6	8.8	6.4	5.3	2.8	1.8	3.7	4.5	0.8	1.4	1.0	3.5																
Mar-12	0.1	0.5	1.2	2.3	3.8	11.9	9.6	12.7	10.3	11.1	9.8	11.6	9.8	17.3	8.1	14.1	3.0	6.6	1.5	3.8	1.0	2.7	0.7	0.6																	
Jun-12	0.1	0.9	1.1	2.2	7.9	10.4	15.0	11.1	12.2	12.8	9.7	10.3	14.8	14.6	7.1	7.9	7.1	7.9	3.3	3.2	1.3	0.4	1.8																		
Sep-12	0.1	0.8	1.5	3.0	5.0	11.8	12.6	14.2	12.5	11.3	10.3	21.9	15.9	8.9	13.0	6.4	5.2	8.4	3.6	0.7	0.8	9.4																			
Dec-12	0.1	0.7	1.3	2.2	5.5	9.1	13.1	10.7	12.7	12.4	8.9	15.9	13.3	8.6	16.4	5.7	7.7	6.4	2.4	1.6	1.1																				
Mar-13	0.1	0.8	1.3	1.9	4.2	9.7	11.2	11.6	11.2	13.7	8.5	13.1	10.4	12.4	8.4	8.6	2.7	2.9	3.0	1.0																					
Jun-13	0.1	0.8	0.9	1.5	7.1	10.6	15.1	12.3	14.5	12.8	8.4	7.2	8.9	8.4	7.3	2.4	4.9	1.2	1.7																						
Sep-13	0.1	0.7	1.0	3.1	5.8	11.5	14.4	16.4	11.3	9.6	12.1	18.5	13.2	10.8	9.2	6.8	1.2	3.4																							
Dec-13	0.1	0.8	1.0	1.9	5.3	9.2	14.5	13.0	13.8	7.9	10.3	13.4	8.9	7.5	11.1	4.9	3.6																								
Mar-14	0.1	0.8	1.1	1.8	3.4	10.7	12.7	12.9	12.6	12.2	11.5	7.3	5.5	5.5	4.4	3.6																									
Jun-14	0.2	0.9	1.4	2.2	7.6	12.8	19.4	11.1	16.0	15.9	10.7	8.6	9.2	8.1	7.4																										
Sep-14	0.1	0.8	1.2	3.9	6.4	12.9	13.7	14.6	11.6	11.9	10.6	8.6	5.6	5.7																											
Dec-14	0.2	0.8	2.3	1.9	8.1	9.3	16.0	13.0	13.7	8.9	7.4	7.2	9.2																												
Mar-15	0.1	0.8	1.2	4.3	6.7	15.7	12.0	18.1	9.6	26.9	8.6	5.9																													
Jun-15	0.1	1.0	1.5	3.2	7.8	13.2	13.5	16.5	13.4	8.1	10.5																														
Sep-15	0.1	1.1	1.3	5.1	7.0	13.5	11.1	14.9	9.0	14.6																															
Dec-15	0.1	0.9	1.3	2.6	6.2	8.3	17.5	11.9	11.7																																
Mar-16	0.1	0.9	1.3	2.5	5.5	12.8	15.0	11.2																																	
Jun-16	0.1	0.8	1.6	2.2	7.7	12.5	13.2																																		
Sep-16	0.1	0.6	0.8	3.6	7.5	14.1																																			
Dec-16	0.1	0.4	1.1	2.0	6.7																																				
Mar-17	0.1	0.4	0.9	2.1																																					
Jun-17	0.1	0.4	1.0																																						
Sep-17	0.0	0.2																																							
Dec-17	0.0																																								

Notes: Sourced from the PIR system as at 31 December 2017 (as supplied by MAIC)

Appendix B

Appendix B. 2 Outstanding claims liability uninflated/undiscounted (gross of ITC/DAM)

Development (\$ millions)	
Accident	0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 Later
Dec-07	
Mar-08	
Jun-08	
Sep-08	
Dec-08	
Mar-09	
Jun-09	
Sep-09	
Dec-09	
Mar-10	
Jun-10	
Sep-10	
Dec-10	
Mar-11	
Jun-11	
Sep-11	
Dec-11	
Mar-12	
Jun-12	
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Mar-13	
Jun-13	
Sep-13	
Dec-13	
Mar-14	
Jun-14	
Sep-14	
Dec-14	
Mar-15	
Jun-15	
Sep-15	
Dec-15	
Mar-16	
Jun-16	
Sep-16	
Dec-16	
Mar-17	
Jun-17	
Sep-17	
Dec-17	

Notes: Sourced from the Annual Advice



Appendix C Modelled Scheme relativities

- C.1 Modelled Scheme frequency relativities by accident period
- C.2 Modelled Scheme size relativities by accident period



