pwc.com.au

NT WorkSafe

Actuarial review of Northern Territory workers compensation scheme as at 30 June 2016

June 2017

pwc

Stephen Gelding
Executive Director
Department of Business
NT WorkSafe
Northern Territory Government
Level 1, Darwin Plaza
41 Smith Street
DARWIN NT 0880

16 June 2017

Dear Stephen

Please find our report attached which details our findings from the following analyses for NT WorkSafe:

- Calculation of the funding ratio based on 30 June 2016 outstanding claims liability valuations for insurers and self-insurers
- Calculations of the break-even premium rate for each prior accident year using data to 30 June 2016, including a review of the trends in the required premium and a comparison to the premium rates actually charged by insurers
- An estimate of the break-even premium rate for the 2016/17 underwriting year.

Yours sincerely

Lisa Simpson

Kathryn Cannon

Fellows of the Institute of Actuaries of Australia

PricewaterhouseCoopers Actuarial Pty Limited, ACN 003 562 696, ABN 29 003 562 696
Brookfield Place, 125 St Georges Terrace, PERTH WA 6000, GPO Box D198, PERTH WA 6840
T: +61 8 9238 3000, www.pwc.com.au

Key findings

Funding ratio

The funding ratio measures the liabilities held by the insurers (the notional assets) compared to the aggregate outstanding claims liability calculated by the scheme actuary. This is used to represent the ability of the scheme in aggregate to meet its liabilities.

The following table shows the funding ratio as at 30 June 2016 for insurers, self-insurers and for the whole scheme. The PwC central estimate excludes any risk margin. By comparison, the insurers' provisions include a risk margin, and the self-insurers' provisions include the 50% loading for the bank guarantee.

Funding ratio ($000s)	Actual provisions (a)	PwC central estimate (b)	Difference ($000) (b) - (a)	Funding ratio (a) / (b)
Insurers	371,295	364,512	-6,783	102%
Self-insurers	4,881	3,532	-1,349	138%
Total	376,176	368,044	-8,132	102%

Notes: see section 2 of this report

As at 30 June 2016 the insurers' funding ratio was 102% while the self-insurers' funding ratio was 138%. The insurers' funding ratio decreased from 109% as at 30 June 2015 and the self-insurers' funding ratio decreased from 155%.

The decrease in the insurers' funding ratio was due to the insurers' provisions increasing by less than our central estimate compared to 30 June 2015. We are not provided with a reconciliation for the insurers' provisions, so cannot identify the drivers of the insurers' increase.

The decrease in the self-insurer funding ratio is due to the self-insurers' provisions decreasing by more than our central estimate compared to 30 June 2015. The self-insurers have reduced their provision by significantly more than the reduction in case estimates while the reduction in our estimates reflect the reduction in case estimates.

A ratio above 100% implies that, in aggregate, insurers are holding sufficient reserves to be likely to meet our central estimate of future claims costs. The funding ratio has been slightly above 100% for the last two valuations. We make the following comments which should be borne in mind when considering the funding ratio:

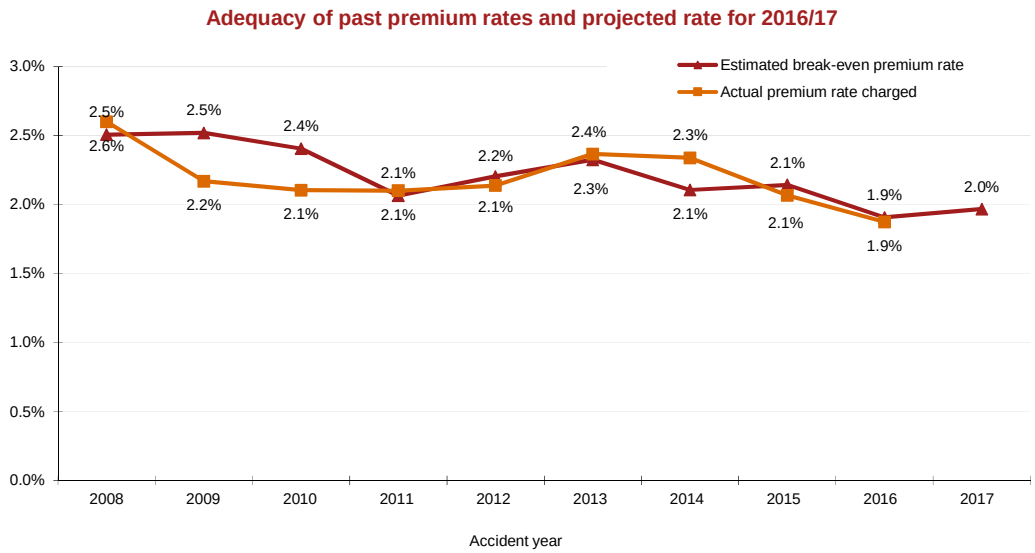
- The insurers' actuaries have access to more detailed claims data than we have to estimate the liabilities
- Insurers hold assets in excess of their liabilities due to APRA capital requirements and their own risk appetite
- Some insurers may be holding greater than 100% of our notional allocation to them, while others may be holding less. Of concern would be any insurers who are well below 100%.

The above projections involve assumptions about future uncertain claim events and economic, social and legislative conditions and hence the actual outcome may well be different from the results shown above. This

should be borne in mind whenever using the results. In particular, the 2015 and 2016 accident year costs are more uncertain than those for earlier accident years, and hence could ultimately be notably different to those estimated.

Insurer premium adequacy

The following graph shows the estimated break-even premium rates, using all experience to date, and compares this to the actual premium rates charged by insurers. The graph also shows our projected break-even premium rate for 2016/17.



The break-even premium rate is calculated on an inflated and discounted basis, gross of reinsurance, and does not allow for a profit margin.

There has been mixed experience in the sufficiency of actual premium rates charged by insurers over 2008 to 2015 shown in the graph above. Actual premium rates charged by insurers were more than sufficient in 2008, 2013 and 2014, were similar to estimates of break-even rates in 2011, 2015 and 2016 but were not sufficient to cover the estimated break-even cost for accident years ending 2009, 2010 and 2012.

Our projected break-even premium rate for 2017 is 2.0%, which is in line with the last two years' estimated break-even premium rates and actual premium rates charged, of between 1.9% and 2.1%.

The estimated break-even premium rates for accident years 2016 and 2017 include an allowance for the 2015 legislative changes. See Appendix B for a summary of the changes.

At this review, we have changed the actual premium rates to be based on developed earned premium for 2011 onwards. This better matches the time period of the claims cost. Conversely, the 2010 and earlier years continue to use premium processed as per prior reviews, as earned premium was not available.

The change in the break-even premium is the average change across all policies. Actual premiums charged to an employer could have greater volatility each year, particularly for small employers, and their change will depend on their experience and size.

Key scheme trends

Claim statistic	Insurer	Self-insurers
Number of claims incurred	Claims generally between 2,600 and 2,800. Total for 2016 is 2,582, which is at the bottom of this range. Claim frequency is decreasing due to the significant increases in wages without a corresponding increase in claim numbers. Frequency is estimated to be 3.4% in 2014, 3.0% in 2015 and 2.9% in 2016.	Decreasing trend from high 2011 continues. 2016 incurred claims is 122, which is lower than 134 claims in 2015.
Average claim size	2016 average claim size is $42,500, which is lower than 2015 but higher than most prior years.	Lower than insurers, around $19,000 in the 2016 accident year. This is high compared with 2015 ($13,700) and the range of prior years of $9,000 to $20,500.
Incurred cost	2016 incurred cost is $109.7 million, which is lower than 2015 but in line with prior years.	2016 accident year Is $2.3 million which is between the four most recent accident years.
Gross loss ratio	2016 is 80% which is the same as 2015 and at the lower end of the historic range.	n/a
Distribution by payment type	Redemption and non-economic lump sums and weekly benefits combined account for two-thirds of the total incurred cost and payments each financial year. The distribution of payments for the last seven accident years has remained fairly stable.	n/a

Risks and uncertainties

The key risks and uncertainties to the Northern Territory (NT) scheme are:

- **Inpex project**

  Significant increases in wages over recent financial years have been driven by the Inpex project and the associated contracts. The number of claims incurred and claims cost has increased at a slower rate than the increase in wages, causing the claim frequency and premium rate to reduce. We understand that over the 2017 financial year the construction phase is winding down and moving towards the production

phase in the 2018 financial year. Therefore, the number of workers will reduce from a peak of 8,000 to 350-400 ongoing operational staff. As the project moves into production phase, this may significantly reduce the premium pool for the NT scheme in future years. There may be an increase in claims due to late claim reports if people cannot find alternative work, in the absence of new contracts commencing.

- **Changing economic environment**
  There is considerable uncertainty associated with the current economic environment and what it will mean for Australia over the near future. Aside from the Inpex project discussed above, there may be more general real wage decreases or increases in bad debts for insurers.

  Over the last three to five financial years there has been a reduction in the number of small claims lodged with other schemes. At the same time, there has not been a reduction in the number of medium to large claims. This has impacted the overall average claim size and incurred cost for other schemes. In the NT there's been small reductions in claims less than $1,000 over the past 15 years but not to the same extent in recent years as other state schemes. We will continue to monitor the mix by size of claims lodged in NT to ensure that we adequately allow for any change in claiming behaviour.

- **Large claims**
  The incurred cost and break-even premium for each accident year are heavily influenced by the presence or absence of any large claims. This is particularly prevalent in the NT due to the small scheme size and the prevalence of Hopkins settlements. Future claims costs will continue to be impacted by these settlements, with net costs to insurers impacted by the nature and adequacy of any reinsurance arrangements in place.

  Large claims can also have an impact on superimposed inflation. While superimposed inflation remained fairly stable this year, it can be volatile due to the impact of large settlements and the relatively small scheme size. Superimposed inflation should be monitored to make sure increases in costs are understood and ensure that a payment type is not unexpectedly driving an increase in costs.

- **2015 legislative amendments**
  The 2015 legislative amendments are for prospective claims only, and were introduced in two stages. The main changes are effective from 1 July 2015, with additional changes effective from 1 October 2015. This creates additional uncertainty in the outstanding claims liabilities for the 2015/16 accident year and the future costs for the 2016/17 accident year. In separate advice, PwC estimated that there would be a 2.8% reduction in respect of the most significant benefit changes. We have not estimated the impact of other changes. As the changes are not retrospective this should not impact outstanding claims liabilities for accident years prior to 2015/16.

  We recommend WorkSafe NT and insurers closely monitor the experience to ensure that there aren't any unintended consequences.

  See Appendix B6 for more information.

Contents

1 About this report

Key points of this section

- NT WorkSafe have engaged us to value the outstanding claims liability for the scheme as at 30 June 2016 and review the adequacy of premium rates charged by insurers
- We have complied with the relevant actuarial and accounting standards when performing this review.

1.1 Context for our review

This report has been prepared for NT WorkSafe and the Scheme Monitoring Committee in accordance with contract number D16-0211, dated 4 November 2016. Under this contract we have conducted the following analyses which are detailed in this report:

- Calculation of the funding ratio based on 30 June 2016 outstanding claims liability valuations for insurers and self-insurers
- Calculations of the break-even premium rate for each prior accident year using data to 30 June 2016, including a review of the trends in the required premium and a comparison to the actual premium rates charged by insurers
- An estimate of the break-even premium rate for 2016/17, based on historic data and future inflation assumptions.

