Review of Green Slip Premium Setting for Motorcycles 2000-2014

State Insurance Regulatory Authority

19 February 2016

Building a better working world

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1. Executive summary

1.1 Background and key findings

The Motor Accidents Authority[1] (MAA) engaged Ernst & Young (EY) in November 2010 to conduct a review of green slip premium setting for motorcycles (the Motorcycle Review). This review was announced by Premier Keneally in Parliament on 31 August 2010. The issue initiating the review was the significant increase in CTP premiums for many motorcycles from 1 July 2010.

In addition to general CTP premium increases for most motor vehicle owners, two specific aspects compounded the premium increases that applied to many motorcycle owners in mid-2010. These were :

- From 1 April 2009, Accident Notification Forms[2] (ANFs) were extended to vehicle drivers and motor cycle riders at fault. The MAA assessed these at fault ANFs would be disproportionately represented by motorcycle riders and applied a significant increase to all motorcycle policies written from 1 July 2010

- From 1 July 2010 following extensive consultation with the Motorcycle Council (MCC), the MAA reclassified motorcycles from using three classes based on motorcycle engine capacity to five classes, also based on engine capacity. Under this transition, some motorcycle owners experienced an increased premium while others experienced a reduced premium.

The combined effect of these factors meant that some motorcycle owners were subject to very significant premium increases; particularly for motorcycles of around 250cc and around 650cc. As a consequence the Motorcycle Council raised concerns about the fairness of the green slip premium setting for motorcycles in NSW.

This report examines the methodology of setting motorcycle premiums and then provides analysis of motorcycle premiums conducted to 2010, and further analysis of motorcycle premiums from 2011 to 2014.

Key findings

As a whole*, it is estimated that motorcycles were undercharged between $50 and $200 per policy from 2008 to June 2010 and were undercharged between $23 and $229 per policy for the policies commencing 1 July 2010.

Since 2010, the MAA has implemented a number of steps that have favourably impacted motorcycle CTP premiums resulting in about a 35% reduction in CTP premiums** compared to Sydney passenger vehicles.

Overall*, for premiums in the year to 30 September 2014, it is estimated that motorcycles were undercharged between $100 and $200 per policy based on the experience emerging to late 2014.

* Includes MCIS levy
** Excludes MCIS levy

[1] From 1 September 2015, the responsibilities of the Motor Accidents Authority of NSW were transferred to the State Insurance Regulatory Authority. In this report, reference is made to the entity for which the relevant commentary applies

[2] Minor claims capped at $5,000 and subject to other limitations

1.2 Scope

The scope of the work presented in this report covers:

1. An assessment of the methodology for setting motorcycle premiums to the end of 2010 including:

    a. The calculation of relativities including the five relativities categories

    b. The application of bonus/malus by insurers and the provision of adequate information by insurers to the MAA in premium filings

    c. The calculation of the Medical Care and Injury Services Levy (MCIS levy) and its component parts

2. An analysis of the motorcycle premiums from 2011 to 2014 incorporating the matters in item 1 above.

The results of the analysis conducted to 2010 as outlined in this report were previously presented to the Motorcycle Council by the MAA during 2013.

1.3 Summary findings

1.3.1 Situation to the end of 2010

For the methodology for setting motorcycle (MC) premiums to the end of 2010:

- For the CTP premium relativities (excluding MCIS levy), in 2010 the move to five classes of motorcycles, from three classes, resulted in 25 different groups (five classes in five geographic regions). In most of these groups there is limited claims experience creating significant challenges for the MAA to assess equitable relativities. Consequently significant judgement is exercised by the MAA and its actuarial advisor in setting equitable premium relativities. When relativities are set they may seem reasonable based on the available data at the time they are assessed, but as the claims experience develops over time, a hindsight view of relativities may result in relativities being too high or too low
- For the application of bonus/malus by insurers, the insurers have, on average, applied a higher malus on motorcycles than for Sydney passenger vehicles. The level of malus has varied from 4% in 2000 to as high as 23% in 2007 and down to 12% in 2010. The average malus applied by insurers from 2000 to 2005 was 7% and from 2006 to 2010 was 15%

For the calculation of the MCIS levy (i.e. the MAA and Lifetime Care and Support (LTCS) Scheme components), a hindsight review of the Lifetime Care and Support Scheme, component of the MCIS levy indicated that, given the Lifetime Care and Support Scheme, Scheme experience to date, motorcycles have been charged substantially less than the actual cost of their claims experience for the Lifetime Care and Support Scheme, Scheme. Our review of the calculation of the MAA levy by the MAA and its actuarial advisors suggested that the MAA levy has been set appropriately to reflect the underlying costs to be funded by the levies

For the hindsight review of claims experience of motorcycle classes:

- The hindsight analysis[3] of claims experience for motorcycles, ***including*** allowance for the Lifetime Care and Support Scheme, Scheme, estimated that motorcycles have paid between $50 and $200 per policy ***less*** in premiums from 2008 to June 2010 than was required by their actual claims experience. That is the cost of claims arising from motorcycle owners was effectively being cross-subsided by all other motor vehicle owners

  Excluding the impact of the LTCS Scheme, on a hindsight view, it is estimated that motorcycles, from 2000 to June 2010, paid an average of about 33% more than was required by their actual claims experience. Within the 33% is an allowance of 11% for the average malus applied by insurers to NSW CTP motorcycle premiums (as noted above). Therefore, in hindsight the premium relativities applied to motorcycles in this period were therefore too high by about 22%

- Given the hindsight review and adjusting for the full cost of the Lifetime Care & Support Scheme, the actual claims experience has demonstrated that motorcycle premiums were between $23 and $229 *less* than required in the second half of 2010

1.3.2 Since 2010 based on analysis conducted in late 2014

Since 2010 the MAA has taken steps that have impacted motorcycle premiums. In summary, these were:

- Motorcycle premium relativities were reduced three times at 1 January 2012, 1 February 2013 and 1 November 2014 with an additional reduction approved for 1 February 2016, to better reflect underlying motorcycle claims experience

- In mid-2014 the MAA implemented a new Premium Determination Guideline (PDG) and put in place a more robust process to approve insurer premium rate filings

Over this period, the average bonus/malus applied to the motorcycle classes by insurers has reduced from around 10% during 2010 to around 8% during the 12 months to September 2014

After allowing for the general increases in Greenslip premiums and MCIS levy changes[4], the steps undertaken by the MAA have reduced CTP premiums[5] for the motorcycle classes by about 35% (on average) compared to Sydney passenger vehicle premiums since July 2010 (including the 1 February 2016 premium relativities changes)

A further hindsight review was conducted in late 2014 and the results suggest, for the privately underwritten CTP component, premium relativities for motorcycles were being appropriately set to reflect their claims experience except to the extent to which insurers applied an average malus to motorcycle premiums of 8% in the year ending 30 September 2014. However, adjusting for the full cost of motorcycle participants in the Lifetime Care and Support Scheme, motorcycles are paying less than what is supported by their claims experience by between $100 to $200 per policy.

[3] As defined in the glossary as a comparison of 'actual' versus 'expected' experience

[4] The MCIS levy changes are minor for motorcycles

[5] Excluding allowance for the MCIS levy component

1.3.3 Current developments

The SIRA is currently undertaking the following actions in relation to the CTP premium system:

- An independent review of insurer profitability
- A detailed review of the NSW CTP premiums system.

We understand the results of these reviews will be made available by the SIRA at an appropriate time.

1.4 Reliance and limitations

It is essential that any reader of this report understand the qualifications and limitations associated with this report. These are described throughout the report. However, the most important are outlined in Section 9 of this report. This report cannot be disclosed in part, it must be disclosed in full.