Appendix C.1 Modelled Scheme frequency relativities by accident period

Class	Frequency relativities by accident year																	Exposures by accident year																
	2003/2004	2004/2005	2005/2006	2006/2007	2007/2008	2008/2009	2009/2010	2010/2011	2011/2012	2012/2013	2013/2014	2014/2015	2015/2016	2016/2017	2017/2018	2002/2003	2003/2004	2004/2005	2005/2006	2006/2007	2007/2008	2008/2009	2009/2010	2010/2011	2011/2012	2012/2013	2013/2014	2014/2015	2015/2016	2016/2017	2017/2018			
1	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	1,867,039	1,938,690	2,017,900	2,095,781	2,171,307	2,263,664	2,325,611	2,369,232	2,415,420	2,462,402	2,526,643	2,587,192	2,630,759	2,682,781	2,738,530	2,785,016			
2	34%	34%	34%	34%	34%	34%	34%	34%	34%	34%	34%	34%	34%	34%	34%	6,041	6,584	7,231	7,987	8,832	9,785	10,396	10,945	11,671	12,326	13,050	13,738	14,417	15,109	15,673	16,379			
3	2095%	2166%	2240%	2240%	2240%	2240%	2240%	2240%	2240%	2240%	1804%	1804%	1804%	1804%	1804%	2,473	2,469	2,479	2,545	2,613	2,643	2,688	2,719	2,723	2,707	2,701	2,698	2,712	2,699	2,638	2,649			
4	172%	165%	165%	165%	165%	165%	165%	165%	165%	165%	165%	165%	165%	165%	165%	21,205	22,981	26,127	27,800	32,020	33,140	36,529	35,876	38,124	40,692	43,865	43,820	41,928	39,883	41,894	43,780			
5	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	7,383	8,591	9,693	10,682	11,664	12,621	13,773	15,371	17,377	19,074	20,741	22,527	24,088	25,696	27,343	29,193			
6	95%	97%	98%	98%	98%	98%	98%	98%	98%	98%	98%	98%	98%	98%	98%	437,743	459,771	490,219	521,206	550,793	589,480	622,811	652,124	674,333	697,893	729,000	760,895	786,403	811,452	837,849	869,093			
7	325%	332%	339%	339%	339%	339%	339%	339%	339%	339%	339%	339%	339%	339%	339%	49,263	51,387	54,469	57,758	61,357	66,908	69,809	70,177	70,267	71,546	74,031	75,806	75,260	73,939	73,782	75,742			
8	84%	147%	147%	147%	147%	147%	147%	147%	147%	147%	147%	147%	147%	147%	147%	5,560	5,495	5,459	5,383	5,428	5,424	5,477	5,510	5,538	5,491	5,469	5,537	5,592	5,729	5,781	5,830			
9	160%	160%	160%	160%	160%	160%	160%	160%	160%	160%	160%	160%	160%	160%	160%	3,067	3,201	3,293	3,420	3,488	3,528	3,593	3,668	3,703	3,694	3,715	3,712	3,686	3,722	3,731	3,846			
10A	373%	373%	424%	482%	549%	624%	624%	624%	624%	624%	624%	624%	624%	624%	624%	2,063	2,019	2,040	2,139	2,219	1,623	2,571	2,612	2,644	2,674	2,735	2,696	2,683	2,648	2,598	2,646			
10B	2979%	2979%	2979%	2979%	2979%	2979%	2979%	2979%	2979%	2979%	2979%	2979%	2979%	2979%	2979%	1,476	1,445	1,459	1,531	1,588	1,254	1,730	1,886	1,966	2,144	2,203	2,163	2,152	2,147	2,170	2,218			
11	478%	478%	478%	478%	478%	478%	478%	478%	478%	478%	478%	478%	478%	478%	478%	4,138	4,258	4,566	4,868	5,305	5,602	5,929	5,807	5,722	5,971	6,509	6,768	6,805	6,617	6,470	6,647			
12	12%	12%	12%	12%	12%	12%	12%	12%	12%	12%	12%	12%	12%	12%	12%	32,374	34,157	36,881	40,616	45,158	48,768	51,902	53,156	54,520	56,959	59,333	62,066	64,824	70,808	78,389	83,129			
13	41%	40%	38%	36%	35%	33%	32%	30%	29%	27%	26%	25%	24%	23%	23%	49,735	53,594	59,268	67,708	78,250	88,832	99,317	103,333	105,652	110,511	116,961	122,786	126,235	125,915	125,972	125,055			
14	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%	27,571	24,850	23,929	23,742	24,005	24,071	24,171	24,363	24,728	24,862	25,014	25,075	24,901	24,896	24,996	25,136			
15	43%	88%	88%	88%	88%	88%	88%	88%	88%	88%	88%	88%	88%	88%	88%	10,956	9,159	8,475	8,413	8,532	8,743	8,899	8,832	8,561	8,567	8,585	7,924	7,652	7,262	6,869	6,648			
16	185%	203%	222%	243%	265%	265%	265%	265%	265%	265%	265%	265%	265%	265%	265%	775	772	760	833	852	856	940	948	1,014	1,033	1,062	1,037	1,068	1,087	1,063	1,137			
17	27%	27%	27%	27%	27%	27%	27%	27%	27%	27%	27%	27%	27%	27%	27%	44,260	43,463	42,768	42,068	41,510	40,597	39,882	39,577	39,231	38,669	38,146	38,240	38,074	38,197	38,715	38,795			
18	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
19	27%	27%	27%	27%	27%	12%	12%	12%	12%	12%	12%	12%	12%	12%	12%	714	8,386	14,076	18,132	22,460	26,873	31,350	33,205	35,094	37,575	40,429	43,424	44,128	44,967	46,420				
20	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	217	6,043	7,595	8,256	8,727	9,188	9,639	9,830	10,196	10,761	11,226	11,685	11,777	11,802	11,731	11,856			
21	26%	26%	26%	26%	26%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	0	2,815	3,952	4,804	5,535	6,322	7,023	7,322	7,710	8,383	9,061	9,394	9,191	8,873	8,740	8,687			
22	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
23	23%	23%	23%	23%	23%	23%	23%	23%	23%	23%	23%	23%	23%	23%	23%	4,163	4,239	4,385	4,652	4,867	5,180	5,300	5,182	5,245	5,367	5,568	5,783	5,805	5,998	6,029	6,043			
24	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	507	630	760	1,186	1,368	1,385	1,708	2,015	1,998	2,145	2,343	2,651	2,807	2,843	3,392	3,507			
25	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
26	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	164%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