We have prepared this report for the NT workers compensation scheme for a few years. Our previous valuation was conducted using data as at 30 June 2015, the findings of which are detailed in our 3 June 2016 report titled *Actuarial review of Northern Territory workers compensation scheme as at 30 June 2015.*

Our review is for the following four active insurers:

- Allianz Australia Insurance Limited (including Territory Insurance Office (TIO))
- CGU Insurance Australia (Part of Insurance Australia Limited)
- GIO Insurance Australia
- QBE Insurance Australia

and the following four active self-insurers:

- Catholic Church Insurance
- Coles Supermarkets Australia Pty Ltd
- Westpac Banking Corporation
- Woolworths Supermarkets.

The analysis excludes Government Self Insurance and uninsured claims.

At 30 June 2014, TIO was a separate insurer. However, over the 2015 financial year it was purchased by Allianz.

The report is structured as follows:

- Sections 2 and 3 of this report present the outstanding claims liability valuations for insurers and self-insurers respectively
- Section 4 analyses the break-even premium rates for past underwriting years and the adequacy of the rates actually charged by insurers
- Section 5 details the data and methodology we have used
- Section 6 and section 7 outline the assumptions adopted in this review and considers the uncertainty in the work we have carried out, including some key risks faced.

1.2 Disclaimer

Report and Advice

This report has been prepared for the sole use and benefit of NT WorkSafe. It should not be used or relied upon by any other person for any purpose.

You agree to use this report only in connection with the purpose in respect of which this report is provided being to present the outstanding claims liability as at 30 June 2016 and review the adequacy of premium rates charged by insurers operating under the scheme. We therefore accept no liability or responsibility for any loss or damage arising from use of the report for any other use or purpose.

Judgements based on the contents of this report should be made only after studying the report and the appendices in their entirety, as conclusions reached by a review of an aspect or section in isolation may be misleading.

The advice contained in this report has been prepared on the instructions of NT WorkSafe in accordance with the terms of reference in the tender document referred to in section 1.1 above and is based on the information and data provided to us.

The conclusions reached in this report are reliant on the completeness and accuracy of information compiled and provided by NT WorkSafe, and by insurers and self-insurers to NT WorkSafe. Other than preliminary data checks, we have not conducted an independent review of this information. We do not accept any liability or responsibility for errors or omissions arising from the provision of inaccurate or incomplete information to us.

Third Parties

This report and the advice contained in it are confidential. You agree not to disclose the report and/or our advice to third parties by any means (including orally or in writing) without our prior written consent. We may, at our discretion, withhold or give our consent subject to conditions, including:

- The report is to be released in its entirety in response to a request, including all appendices
- We accept no liability or responsibility to any other person or entity other than NT WorkSafe in relation to this report and
- No-one other than NT WorkSafe should rely on this report for any purpose.

1.3 Compliance with standards

1.3.1 Outstanding claims liabilities

The approach for calculating the outstanding claims liabilities is consistent with that required by the Accounting Standards for private and State Government general insurers (AASB1023), and APRA's prudential standard *GPS320 Actuarial and Related Matters* where applicable. It also complies with the Institute of Actuaries of Australia's Professional Standard PS300 to the extent possible given the data available.

We have not performed a full review of asbestos liabilities due to lack of available data.

1.3.2 Premium rates

Our advice to you constitutes a Professional Service as defined in the Code of Professional Conduct (the Code) issued by the Institute of Actuaries of Australia and our advice complies with the Code in this respect.

2 Insurer outstanding claims liabilities

Key points of this section

- Our estimate of the net outstanding claims provision as at 30 June 2016 is $417.5 million, which is $47.9 million (13.0%) higher than the provision as at 30 June 2015
- This provision is $46.2 million (12.4%) higher than insurers' own provisions of $371.3 million. This difference is higher than the 30 June 2015 difference of $17.5 million (5.0%)
- The funding ratio is 102% which is lower than 109% last year
- The number of claims incurred have ranged between 2,600 and 2,800 over recent years, but there is a decreasing trend in the claim frequency due to increases in wages
- Average claim size for 2016 is estimated to be below the very high 2015 but higher than most other recent years
- The reconciliation of our gross estimates, excluding claims handling expenses, to our estimates as at 30 June 2015 shows a strain on reserves of $15.7 million, which is 4.5% of the opening estimates.

2.1 Outstanding claims liability

2.1.1 Our estimates

The table below shows our central estimate results by payment type group *in current values and excluding claims handling expenses*:

Estimates of outstanding claims at 30 June 2016 ($000s) (a) (b)								
Accident year ending 30 June	Weekly Benefits	Medical And Hospital	Allied Health, Vocactional Rehabilitation, Non-Compensation Payments (Other), Death	Other Goods And Services	Legals	Redemptions And Non-Economic Lump Sum	Active large claims allowance	Total
2016	27,483	8,141	8,557	3,731	5,819	34,492	0	88,223
2015	16,799	3,404	4,513	2,156	4,657	29,593	13,699	74,821
2014	11,208	2,227	2,596	1,664	3,544	24,478	0	45,718
2013	8,248	1,685	1,621	1,282	2,660	18,274	0	33,769
2012	5,866	1,202	1,038	775	1,792	10,893	5,465	27,032
2011	3,269	663	488	439	871	5,432	0	11,163
2010	3,464	705	497	390	876	5,542	0	11,473
2009	2,375	497	341	246	348	3,813	6,546	14,167
2008	2,147	463	302	217	320	3,506	6,490	13,445
2007 & earlier	5,297	1,744	756	664	800	11,950	21,279	42,491
Total	**86,158**	**20,730**	**20,708**	**11,566**	**21,689**	**147,973**	**53,479**	**362,303**

Notes: (a), (b) from appendix C4

The table shows that the largest component of the outstanding claims liability relates to the *redemptions and non-economic lump sum* payment group (41% of the total), followed by *weekly benefits* (24% of the total). We note that 90% to 95% of redemptions and non-economic lump sum payments are Hopkins settlements.

Further detail on the parameters adopted to calculate the outstanding claims can be found in Appendix C. For further analysis on the composition of the incurred cost of claims by payment group see Appendix E2.

To generate the gross central estimates, the current value estimates are inflated and discounted, as follows:

Gross estimates at 30 June 2016 excluding expenses ($000s)			
Accident year ending 30 June	30 June 2016 values	Inflated values	Infl/disc values
2016	88,223	99,195	92,996
2015	74,821	85,653	79,498
2014	45,718	51,793	48,312
2013	33,769	38,388	35,726
2012	27,032	30,861	28,659
2011	11,163	12,931	11,885
2010	11,473	13,263	12,202
2009	14,167	16,049	14,983
2008	13,445	15,254	14,237
2007 & earlier	42,491	47,608	44,838
Total	**362,303**	**410,995**	**383,337**

An allowance for reinsurance recoveries, claims handling expenses and a risk margin are included in the gross inflated/discounted estimates to arrive at the net outstanding claims provision:

Estimates at 30 June 2016 ($000s)	Gross o/s liability (a)	Reinsurance recoveries (b)	Net o/s liability (c)	Claims handling expenses (d)	Net central estimate (e)	Risk margin (f)	Net Provision (g)
Total	383,337	39,458	343,879	20,633	364,512	53,003	417,515

Notes: (a) from table above

(b) allows for 100% reinsurance recoveries on large claims

(c) = (a) – (b)

(d) = (c) x 6%, see section 6.3 for details of the claims handling expenses

(e) = (c) + (d)

(f) = (e) x 14.54%, see section 7.2.2 for details on the risk margin

(g) = (e) + (f)

The inflated and discounted gross central estimate of $383.3 million is $33.5 million (9.6%) higher than the equivalent estimate as at 30 June 2015. This increase is driven by decreases in the real rates of returns and an increase in the large claim allowance from $45.4 million in 2015 to $53.5 million in 2016.

Net results have only been provided in total, as reinsurance recoveries depend on the large claims experience in each accident year and individual insurers' reinsurance treaties. The net provision at 30 June 2016 is $417.5 million, which is $47.9 million (13.0%) higher than the $369.6 million estimated provision as at 30 June 2015. The increase in the net provision is greater than the increase in the gross central estimate. This is because there was a decrease in the estimated outstanding reinsurance recoveries compared to our 30 June 2015 valuation.

This year insurers provided us with more information about which claims are likely to receive a reinsurance recovery. However, we are not providing this information on an accident year basis in the report due to commerciality reasons.

2.1.2 Comparison with insurers

We have compared our gross and net outstanding claim estimates to the insurers' estimates in total. As mentioned above, we have not compared the results by accident year, due to insurer commerciality reasons.

Gross estimates at 30 June 2016 excluding expenses ($000s)	Insurers' estimate (a)	PwC estimate (b)	Difference ($000) (b) - (a)	Difference (%) (b) / (a) - 1
Total	368,841	383,337	14,496	3.9%

Notes:(a), (b) = gross inflated and discounted values excluding claims handling expenses

Net provision at 30 June 2016 ($000s)	Insurers' provisions (a)	PwC provision (b)	Difference ($000) (b) - (a)	Difference (%) (b) / (a) - 1
Total	371,295	417,515	46,220	12.4%

Notes:(a), (b) = net inflated and discounted values including reinsurance, claims handling expenses and risk margin

As at 30 June 2016, our gross estimate is $14.5 million (3.9%) higher than that of the insurers. This compares to our estimate being $5.8 million (1.6%) lower than that of the insurers at 30 June 2015. The difference is due to different underlying methods and assumptions used by the insurers compared to us in the valuation. A key driver of this difference may relate to the uncertainty associated with large claims and future development on these.

Our net provision is higher than that of the insurers due to different risk margin assumptions. Individual insurers would be expected to have a lower risk margin than the scheme, due to diversification benefits and overall larger portfolio sizes from writing other classes of business.

Funding ratio

The funding ratio measures the liabilities held by the insurers (the notional assets) compared to the aggregate outstanding claims liability calculated by the scheme actuary. This is used to represent the ability of the scheme in aggregate to meet its liabilities.

For insurers, the funding ratio compares the insurers' net provision (i.e. including risk margin) with our central estimate (i.e. excluding risk margin). This is shown in the table below:

Funding ratio ($000s)	Actual provisions (a)	PwC central estimate (b)	Difference ($000) (b) - (a)	Funding ratio (a) / (b)
Insurers	371,295	364,512	-6,783	102%

Notes: (a) as per table above, net provision including risk margin

(b) net central estimate, excluding risk margin

The aggregate funding ratio is 102%, which is a decrease from 109% last year. Compared to the valuation result at 30 June 2015 our central estimate has increased by more than the insurers' provisions which is why the funding ratio decreased. We are not provided with a reconciliation for the insurers' provision so cannot identify the drivers of the insurers' increase. Part of this may be due to differences in allowances for the valuations by payment type and future large claims development.