2. Glossary of terms

Affordability (for the purposes of this report)	A consideration regarding the ability of policyholders within the particular group under consideration to be in an adequate financial position from a general consensus point of view to enable them to have the funds to pay premiums.
Accident Notification Form (ANF)	The Accident Notification Form provides for the early payment of reasonable and necessary medical expenses and/or lost earnings up to a maximum of $5,000. From April 2010, anyone injured in a motor vehicle accident in NSW regardless of who was at fault, may be able to access the benefits available under the Accident Notification Form.
Bonus/Malus	The level of discount (Bonus) or loading (Malus) relative to the base premium applied to an individual within a vehicle class and region combination.
Classes or vehicle classes	Classes of vehicles are groupings of similar vehicles which can be based on various vehicle characteristics i.e. passenger vehicle or motorcycles, gross vehicle mass (GVM), engine capacity or number of seats.
Compulsory Third Party (CTP) Insurance	Compulsory third party insurance is provided by a greenslip, in NSW, which provides insurance when you or the person driving your vehicle is the driver at fault in an accident, and in certain circumstances regardless of who was at fault.
Equity (for the purposes of this report)	Premiums for homogenous groups of policyholders fully reflect their claims experience – that there would be no deliberate cross-subsidies in premiums between homogenous groups of policyholders.
Hindsight analysis	A comparison and assessment of the actual outcomes against those expected based on previous actuarial or other forecasts.
Lifetime Care & Support Authority (LTCSA)	Statutory Corporation that regulates the Lifetime Care and Support Scheme (LTCS). LTCSA is now a division of Insurance & Care NSW (icare).
Lifetime Care and Support (LTCS) Scheme	The Lifetime Care and Support Scheme (LTCS Scheme) provides treatment, rehabilitation and attendant care services to people severely injured in motor accidents in NSW, regardless of who was at fault in the accident.
LTCS levy	The Lifetime Care and Support Levy. The LTCS Levy funds the cost of providing care and support to participants in the LTCS Scheme and the costs of administering and managing the Scheme.
LTCS Scheme	This is defined as the Scheme covered by the Lifetime Care and Support legislation and is one part of the NSW CTP Scheme with the other part being the MAA Scheme.
Motor Accidents Authority of NSW (MAA)	Superseded by the SIRA. The NSW Government agency that regulates the NSW Motor Accidents Scheme.
MAA levy	Motor Accidents Authority Levy. Superseded by the SIRA levy. The MAA levy includes a contribution for ambulance, public hospital services and Road and Maritime Services and the cost of running the MAA. This levy is GST free.
MAA Scheme	Superseded by the SIRA Scheme. This is defined as the Scheme covered by the MACA legislation and is one part of the NSW CTP Scheme with the other part being the LTCS Scheme.

MCIS levy	Medical Care and Injury Services Levy. The MCIS levy is the sum of the MAA (now SIRA) and LTCS Levy. This levy is GST free.
Metropolitan (Metro) region	There are 5 regions defined by the MAA (now SIRA). They are Metro (mainly Sydney), Outer Metro, Wollongong, Newcastle and Country.
Motor Accident Compensation Act (MACA)	The governing legislation for the NSW CTP Scheme.
Motorcycle class -10d	Motorcycles with engine capacity up to and including 225 ml.
Motorcycle class -10e	Motorcycles with engine capacity between 226 ml and 725ml inclusive.
Motorcycle class -10f	Motorcycles with engine capacity between 726 ml and 1125ml inclusive.
Motorcycle class -10g	Motorcycles with engine capacity between 1126 ml and 1325ml inclusive.
Motorcycle class -10h	Motorcycles with engine capacity above 1325ml.
NSW CTP Scheme	This is defined as including the MAA (now SIRA Scheme) and the LTCS Scheme.
Premium Determination Guideline (PDG)	The PDGs form part of the mechanism for the prudential regulation of premiums under Part 2.3 of Chapter 2 of the Motor Accidents Compensation Act 1999. The guidelines provide a framework for insurers in the determination of premiums.
Reference base rate	The reference base rate, as defined in the PDG, is calculated as the weighted average of the insurers" last filed base premiums for class 1 vehicles located in the metropolitan area whose policyholders are not entitled to any ITC.
Relativities or premium relativities	The relative difference in premium for a vehicle class and region combination from the base case vehicle class and region combination's premium.
Regions or geographic regions	There are 5 regions defined by the MAA. They are Metro (which is mainly Sydney), Outer Metro, Wollongong, Newcastle and Country. They are predominantly geographically based on postcode and suburb.
RMS	Roads and Maritime Services - a NSW State Government agency. It is an agency which brings together the former Roads and Traffic Authority and NSW Maritime Services.
State Insurance Regulatory Authority (SIRA)	The NSW Government agency that regulates the NSW Motor Accidents Scheme.
SIRA levy	State Insurance Regulatory Authority Levy. The SIRA levy includes a contribution for ambulance, public hospital services and Road and Maritime Services and the cost of running the SIRA. This levy is GST free.
SIRA Scheme	This is defined as the Scheme covered by the MACA legislation and is one part of the NSW CTP Scheme with the other part being the LTCS Scheme.

3. Introduction

The Motor Accidents Authority of NSW[6] (MAA) engaged Ernst & Young (EY) in November 2010 to conduct a review of green slip premium setting for motorcycles (the Motorcycle Review). This review was announced by Premier Keneally in Parliament on 31 August 2010. The issue initiating the review was the significant increase in CTP premiums for many motorcycles from 1 July 2010.

In addition to general CTP premium increases for most motor vehicle owners, premiums for many motorcycle owners increase further in mid-2010 due to two specific matters:

- From 1 April 2009, Accident Notification Forms[7] (ANFs) were extended to vehicle drivers and motor cycle riders at fault. The MAA assessed these at fault ANFs would be disproportionately represented by motorcycle riders and applied a significant increase to all motorcycle policies written since 1 July 2010

- From 1 July 2010 following extensive consultation with the Motorcycle Council (MCC), the MAA reclassified motorcycles from using three classes based on motorcycle engine capacity to five classes, also based on engine capacity. Under this transition, some motorcycles experienced an increased premium while others experienced a reduce premium.

The combined effect of these factors meant that some motorcycle owners were subject to very significant premium increases; they included motorcycles of around 250cc and 650cc. As a consequence the MCC raised concerns about the fairness of the green slip premium setting for motorcycles in NSW.

This report sets out the analysis of motorcycle premiums conducted to late 2010 and further analysis of motorcycle premiums from 2011 to 2014.

The scope of the work presented in this report covers:

1. Assessment of the methodology for setting motorcycle premiums to the end of 2010 including:

    a. The calculation of relativities including the five relativities categories

    b. The application of bonus/malus by insurers and the provision of adequate information by insurers to the MAA in premium filings

    c. The calculation of the Medical Care and Injury Services (MCIS) Levy and its component parts

2. An analysis of motorcycle premiums from 2011 to 2014 incorporating the matters in item 1 above.

The results of the analysis conducted to 2010 as outlined in this report were previously presented to the MCC by the MAA during 2013.

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[6] From 1 September 2015, the responsibilities of the Motor Accidents Authority of NSW were transferred to the State Insurance Regulatory Authority. In this report, reference is made to the entity for which the relevant commentary applies

[7] Minor claims capped at $5,000 and subject to other limitations

3.1 Chronology of key dates for NSW CTP Scheme and motorcycles

There have been significant developments in the NSW CTP Scheme since its introduction in 1999 under the Motor Accidents Compensation Act. The following table illustrates the key changes relevant to the context of the review.

Table 1: Relevant chronology of key dates of NSW CTP Scheme

Relevant changes to the NSW CTP Scheme	Effective date
At-fault NSW CTP Scheme – MACA legislation	5 October, 1999
Lifetime Care and Support (LTCS) Scheme for children	1 October, 2006
LTCS Scheme for adults	1 October, 2007
Accident Notification Forms (ANFs) amendments to increase limit to $5000	1 October, 2008
At-fault ANFs introduced	1 April, 2010
Change from three motorcycle classes to five motorcycle classes	1 July, 2010
Government announces motorcycle review	1 August, 2010
MAA reduces motorcycle relativities from 1 January 2012 based on reduction of ANF claims loading	1 January, 2012
MAA reduces motorcycle relativities from 1 February 2013 based on improving motorcycle claims experience	1 February 2013
New Premium Determination Guidelines (PDGs)	Mid-2014
MAA reduces motorcycle relativities from 1 November 2014 based on improving motorcycle claims experience	1 November 2014

3.2 In addition from 1 February 2016 a further reduction in premium relativities for motor cycles has been approved. Developments from 2011

Most of the analyses underlying the findings in this report were undertaken in late 2010. From 2011 the MAA has made a number of changes to motorcycle premiums which have addressed many of the issues identified in the course of the analysis we conducted in 2010. The actions taken, including those related to premiums relativities, are:

- A reduction in the allowance for at-fault (ANFs) for motorcycle classes in the premium relativities, from 1 January 2012 and a further reduction from 1 February 2013
- A reduction in the premium relativities for motorcycle classes, from 1 January 2012, 1 February 2013 and 1 November 2014
- A planned reduction in the premium relativities for motorcycle classes, from 1 February 2016.

Over the same period:

- Insurers have also reduced the average loading imposed to motorcycle classes through the bonus/malus system
- The MAA has also published a new PDG which requires insurers to provide more information when filing proposed price changes and has enabled the MAA's review process to be more robust.

After allowing for general increases in Greenslip premiums and MCIS levy changes[8], the steps undertaken by the MAA noted above have reduced CTP premiums[9] for motorcycle classes relative to Sydney passenger vehicles by about 35% (on average). Developments from 2011 are discussed in more detail in section 7.

3.3 Current developments

The SIRA is currently undertaking the following actions in relation to the CTP premium system:

- An independent review of insurer profitability
- A detailed review of the NSW CTP premiums system.