Notes: Sourced from the Annual Advice

Appendix C. 2 Modelled Scheme size relativities by accident period

Class	Size relativities by accident year																	Number of claims by accident year														
	2003/2004	2004/2005	2005/2006	2006/2007	2007/2008	2008/2009	2009/2010	2010/2011	2011/2012	2012/2013	2013/2014	2014/2015	2015/2016	2016/2017	2017/2018	2002/2003	2003/2004	2004/2005	2005/2006	2006/2007	2007/2008	2008/2009	2009/2010	2010/2011	2011/2012	2012/2013	2013/2014	2014/2015	2015/2016	2016/2017	2017/2018	
1	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	6,152	5,200	4,669	4,349	4,074	4,252	4,374	4,156	4,439	4,465	4,430	4,479	4,574	4,828	5,050	1,326	
2	106%	106%	106%	106%	106%	106%	106%	106%	106%	106%	106%	106%	106%	106%	106%	5	7	5	3	12	9	6	6	4	10	10	6	9	6	10	4	
3	90%	90%	90%	90%	90%	90%	90%	90%	90%	90%	90%	90%	90%	90%	90%	147	125	117	126	104	96	128	157	120	112	79	78	106	74	81	26	
4	125%	125%	125%	125%	125%	125%	125%	125%	125%	125%	125%	125%	125%	125%	125%	107	132	97	91	87	77	119	122	135	134	86	141	111	131	131	32	
5	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	2	0	3	2	2	4	0	2	1	2	2	2	0	0	0	0	
6	115%	115%	115%	115%	115%	115%	115%	115%	115%	115%	115%	115%	115%	115%	115%	1,290	1,195	1,104	1,012	1,160	980	1,213	1,064	1,245	1,237	1,234	1,296	1,392	1,355	1,606	439	
7	130%	130%	130%	130%	130%	130%	130%	130%	130%	130%	130%	130%	130%	130%	130%	491	466	399	419	404	430	469	381	422	380	437	395	394	379	419	88	
8	150%	150%	150%	150%	150%	150%	150%	150%	150%	150%	150%	150%	150%	150%	150%	14	2	26	18	10	10	13	12	14	6	21	16	21	18	13	6	
9	99%	99%	99%	99%	99%	99%	99%	99%	99%	99%	99%	99%	99%	99%	99%	11	13	7	12	15	8	14	7	15	12	10	7	20	8	11	2	
10A	115%	115%	115%	115%	115%	115%	115%	115%	115%	115%	115%	115%	115%	115%	115%	18	21	22	21	23	20	29	38	19	40	43	16	40	22	23	1	
10B	65%	65%	65%	65%	65%	65%	65%	65%	65%	65%	65%	65%	65%	65%	65%	100	97	80	78	74	103	121	77	91	90	89	67	72	53	84	17	
11	128%	128%	128%	128%	128%	128%	128%	128%	128%	128%	128%	128%	128%	128%	128%	55	56	56	37	45	47	56	39	62	56	70	56	48	55	58	16	
12	163%	163%	163%	163%	163%	163%	163%	163%	163%	163%	163%	163%	163%	163%	163%	12	9	16	11	1	9	8	11	17	13	13	14	8	26	13	3	
13	182%	182%	182%	182%	182%	182%	182%	182%	182%	182%	182%	182%	182%	182%	182%	67	46	67	56	69	60	67	73	66	58	48	65	48	46	42	18	
14	129%	129%	129%	129%	129%	129%	129%	129%	129%	129%	129%	129%	129%	129%	129%	6	5	9	4	3	3	9	1	6	1	0	2	3	1	0	1	
15	168%	168%	168%	168%	168%	168%	168%	168%	168%	168%	168%	168%	168%	168%	168%	10	11	11	16	18	8	15	16	8	21	16	14	8	9	17	3	
16	111%	111%	111%	111%	111%	111%	111%	111%	111%	111%	111%	111%	111%	111%	111%	5	4	2	2	3	5	9	6	5	7	3	5	3	7	2	3	
17	187%	187%	187%	187%	187%	187%	187%	187%	187%	187%	187%	187%	187%	187%	187%	37	18	41	32	18	15	10	14	19	17	27	18	25	19	14	2	
18	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19	228%	228%	228%	228%	228%	228%	228%	228%	228%	228%	228%	228%	228%	228%	228%	0	7	9	9	11	14	4	10	7	12	8	2	11	18	5	0	
20	57%	57%	57%	57%	57%	57%	57%	57%	57%	57%	57%	57%	57%	57%	57%	0	1	4	1	0	0	2	2	1	1	0	0	3	0	0	0	
21	155%	155%	155%	155%	155%	155%	155%	155%	155%	155%	155%	155%	155%	155%	155%	0	1	2	3	3	4	1	3	1	2	2	2	2	0	0	0	0
22	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0	0	0	0	0	0	0	0	0	0	0	0	2	1	0	0	0
23	111%	111%	111%	111%	111%	111%	111%	111%	111%	111%	111%	111%	111%	111%	111%	0	2	4	0	1	3	5	9	2	4	1	1	3	0	1	0	0
24	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	0	0	0	1	0	0	0	0	1	0	0	0	0	0	2	0	0
25	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
26	96%	96%	96%	96%	96%	96%	96%	96%	96%	96%	96%	96%	96%	96%	96%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Notes: Sourced from the Annual Advice
Does not include adjustment for NISG