A ratio above 100% implies that, in aggregate, insurers are holding sufficient reserves to be likely to meet our central estimate of future claims costs. The funding ratio has been slightly above 100% for the last two valuations. We make the following comments which should be borne in mind when considering the funding ratio:

A ratio above 100% implies that, in aggregate, insurers are holding sufficient reserves to be likely to meet our central estimate of future claims costs. Over the most recent two valuation dates the funding ratio has been less than 100%. We make the following comments which should be borne in mind when considering the funding ratio:

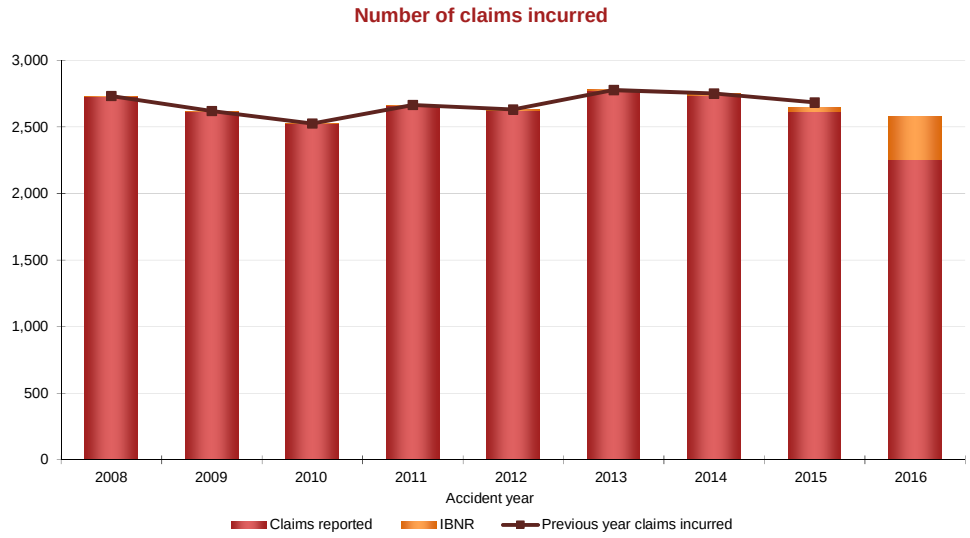
- The insurers' actuaries have access to more detailed claims data than we have to estimate the liabilities
- Insurers hold assets in excess of their liabilities due to APRA capital requirements and their own risk appetite
- Some insurers may be holding greater than 100% of our notional allocation to them, while others may be holding less. Of concern would be any insurers who are well below 100%.

2.2 Claims statistics

The following sub-sections show the claims experience by accident year. For more graphs of claims statistics, including by financial year, see appendices D and E.

2.2.1 Number of claims incurred

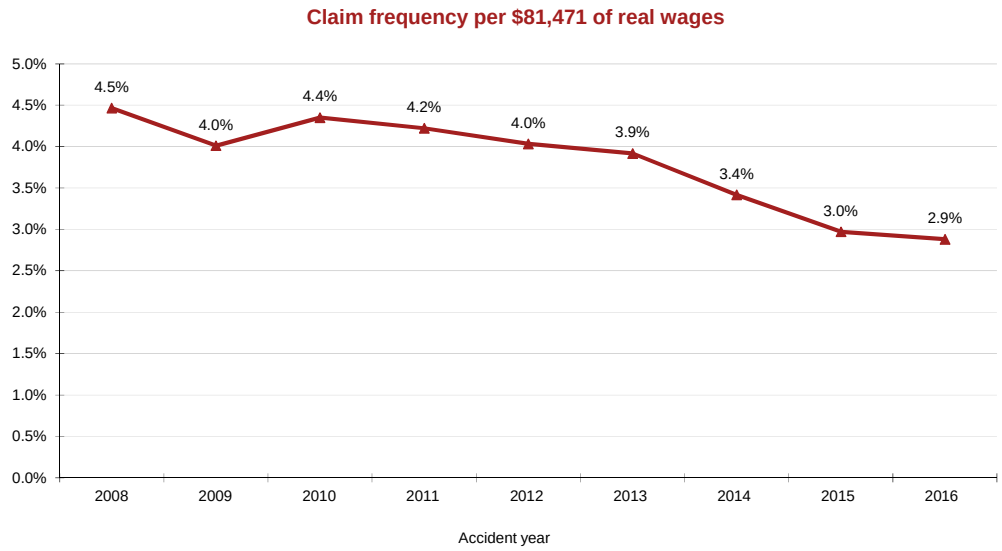
Generally stable experience between 2,600 and 2,800 incurred claims per annum



The main points to highlight from this chart are:

- Since 2008, the number of claims incurred has varied from one year to the next, but has generally exhibited stability
- For the 2009 to 2012 accident years, the number of claims incurred was between 2,500 and 2,700
- There was a spike in the number of claims incurred for the 2013 accident year to just under 2,800
- From the 2013 to 2016 accident years, there has been a decreasing trend in the number of claims incurred
- Incurred claims estimated for the 2016 accident year are 2,582, which is 63 (2.4%) fewer than 2015.

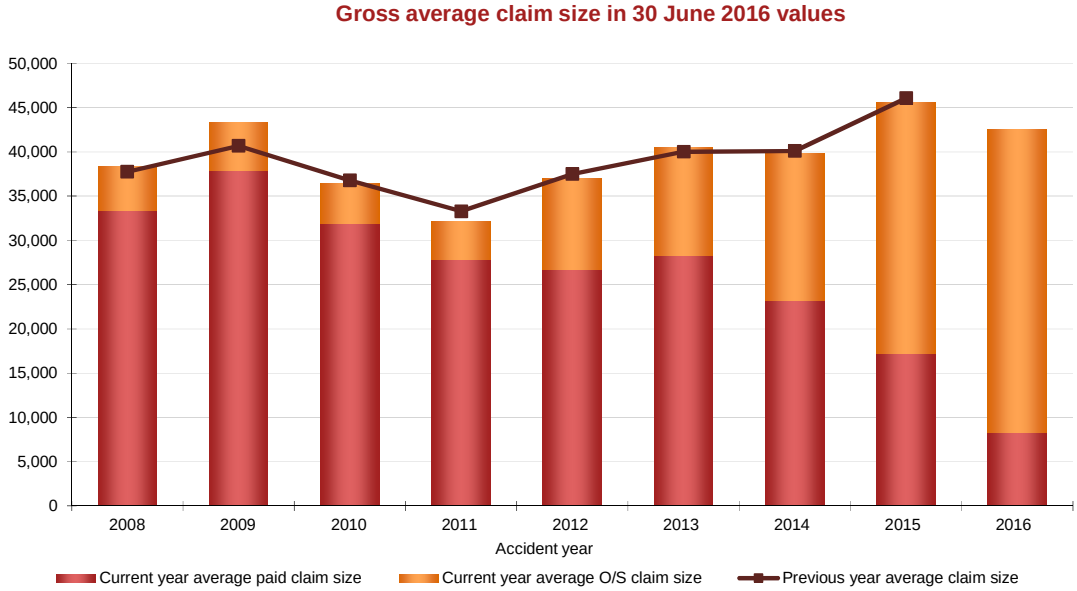
Declining claim frequency due to significant increases in wages with relatively stable number of claims



See Appendix D1 for the formula to calculate the claim frequency.

2.2.2 Gross average claim size

Average claim size for 2016 is estimated to be below the very high 2015 but higher than most other recent years



Since 2008 the gross average claim size (in 2016 values):

- Exhibited volatility due in part to large claims, which have the largest impact on 2009 and 2015
- Dropped to a low of around $32,000 in 2011, caused by lower than average redemption payments

- Exhibited an increasing trend from around $32,000 in 2011 to around $42,500 in 2016

The uncertainty about the future development means that the ultimate level and our estimates may differ from those projected for recent accident years. This is especially true for the 2016 accident year, where a high proportion (80%) of the average claim size relates to uncertain future claims development.

Compared to the previous valuation, the gross average claim size is similar for most years with the exception of 2009, where estimates increased. This was due to a large non-reinsurance recovery that was not received and is no longer expected to be received, and an increase in the size of a large claim. Conversely, 2011 reduced due to lower than expected payments and development.

Appendix E contains the average claim size split by payment type. The mix of payment types across the accident years has remained fairly stable. Redemptions and non-economic lump sums (90% to 95% are Hopkins settlements) are the largest payment type, closely followed by weekly benefits. These two payment types account for two thirds of total incurred costs.

2.3 Actual vs expected claims experience over 2015/16

2.3.1 Claims incurred up to 30 June 2015

Actual experience compared to the expected experience over 2015/16 for claims incurred up to 30 June 2015 showed:

- Claim reports were lower than expected (307 actual compared to 352 expected)
- The proportion of claims finalised was lower than expected (60.9% compared to 64.8%)
- Claim payments were lower than expected ($81.2 million actual compared to $100.3 million expected).

Expected experience is taken from the previous scheme report dated 3 June 2016. See appendix C2 for full details.

The impact of this experience is quantified in the reconciliation in section 2.4.

2.3.2 Claims incurred over 2015/16

The actual experience for claims incurred over 2015/16 compared to expected showed:

- The number of incurred claims reduced by 2.4% relative to the 2015 accident year
- There were 1,007 claims active as at 30 June 2016, which is 23.7% higher than the 814 expected
- Average payment per claim was $8,325, which is 9.5% higher than the $7,602 expected.

The expected experience is based on the adopted parameters used for our 30 June 2015 valuation.

2.4 Reconciliation of estimates

The table below reconciles the gross outstanding claims central estimate, excluding expenses, with the equivalent result as at 30 June 2015.

Reconciliation of gross actuarial estimates, excluding expenses ($000s)										
Accident year ending 30 June		2015	2014	2013	2012	2011	2010	2009	2008 & earlier	Total
A.	Gross estimates at 30 June 2015 (a)	101,527	61,395	46,488	33,114	19,050	15,119	9,359	63,774	349,827
B.	Gross payments 1 July 2015 to 30 June 2016	24,656	15,519	14,486	5,207	4,981	2,939	2,255	11,200	81,242
C.	Assumed investment return (b)	1,753	1,054	771	599	325	268	162	1,143	6,076
D.	= A - B + C	78,624	46,930	32,773	28,506	14,395	12,449	7,266	53,717	274,660
	Updated gross estimates at 30 June 2016									
E.	Revised gross estimates at 30 June 2016 (c)	79,498	48,312	35,726	28,659	11,885	12,202	14,983	59,075	290,341
F.	= E - D	874	1,382	2,953	153	-2,510	-247	7,717	5,358	15,682
	Change 01 July 2015 to 30 June 2016									
G.	Proportion of change attributable to									
	Changes in real rates of return	2,971	1,643	1,257	1,042	488	494	509	1,810	10,215
	Change in experience	-2,000	1,123	3,207	-349	-3,112	-947	6,982	3,066	7,969
	Change in actuarial assumptions	-97	-1,384	-1,511	-539	115	206	226	483	-2,502
H.	Gross amount incurred and outstanding for 2015/16 accident year (e)									92,996
I.	= E + H									383,337
	Total gross outstanding liability, excluding expenses at 30 June 2016									

Notes : (a) from section 2.1 of our previous report dated 3 June 2016

(b) calculated using 2.0% p.a. being the one year forward rate from section 6.1 of our previous report dated 3 June 2016

(c) from appendix C4 of this report.

The table shows that:

- Overall estimates increased by $15.7 million, which is 4.5% of the opening 30 June 2015 estimates. This increase is made up:
  - $10.2 million increase (2.9% of opening estimates) due to reductions in the real rates of return
  - $8.0 million increase (2.3%) due to changes in experience
  - $2.5 million release (0.7%) due to changes in underlying assumptions
- The reduction in real rates of return is due to an increase in inflation rates combined with a decrease in discount rates, as described in Section 6.1
- The change in experience is due to:
  - Significant strain for the 2009 accident year due to a large non-reinsurance recovery that was not received and is no longer expected to be received, and an increase in the size of a large claim
  - Strains for 2013 and 2008 and earlier accident years, offset by releases for 2011 and 2015, caused by differences in payments compared to expected
- The release in actuarial assumptions for accident years 2012 to 2014 is due to a change in the adopted payment per claim incurred factors to reflect recent experience.