We understand the results of these reviews will be made available by the SIRA at an appropriate time.

[8] The MCIS levy changes are minor for motorcycles

[9] Excluding allowance for the MCIS levy component

4. Approach, data and information

4.1 Approach

Our approach to the review to the end of 2010 included the following steps:

- Obtained information and data from the MAA, LTCSA and actuaries as noted in section 4.2 of this report. This information and data was reviewed and assisted in identifying issues in the setting of motorcycle premiums. Some additional but limited analysis was undertaken on the information and data as described in section 6 of this report

- A key part of our work was consultation with relevant NSW CTP Scheme stakeholders as noted below. This consultation assisted in identifying issues in the setting of motorcycle premiums

- Consultation with the MCC to better understand the issues they had with premiums for motorcycles and the reasons for their views

- An assessment of the premium relativities using the Premium Relativity Reports, prepared by the MAA's actuarial advisor for NSW CTP premiums for the three years to July 2010. We reviewed their approach to selecting relativities focusing on motorcycle relativities. We also consulted with the MAA's actuarial advisor to ensure our interpretation of their work was correct and on any other issues relevant to premium setting

- Consultation with the five insurers (seven licences) to understand their rationale for applying the bonus/malus to the different motorcycle classes. As background to these discussions we:

  - Reviewed details of the last three premium filings for each licensed insurer to understand their rating structure and the bonus/malus applied to motorcycles and their philosophy towards determining motorcycle premiums

  - Checked if the premium rates and average bonus/malus for motorcycles which are filed are consistent with the actual average premium and average bonus/malus collected (as submitted to the MAA in quarterly premium returns)

- An assessment of the MCIS levy impact on motorcycles including:

  - High level review of the modelling outlined in the LTCS's actuarial advisor's reports in respect of the LTCS Scheme

  - An assessment of the underlying philosophy used for setting relativities for all classes (we did not assess the adequacy of the overall quantum of the LTCS component of the MCIS levy)

  - An assessment of the extent to which there is any interaction between the CTP premium relativities and the LTCS levy relativities and whether this interaction is reasonable

  - An assessment of the reasonableness of the LTCS's actuarial advisor's reports in respect of the LTCS component of the MCIS levy

  - An assessment of the MAA component of the MCIS levy (which includes the RMS levy and bulk billing costs for both the MAA and LTCS Scheme) to understand the approach and assess the extent to which there is an interaction between this component of the levy and the overall premium relativities (we did not review the adequacy of the overall quantum of the MAA component of the MCIS levy)

    - Consultation with the LTCS's actuarial advisor in respect of the LTCS Scheme to ensure we fully understood their work including the data used, their methodology, analysis and chosen assumptions

- LTCSA consultation – Consultation with the LTCSA in respect of the LTCS Scheme to understand the experience of the LTCS Scheme in respect of motorcycles and identification of issues in setting of motorcycle LTCS component of the MCIS levy

- MAA consultation - Understand the process of setting premiums for motorcycles including relativities, the MAA component of the MCIS levy, review of insurers' rate filings and other aspects of premium setting

- Provided high level analysis in the form of presentations to the MAA, including findings applicable to other areas of the premium system.

Our approach to the review from 2011 to 2014 included the following steps:

- Assess the appropriateness of the level of CTP premiums motorcycle classes pay in relation to the privately underwritten component of the premium (i.e. excluding the MAA and LTCS levies). We performed this assessment by:

    - Carrying out a hindsight review of the more recent published premium relativities for motorcycle classes by comparing the relative claims cost of motorcycle classes to that of Sydney metropolitan passenger cars (Class 1 Metro vehicles)

    - Examining the average bonus/malus loading applied by the insurers to motorcycle classes; we used the MAA CTP premium returns to perform this assessment

- Assess the appropriateness of the level of LTCS levy motorcycle classes pay in relation to LTCS Scheme; we have relied on calculations by LTCSA's actuarial advisor, PwC, to perform this assessment

- Assess the appropriateness of the overall premiums motorcycle classes pay (excluding the MAA levy) in relation to the compensation and benefits paid to motorcycle claimants.

4.2 Information and data

We have divided the information and data available for the review as follows:

- Actuarial firms PriceWaterhouseCoopers (PwC), Taylor Fry Consulting Actuaries (Taylor Fry) and Finity Consulting Pty Ltd (Finity)

- Details of insurer rate filings provided by the MAA

- Information and data from the MAA and LTCSA including:

    - Documents presented to the Boards of both organisations relevant to motorcycle premiums

    - Documents provided to the MCC including analysis and work undertaken by the MAA's actuarial advisor up to July 2010

    - Some of the reports and analysis from actuaries as noted in section 4.2.1 of this report.

4.2.1 Information and data from actuaries

The key reports and data which we relied on from actuaries include:

- PwC reports
  - The report "Lifetime Care and Support Authority and Motor Accidents Authority of NSW Assessment for Lifetime Care and Support Levy Rate Relativities" - dated 9 March 2011
  - The report "Lifetime Care and Support Authority Lifetime Care and Support Levy Rates for New Motorcycle Classes from 1st July 2010" - dated 20 April 2010
  - Letter "Cost of motorcycles to the Lifetime Care and Support (LTCS) Scheme" - dated 3 February 2015
  - The report "Lifetime Care and Support Authority Lifetime Care and Support Levy Rates from 1st July 2009 to 30th June 2010" - dated 29 May 2009
  - The report " Motor Accidents Authority (MAA) Levy Rates from 1st January 2010 to 30th June 2010" - dated 2 February 2010
- Taylor Fry
  - A document "Motor Accidents Authority of NSW and Lifetime Care and Support Authority Lifetime Care and MAA levy rates from 1 April 2007" - dated 20 December 2006
- Finity
  - The report "Compulsory Third Party Insurance Review of Premium Relativities from 1 January 2013 – Motor Accidents Authority" – dated August 2012
  - The report "Compulsory Third Party Insurance Review of Premium Relativities from 1 January 2012 – Motor Accidents Authority" – dated August 2011
  - The report "Compulsory Third Party Insurance Review of Premium Relativities from 1 July 2010 Motor Accidents Authority" – dated February 2010
  - The report "Compulsory Third Party Insurance Review of Premium Relativities from 1 April 2007 Motor Accidents Authority" – dated December 2006
  - Additional analysis was provided by Finity to assess the past adequacy of the premium relativities for motorcycles from 2000 to 2010
- EY
  - The report "CTP Insurance – Review of Premium Relativities from 1 November 2014" – dated June 2014.
  - The report "CTP Insurance – Review of Premium Relativities from 1 February 2016" – dated August 2015.

4.2.2 Reliance on information and data provided

Reliance was placed on information and data supplied by PwC, Finity and Taylor Fry and also the information and data provided by the MAA, LTCSA and insurers. We did not undertake to verify the information and data presented in the documents we received.

5. Current premium system

5.1 Overview

The current premium system is a hybrid system of risk rating within guidelines determined by the MAA. This hybrid system results in some level of cross-subsidisation of premiums within the NSW CTP Scheme. Cross-subsidisation occurs when members of a lower risk group of vehicle owners pay a higher premium than is required to cover the cost of claims against that group of vehicle owners; to subsidise the premiums of members of higher risk groups of vehicle owners. An example of this is a 56 year older driver paying more than required to subsidise the premium of a 17 year old driver. This pooling of risk serves to ensure that the higher risk drivers' premiums are more affordable.

The MAA has established over 30 classes of vehicles within five geographical areas (Metropolitan Sydney, Outer Metropolitan, Wollongong, Newcastle and Country). The vehicles classes are loosely aligned to the vehicle registration classes used by the Department of Roads and Maritime Services (RMS).

Under the NSW CTP Scheme, insurers are permitted to set their own premiums within the guidelines set by the MAA. The CTP premium for motor vehicles is based on a table of relativities published by the MAA which expresses the premium of each vehicle class and geographic region relative to the base class (Class 1 Metro i.e. motor cars in Sydney).