D.1 MAIC's pricing assumptions used to set floor and ceiling premiums



Appendix D

Appendix D.1 MAIC's pricing assumptions used to set floor and ceiling premiums

Underwriting	Scheme average premium (\$, excluding GST, levies)		Claims process savings (\$)		Claims handling expenses	Acquisition Costs (\$)	Reinsurance Cost (\$)	ANTS Impact	Profit margin	Insurer average filed gross premium (\$)
	Floor	Ceiling	Floor	Ceiling						
Dec-07	182.32	230.01	0.00	0.00	5.5%	25.01	8.75	-9.1%	8.5%	227.81
Mar-08	182.41	230.13	0.00	0.00	5.5%	25.01	8.76	-9.1%	8.5%	227.66
Jun-08	182.41	230.13	0.00	0.00	5.5%	25.01	8.76	-9.1%	8.5%	228.12
Sep-08	195.04	242.81	0.00	0.00	6.0%	25.01	6.01	-9.1%	7.8%	239.77
Dec-08	221.76	255.42	0.00	0.00	6.0%	25.00	6.00	-9.1%	7.8%	252.43
Mar-09	229.76	264.41	0.00	0.00	6.0%	25.00	6.00	-9.1%	7.8%	261.80
Jun-09	250.56	285.21	0.00	0.00	6.0%	25.00	6.00	-9.1%	7.8%	282.15
Sep-09	254.16	295.87	0.00	0.00	5.5%	25.00	5.47	-9.1%	7.8%	292.62
Dec-09	261.10	302.98	0.00	0.00	5.5%	25.00	5.47	-9.1%	7.8%	299.79
Mar-10	261.02	296.06	0.00	0.00	5.5%	25.00	5.47	-9.1%	7.8%	293.32
Jun-10	260.93	297.83	0.00	0.00	5.5%	25.00	5.47	-9.1%	7.8%	295.81
Sep-10	258.80	292.31	0.00	0.00	5.5%	25.00	5.49	-9.1%	7.8%	291.41
Dec-10	237.65	274.55	0.00	0.00	5.5%	5.00	5.48	-9.1%	7.8%	273.81
Mar-11	234.68	274.51	0.00	0.00	5.5%	5.00	5.48	-9.1%	7.8%	273.76
Jun-11	234.80	274.62	0.00	0.00	5.5%	5.00	5.48	-9.1%	7.8%	273.12
Sep-11	234.07	275.14	0.00	0.00	5.5%	5.00	5.51	-9.1%	7.8%	273.33
Dec-11	234.02	275.08	0.00	0.00	5.5%	5.00	5.51	-9.1%	7.8%	273.27
Mar-12	234.15	275.20	0.00	0.00	5.5%	5.00	5.51	-9.1%	7.8%	274.10
Jun-12	238.85	279.90	0.00	0.00	5.5%	5.00	5.51	-9.1%	7.8%	279.28
Sep-12	243.02	280.15	0.00	0.00	5.5%	5.00	5.52	-9.1%	7.8%	280.12
Dec-12	248.32	285.45	0.00	0.00	5.5%	5.00	5.51	-9.1%	7.8%	285.42
Mar-13	252.98	290.07	0.00	0.00	5.5%	5.00	5.51	-9.1%	7.8%	290.05
Jun-13	260.78	292.81	0.00	0.00	5.5%	5.00	5.51	-9.1%	7.8%	292.80
Sep-13	253.63	285.39	0.00	0.00	5.5%	7.00	4.37	-9.1%	7.8%	285.39
Dec-13	260.80	292.59	0.00	0.00	5.5%	7.00	4.37	-9.1%	7.8%	292.59
Mar-14	255.01	292.75	0.00	0.00	5.5%	7.00	4.37	-9.1%	7.8%	292.75
Jun-14	256.52	294.24	0.00	0.00	5.5%	7.00	4.37	-9.1%	7.8%	293.90
Sep-14	256.59	293.22	0.00	0.00	5.5%	7.00	4.35	-9.1%	7.8%	292.88
Dec-14	256.07	292.69	0.00	0.00	5.5%	6.99	4.34	-9.1%	7.8%	292.23
Mar-15	253.86	292.27	0.00	0.00	5.5%	6.99	4.34	-9.1%	7.8%	291.82
Jun-15	253.59	291.99	0.00	0.00	5.5%	6.99	4.34	-9.1%	7.8%	287.80
Sep-15	246.80	285.22	0.00	0.00	5.5%	7.99	4.34	-9.1%	7.8%	283.40
Dec-15	247.83	285.26	0.00	0.00	5.5%	7.99	4.34	-9.1%	7.8%	284.88
Mar-16	244.51	284.78	0.00	0.00	5.5%	7.99	4.33	-9.1%	7.8%	284.40
Jun-16	251.33	291.60	0.00	0.00	5.5%	7.99	4.33	-9.1%	7.8%	291.22
Sep-16	244.05	284.29	0.00	0.00	5.5%	7.99	4.33	-9.1%	7.8%	284.29
Dec-16	228.08	252.42	0.00	0.00	5.7%	7.99	1.71	-9.1%	7.8%	252.42
Mar-17	227.52	251.82	0.00	0.00	5.7%	7.99	1.71	-9.1%	7.8%	250.93
Jun-17	213.30	236.68	0.00	0.00	5.7%	7.99	1.71	-9.1%	7.8%	236.68
Sep-17	203.90	222.12	0.00	0.00	5.7%	7.99	1.70	-9.1%	7.8%	222.12
Dec-17	204.16	222.39	0.00	0.00	5.7%	7.99	1.71	-9.1%	7.8%	222.39

Notes; Supplied by MAIC

- E.1 Hindsight estimation of all class risk premiums based on data to 31 December 2017
- E.2 Hindsight estimation of all class profitability based on data to 31 December 2017s



Appendix E

Appendix E. 1 Hindsight estimation of all-class premiums based on data to 31 December 2017