3 Self-insurer outstanding claims liabilities

Key points of this section

- Our estimate of the net outstanding claims provision as at 30 June 2016 is $4.3 million, which is $1.1 million (20.9%) lower than the 30 June 2015 provision
- Our inflated and discounted central estimate, including claims handling expenses, is $3.5 million. This is $0.3 million (8.5%) higher than self-insurers' combined central estimate of $3.3 million
- The funding ratio is 138%, which is lower than 155% last year
- Claim incurred numbers exhibit a strong declining trend since 2011 to 122 claims in 2016
- The reconciliation of our central estimates, excluding expenses, to our previous valuation as at 30 June 2015 shows a release on reserves of $1.0 million, which is 24% of the opening estimates.

3.1 Outstanding claims liability

3.1.1 Outstanding claims provision

The provision below is based on cumulated claims data across all payment types and self-insurers. Projected payments are inflated and discounted to get to the gross central estimate before application of an allowance for claims handling expenses and a risk margin to calculate the provision.

A breakdown of our results are shown in the table below:

Estimates at 30 June 2016 ($000s)						
Gross o/s liability (a)	Reinsurance recoveries (b)	Net o/s liability (c)	Claims handling expenses (d)	Net central estimate (e)	Risk margin (f)	Net Provision (g)
3,301	0	3,301	231	3,532	813	4,345

Notes : (a) in inflated and discounted values

(b) (a) x 0%

(c) (a) + (b)

(d) assumed to be 7% of the net outstanding liability

(e) = (c) + (d)

(f) a risk margin to increase the provision to a 75% level of sufficiency, = (d) x 23.0%

(g) = (e) + (f)

The inflated and discounted net provision at 30 June 2016 is $4.3 million, which is $1.1 million (20.9%) lower than the $5.5 million provision as at 30 June 2015.

3.1.2 Comparison with self-insurers' estimates

We have compared our assessment of the net central estimate to self-insurers' estimates. The results are shown in the table below:

Estimates at 30 June 2016 ($000s)				
Accident year ending 30 Jun	Self-insurers' estimate (a)	PwC estimate (b)	Difference ($000s) (b) - (a)	Difference (%) (b) / (a) - 1
2010 & earlier	59	111	52	87.6%
2011	38	86	48	127.1%
2012	117	68	-49	-41.5%
2013	259	62	-198	-76.2%
2014	404	382	-22	-5.4%
2015	867	1,035	168	19.4%
2016	1,510	1,788	278	18.4%
Total	**3,254**	**3,532**	**278**	**8.5%**

Notes : (a), (b) in inflated and discounted values, including claims handling expenses

This comparison shows that our net central estimate is higher than the self-insurers' estimate by $0.278 million (8.5%). This is largely due to the 2016 accident year, where most self-insurers have lower outstanding claims estimates and a much lower ratio to case estimates compared with the most recent accident year in the 30 June 2015 valuation.

Our estimate for the 2013 accident year is considerably lower than the self-insurers' estimate, as the active claims and case estimates for this accident year are very low (only $3,000 case estimates at 30 June 2016).

Self-insurer funding ratio

For self-insurers, the funding ratio compares the self-insurers' bank guarantee provision (the central estimate times 1.5) with our estimate, which excludes any risk margin.

Funding ratio ($000s)	Self-insurers' provision (a)	PwC central estimate (b)	Difference ($000s) (b) - (a)	Difference (%) (b) / (a) - 1
Total	4,881	3,532	-1,349	138%

Notes: (a) bank guarantee provision, net central estimate (from table above) x 1.5

(b) as per table above, net central estimate excluding risk margin

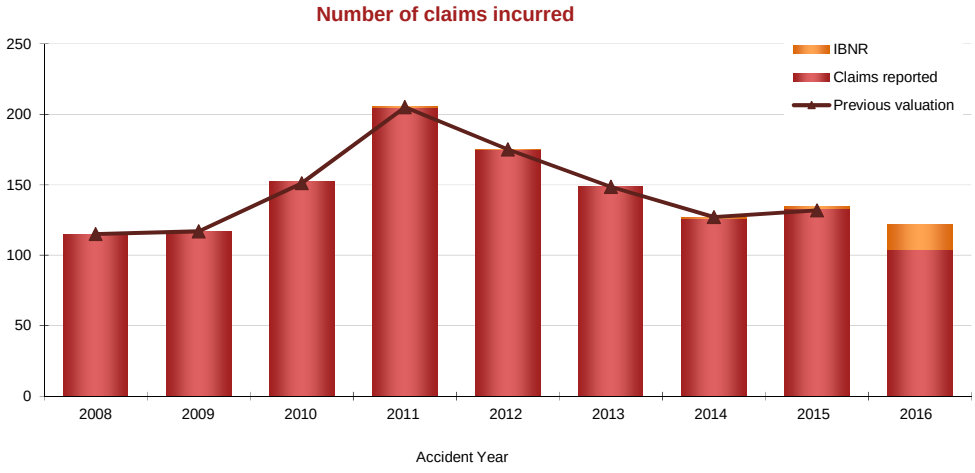
The aggregate funding ratio is 138%, which is lower than 155% as at 30 June 2015. This indicates that the current bank guarantee provisions held by self-insurers in aggregate are likely to be adequate to cover future claims costs.

3.2 Claims statistics

The following sub-sections show the claims experience by accident year. For more graphs of claims statistics, see Appendix G.

3.2.1 Number of claims incurred

Decreasing trend from 2011 peak to 2016



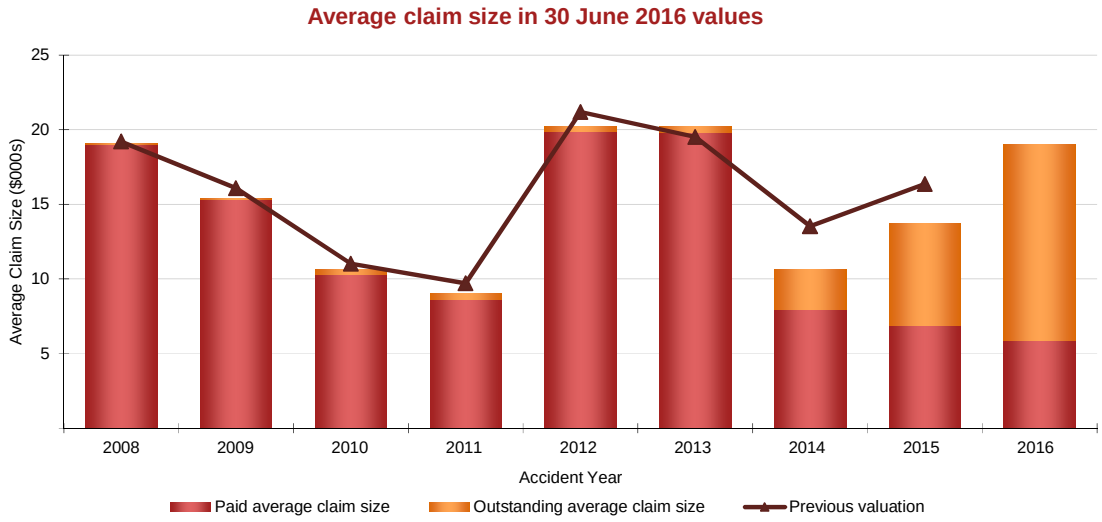
The main points to highlight from this chart are:

- There were stong increases in the number of incurred claims from the 2009 to 2011 accident years, from 117 to 205 claims. We are unaware of the drivers of this increase

- Since the high in 2011, the number of claims has reduced each year to a level of 127 claims in 2014. From a review of the self-insurer reports, we understand that one self-insurer has changed its management and recording of small claims, which has contributed to the decrease
- There was a slight increase in 2015 to 134 claims
- The total estimated claims for 2016 is 122, lower than both 2014 and 2015 accident years. Of this estimate, 18 claims are IBNR
- The number of claims is similar to estimates at the previous valuation.

3.2.2 Gross average claim size

2016 average claim size is $19,000 which is $5,300 (39%) higher than 2015



The average claim size has been volatile between accident years and there has been no discernible trend. Since 2008, the average claim size has ranged been between $9,000 and $20,500, with lows in 2010, 2011 and 2014 surrounding highs in 2012 and 2013. This implies that the spike in incurred claim numbers in 2011 shown in 3.2.1 is related to smaller claims.

Our estimated average claim size for the 2014 and 2015 accident years is significantly lower than our previous valuation due to lower than expected payments and development for these accident years over the 2016 financial year.

Our estimated average claim size for the 2016 accident year is $19,000 which is $5,300 (39%) higher than the 2015 accident year. The 2016 estimate is high compared with recent years due to high claim payments over the year and high case estimates.

The uncertainty about the future development means that the ultimate level and our estimates may differ from that projected for recent accident years. This is especially true for the 2016 accident year, where a high proportion (69%) of the average claim size consists of the uncertain future estimate.

3.3 Actual vs expected claims experience over 2015/16

Actual experience compared to the expected experience over 2015/16 for claims incurred up to 30 June 2015 showed:

- Claim reports were higher than expected (21 actual compared to 16.7 expected)
- Claim payments were slightly higher than expected ($1.6 million actual compared to $1.5 million expected).

The expected experience is taken from our previous report dated 3 June 2016. See appendix F for full details.

The impact of this experience and our adjustments to future development is quantified in the reconciliation below.

3.4 Reconciliation of central estimates

The table below reconciles the gross outstanding claims central estimate, excluding expenses, with the equivalent result as at 30 June 2015.

Reconciliation of gross actuarial estimates, excluding expenses ($000s)									
Accident year ending 30 June ($000s)	2015	2014	2013	2012	2011	2010	2009	2008 & earlier	Total
A. Gross estimates at 30 Jun 2015 (a)	1,667	874	670	457	221	100	95	88	4,172
B. Gross payments 1 July 2015 to 30 June 2016	464	178	728	233	3	2	5	0	1,613
C. Assumed investment return (b)	28	16	6	7	4	2	2	2	67
D. = A - B + C	1,232	712	-52	230	222	100	93	89	2,625
Updated gross estimates at 30 June 2016									
E. Revised gross estimates at 30 June 2016 (c)	968	357	58	64	81	56	14	35	1,631
F. = E - D	-265	-355	110	-166	-141	-44	-79	-55	-995
Change 1 July 2015 to 30 June 2016									
G. Proportion of change attributable to									
Changes in real rates of return	40	-8	-1	-1	-1	-1	0	-1	27
Change in experience	-269	-81	531	129	-49	8	-41	-13	215
Change in actuarial assumptions	-36	-266	-420	-295	-91	-51	-38	-41	-1,237
H. Gross amount incurred and outstanding for 2015/16 accident year (c)									1,671
I. = E + H									
Total gross outstanding liability, excluding expenses at 30 June 2016									3,301

Notes : (a) from section 3.1 of our previous report dated 3 June 2016

(b) calculated using 2.0% p.a. being the one year forward rate from section 6 of our previous report dated 3 June 2016

(c) from appendix F4.4 of this report.

The table shows that:

- Overall estimates show a release on reserves of $1.0 million, which is 23.8% of the opening 30 June 2015 estimates. This release is made up of:
  - $1.24 million release (29.7%) due to changes in actuarial assumptions
  - $0.22 million increase (5.2%) due to changes in experience
  - $0.03 million increase (0.6% of opening estimates) due to reductions in the real rates of return.
- For the 2012 and 2013 accident years, there were higher payments than expected over the year, primarily due to bringing forward of payments on large open claims which lead to an increase due to

experience. Consequently for these years, case estimates and expected future payments have reduced so there is a release in actuarial assumptions as greater weighting is given to the case estimates.

- The 2014 and 2015 accident years experienced releases due to lower than expected payments and development over the year.