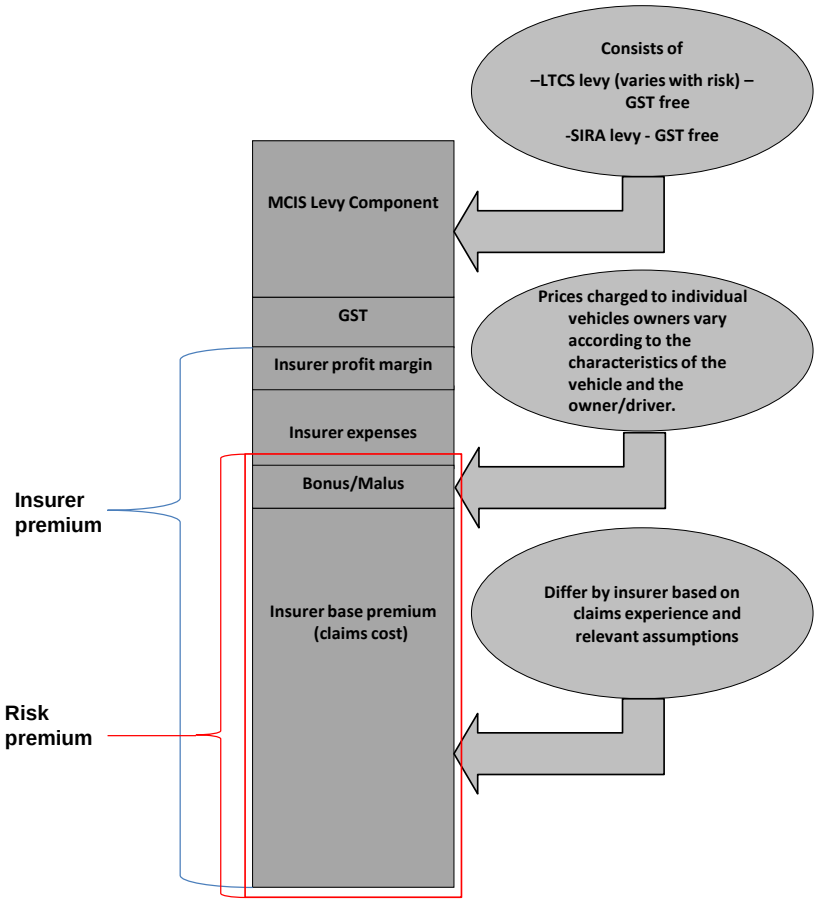
Insurers must use the relativities when setting their premiums but are able to use other rating factors (subject to the MAA guidelines) to differentiate between risks subject to a maximum bonus/malus set by the MAA. Insurers are free to determine their own objective rating factors based on risk, excluding vehicle class and postcode. These may include age, previous motor vehicle accident experience and age of vehicle.

Once the insurer has determined a premium for each vehicle within the guidelines provided by the MAA, referred to as the insurer premium, the MCIS levy is added to insurer premiums to fund public hospital and ambulance costs, the MAA administration expenses, RMS expenses and the LTCS Scheme cost. The LTCS Scheme component of the MCIS levy is risk rated with a higher loading applying to motorcycles than Class 1 motor vehicles.

The buildup of the premium paid by consumers is depicted in the following figure. It illustrates the premium components of:

- Insurers base premium which comprises allowance for claims costs, insurer expenses and profit margin
- Bonus/malus which is a loading (Malus) or discount (Bonus) to the base premium applied to an individual within a vehicle class and region combination (this is explained in section 5.4)
- GST applied to insurers base premium but not to the MCIS levy
- MCIS levy.

Figure 1: NSW CTP Greenslip premium components



The key components of the premium system relevant to the motorcycle review include:

- Reference base rate
- Premium relativities
- Bonus malus system
- MCIS levies.

Each of these components is discussed in the following sub-sections.

5.2 Reference base rate and reference high rate

The reference base rate and the reference high rate effectively limit the maximum premium that can be charged by insurers as an absolute value. The reference base rate is defined in the MAA PDG as "the weighted average of the insurers' last filed base premiums for class 1 vehicles located in the metropolitan area whose policyholders are not entitled to any ITC". The application of the reference base rate has varied over time with the MAA Board having the ability to set and maintain the rate as it determines is appropriate.

The reference high rate is then set as 150% of the reference base rate. The maximum premium that insurers are able to charge in the metropolitan region for a class 1 vehicle is influenced by the reference base rate and the insurer's individual base rate which is determined by each insurer after

taking into account its own claims experience. From the reference base rate and reference high rate for class 1 metropolitan vehicles all other maximum prices can be determined by using the premium relativities set by the MAA.

The reference base rate is then used to calculate the maximum price that an insurer is able to charge relative to its own base rate which is determined by each insurer based on their own claims costs, expenses, economic assumptions and profit assumptions.

5.3 Premium relativities

Premium relativities are an estimate of the claims cost per vehicle relative to the claims cost of a class 1 metropolitan vehicle. The MAA's actuarial advisor develops the relativities using claims data provided by all insurers and data from RMS in conjunction with judgement exercised by the MAA.

The MAA's actuarial advisor considers the claims frequency and average claims size when determining the relativities. The general process for determining relativities is the development of separate claims frequency and size models for each zone and vehicle class. The models use the industry (i.e. all insurers) historical claim payments and insurer's estimates of outstanding claims liabilities (commonly referred to as case estimates) to determine the future relativities per class and zone. The statistical reliability of the class experience for each class/region is assessed by the MAA's actuarial advisor and used to assist decisions and judgements exercised by the MAA and its actuarial advisor in setting relativities.

There is a significant amount of judgement applied to the determination of the relativities in classes, such as motorcycles, where there is limited data. In many cases the results of the analysis are used only as a guide, especially for classes with limited exposure, resulting in the set relativities varying from the actual assessed relativities.

The variability of the analysed relativities varies significantly from year to year making the use of judgement essential in setting sensible relativities. The analysis and the development of the recommended relativities are generally completed on an annual basis. Movements of relativities are usually managed each year by the MAA so that vehicle owners do not see significant increases or decreases in premiums from changes in relativities. Insurers are consulted on the draft relativities and their feedback is taken into account in setting the final relativities. The MAA's actuarial advisor's latest relativity reports are available on the SIRA website.

An example of how relativities apply in practice is that a sedan in the Sydney metropolitan region will have a higher premium than a sedan in a country area. This difference is based on the relative claims cost of sedans in the metropolitan areas compared to sedans in a country area.

5.4 Bonus/malus

The MAA has determined a discount/loading system referred to as a bonus/malus system, to effectively limit the relative range of premiums that insurers can charge.

Each insurer's individual base premium is different as it is based on their own claims experience and individual assumptions. Insurers select rating factors based on their claims experience and apply the relevant bonus/malus percentages to the premium which will be based on the risk rating factors determined by the insurer. The range of allowable bonus/malus is documented in the PDG which is available on the SIRA's website.

The maximum discount (bonus) that insurers can apply to a CTP policy for a vehicle owner (and/or youngest driver) aged 54 or under is a 15% discount from the individual insurers' base rate for the class of vehicle and district; for those aged over 55 the limit is a 25% discount.

The maximum loading (malus) that can apply for all vehicles relative to the insurers' base rate is determined by the reference high rate as noted above. The maximum loading or malus varies by

insurer, and has varied over time, and reflects the changes in the reference high rate made by the MAA. At 1 July 2010 the maximum malus varied between 27% and 35% by insurer and at November 2014 it varied from 32% to 49%.

The application of this bonus/malus structure results in some degree of cross-subsidisation of the higher risk vehicles by lower risk vehicles in order to help maintain the affordability of premiums to all vehicle owners.

5.5 Medical Care and Injury Services levy (MCIS levy)

The MCIS levy consists of two components, the MAA and LTCS components. The MAA component meets the cost of the public hospital and ambulance services regardless of fault, cost of running the MAA and funds paid to the RMS. The LTCS component covers the costs of providing lifetime care and support to individuals catastrophically injured in an accident, regardless of fault, and the cost of running the LTCSA. The MCIS levy is GST free.

The MAA component at 1 November 2014 is a flat percentage, 10.5% of the insurer premium that applies evenly across all vehicles but has varied over time. The LTCS component is risk rated. That is, it differs between vehicle classes and geographic zones.

Until 1 September 2015, the MAA Board determined the MAA component of the MCIS levy while the LTCSA Board determined the LTCS component of the MCIS levy. Both were based on independent actuarial advice. The MAA had no authority over the determination of the LTCS levy. From 1 September 2015, with the change in the Motor Accidents (Lifetime Care and Support) Act 2006, the SIRA now determines the amount of levy charged to policyholders, based on funding advice from the LTCSA and its own funding requirements.

6. Analysis and consultation to 2010

6.1 Data inconsistencies and anomalies

The motorcycle claims data is limited and this is further exacerbated by the most recent accident years not being fully developed and hence there is a lag in the data. For example, when the MAA's actuarial advisor assessed premium relativities to apply from 1 January 2012 they used the latest available data to September 2010. As the experience from 2008 to 2010 is immature and is volatile from year to year any improvement or deterioration in the claims experience for motorcycles will take a number of years to be validated by the emerging claims experience and for that experience to flow through to premium relativities. When relativities are set they may seem reasonable based on the available data at the time they are assessed but as the claims experience develops over time a hindsight view of relativities may indicate that the relativites were set too high or too low. Therefore the analysis of the most recent accident years may not accurately reflect the true final position of the motorcycle claims for those accident years. This applies to all analysis in this report where undeveloped data is used.

All percentages and dollar figures in this report are presented on a per annum basis.