Underwriting	Scheme Frequency	Scheme Average size (\$)	Profit Margin	0% p.a. superimposed inflation					1% p.a. superimposed inflation					2% p.a. superimposed inflation				
				Net RP (\$)	CHE (\$)	Acquisition Costs (\$)	Reinsurance Costs (\$)	Hindsight Premium (\$)	Net RP (\$)	CHE (\$)	Acquisition Costs (\$)	Reinsurance Costs (\$)	Hindsight Premium (\$)	Net RP (\$)	CHE (\$)	Acquisition Costs (\$)	Reinsurance Costs (\$)	Hindsight Premium (\$)
Dec-07	0.196%	80,847	8.50%	144.29	8.73	25.01	8.75	204.13	144.34	8.73	25.01	8.75	204.19	144.40	8.74	25.01	8.75	204.26
Mar-08	0.201%	83,531	8.50%	152.33	9.22	25.01	8.76	213.46	152.39	9.22	25.01	8.76	213.53	152.45	9.22	25.01	8.76	213.60
Jun-08	0.202%	84,841	8.50%	156.10	9.44	25.01	8.76	217.83	156.17	9.45	25.01	8.76	217.91	156.24	9.45	25.01	8.76	217.99
Sep-08	0.200%	91,827	7.75%	167.16	11.03	25.01	6.01	226.78	167.26	11.04	25.01	6.01	226.90	167.36	11.05	25.01	6.01	227.01
Dec-08	0.197%	98,644	7.75%	176.45	11.65	25.00	6.00	237.51	176.59	11.66	25.00	6.00	237.67	176.74	11.66	25.00	6.00	237.84
Mar-09	0.193%	97,517	7.75%	170.83	11.27	25.00	6.00	231.01	170.98	11.28	25.00	6.00	231.18	171.13	11.29	25.00	6.00	231.36
Jun-09	0.187%	89,351	7.75%	151.86	10.02	25.00	6.00	209.09	151.99	10.03	25.00	6.00	209.24	152.12	10.04	25.00	6.00	209.39
Sep-09	0.184%	84,002	7.75%	140.45	8.50	25.00	5.47	194.50	140.58	8.50	25.00	5.47	194.64	140.70	8.51	25.00	5.47	194.78
Dec-09	0.185%	80,589	7.75%	135.24	8.18	25.00	5.47	188.50	135.34	8.19	25.00	5.47	188.62	135.45	8.19	25.00	5.47	188.75
Mar-10	0.186%	78,853	7.75%	133.37	8.07	25.00	5.47	186.36	133.49	8.08	25.00	5.47	186.49	133.60	8.08	25.00	5.47	186.62
Jun-10	0.191%	82,194	7.75%	142.42	8.62	25.00	5.47	196.75	142.57	8.63	25.00	5.47	196.92	142.72	8.63	25.00	5.47	197.10
Sep-10	0.195%	83,781	7.75%	148.06	8.96	25.00	5.49	203.25	148.25	8.97	25.00	5.49	203.47	148.44	8.98	25.00	5.49	203.69
Dec-10	0.193%	84,297	7.75%	148.04	8.96	5.00	5.48	181.55	148.25	8.97	5.00	5.48	181.79	148.47	8.98	5.00	5.48	182.04
Mar-11	0.191%	86,188	7.75%	149.10	9.02	5.00	5.48	182.76	149.34	9.03	5.00	5.48	183.04	149.58	9.05	5.00	5.48	183.32
Jun-11	0.188%	87,189	7.75%	149.10	9.02	5.00	5.48	182.76	149.35	9.04	5.00	5.48	183.05	149.60	9.05	5.00	5.48	183.35
Sep-11	0.187%	90,799	7.75%	153.83	9.31	5.00	5.51	188.23	154.11	9.32	5.00	5.51	188.55	154.40	9.34	5.00	5.51	188.89
Dec-11	0.187%	94,155	7.75%	159.32	9.64	5.00	5.51	194.55	159.66	9.66	5.00	5.51	194.93	160.00	9.68	5.00	5.51	195.33
Mar-12	0.186%	94,240	7.75%	158.57	9.59	5.00	5.51	193.68	158.95	9.62	5.00	5.51	194.12	159.34	9.64	5.00	5.51	194.56