4 Break-even premium rates

Key points of this section

- Actual premium rates charged by insurers have been more than sufficient to cover the break-even cost for half of the accident years from 2008 to 2015
- For 2016, the actual premium rate of 1.9% is the same as the estimated break-even premium rate
- Our projected break-even premium rate for 2017 is 2.0%, which is in line with the last two years' estimated break-even premium rates and actual premium rates charged, of between 1.9% and 2.1%.

4.1 Adequacy of past premiums

The break-even premium rate is calculated on an inflated and discounted basis and is gross of reinsurance, given that each insurer will have a unique reinsurance treaty in place. No allowance for a profit margin has been made, as insurers will set their own margin based on a multitude of factors, and we are interested in the "break-even" premium, which excludes any consideration of profit.

For this analysis, we have allowed for the claims costs and expenses to be discounted to the point that the premium is received. We have used all claims experience available to date to calculate the break-even premium rate.

The following table shows our estimated break-even premium rates and the actual rates charged by insurers:

	Calculated break even premium							Actual premium			
Accident year	Reported earned wages (a) ($000s)	Developed earned wages (b) ($000s)	Discounted gross incurred cost (c) ($000s)	Commission in financial year (d) ($000s)	Discounted other expenses in the fin year (e) ($000s)	Premium (f) ($000s)	Estimated premium rate (g)	Reported earned premium (h) ($000s)	Developed earned premium (i) ($000s)	Actual premium rate charged (j)	Difference (break even - actual)
2016	6,636,006	7,183,504	112,136	4,163	20,086	137,049	1.9%	124,270	134,654	1.9%	-2,395
2015	6,515,167	6,752,618	118,915	4,558	20,288	144,642	2.1%	134,133	139,445	2.1%	-5,196
2014	5,904,348	5,964,292	102,971	4,775	17,098	125,629	2.1%	139,448	139,448	2.3%	13,819
2013	5,223,143	5,223,143	101,854	3,697	15,016	121,401	2.3%	123,600	123,600	2.4%	2,199
2012	4,633,724	4,633,724	84,062	2,864	14,015	102,121	2.2%	99,026	99,026	2.1%	-3,095
2011	4,138,004	4,138,004	69,592	2,863	11,998	85,383	2.1%	86,936	86,936	2.1%	1,553
2010	3,576,580	3,576,580	71,972	2,624	10,680	86,000	2.4%	75,252	75,252	2.1%	-10,748
2009	3,829,000	3,829,000	80,495	2,544	11,837	96,510	2.5%	83,089	83,089	2.2%	-13,421
2008	3,423,000	3,423,000	70,094	2,658	11,713	85,806	2.5%	88,998	88,998	2.6%	3,192

Notes :

(a) earned wages provided by insurers

(b) (a) x development factors in Appendix B7

(c) calculated in Appendix H1

(d) actual commission, from the consolidated Form A returns

(e) other expenses, from the consolidated Form A returns, discounted by half a year

(f) = (c) + (d) + (e) x (1+ one year historical interest rate) ^ (3/12) to allow for the fact that premiums are received 3 months after the commencement of the underwriting period

(g) = (f) / (b)

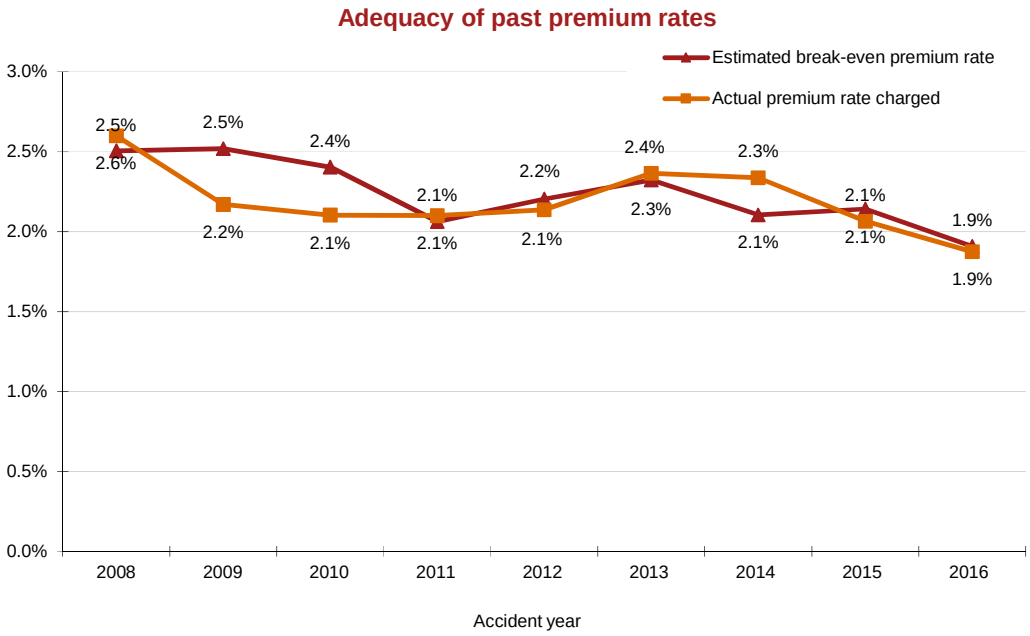
(h) earned premium, including earned but not yet reported premium provided by insurers

(i) (h) x development factors in Appendix B7

(j) = (i) / (b)

In this review, we have used developed earned premium and wages for the 2011 year onwards. This better matches the time period of the claims cost. Conversely, the 2010 and earlier years continue to use premium and wages processed as per previous reviews, because the earned premium was not available.

We have changed our approach of previously using wages and premium processed, because these amounts include wage or premium adjustments relating to prior underwriting periods. These amounts distort the calculations of premium rates, particularly in the case of a growing economy, as wage adjustments for previous years will artificially increase the current year's wages and premium received. Changes in the mix of burner policies could also distort the level of premium received by year.



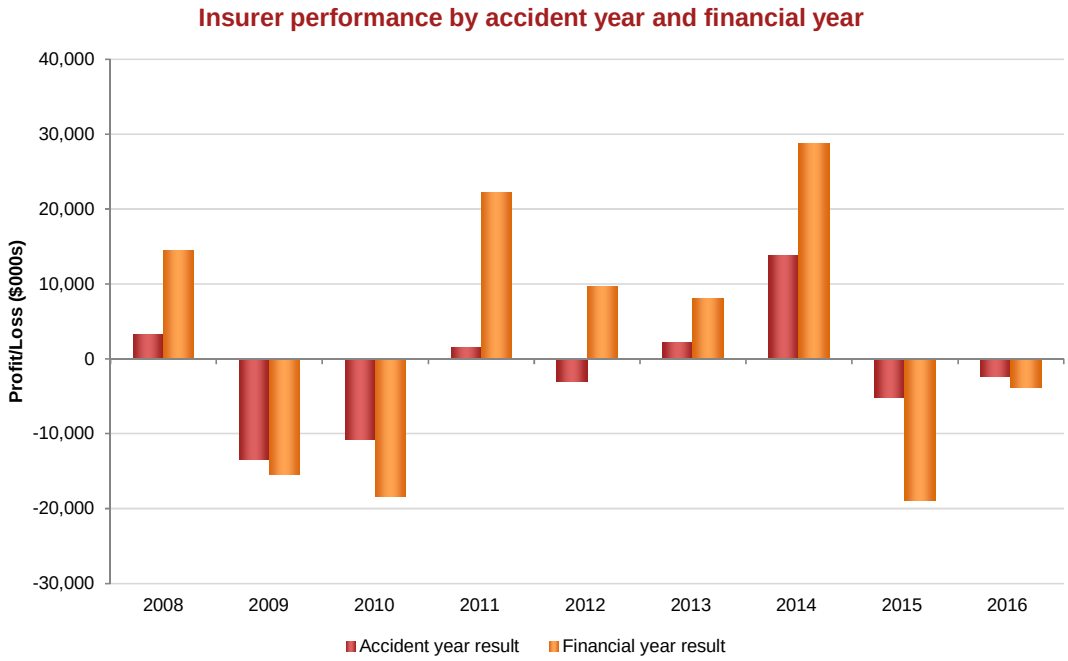
The key points to highlight from the above chart and table may be summarised as follows:

- In 2008 the actual premium rate charged by insurers of 2.5% was higher than the estimated break-even premium rate
- From 2009 to 2015 there was a significant decrease in the actual premium rate charged, to between 2.1% and 2.3%
- The estimated break-even premium rate in 2009 and 2010 was significantly higher than the actual premium rate charged
- Since 2011, the actual premium rate and the estimated break-even premium rate have been close to each other, except in 2014 when the actual premium rate charged was higher
- Following the Act changes in July 2015, both the actual premium rate and the estimated break-even premium rate have fallen to 1.9% in 2016
- With hindsight, the actual premium rate charged was more than sufficient to cover the break-even cost for accident years 2008, 2013 and 2014 were similar to estimates of break-even rates in 2011, 2015 and 2016 but less than sufficient for 2009, 2010 and 2012.

Historically, the actual rate has fluctuated around the estimated break-even premium rate. However we would expect the premium charged by insurers to be consistently higher than the break-even premium, to incorporate an appropriate profit margin. Insurers' will likely use a higher discount rate than Commonwealth yields in their pricing based on a higher expected rate of investment return. This reduces the actual premium rate charged.

Another source of difference between the two rates is reinsurance. We have estimated the break-even rate based on the gross risk cost, whereas the premium rate charged by insurers would factor in reinsurance (both recoveries and cost of a treaty). Assuming that reinsurance is priced to deliver a profit above the expected reinsurance recoveries, then the break-even rate would be expected to increase if an allowance was made for reinsurance.

Using the difference between the actual premium and break-even premium as shown in the table above we have graphed the insurer performance on an accident year basis. The financial year basis comes from the Form A supplied by insurers.



Over the nine years shown in the chart above there is no discernible trend in the insurer profitability. In general, the insurer performance on a financial year basis has been more variable than the performance on an accident year basis.

On an accident year basis the 2009, 2010, 2012, 2015 and 2016 actual premium charged is lower than the hindsight break-even premium based on current claims experience.

4.2 Forecast break-even premium rate

The following table shows the break-even premium rate projected for the next financial year. For comparative purposes, we have also shown the last five underwriting years.

Underwriting year	Actual wages (a) ($000s)	Discounted gross incurred cost (b) ($000s)	Expenses (c) ($000s)	Premium (d) ($000s)	Calculated premium rate (e)
2017	7,434,926	120,083	25,542	146,216	2.0%
2016	7,183,504	112,136	24,248	137,049	1.9%
2015	6,752,618	118,915	24,846	144,642	2.1%
2014	5,964,292	102,971	21,873	125,629	2.1%
2013	5,223,143	101,854	18,713	121,401	2.3%
2012	4,633,724	84,062	16,879	102,121	2.2%

Notes: (a) 2017 = developed wageroll for 2016 x (1 + 3.5%)

(b) 2017 = adopted claims incurred x adopted average claim size in 30 June 2016 values x (1 + wage inflation) x (1 + superimposed inflation) x inflation/discounting factor

2,671 x 41,697 x (1 + 3.5%) x (1 + 1.6%) x 1.0252

(c) = (b) / (1 – commission rate (3.4%) – other expense rate (14.1%)) – (b)

(d) = (b) / (1 – commission rate (3.4%) – other expense rate (14.1%)) x (1 + interest rate (1.6%)) ^ (3/12) to allow for the fact that premiums are received 3 months after the commencement of the underwriting period

(e) = (d) / (a)

Our projection of the break-even rate for the 2017 underwriting year is reliant on three key items:

- *Actual wages* are forecast to increase at 3.50%, being the adopted level of future wage inflation
- The *future gross incurred cost* is the product of the number of incurred claims and an average claim size, allowing for future inflation, superimposed inflation and discounting to reflect the timing of payments
- Expenses are the sum of *commission* and *other expenses,* which are both set as a percentage of the total premium.