6.2 Why did motorcycle premiums increase between 2008 and 2010?

From 2008 to the end of 2010 there were significant changes in motorcycle CTP premiums with some motorcycles experiencing significant increases of up to 90% while some premiums have fallen.

There are multiple interacting factors which have led to both the increases and reductions in premiums. From our analysis we have identified that the key drivers of the increases/decreases are:

- A general increase in premiums for all vehicle types from claims experience, economic matters, legislative amendments and MCIS levy
- A change in relativities for motorcycles and bonus/malus applied by insurers which impacts motorcycle premiums and is considered in section 6.4 of this report.

6.2.1 General increase in premium

From 1 July 2008 to 1 July 2010 there was an average increase in CTP premiums of about $85 per vehicle or about 23% (excluding GST) for all vehicles.

The contributing factors to this included:

- Economic assumptions
- Response to deteriorating claims experience and legislative change
- MCIS levy.

The figures below approximate the impact on all vehicles in NSW not just for motorcycles.

Economic assumptions

Insurers invest premiums in financial assets and the return on those assets is available to pay claims. Most insurers' financial assets are in fixed interest securities. Insurers make allowance for this investment income from assets in their premiums. Since the Global Financial Crisis (GFC) in 2008 there has been a significant decline in interest rates with increased volatility, as can be seen in the Commonwealth bond yields. With the reduction in investment returns, insurers have less to pay

claims and have therefore reflected their expected decreases in income from their financial assets by increasing CTP premiums.

Our analysis identified that the fall in interest rates adopted in insurers' rate filings resulted in an average $6 increase in CTP premium rates for all classes from 1 July 2008 to 1 July 2010.

Response to claims experience including legislative amendments

The most significant impact on premiums since 2008 has been the allowance made by insurers in their rate filings for claims experience, insurer expenses and profit margins. Excluding the MCIS levy impact the average increase for all vehicles has been about $66 which also includes the $6 interest rate impact noted above.

This increase incorporates the 2009 legislative change which extended ANF benefits up to $5,000 for at-fault injured motorists who previously were not entitled to any benefits (i.e. compensation for at fault drivers) to be included in the NSW CTP Scheme. Based on insurers' rate filings this coverage expansion has increased the average CTP premiums by about $4 per policy for all vehicles.

MCIS levy

The average impact of the MCIS levy on premiums for all vehicles increased premiums by about $13. The LTCS component represents about 75% of the MCIS levy.

6.2.2 Change in relativities for motorcycles

Move from three classes to five classes

From 1 July 2010, following extensive consultation by the MAA with the MCC, the motorcycle classes changed from three to five classes based on their engine capacity. The increase from three to five classes has led to a proportion of motorcycle CTP premiums decreasing and others increasing, some substantially.

The MAA in conjunction with its actuarial advisor planned to transition the relativities for motorcycles over three years. This transition results in the relativities for larger engine capacity motorcycles being held below what the claims experience suggests and those for smaller engine capacity motorcycle classes being held above what the claims experience indicates. That is, the relativities of larger engine capacity motorcycles were intended to increase and those of smaller capacity classes to fall in future years.

Based on the claims experience of each of the 25 motorcycle groups (i.e. five classes in each of the five geographical regions), the chosen relativities between each of the motorcycle classes do not seem unreasonable based on the intention of transitioning the relativities over the three years. The appropriateness of the overall relativities for motorcycles compared to all other classes is considered below and in section 6.4 of this report. As noted previously, with so little claims data in some of the 25 motorcycle cells, significant judgement needs to be exercised by the MAA and its actuarial advisor in arriving at premium relativities for each class/region.

At-fault ANFs

In addition to the change from three to five classes there was the inclusion of allowances for the new 'at-fault ANFs'. This legislative amendment of 2009 which took effect from 1 April 2010, and increased all CTP premiums. According to the MAA's actuarial advisor's 2010 Relativities report, the average increase to allow for the inclusion of the at-fault ANFs for all other vehicles (excluding motorcycles) was estimated to be a cost per policy of around $4.40.

In the MAA's actuarial advisor 2010 premium relativity report they assessed the cost per policy (excluding the multiplicative effects of the MCIS levy and GST) for motorcycles to allow for at-fault ANFs of $22.40 for classes 10d and 10e (smaller engine capacity motorcycles) and $37.30 for classes 10f, 10g and 10h (larger engine capacity motorcycles).

In the 2010 relativities report the MAA's actuarial advisor had no NSW claims experience of at-fault ANFs to analyse, and therefore based their assessment on NSW road casualty data and focused on the numbers of single versus multiple vehicle accidents by vehicle type, and the numbers of injuries by road user type. To supplement this analysis some overseas claims experience was used to understand the potential differences between small and large motorcycles.

The MAA's actuarial advisor's estimate of the impact of the at-fault ANF for motorcycles was based on evidence that casualties involving motorcycles have a greater proportion of injured parties who could not make a claim prior to the MACA 2009 amendments; that is, the motorcycle rider was at fault. By expanding the ANF coverage to a no fault basis, the cost of ANFs for motorcycles would increase more than that for other vehicles.

At the time of our analysis in late 2010, at-fault ANF claims experience was not supporting the MAA's actuarial advisor's 2010 assumptions for all vehicle classes including motorcycles i.e. there had not been as many at-fault ANFs arising from all vehicle classes, including motorcycles, as the MAA's actuarial advisor had projected.

Our estimate of the additional cost for motorcycles only, of the expansion of the ANF coverage to at-fault accidents in late 2010 was about $4 per motorcycle compared to the allowances of $22.4 and $37.3 estimated in the 2010 relativities report.

6.3 Analysis of average bonus/malus drivers of motorcycle premiums over time

We investigated the average bonus/malus insurers have charged motorcycles to assess what impact insurers' application of bonus/malus is having on motorcycle premiums.

We undertook an analysis of the average bonus/malus for motorcycles using data between the quarter ending December 2000 and the quarter ending September 2010.

The following steps, summarising our analysis, were carried out for each quarter:

a) Calculated the average charged premium for the base class 1 metro vehicle class based on the number of vehicles and total premium collected (excluding MCIS levy and GST)

b) Calculated the average premium charged for each of the motorcycle classes for each region using the same approach as step a)

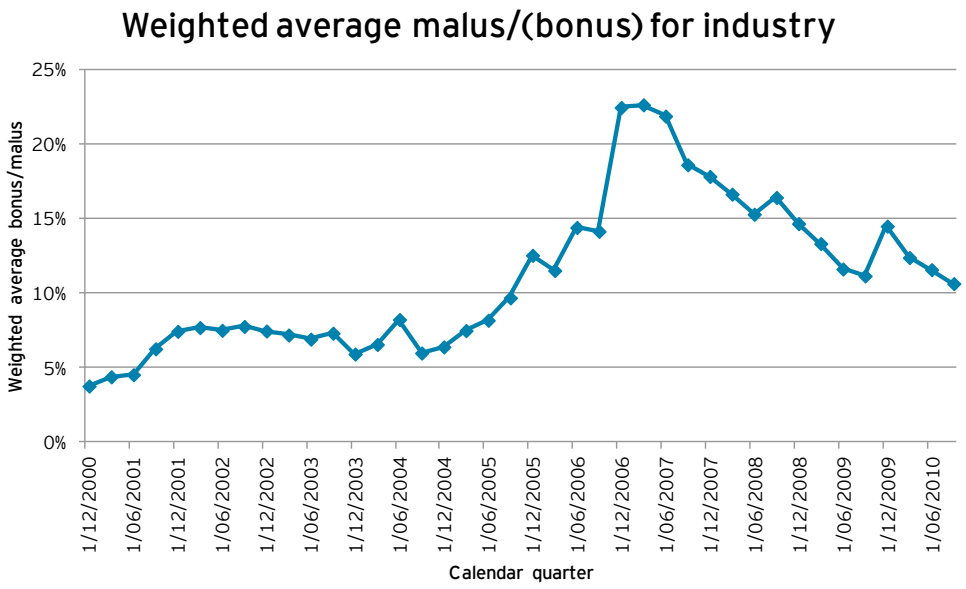
c) Calculated the actual premium relativity of each motorcycle class to the class 1 metro for each region

d) Divided the actual relativity from c) into the published MAA relativity for the weighted average for all motorcycle classes and regions over the relevant time period.

The results, averaged across all insurers, are set out in the following chart.

The resulting ratio is the average bonus/malus for that motorcycle class and region over the 2000 to 2010 time period. Our analysis identified that the average malus for motorcycles have ranged from 4% to 23% above published MAA relativities. In other words, insurers' motorcycle bonus/malus structure has resulted in motorcycle premium relativities ranging from 4% in some quarters of 2000, to as high as 23% in some quarters of 2007 above the MAA's published relativities. In 2009 and 2010, this has been around 12% higher than intended by the MAA published relativities.