Jun-12	0.182%	96,429	7.75%	159.27	9.64	5.00	5.51	194.49	159.73	9.66	5.00	5.51	195.01	160.20	9.69	5.00	5.51	195.56
Sep-12	0.180%	94,365	7.75%	153.75	9.30	5.00	5.52	188.15	154.28	9.33	5.00	5.52	188.75	154.83	9.37	5.00	5.52	189.38
Dec-12	0.178%	92,258	7.75%	148.56	8.99	5.00	5.51	182.18	149.14	9.02	5.00	5.51	182.84	149.74	9.06	5.00	5.51	183.53
Mar-13	0.176%	90,344	7.75%	143.84	8.70	5.00	5.51	176.75	144.47	8.74	5.00	5.51	177.48	145.13	8.78	5.00	5.51	178.23
Jun-13	0.176%	91,341	7.75%	145.40	8.80	5.00	5.51	178.54	146.10	8.84	5.00	5.51	179.34	146.82	8.88	5.00	5.51	180.17
Sep-13	0.176%	92,295	7.75%	146.57	8.87	7.00	4.37	180.82	147.36	8.92	7.00	4.37	181.73	148.18	8.97	7.00	4.37	182.68
Dec-13	0.175%	89,739	7.75%	142.00	8.59	7.00	4.37	175.58	142.84	8.64	7.00	4.37	176.54	143.71	8.69	7.00	4.37	177.53
Mar-14	0.177%	89,843	7.75%	143.58	8.69	7.00	4.37	177.38	144.48	8.74	7.00	4.37	178.42	145.42	8.80	7.00	4.37	179.50
Jun-14	0.180%	92,518	7.75%	149.91	9.07	7.00	4.37	184.66	151.02	9.14	7.00	4.37	185.93	152.16	9.21	7.00	4.37	187.24
Sep-14	0.181%	92,664	7.75%	151.38	9.16	7.00	4.35	186.32	152.66	9.24	7.00	4.35	187.80	154.00	9.32	7.00	4.35	189.33
Dec-14	0.182%	95,694	7.75%	156.79	9.49	6.99	4.34	192.54	158.35	9.58	6.99	4.34	194.33	159.96	9.68	6.99	4.34	196.19
Mar-15	0.183%	96,452	7.75%	158.50	9.59	6.99	4.34	194.49	160.34	9.70	6.99	4.34	196.61	162.24	9.82	6.99	4.34	198.80
Jun-15	0.184%	92,559	7.75%	152.67	9.24	6.99	4.34	187.79	154.62	9.35	6.99	4.34	190.03	156.64	9.48	6.99	4.34	192.35
Sep-15	0.186%	92,982	7.75%	155.20	9.39	7.99	4.34	191.78	157.49	9.53	7.99	4.34	194.41	159.85	9.67	7.99	4.34	197.13
Dec-15	0.194%	93,627	7.75%	162.46	9.83	7.99	4.34	200.12	165.20	9.99	7.99	4.34	203.27	168.02	10.17	7.99	4.34	206.52
Mar-16	0.202%	96,385	7.75%	173.54	10.50	7.99	4.33	212.85	176.89	10.70	7.99	4.33	216.71	180.36	10.91	7.99	4.33	220.70
Jun-16	0.206%	100,027	7.75%	183.08	11.08	7.99	4.33	223.82	187.10	11.32	7.99	4.33	228.44	191.25	11.57	7.99	4.33	233.22
Sep-16	0.208%	101,188	7.75%	186.82	11.30	7.99	4.33	228.11	191.37	11.58	7.99	4.33	233.35	196.09	11.86	7.99	4.33	238.77
Dec-16	0.207%	92,676	7.75%	169.96	10.73	7.99	1.71	206.39	174.08	10.99	7.99	1.71	211.13	178.32	11.26	7.99	1.71	216.02
Mar-17	0.205%	93,749	7.75%	169.70	10.71	7.99	1.71	206.09	174.29	11.00	7.99	1.71	211.37	179.02	11.30	7.99	1.71	216.83
Jun-17	0.205%	94,787	7.75%	171.21	10.81	7.99	1.71	207.83	176.32	11.13	7.99	1.71	213.72	181.61	11.47	7.99	1.71	219.81
Sep-17	0.205%	95,398	7.75%	172.44	10.89	7.99	1.70	209.24	178.06	11.24	7.99	1.70	215.72	183.89	11.61	7.99	1.70	222.43
Dec-17	0.206%	96,300	7.75%	174.23	11.00	7.99	1.71	211.30	180.41	11.39	7.99	1.71	218.42	186.82	11.80	7.99	1.71	225.81