Superimposed inflation is a measure of the growth in claims cost in excess of wage inflation.

More detailed analysis on the derivation of the four adopted assumptions for the projection (incurred claim numbers, average claim size in 30 June 2016 values, commission rate and other expense rate) are shown in Appendix H.

The adopted average claim size includes an allowance for a 2.8% reduction for the 2015 legislative changes. See Appendix B for more details.

5 Data and methods

Key points of this section

- NT WorkSafe provided us with the data required for this review
- The methodologies used to estimate the outstanding claims for insurers and self-insurers, and for the break-even premium rate are the same as those used for the previous valuation.

5.1 Data provided

NT WorkSafe supplied data to us from two sources:

- The internal WIMS database which records details of all claims lodged under the NT scheme
- Insurers' own systems giving details of claims lodged.

Following our review as at 30 June 2013, we worked with NT WorkSafe to create a data template for all insurers and self-insurers to complete. This template was provided as an Excel workbook. These returns enable us to receive consistent data, in a consistent form for our review, from all insurers. We will continue to work with insurers to improve the template for ease of use and completeness for our analysis purposes and ensure that it is feasible for all insurers to complete it.

The following list sets out the information we received for our review. All data was supplied in electronic form.

- *Report 1 – Reconciliation to Form B.* NT WorkSafe's comparison of the payments and reports in the WIMS system and provided from insurers' systems
- *Report 2 – Data based on date of accident.* Unit claims data for all claims lodged by insurers and self-insurers, with accidents grouped by financial year and presented in separate files. This data contained payment information by payment type and development year
- *Report 3 – Number of new claims received*
- *Report 4 – History of payments based on injury date.* Claim triangles for reports and payments for each insurer and in total
- *Report 5 – List of claims and insurers.* Lists all claims since scheme inception by unique identification number and the insurer the claim was lodged with
- *Insurer data templates.* This included the following information for each insurer:
  - *Form A.* A simplified profit and loss account showing only the insurance aspects
  - *Form B.* The number of claims reported and paid during the most recent financial year, and the number of active claims, the case estimates, and the outstanding provision (split by reported and unreported claims) at the end of the most recent financial year, by accident year. This also includes a summary of payments to date and case estimates by accident year for claims with a total incurred cost higher than $500,000
  - *Outstanding claims.* Specifies the gross outstanding estimate, reinsurance recoveries, claims handling expenses and prudential margin as at 30 June 2016
  - *ANZSIC data.* Policies, employees, premiums, wages for each ANZSIC category. This is provided on the current processing year and for the most recent five underwriting years
  - *Earned but not yet raised premium.* Earned but not yet raised premium for each of the five most recent earned years.
  - *Large claims.* Insurers provided information on each open large claim with total estimates over $2 million and provide information on the claim number, accident date, payments to date, case estimates, total gross estimates, estimated reinsurance recoveries, other information

We were also provided with copies of valuation reports for some insurers and self-insurers.

We have separated the data to only include the information for the four insurers and four self-insurers which are active in the scheme. These eight companies are:

- Allianz Australia Insurance Limited (including Territory Insurance Office)
- CGU Insurance Australia (Part of Insurance Australia Limited)
- GIO Insurance Australia
- QBE Insurance Australia
- Catholic Church Insurance
- Coles Supermarkets Australia Pty Ltd
- Westpac Banking Corporation
- Woolworths Supermarkets.

We have not included Government Self Insurance or uninsured data.

At 30 June 2014, TIO was a separate insurer. However, over the 2015 financial year it was purchased by Allianz.

For our analyses we have used the data described in the following way:

- *Form B* returns have been used to find the number of claims reported, the number of claims active and case estimates
- *Report 2* files have been combined to obtain payments by payment type for all accident years back to 2002 and up to development year nine. We have used the total payments from *Report 4* for development year 10+ and have spread the payments in the tail across payment types based on the distribution of payments in development years eight and nine
- Outstanding claim estimates have been taken from *insurers and self-insurer data templates*
- Assumptions regarding reinsurance recoveries and claims handling expenses have been set by considering the large claim data, *insurers' actuarial reports*, the *Form A* returns provided, and with our knowledge and experience of other similar schemes
- *ANZSIC data* has been used to find the premiums collected and associated wages for our assessment of the adequacy of historic premium rates.

For further details on the data provided see Appendix A.

5.2 Data quality and reconciliation

Overall, the data NT WorkSafe provided to us was suitable for our purposes, and we found it was broadly consistent across forms.

NT WorkSafe performs an initial set of data quality checks before the data is sent to us. We also conducted a high level check of the total payments and number of claims between the Form B returns and the WIMS system and found them to be consistent.

The table of the results from these checks can be found in Appendix A.

5.3 Data enhancements and additional data

This year the self-insurers and insurers provided us with sufficient information regarding the data enhancements included in last year's report.

At this stage we have no further data enhancements.

5.4 Projection methods for outstanding claims

We performed two separate valuations for this review, one for insurers and one for self-insurers. The sections below explain the different methodologies used for each valuation.

5.4.1 Insurers' outstanding claims valuation

We assessed the outstanding claims liability for insurers by projecting cash-flows separately for the following groupings of payment types:

- Weekly benefits
- Medical and hospital expenses
- Allied health, vocational rehabilitation, non-compensation other and death
- Other goods and services
- Non-compensation legal
- Redemptions and non-economic lump sum (90% to 95% are Hopkins settlements).

These groups are the same as for our previous review. They were selected based on similarities in the underlying nature of the claims likely to arise under each payment type and the payment patterns across development years.

We used a blend of the payments per active claim (PPAC) and payments per claim incurred (PPCI) methods to project payments for the first four of our groups listed above. For the other two groups we used a blend of the payments per claim finalised (PPCF) and PPCI methods.

Payments per claim finalised method

All payments were brought to current values and divided by the numbers of claims finalised in their respective accident years and years of payment. Averages of payments per claim finalised were formed from these figures. These averages were then combined with a projection of future numbers of claims finalised to produce projected future payments.

Payments per active claim method

As described for the payments per claim finalised method, but with a denominator of numbers of claims active at the beginning of the period.

Payments per claim incurred method

All claim payments were brought to current values and divided by the numbers of claims incurred in their respective accident years. A pattern of past payments per claim incurred was derived in respect of each accident year. These payment patterns were then extended into future years and used to project future payments.

The above methods calculate the projected liability in current values, including allowance for superimposed inflation.

The projected liability in current values is used to calculate the present value of the future claim payments by allowing for:

a Future increases prior to payment, due to claims inflation

b Discounting to take into account investment return attributable to the assets backing the provisions during the run-off period

c Reinsurance recoveries on the gross future payment amounts

d Expenses associated with administering claims during the run-off period.

We have not been provided with any detailed data on large claims or any information on the reinsurance treaties in place for the active insurers. To estimate the reinsurance recoveries, we have allowed for 100% of the large claim allowance, excluding the known non-reinsurance recoveries.

This overall approach is consistent with that required by the Accounting Standards for private and State Government general insurers (AASB1023), and APRA's prudential standard GPS320 for liability valuations for general insurance. It also complies with the Institute of Actuaries of Australia's Professional Standard PS300 to the extent possible given the data available.

The question of uncertainty in the estimates and the determination of provisions are discussed in sections 7.1 and 7.2.

5.4.2 Self-insurers' outstanding claims valuation

All analyses were performed after inflating past payments to current values as at 30 June 2016. We have used the PPCI method for our analysis and compared this to case estimates. For accident years where the PPCI result was insufficient we have adopted the case estimates or for older years we have adopted a blend of PPCI and case estimates.

The PPCI method calculates the projected liability in current values, including an allowance for superimposed inflation. We then used the same method applied to insurers to calculate the future claim payments, allowing for (a) – (d) above.

5.5 Approach to estimate break-even premium rates

We take the following steps to estimate the break-even premium rate for historic years:

a Using historic one-year forward rates, discount actual claim payments back to the start of each year

b Using the same set of discount factors, discount the inflated/discounted outstanding claims central estimate (excluding claims handling expenses) from this valuation for each year back to the start of each year

c Sum (a) and (b) to find the total discounted gross incurred cost for each year

d Using the Form A returns find the levels of commission and other expenses for each financial year

e Sum the discounted gross incurred cost, commission and other expenses, and divide this by the developed earned wages to find the break-even premium rate.

We have allowed for the following timing aspects in the estimated premium:

- Other expenses have been discounted by half a year, to allow for the fact that they are incurred evenly through the year and so on average are paid half way through the year
- Commission is assumed to be received at the same time as the premium
- Premiums have been inflated by a quarter of a year to allow for a timing delay for when they are actually received by insurers from brokers.

We have used the actual earned premiums from insurers and wages from the ANZSIC data to calculate the actual premium rate charged.

To project the break-even premium rate for 2016/17, we take the following steps:

a From historical data, estimate the incurred number of claims using average claim frequency and projected wages, an average claim size, as well as a commission rate and other expenses rate as a proportion of premium

b Calculate the discounted gross incurred cost for the next year by multiplying the incurred number of claims by the average claim size, allowing for one year's inflation and superimposed inflation and discounting

c Calculate the appropriate allowance for expenses using the following formula:
expenses = incurred cost / (1 – commission rate – other expense rate) – incurred cost

d Sum the estimated incurred cost and expense allowances, and divide this by projected wages for the next year, which are estimated as the 2015/16 developed wages inflated by one year. Also allow for the timing adjustment as premiums will be received one quarter after policy commencement.

6 Assumptions

Key points of this section

- The real rate of return has decreased significantly for all future years since the previous valuation, due to an increase in the inflation rate from 3.25% p.a. to 3.50% p.a., combined with decreases in the discount rate
- Overall, the adopted superimposed inflation rate has increased since the previous valuation, from 1.5% p.a. to 1.6% p.a.
- The commission rate and claims handling expense rate have been set by considering insurer data and with our knowledge and experience of other schemes in Australia. The claims handling expense has remained stable since our previous valuation
- Our adopted other expense rate has increased due to high insurer expense rates for the 2015 and 2016 accident years. In total, the commission and other expense rates make up 17.5% of the break-even premium rate, which is higher than the 15.9% adopted for the 30 June 2015 valuation
- For insurers, we have allowed for reinsurance recoveries on large claims which are expected to exceed the reinsurance retention, based on information provided by the insurers. Previously we adopted 100% of large claims
- For self-insurers, we have adopted a 0% reinsurance recovery rate, which is the same as the previous valuation.

6.1 Financial assumptions

Future inflation and interest rates

The financial assumptions of future inflation and market rates of interest are as follows:

Years ahead	Interest rate 30 Jun 2016	Inflation rate 30 Jun 2016	Real rate 30 Jun 2016	30 Jun 2015
1	1.63%	3.50%	-1.87%	-1.29%
2	1.49%	3.50%	-2.01%	-1.26%
3	1.53%	3.50%	-1.97%	-1.05%
4	1.74%	3.50%	-1.76%	-0.68%
5	2.02%	3.50%	-1.48%	-0.14%
6	2.17%	3.50%	-1.33%	0.36%
7	2.30%	3.50%	-1.20%	0.56%
8	2.42%	3.50%	-1.08%	0.66%
9	2.55%	3.50%	-0.95%	0.75%
10	2.67%	3.50%	-0.83%	0.84%
11	2.80%	3.50%	-0.70%	0.84%
12	2.92%	3.50%	-0.58%	0.84%
13	3.05%	3.50%	-0.45%	0.84%
14	3.17%	3.50%	-0.33%	0.84%
15 & onwards	3.30%	3.50%	-0.20%	0.84%

We have based the future interest rate assumptions on the Commonwealth Government Bond yield curve as at 30 June 2016.