Figure 2: Weighted average bonus/malus for motorcycles



The average malus applied by insurers to motorcycles was 7% from 2000 to 2005, 15% from 2006 to 2010 and from 2000 to 2010 was 11%. From the analysis the increase in the weighted average malus between 2000 and 2004 is due to several insurers increasing their average malus. The spike in the weighted average malus from 2005 to 2006 is mainly due to one insurer with a large market share for motorcycles substantially increasing its average malus.

The reduction in the average malus from 2008 to 2010 is due in part to the decision by the MAA not to move the reference high rate; this has effectively reduced each insurer's malus.

Section 7.2 provides an update to the average bonus/malus since 2010.

6.4 Analysis of method of setting motorcycle premiums to 2010

The analysis presented below relates to the:

- Process of setting premium relativities (excluding the MCIS levy)
- Setting and application of MCIS levies.

The MAA's actuarial advisor has in the past calculated premium relativities by individually modelling the claim frequency and claim severity for each two-way combination of vehicle class and region against the base combination class 1 metro. Premium relativities are then set by reference to this comparison against the class 1 metro base and consideration of the statistical reliability of the claims experience and any trends it presents.

As there is a significant amount of uncertainty associated with vehicle class/region cohorts where there is sparse data, the above approach will be limited in its ability to recognise the underlying relative claims experience and trends in the claims experience. Subsequently, given that the MAA's actuarial advisor adjusts premium relativities based on statistical significance, many years can pass before any change occurs in the relativities for these vehicle class/region cohorts.

It should be noted that in 2010, the MAA's actuarial advisor adjusted their methodology for the motorcycle classes to attempt to alleviate some of the issues associated with having minimal data in each class/region cohort, however this approach does not use data beyond the motorcycle classes.

6.4.1 Premium relativities analysis to June 2010 (excluding MCIS levy)

Based on additional data provided by the MAA's actuarial advisor we undertook a hindsight analysis of the incurred costs relative to premiums over the 11 years to 30 June 2010 and the tables below help illustrate the results of our analysis. This section considers the cost relativities *excluding* the LTCS Scheme claims experience since the LTCS Scheme fully commenced in 2007, and later sections make allowance for the LTCS claims experience.

Table 2 compares the relative amount of premium paid out to claims cost over the 11 years to 30 June 2010 between motorcycle classes and all vehicle classes combined under the NSW CTP Scheme, excluding the LTCS Scheme claims experience. Premium is the actual premium paid including the loading (malus) charged by insurers. This comparison first uses claim payments to date against premiums, and then uses the total of claim payments to date plus outstanding case estimates on open claims, as at 30 June 2010, denoted "incurred cost". Premiums are actual premiums paid by vehicle owners and include the impact of the average malus noted in section 6.3 of this report.

Table 2: Hindsight analysis of past premium relativities for motorcycles (excluding MCIS levy and GST)

Accident year ended 30 June	Motorcycles – ratio of claims cost to premiums		All vehicles - ratio of claims cost to premiums		Ratio of motorcycles to all vehicles	
	Payments (A)	Incurred cost (B)	Payments (C)	Incurred cost (D)	Payments (E)	Incurred cost (F)
					Col (A)/(C)	Col (B)/(D)
2000	43%	43%	67%	71%	65%	61%
2001	86%	86%	71%	74%	121%	116%
2002	54%	54%	65%	70%	84%	78%
2003	30%	30%	61%	67%	49%	45%
2004	86%	89%	66%	74%	129%	119%
2005	38%	40%	60%	70%	65%	57%
2006	30%	35%	57%	79%	53%	44%
2007	15%	26%	44%	83%	33%	32%
2008	11%	52%	28%	91%	39%	57%
2009	5%	35%	12%	80%	39%	44%
2010	1%	36%	3%	54%	46%	57%
Average all years					66%	66%
Average 2000-2005					86%	80%
Average 2006-2010					42%	49%

Table 2 shows that motorcycle claims experience relative to premium is around 66% of that for all classes. This means that, based on the 11 years to 2010 and excluding the impact of the MCIS levy, motorcycle classes have been paying 33% more than required. For the period from 2000 to 2005 (excluding the MCIS levy) motorcycles have paid 15% to 20% more than they should have been paying based on a hindsight view of actual claims experience to 2010, but since 2006 the corresponding figure is about 50%. However, it must be noted that the figures for 2006 to 2010 are less reliable because the claims experience is relatively underdeveloped. Nevertheless it appears that since 2006 motorcycles have been paying more than required given the available claims experience.

In summary, excluding the impact of the MCIS levy, we identified that motorcycles from 2000 to 2010 paid significantly more premium relative to their claims experience. That is, excluding the MCIS levy part of CTP premiums, the premiums paid by motorcycles were too high given a hindsight view of actual claims experience. This includes allowance for the bonus/malus applied by insurers to

CTP premiums, but the conclusions are the same even if the bonus/malus applied by insurers is excluded. However when the MCIS levy is included in the analysis, the opposite picture emerges as discussed in the section below.

Section 7.1 provides an update to the premium relativities since mid-2010.

6.4.2 MCIS levy to June 2010

The MCIS has two components being the MAA component and the LTCS component. The MAA component reflects the cost of running the MAA (including CARS and MAS), the cost of public hospital and ambulance services for CTP claims and the cost of the RMS transactions incurred for CTP. The LTCS component covers the cost of running the LTCSA (now the LTCSA component of icare) and the costs of claims in the LTCS Scheme. The MAA component is the same percentage of insurer CTP premiums for all vehicles while the LTCS component varies by class and region. Our review of the application of the MAA component was that it has been appropriately applied.

We reviewed the claims experience of motorcycles in the LTCS Scheme to assess the equity and affordability of the application of the LTCS component of the MCIS levy to motorcycles. In allowing for the claims experience of the LTCS Scheme, we applied a similar approach as in the above analysis for the premium relativities (excluding the MCIS levy), replacing the LTCS component of the MCIS levy included in the average premium charged to motorcycles, with the full estimated costs of the LTCS Scheme.

The actual LTCS component of the MCIS levy was obtained from the MAA's insurer premium return data, while the estimated full cost of the LTCS Scheme for motorcycles was based on the LTCSA's actuarial advisor report "Lifetime Care and Support Authority and Motor Accidents Authority of NSW Assessment for Lifetime Care and Support Levy Rate Relativities" - dated 9th March 2011.

The analysis of the emerging LTCS Scheme claims experience in the above report indicates that for motorcycles to appropriately fund their claims experience, the levy required is between $229 and $393, depending on the cost allocation method. The actual LTCS component of the MCIS levy paid by motorcycles was $79 in 2008 and $83 in 2009 and 2010. That is, between 2008 and 2010 motorcycles paid between about $150 and about $315 ***less than*** required in respect of the LTCS component of the MCIS levy.

Section 7.3 provides an update to the cost of motorcycles to the LTCS Scheme based on participants admitted to the scheme prior to 30 June 2013 but with their claims experience observed to 31 December 2014.

6.4.3 Impact of premium relativities and the MCIS levy (excluding the MAA component of the MCIS levy) from 2008 to 2010

In putting the findings of the previous two sections together, we have excluded the MAA component of the MCIS levy, as that component is cost neutral on motorcycles (i.e. the levy reflects actual costs).

The total impact of the premium relativities (before the MCIS levy) and the LTCS component of the MCIS levy between 2008 and 2010 on motorcycles is:

- Overall motorcycles paid an estimated $50 to $200 (excluding GST) ***less than*** their claims experience required for the CTP and the LTCS Schemes, made up of:
    - Motorcycles paid between about $100 and $115 ***more*** in premiums than their claims experience indicates excluding the LTCS component of the MCIS levy and GST (this is

based on the average of 50%[10] that motorcycles should have had their premiums reduced between 2006 and 2010 as noted in section 6.4.1 of this report).

- Motorcycles paid between about $150 and about $315 ***less than*** required in respect of the LTCS component of the MCIS levy.

We have not included 2007 as the LTCS component of the MCIS levy only applied fully for less than half the year.

Section 7.4 provides an update to the above analysis i.e. examining the adequacy of total premiums paid by motorcycle classes, as at December 2014.

[10] The 50% figure is based on the findings in section 6.4.1 that motorcyclists paid 50% more than indicated by the claims experience between 2006 and 2010.

7. Developments and experience from 2011

Since late 2010, when the previous analyses were undertaken, the MAA has taken a number of actions that have impacted motorcycle premiums. Motorcycles premium relativities have been reduced three times at January 2012, February 2013 and November 2014, with an additional reduction approved from 1 February 2016, to better reflect underlying motorcycles claims experience. In addition, the MAA has implemented a new PDG and has put in place a more robust process in approving premium rate filings. Over this period, the average bonus/malus applied by insurers has reduced from around 10% during 2010 to around 8% during the 12 months to September 2014.