Notes; Net risk premium excludes GST
Hindsight premium includes profit loading

Appendix E

Appendix E. 2 Hindsight estimation of all-class profitability based on data to 31 December 2017

Underwriting	0% p.a. superimposed inflation						1% p.a. superimposed inflation						2% p.a. superimposed inflation					
	Floor	Ceiling	Average	Floor (\$)	Ceiling (\$)	Average (\$)	Floor	Ceiling	Average	Floor (\$)	Ceiling (\$)	Average (\$)	Floor	Ceiling	Average	Floor (\$)	Ceiling (\$)	Average (\$)
Dec-07	-2%	19%	18%	4.46	43.23	41.03	-2%	19%	18%	4.51	43.17	40.97	-3%	19%	18%	4.57	43.12	40.92
Mar-08	-7%	15%	14%	12.90	34.81	32.34	-7%	15%	14%	12.96	34.75	32.28	-7%	15%	14%	13.03	34.68	32.21
Jun-08	-9%	13%	13%	16.90	30.81	28.81	-9%	13%	13%	16.98	30.74	28.74	-9%	13%	13%	17.05	30.66	28.66
Sep-08	-7%	14%	13%	14.16	33.60	30.56	-7%	14%	13%	14.27	33.49	30.46	-7%	14%	13%	14.38	33.39	30.35
Dec-08	1%	14%	13%	2.66	36.32	33.33	1%	14%	13%	2.50	36.17	33.17	1%	14%	13%	2.35	36.01	33.02
Mar-09	7%	19%	19%	16.65	51.31	48.69	7%	19%	19%	16.49	51.15	48.53	7%	19%	18%	16.33	50.99	48.37
Jun-09	23%	32%	32%	57.67	92.32	89.26	23%	32%	32%	57.54	92.18	89.12	23%	32%	32%	57.40	92.04	88.98
Sep-09	29%	39%	39%	74.73	116.45	113.19	29%	39%	39%	74.60	116.32	113.06	29%	39%	39%	74.47	116.18	112.93
Dec-09	33%	43%	42%	87.20	129.09	125.90	33%	43%	42%	87.09	128.98	125.79	33%	43%	42%	86.97	128.86	125.67
Mar-10	34%	42%	41%	89.11	124.15	121.40	34%	42%	41%	88.99	124.03	121.28	34%	42%	41%	88.86	123.91	121.16
Jun-10	30%	39%	39%	79.43	116.32	114.31	30%	39%	39%	79.27	116.17	114.15	30%	39%	39%	79.11	116.01	113.99
Sep-10	28%	36%	36%	71.30	104.81	103.92	27%	36%	36%	71.10	104.61	103.71	27%	36%	36%	70.89	104.40	103.51
Dec-10	30%	39%	39%	70.18	107.08	106.33	29%	39%	39%	69.95	106.85	106.11	29%	39%	39%	69.72	106.62	105.87
Mar-11	28%	39%	38%	66.09	105.92	105.16	28%	38%	38%	65.83	105.66	104.91	28%	38%	38%	65.57	105.40	104.65
Jun-11	28%	39%	38%	66.20	106.02	104.52	28%	39%	38%	65.94	105.76	104.26	28%	38%	38%	65.66	105.48	103.98
Sep-11	26%	37%	36%	60.43	101.50	99.69	26%	37%	36%	60.13	101.20	99.39	26%	37%	36%	59.83	100.89	99.09
Dec-11	23%	35%	34%	54.55	95.61	93.80	23%	35%	34%	54.19	95.25	93.45	23%	34%	34%	53.82	94.88	93.08
Mar-12	24%	35%	35%	55.48	96.53	95.42	24%	35%	35%	55.08	96.13	95.02	23%	35%	35%	54.67	95.72	94.61