We assume future wage inflation of 3.50% p.a., based on Access Economics forecasts for the NT. More details of how we derive our assumptions are given in Appendix B.

There has been a decrease in the real rates of return for all future years. This is due to an increase in our estimate of future wage inflation compared to our 30 June 2015 valuation, for which we assumed 3.25% p.a., combined with decreases in the discount rates for all future periods.

The interest rate for one quarter of DY0 ((1 + 1.63%) ^ 0.25 – 1) = 0.4% is included in the calculation of the average premium rate. This is because insurers receive premiums on average three months after the policy commencement date.

Past wage inflation

Payments and case estimates are inflated to current values based on the ABS Cat 6302.0 Average Weekly Earnings for the Northern Territory (persons full-time adult ordinary time earnings). These are detailed in appendix B1.

6.2 Superimposed inflation

The superimposed assumptions for each payment category are as follows:

Superimposed Inflation	Weekly Benefits	Medical And Hospital	Allied Health, Vocactional Rehabilitation, Non-Compsenation Payments (Other), Death	Other Goods And Services	Legals	Redemptions And Non-Economic Lump Sum	Total
30 Jun 16	1.8%	2.0%	0.0%	0.0%	3.5%	1.6%	1.6%
30 Jun 15	1.5%	1.3%	0.0%	0.0%	2.5%	1.6%	1.5%

In total, our superimposed inflation estimate of 1.6% p.a. is a 0.1% increase on the 1.5% p.a. adopted for the previous valuation. Our estimate of superimposed inflation is higher than the previous valuation for *'Medical and Hospital*', '*Legals*' and '*Weekly benefits'*.

Due to the volatility for redemptions and non-economic lump sums we have used the same superimposed inflation assumption as last year. Last year we excluded payments over $1 million in an individual payment year when calculating the superimposed inflation assumption for the *Redemptions and Non-Economic Lump Sum* payment group. This approach reduces the volatility, in order to better assess the underlying superimposed inflation rate for the payment group. We considered the same approach this year, but have adopted last year's superimposed inflation rate due to the continued volatility in the rates.

We calculate the total as a weighted average across the payment groups, weighted by the total outstanding claims estimate.

A 0% superimposed inflation rate has been adopted for payment categories which had a calculated negative superimposed inflation rate.

See Appendix B2 for more details.

6.3 Expenses

Claims handling expenses

We have reviewed the allowances made for claims handling expenses in the insurers' and self-insurers' returns provided to us, and used our knowledge and experience of other workers compensation schemes in Australia to set the following claims handling expense assumptions for use in the outstanding claims liability:

- 6% of projected future claim payments for insurers
- 7% of projected future claim payments for self-insurers.

These are the same as the previous valuation.

Commission and other expenses[1]

Insurers have provided data on historic gross written premiums, earned premiums, commission payments and other expenses as part of their Form A returns. We have used an average of the last three years to set the commission rate, as a proportion of earned premium, and the other expense rate, as a proportion of written premium, as follows:

($000s)	Underwriting year					
	2016	2015	2014	2013	2012	Adopted
Gross written premium (a)	114,332	140,232	156,328	126,743	104,221	
Earned premium (b)	119,514	141,354	137,054	106,715	96,150	
Commission paid (c)	4,163	4,558	4,775	3,697	2,864	
Other expenses (d)	20,282	20,537	17,314	15,224	14,345	
Commission rate (e)	3.5%	3.2%	3.5%	3.5%	3.0%	3.4%
Other expense rate (f)	17.7%	14.6%	11.1%	12.0%	13.8%	14.1%

Notes : (a), (b), (c), (d) actual values taken from *Consolidated Form A*

(e) = (c) / (b)

(f) = (d) / (a)

The adopted rate is used in our calculation of the break-even premium rate for the next financial year. To show the adequacy of past rates we have used the actual dollar values of commission and other expenses paid.

Compared to the previous valuation, the adopted commission rate has remained stable at 3.4%, and the other expense rate has increased (from 12.5% to 14.1%). The increase in the other expense rate is due to high expense ratios for 2015 and 2016.

In total, the commission and other expense rate make up 17.5% of the break-even premium rate, which is higher than the 15.9% adopted for the 30 June 2015 valuation.

6.4 Reinsurance

We have used the additional information provided by insurers to allow for reinsurance recoveries on large claims which are expected to exceed the retention limit. This is equivalent to 10% of all claims. We compared the reinsurance recoveries based on the large claims with insurers' total reinsurance recoveries and they were similar so we did not feel it was necessary to allow for any further reinsurance recoveries on the smaller claims.

For our previous valuation we allowed for a 100% reinsurance recovery on the separate large claims valuation category, adjusting for known non-reinsurance recoveries. This was equivalent to 13% of all claims.

We reviewed the self-insurers' reports and noted that none of them have allowed for any reinsurance recoveries. Therefore, we have not allowed for any reinsurance recoveries for self-insurers.

[1] Other expenses include claims handling expenses

6.5 2015 legislative amendments

The 2015 legislative amendments were set out in two parts. The first amendment bill, Workers' Rehabilitation and Compensation Legislation Amendment Bill 2015, passed in March 2015 and came into effect 1 July 2015. The second amendment bill, the Return to Work Legislation Amendment Bill 2015, was passed in August 2015 and came into effect on 1 October 2015.

We costed the following changes in our report titled *Actuarial costing of Northern Territory workers compensation scheme changes* dated 11 September 2014:

- For claimants with less than 15% permanent impairment (PI) capping weekly benefits to five years and all other benefits to six years
- Extending weekly benefits from 26 weeks to 104 weeks for workers within 6 months of pension age or older than it.

We also provided commentary on some other proposed scheme changes.

The estimated cost of the above changes was a 2.8% reduction. This has been allowed for in our calculations of the outstanding claims liabilities as at 30 June 2016 for the 2015/16 accident year and the future costs for the 2016/17 accident year. There is no allowance for the 2015 legislative changes in the outstanding claims liability as at 30 June 2016 for accident years before 2015/16.

As the scheme changes were broader than covered by our 11 September 2014 report, the actual impact could be different to estimated. We recommend WorkSafe NT and insurers closely monitor the experience to ensure that there aren't any unintended consequences.

7 Uncertainty

Key points of this section

- A sufficient risk margin to increase the level of reserving adequacy from 50% to 75% is 14.5% for insurers, and 23.0% for self-insurers. The rate is higher for self-insurers due to the smaller size of the portfolio causing higher volatility.
- The sensitivity testing showed greatest sensitivity to changes in the economic assumptions.

7.1 Uncertainty in the estimates

Actuarial estimates are obtained after analysis of past claims experience. From these analyses, models of the claim payment process can be established and used to project future payments on claims outstanding at the valuation date.

The estimates of outstanding claims obtained in this manner are indeed estimates in the sense that there is a degree of uncertainty as to the difference which will ultimately arise between the estimates and the final result of the experience. This uncertainty arises from four sources:

a Because the nature of the claims process is not fully understood, it might be that none of the various models used is an entirely accurate representation of reality

b Because there are components of randomness in the claims process, it is not possible to estimate the parameters of that process with complete precision even if complete confidence were felt in the nature of the model

c Any erroneous data will similarly have introduced uncertainties into the estimates of those parameters

d Even if the parameters could be estimated with precision, it would not be possible to predict outstanding claims with the same precision because of the random component in future experience.

For some portfolios errors associated with b and d above can be quantified in a formal way (estimation and statistical errors). However a large part of the uncertainty is associated with a (model specification error), and is difficult to quantify this component.

The investigation and application of different models to the data is intended to reduce the model specification error, although the extent to which this is achieved is unknown.

The initial estimates obtained from the calculations are "central" estimates in the sense that they incorporate no deliberate bias towards over or under estimation. By definition, the estimates are intended to have about an even chance of ultimately turning out to be sufficient.

7.2 Determination of provisions

7.2.1 Background

Because of the uncertainty described above, provisions which are somewhat greater than the actuarial "central" estimates are often adopted. A 50% probability of provisions being too low, is seen as involving a higher than desirable risk.

This is intended to provide security for stakeholders.

However, security is not the only reason to adopt provisions which are greater than the statistical central estimates. It may be to ensure as far as possible that provisions are not released until it is reasonably certain that they are not required. A 50% chance that the provisions will eventually not be required is generally not seen as sufficient.

Any decision to adopt provisions for outstanding claims which are greater than the central estimates, together with the extent of any margin, is in our view a decision which should properly be taken by the Boards of insurers. In making this decision they may take into account various matters (both objective and subjective) which influence their view of future experience.

It should be realised that, by definition, any margins over central estimates are intended to have a better than even chance of falling into future surplus, provided that future experience is consistent with that of the recent past. This should be considered in making management decisions.

7.2.2 Levels of sufficiency

The nature of insurance claims is such that the actual value of the liabilities is unknown because claims experience is subject to random fluctuations. The amount of the claim liability cannot be estimated with certainty. Also it is very difficult to determine the central estimate with a reasonable degree of precision. For this reason the inherent uncertainty in the central estimate must also be considered.

It is common practice for the actuary to provide a central estimate of the liabilities. Such an estimate should contain no deliberate or conscious over or under estimation.

The provision adopted in the accounts should usually be greater than the central estimate. The difference is referred to as a risk margin. As explained above, the risk margin allows for some part of the uncertainties in the claim process and also it ensures as far as possible that surplus is not released until it is reasonably certain that the surplus is real.

The adopted method was tested for its sensitivity to changes in the claim rates assumed and a measure of the variation in the results was obtained. This analysis indicated that the distribution of likely results was skewed to the right. This means that the variation upwards in the provision is expected to be greater than the variation downwards.

The dispersion of expected results is added to by :

- The variable nature of the claim experience
- Very large common law claims can sometimes occur.

The variation analysed together with benchmarking against reports published by APRA and the Institute of Actuaries leads to the assumption of a 25% coefficient of variation of the distribution of results for insurers and 50% for self-insurers which allows for the skew distribution and systemic variation. The lognormal distribution was then assumed to apply when calculating the prudential margin required to increase the level of sufficiency above 50%.

The coefficient of variation calculated as described above is taken as 25% for insurers and 50% for self-insurers. This leads to the following prudential margins.

Level of sufficiency and risk margins				
Level of sufficiency	70%	75%	80%	85%
Risk margin (insurers)	10.39%	14.54%	19.35%	25.22%
Risk margin (self-insurers)	14.58%	23.00%	33.11%	45.94%

7.2.3 Sensitivity

The adopted method was tested for its sensitivity to changes in the assumptions about future interest and inflation rates, adopted reporting rates, and superimposed inflation, and a measure of the variation in the results was obtained. The results of this analysis for insurers are shown below:

NT WorkSafe Insurers - sensitivity analysis		
Assumption varied	Variation	% Change in total provision
Future interest rates	1% increase	-3.48%
	1% decrease	3.77%
Future inflation rates	1% increase	3.68%
	1% decrease	-3.46%
Adopted claim reporting rates	DY0 rate decreased from 12.17% to 6.08%	-1.74%
Superimposed inflation	1% increase	3.25%
	1% decrease	-3.04%

The corresponding results for our self-insurer analysis are as follows:

NT WorkSafe self-insurers - sensitivity analysis		
Assumption Varied	Variation	% Change in total provision
Future interest rates	1% increase	-2.95%
	1% decrease	3.18%
Future inflation rates	1% increase	3.09%
	1% decrease	-2.93%
Incurred claims	10% increase in IBNR claims	0.77%
	10% decrease in IBNR claims	-0.77%
Superimposed inflation	1% increase	2.88%
	1% decrease	-2.73%

The percentage change in the outstanding claim provisions as at 30 June 2016 is shown in the table above. The inherent robustness of the various assumptions in the table above means that the variations shown are not necessarily cumulative. Hence care needs to be exercised in developing any best or worst case scenario.