7.1 CTP Premium Relativities

Premium relativities are a part in the process insurers undertake to calculate the premiums charged for individual motor vehicles within the NSW CTP Scheme. They are expressed as the ratio of CTP claims cost for each vehicle class-region category in relation to the baseline category, metro class 1 vehicles. Premium relativities are discussed in more detail in section 5.3.

In sections 6.2.2 and 8.1.1 we observed one of the factors impacting the premium relativities for motorcycles as whole was the introduction of at-fault ANFs from 1 April 2010. At the time of determining the premium relativities effective from July 2010, the MAA's actuarial advisor had to make certain assumptions as to the cost of the at-fault ANFs for motorcycles in relation to Class 1 vehicles. The cost was estimated to be between $22.40 and $37.30 depending on the engine capacity of the motorcycle. These costs were incorporated into the premium relativities effective July 2010.

With the emergence of actual experience of the at-fault ANFs, which is considerably lower than the assumed cost, the premium relativities for motorcycles have gradually decreased.

The MAA's actuarial advisor reduced the allowance for at-fault ANFs for motorcycles to approximately $11.00 per policy in the 1 January 2012 relativities report. This reduction was able to be calculated based on actual at-fault claims experience which had not been available prior to this date.

The MAA's actuarial advisor has undertaken further analysis of the appropriate allowance of the cost of ANF's for motorcycles and all other vehicles since their 1 January 2012 relativities report and a further reduction in the allowance became effective from 1 February 2013.

It should be noted that at the time of the analyses undertaken to review the 1 February 2013 relativities there was still considerable uncertainty regarding the appropriate allowance for at fault relativities for motorcycles. Since then, the true cost of at-fault ANFs for motorcycles have emerged to be significantly lower than anticipate and the premium relativities for motorcycle classes have fallen again from 1 November 2014.

Table 3 shows that since July 2010, the motorcycles premium relativities prescribed by the MAA has reduced from 63% to 42% (a reduction of 33%).

Table 3 - Motorcycle Premium Relativities

Effective date	Motorcycles combined premium relativities
July 2010	63%
January 2012	52%
February 2013	48%
November 2014	42%

The combined motorcycle premium relativities effective November 2014 is 42%. This means that motorcycle CTP premiums (excluding MCIS levy and the bonus/malus applied by insurers) are charged a premium which is 42% of the Sydney region passenger vehicle premium rates compared to 63% from July 2010. The figure of 42% is very close to the observed motorcycles claims cost relativities since 2008, as can been seen in Table 4. While the claims cost relativity for motorcycles is volatile from year to year there does not seem to be a distinct pattern over the last 7 years.

Table 4 - Motorcycle Claims Cost Relativities

Year ending 30 June	Motorcycles combined claim cost relativities
2008	40%
2009	39%
2010	30%
2011	41%
2012	45%
2013	33%
2014	44%

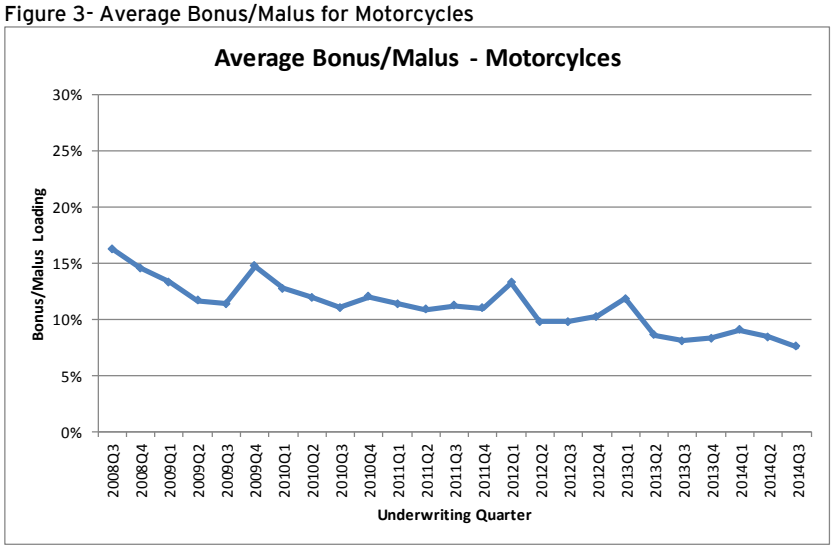
7.2 Average Bonus/Malus

Bonus/malus refers to the mechanism that insurers use to charge a premium different to the base premium for each vehicle class/region category as determined by the premium relativities. A "bonus" refers to when a discount has been applied to the premium while a "malus" refers to when a loading is applied to the premium. Bonus/malus is discussed in more detail in section 5.4.

In section 6.3 we observed the average bonus/malus that insurers have applied to motorcycles (after allowing for each insurers' market share) has been positive (motorcycles were charged a loading on average) since 2000 and reached a peak in 2007 when the average malus was 23%. Since then the average malus has reduced gradually to around 10% at June 2010.

Figure 3 shows that the average bonus/malus for motorcycles as a whole has continued to fall since June 2010. It is now around 8% for the 12 months to September 2014.

Figure 3- Average Bonus/Malus for Motorcycles



7.3 LTCS component of the MCIS levy

The Lifetime Care and Support (LTCS) levy is applied to the CTP premiums to fund the LTCS Scheme, the scheme set up to provide medical and care support to catastrophically injured claimants. The LTCS levy is discussed in more detail in Section 5.5 of this report.

In section 6.4.2 we noted that between 2008 and 2010 motorcycles paid between $150 and $315 per policy less than the LTCS Scheme costs attributable to motorcycles.

We have received an updated analysis from PwC in a letter titled "Cost of motorcycles to the Lifetime Care and Support Scheme" dated 3 February 2015. While the analysis in the letter is based on claims experience up to December 2014 for participants admitted to the scheme up to 30 June 2013, we do not believe the results will be materially different had participants admitted to the scheme after 30 June 2013 were included in the analysis.

In this letter PwC's analysis shows since the inception of the LTCS Scheme, motorcyclists contributed $151m in LTCS levies while the LTCS cost attributable to accidents where a motorcycle is at-fault is $316m. We also note from PwC's analysis, the LTCS cost of motorcycle participants in the LTCS Scheme totals $481m. The cost of motorcycles to the LTCS Scheme is considerably higher than the contributions motorcycles have made.

Since the inception of the LTCS Scheme in 2006, there have been around 1.5 million annual-equivalent motorcycle policies written. Based on this policy count, the per policy shortfall between motorcycles' LTCS levy component and the estimated LTCS cost is in an estimated range between $110 and $220 per policy. This is a smaller shortfall than that estimated for the period between 2008 and 2010 of $150 to $315.

7.4 Adequacy of motorcycles premiums including LTCS levy component of MCIS levy

In section 6.3 we found that, while motorcycles paid more than was required for CTP, the reverse is true if LTCS Scheme costs are also included in the comparative calculation and therefore for the overall green slip premium, other motorists subsidised motorcycles. With the more recent data available and used for this update letter, this finding is still valid.

That is, while motorcycles are still subsidising other motorists for the CTP claims costs, this is now only limited to insurer's application of bonus/malus, with the gap between motorcycles premium relativity and claims relativity largely eliminated. Furthermore, the average malus for motorcycles

have gradually reduced over this time period, that is, the extent of motorcycles subsidising other motorists for the CTP claims costs component has reduced. However, other vehicles still subsidise motorcycle LTCS Scheme claim costs to a significant extent. This is also true for the overall green slip premium but to a lesser extent than in the past.

Overall, the subsidies motorcycles receive from other vehicle classes are in the range of $100 to $200 per policy.

8. Summary of findings

8.1 Situation to the end of 2010

8.1.1 The calculation of relativities including the five relativities categories

Our findings in relation to the CTP premium relativities (excluding MCIS levy) based on our analysis to the end of 2010 are:

- The calculation of relativities for vehicle classes with limited data is challenging due to the volatility associated with sparse data, as demonstrated in Appendix A. The five motorcycle classes have limited data and the move to five classes for motorcycles, from three classes, has resulted in 25 different groups (five classes in five geographic regions), compared to 15 (three classes in five geographic regions) previously, for which relativities need to be set. In most of these groups there is limited claims experience and in a number of groups almost no claims experience, creating significant challenges for any actuary and the MAA to assess equitable relativities. Consequently, significant judgement is exercised by the MAA and its actuarial advisor in setting equitable premium relativities. The MAA's actuarial advisor has adopted a modelling approach that attempts to deal with the scarcity of data for motorcycles

- The motorcycle claims data is limited and this is further exacerbated by the most recent accident years not being fully developed and hence there is a lag in the data. For example when the MAA's actuarial advisor assessed premium relativities to apply from 1 January 2012 they used the latest available data to September 2010. As the experience from 2008 to 2010 is immature and is volatile from year to year any improvement or deterioration in the claims experience for motorcycles will take a number of years to be validated by the claims experience and for that experience to flow through to premium relativities. Therefore the analysis of the most recent accident years may not accurately reflect the true final position of the motorcycle claims for these accident years. This applies to all analysis in this report where undeveloped data is used.