Jun-12	25%	36%	36%	59.44	100.49	99.86	25%	36%	36%	58.95	100.00	99.38	24%	36%	35%	58.45	99.49	98.87
Sep-12	29%	38%	38%	69.46	106.58	106.55	28%	38%	38%	68.89	106.02	105.99	28%	38%	38%	68.31	105.44	105.41
Dec-12	32%	41%	41%	80.26	117.39	117.36	32%	41%	41%	79.64	116.78	116.75	32%	41%	41%	79.01	116.14	116.11
Mar-13	36%	44%	44%	89.93	127.02	127.00	35%	44%	44%	89.26	126.35	126.33	35%	43%	43%	88.57	125.66	125.64
Jun-13	37%	44%	44%	96.08	128.11	128.10	37%	43%	43%	95.34	127.37	127.35	36%	43%	43%	94.57	126.61	126.59
Sep-13	34%	42%	42%	86.83	118.58	118.58	34%	41%	41%	85.98	117.74	117.74	34%	41%	41%	85.11	116.87	116.87
Dec-13	38%	45%	45%	98.83	130.62	130.62	38%	44%	44%	97.94	129.73	129.73	37%	44%	44%	97.03	128.81	128.81
Mar-14	36%	44%	44%	91.38	129.11	129.11	35%	44%	44%	90.41	128.15	128.15	35%	43%	43%	89.42	127.16	127.16
Jun-14	34%	42%	42%	86.18	123.90	123.55	33%	42%	42%	85.00	122.73	122.38	33%	41%	41%	83.79	121.51	121.17
Sep-14	33%	41%	41%	84.71	121.34	121.00	32%	41%	41%	83.34	119.97	119.63	32%	40%	40%	81.93	118.56	118.22
Dec-14	31%	39%	39%	78.46	115.07	114.62	30%	39%	39%	76.80	113.42	112.96	29%	38%	38%	75.09	111.70	111.25
Mar-15	29%	39%	39%	74.44	112.85	112.40	29%	38%	38%	72.49	110.90	110.44	28%	37%	37%	70.47	108.88	108.43
Jun-15	32%	41%	40%	80.35	118.75	114.57	31%	40%	39%	78.28	116.68	112.50	30%	39%	38%	76.14	114.54	110.36
Sep-15	28%	38%	38%	69.89	108.30	106.48	27%	37%	37%	67.46	105.87	104.05	26%	36%	36%	64.95	103.37	101.54
Dec-15	26%	35%	35%	63.21	100.65	100.26	24%	34%	34%	60.31	97.75	97.36	23%	33%	33%	57.31	94.75	94.36
Mar-16	20%	31%	31%	48.15	88.42	88.04	18%	30%	30%	44.59	84.87	84.48	17%	29%	28%	40.91	81.19	80.80
Jun-16	18%	29%	29%	44.85	85.13	84.74	16%	28%	28%	40.60	80.87	80.49	14%	26%	26%	36.19	76.46	76.08
Sep-16	14%	26%	26%	33.62	73.85	73.85	12%	24%	24%	28.79	69.02	69.02	10%	23%	23%	23.79	64.02	64.02
Dec-16	17%	25%	25%	37.69	62.03	62.03	15%	23%	23%	33.31	57.65	57.65	13%	21%	21%	28.80	53.14	53.14
Mar-17	16%	25%	24%	37.40	61.71	60.82	14%	23%	22%	32.53	56.83	55.94	12%	21%	20%	27.49	51.80	50.91
Jun-17	10%	19%	19%	21.57	44.96	44.96	8%	17%	17%	16.14	39.53	39.53	5%	14%	14%	10.53	33.91	33.91
Sep-17	5%	13%	13%	10.88	29.10	29.10	2%	10%	10%	4.90	23.13	23.13	-1%	8%	8%	1.30	16.93	16.93
Dec-17	5%	12%	12%	9.23	27.47	27.47	1%	9%	9%	2.67	20.90	20.90	-2%	6%	6%	4.15	14.09	14.09

Notes; Derived from previous appendices