Our findings from a hindsight review (actual versus expected experience) of the motorcycle classes' claims experience based on our analysis to the end of 2010 are:

- Our hindsight analysis of the claims experience for motorcycles, including allowance for the LTCS Scheme, estimated that motorcycles have paid between $50 and $200 less in premiums from 2008 to June 2010 than what their actual claims experience requires. That is, motorcycle premiums were effectively being cross-subsided by all other motor vehicles

- If the impact of the LTCS Scheme is excluded, we estimate that over the whole period 2000-2010 motorcycles paid on average approximately 33% more than required given their claims experience. The numbers noted above include an allowance of 11% for the average malus applied by insurers to NSW CTP motorcycle premiums. The conclusion is that the premium relativities applied to motorcycles over the period 2000-2010 were too high by an average of 22% (i.e. 33% less 11%) and this is exacerbated by the high average malus applied to motorcycles, given a hindsight view of actual claims experience

- If the impact of the MCIS is excluded the new allowance for at-fault ANFs in the MAA's 1 July 2010 premium relativities for motorcycles is at odds with the emerging claims experience. With a hindsight view, the allowance of between $22 and $37 per motorcycle class for at-fault ANFs is significantly above our current estimate of the allowance of $4 based on the emerging claims experience. However, we note at the time the MAA's actuarial advisor undertook this work, no claims experience of at-fault ANFs existed

- Given the hindsight review and adjusting for the full cost of the LTCS Scheme and for the cost of at-fault ANFs, the actual claims experience has demonstrated that motorcycle premiums

have been between $125 and $296 less than required from 1 July 2010. Making a further adjustment for the possibility that the overall premium relativities for motorcycles, inclusive of insurers recent average malus, from 1 July 2010 were between 33% and 50% too high based on the actual claims experience, indicates that motorcycle classes, on average, are paying less than what is implied by their claims experience of between $23 and $229.

8.1.2 Application of bonus/malus by insurers

Insurers have, on average, applied a malus on motorcycles that has varied from 4% in 2000 to as high as 23% in 2007 and 12% in 2010. The main reason for the increases is due to several insurers, at different periods increasing their average malus. A spike is observed in 2005 to 2006 due mainly to one insurer with a large market share substantially increasing its average malus. The main reason for the decrease from 2007 is due to the unchanged reference base rate with increased premiums. We noted that some insurers either applied the highest possible malus to all motorcycles or many insurers applied high malus to a high proportion of motorcycles.

Given the findings above that the premium relativities for motorcycles from 2000 to 2010 have been too high, the reasons why insurers apply in total a malus to motorcycles is unclear.

8.1.3 Calculation of the MCIS levy (i.e. the MAA plus LTCS components)

A hindsight review of the MCIS levy to the end of 2010, in its component parts (MAA and LTCS), indicated that to date motorcycles have been charged substantially less than the actual cost of their claims experience implied for the LTCS Scheme.

If the LTCS component of the MCIS levy for motorcycles were to properly reflect the LTCS claims experience of motorcycles the levy would need to increase by a factor of between about two to four times the existing levies applied to motorcycles. That is, motorcycles are being substantially subsidised by all other vehicles in respect of the LTCS Scheme.

8.2 Since 2010 based on analysis conducted in late 2014

Since 2010, the MAA has taken a number of actions that have impacted motorcycle premiums.

- Published motorcycles premium relativities have fallen reflecting the improved claims experience of the motor cycle over time and due to the reduction of allowance made for at fault ANFs at successive sets of premium relativities. The average premium relativities for motorcycle classes effective from 1 November 2014 is 0.42, which is much more closely aligned to the underlying claim experience relativities

- The MAA has implemented a new PDG effective 1 November 2014. The new PDG enforces a more robust process for the approval of rate fillings.

A hindsight review shows that motorcycle classes on average receiving $100 to $200 of subsidies from other motorists when comparing the benefits motorcyclists receive and the total CTP premiums they pay. The sources of these cross-subsidies are:

- There are no longer any cross-subsidies between motorcyclists and other motorists in the privately underwritten portion of the CTP premium (i.e. excluding the MCIS levy) coming from the premium relativities

- There is a small amount of cross-subsidies from motorcyclists to other motorists from the bonus/malus structure as insurers apply an average malus (of 8%) to motorcycle classes

- There is a large amount of cross-subsidies ($110 to $220) from other motorists to motorcycles resulting from the LTCS Scheme as the claim costs associated motorcycle classes far outweigh the amount of LTCS levy collected.

9. Reliance and limitations

In undertaking this review, reliance has been placed upon the data provided to us by the MAA, SIRA, LTCSA, PwC, Finity and Taylor Fry. This report cannot be disclosed in part, it must be disclosed in full.

In general, reliance was placed on, but not limited to the information provided. Except where indicated, the information has been used without independent verification. However, it was reviewed where possible for reasonableness and consistency.

Judgements based on the data, methods and assumptions contained in the report should be made only after studying the report in its entirety, as conclusions reached by a review of a section or sections on an isolated basis may be incorrect. EY staff are available to explain or amplify any matter presented herein.

Neither the whole of this report, or any part thereof, or any reference thereto may be published neither in any document, statement or circular nor in any communication with other third parties without prior EY written approval of the form and context in which it will appear.

Appendix A Motorcycle policy numbers and claim numbers

The tables below set out the number of policies (number of vehicles exposed) in the accident year and the number of claims by accident year as at 30 June 2010 (Table 5) and as at 30 June 2014 (Table 6).

Table 5: Motorcycle claims and vehicles exposed (policies) by accident year – data as at June 2010

		Number of claims in each accident year					
Class of Vehicle		2006/07	2007/08	2008/09	2009/10	2010/11	Last 5 Years
Motorcycle <225ml	10d	2	7	4	9	4	**26**
Motorcycle 225 -725ml	10e	17	24	24	35	10	**110**
Motorcycle725 -1125ml	10f	19	19	26	24	7	**95**
Motorcycle 1125 – 1325ml	10g	8	2	11	6	5	**32**
Motorcycle > 1325ml	10h	9	17	17	13	10	**66**
All Motorcycle Classes		**55**	**69**	**82**	**87**	**36**	**329**

		Number of vehicles exposed in each accident year					
Class of Vehicle		2006/07	2007/08	2008/09	2009/10	2010/11	Last 5 Years
Motorcycle <225ml	10d	21,089	25,221	28,375	30,238	31,760	**136,683**
Motorcycle 225 -725ml	10e	57,397	64,327	69,569	75,093	77,261	**343,647**
Motorcycle725 -1125ml	10f	37,417	40,712	42,494	43,923	44,579	**209,125**
Motorcycle 1125 – 1325ml	10g	10,232	11,815	12,678	13,751	14,700	**63,176**
Motorcycle > 1325ml	10h	15,470	17,939	19,473	21,277	22,776	**96,899**
All Motorcycle Classes		**141,605**	**160,014**	**172,553**	**184,282**	**191,076**	**849,530**

Table 6: Motorcycle claims and vehicles exposed (policies) by accident year – data as at June 2014

Number of claims in each accident year							
Class of Vehicle		2009/10	2010/11	2011/12	2012/13	2013/14	Last 5 Years
Motorcycle <225ml	10d	6	5	6	12	20	**49**
Motorcycle 225 -725ml	10e	40	22	35	32	31	**160**
Motorcycle725 -1125ml	10f	30	24	40	25	27	**146**
Motorcycle 1125 – 1325ml	10g	7	13	5	5	9	**39**
Motorcycle > 1325ml	10h	13	26	17	18	13	**87**
All Motorcycle Classes		**96**	**90**	**103**	**92**	**100**	**481**

Number of vehicles exposed in each accident year							
Class of Vehicle		2009/10	2010/11	2011/12	2012/13	2013/14	Last 5 Years
Motorcycle <225ml	10d	28,739	30,385	32,142	34,437	36,335	**162,038**
Motorcycle 225 -725ml	10e	72,210	75,630	78,435	82,483	86,455	**395,212**
Motorcycle725 -1125ml	10f	43,424	44,475	45,215	46,577	47,261	**226,953**
Motorcycle 1125 – 1325ml	10g	13,187	14,253	15,085	16,329	17,384	**76,238**
Motorcycle > 1325ml	10h	21,226	22,752	24,575	26,911	28,781	**124,244**
All Motorcycle Classes		**178,785**	**187,495**	**195,451**	**206,737**	**216,216**	**984,684**

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