7.3 Key risks for NT WorkSafe scheme

The following paragraphs detail some of the key risks for the NT WorkSafe scheme.

- **Inpex project**

  Significant increases in wages over recent financial years have been driven by the Inpex project and the associated contracts. The number of claims incurred and claims cost has increased at a slower rate than the increase in wages, causing the claim frequency and premium rate to reduce. We understand that over the 2017 financial year the construction phase is winding down and moving towards the production phase in the 2018 financial year. Therefore, the number of workers will reduce from a peak of 8,000 to 350-400 ongoing operational staff. As the project moves into production phase, this may significantly reduce the premium pool for the NT scheme in future years. There may be an increase in claims due to late claim reports if people cannot find alternative work, in the absence of new contract commencing.

- **Changing economic environment**

  There is considerable uncertainty associated with the current economic environment and what it will mean for Australia over the near future. Aside from the Inpex project discussed above, there may be more general real wage decreases or increases in bad debts for insurers.

  Over the last three to five financial years there has been a reduction in the number of small claims lodged with other schemes. At the same time, there has not been a reduction in the number of medium to large claims. This has impacted the overall average claim size and incurred cost for other schemes. In the NT there's been small reductions in claims less than $1,000 over the past 15 years but not to the same extent in recent years as other state schemes. We will continue to monitor the mix by size of claims lodged in NT to ensure that we adequately allow for any change in claiming behaviour.

- **Large claims**

  The incurred cost and break-even premium for each accident year are heavily influenced by the presence or absence of any large claims. This is particularly prevalent in the NT due to the small scheme size and the prevalence of Hopkins settlements. Future claims costs will continue to be impacted by these settlements, with net costs to insurers impacted by the nature and adequacy of any reinsurance arrangements in place.

  Large claims can also have an impact on superimposed inflation. While superimposed inflation remained fairly stable this year, it can be volatile due to the impact of large settlements and the relatively small scheme size. Superimposed inflation should be monitored to make sure increases in costs are understood and ensure that a payment type is not unexpectedly driving an increase in costs.

- **2015 legislative amendments**

  The 2015 legislative amendments are for prospective claims only, and were introduced in two stages. The main changes are effective from 1 July 2015, with additional changes effective from 1 October 2015. This creates additional uncertainty in the outstanding claims liabilities for the 2015/16 accident year and

the future costs for the 2016/17 accident year. In separate advice, PwC estimated that there would be a 2.8% reduction in respect of the most significant benefit changes. We have not estimated the impact of other changes. As the changes are not retrospective this should not impact outstanding claims liabilities for accident years prior to 2015/16. We recommend WorkSafe NT and insurers closely monitor the experience after the legislation is promulgated to ensure that there aren't any unintended consequences. See Appendix B6 for more information.

Appendices

Appendix A Detailed data description

A 1 Data supplied by NT WorkSafe

NT WorkSafe supplied data to us from two sources:

- The internal WIMS database which records details of all claims lodged under the NT scheme
- Insurers' own systems giving details of claims lodged with them.

All data was provided in electronic format.

NT WorkSafe perform their own initial reconciliations between the data sources, the main of these being the check of the payments in the WIMS system against payments recorded on the insurers' Form B. We have also performed our own checks between data sources and these are detailed below.

Following our review as at 30 June 2013, we worked with NT WorkSafe to create a data template for all insurers and self-insurers to complete. This template was provided as an Excel workbook. These returns enable us to receive consistent data, in a consistent form for our review, from all insurers. We will continue to work with insurers to improve the template for ease of use and completeness for our analysis purposes and ensure that it is feasible for all insurers to complete it.

The data descriptions below fall under two sections; *Actuarial data* which is the data supplied from the WIMS system, and *Template data* which is the data received from insurers.

We were also provided with copies of actuarial valuation reports for some insurers and self-insurers. However, this data is not uniformly presented and so we have not commented on it.

A1.1 Actuarial data

Five different types of report are run and extracted from the WIMS system. These are each supplied as separate data files.

Report 1 – Reconciliation to Form B

This report contains three items of data:

- NT WorkSafe's reconciliation of payments for the current financial year between the WIMS system against payments recorded on each insurers' Form B. This is done by insurer and in total
- A list of the total payments under each benefit code for the most recent financial year
- A list of all claims on which payments have been made, including details of the claim number, claimant name and amount paid.

We understand that the first sheet listed above is used by NT WorkSafe to reconcile the data before it is provided to us. A target of an absolute difference of no more than 1% is set, and if this is exceeded a manual

process is followed to adjust the data on the WIMS system for any human error which has crept in on data entry.

Report 2 – Data based on date of accident

We were provided with 13 different files of Report 2 from NT WorkSafe, one for each accident year from 2001. Each of the files contain unit claims data with the following information:

- Unique record identifier
- Claim status (accepted, pending or rejected)
- Dates of report to the employer, lodgement with NT WorkSafe and acceptance or rejection
- Work status of the claimant
- ANZSIC industry classification of the claimant's employer
- Total number of FTE workers for the claimant's employer
- Claimant date of birth
- Claimant sex
- Claimant postcode of residency
- ASCO occupation of claimant
- Duty being performed when injury occurred (for example commuting, on a break)
- Hours normally worked each week
- Normal weekly earnings
- Nature, bodily location, mechanism, agency and breakdown agency of the injury
- Time lost
- Payments for each development year (DY) and grouped for DY10+ for each of the following payment categories:
  - Weekly benefits
  - Lump sum death benefits
  - Lump sum redemptions/commutations
  - Lump sum impairment/non-economic
  - Medical
  - Hospital
  - Allied health services
  - Vocational rehabilitation
  - Other goods and services
  - Non-compensation legal
  - Non-compensation other.
- Name of the insurer or self-insurer who the claim was lodged with.

Several of the above fields (for example claim status, work status) are coded using NT WorkSafe's own coding system. We were provided with the key to this system.

Report 3 – Number of new claims received

This gives a summary of the number of new claims lodged by each insurer in the most recent financial year. The data is summarised in the following three ways:

- Total number of new claims lodged with each insurer
- Number of new claims lodged for each accident year with each insurer
- Number of new claims lodged for each calendar year of injury with each insurer.

Report 4 – History of payments based on injury date

Summarised in this report are the claim payments and reports for insurers. These are shown in the following format:

- Claim triangles of payments for each accident year since 1990 and combined for the pre-1990 accident years, for each insurer and in total
- Claim triangles of reports for each accident year since 1990 and combined for the pre-1990 accident years, for each insurer and in total
- Summary of the number of claim reports and payments made in the current financial year for each insurer for each accident year since 1990 and combined for the pre-1990 accident years.

Report 5 – List of claim and insurers

This report presents a list of all the claims which have ever been lodged with the scheme, giving the unique claim number and the insurer with which the claim was lodged.

A1.2 Template data

Insurer's operating under the NT WorkSafe scheme are required to complete and return two statutory forms on an annual basis, Form A and Form B, and are requested to provide extra information to assist in the monitoring of the scheme.

Insurers were provided with a data template in the form of an Excel workbook. This contained Form A and Form B, and tables to record the current outstanding claims liability, and policies, employees, wages and premium by ANZSIC class on both a processing and underwriting year basis, earned but not yet raised premium and large claims.

NT WorkSafe has provided each of the completed template workbooks to us.

Self-insurers provide Form B.

Form A

Form A is a simplified version of the profit and loss account for the insurance aspects of the entity only. The following data items are given for the current financial year:

- Gross premiums
- Re-insurance premiums paid
- Unearned premium at start and end of the year

- Claims paid
- Reinsurance recoveries on claims paid
- Outstanding claims at start and end of the year
- Underwriting profit/loss
- Commission paid
- Other expenses
- Investment income
- Profit/loss.

Form B

Form B contains the following data items in relation to the insurers' claims experience:

- Claims reported
- Claims paid
- Number of reported claims outstanding (active claims)
- Provisions for outstanding claims, broken down by:
  - Provisions for claims already reported
  - Provisions for unreported claims
- Case estimates for all claims
- For claims with an incurred cost over $500,000:
  - Cumulative payments to date
  - Case estimates outstanding.

Claims reported and paid are presented broken down by accident year and give the total amount over the year. Active claims, the outstanding provision, and case estimates are also broken down by accident year but show the position as at the end of the year. The large claim information shows payments made in total to date and the case estimate positon at the end of the year.

The case estimates for all claims and cumulative payments and case estimates for claims with an incurred cost over $500,000 was added this year.

Outstanding claims

This contains the following information for the insurers' outstanding claim liability at the end of the year:

- Gross central estimate
- Reinsurance recoveries
- Claims handling expense
- Prudential margin.

ANZSIC data

The file presents a breakdown of the following five data items by each ANZSIC category:

- Policies
- Employees
- Premiums
- Wages.

This information is given for the current processing year, and for the most recent five underwriting years.

Earned but not yet raised premium

The file contains information of earned but not yet raised premium as at 30 June 2016 for each of the five most recent earned years.

Large claims

Insurers provided information on each open large claim with total gross estimates over $2 million and provide information on:

- Claim number
- Accident date
- Payments to date
- Case estimates
- Total gross estimates
- Estimated reinsurance recoveries
- Other information.

A 2 Data quality

Overall, the data NT WorkSafe provided to us was suitable for our purposes.

NT WorkSafe performed an initial set of data quality checks before sending it to us. After we conducted a high level check of the total payments and reports between the Form B returns and the WIMS system we raised a few queries with some insurers and self-insurers. These have been corrected where required so the differences are relatively consistent.

The following table shows the difference between the cumulative claim payments and reports on Form B and on the WIMS system for insurers only.

Accident	Payments				Reports			
year	Form B	WIMS	Difference	Difference (%)	Form B	WIMS	Difference	Difference (%)
2016	21,714	21,146	-568	-2.6%	2,257	2,184	-73	-3.2%
2015	43,929	43,850	-79	-0.2%	2,615	2,602	-13	-0.5%
2014	58,713	59,743	1,030	1.8%	2,985	2,765	-220	-7.4%
2013	72,110	72,835	725	1.0%	2,694	2,801	107	4.0%
2012	64,695	63,742	-952	-1.5%	2,530	2,642	112	4.4%
2011	63,979	65,232	1,253	2.0%	2,622	2,707	85	3.2%
2010	68,116	67,630	-486	-0.7%	2,739	2,517	-222	-8.1%
2009	82,648	81,222	-1,426	-1.7%	2,477	2,607	130	5.2%
2008	69,334	70,995	1,662	2.4%	2,717	2,747	30	1.1%
2007	69,536	69,161	-375	-0.5%	2,754	2,489	-265	-9.6%
2006	56,616	56,654	38	0.1%	2,578	2,725	147	5.7%
2005	52,318	52,110	-208	-0.4%	2,868	2,774	-94	-3.3%
2004	45,607	43,237	-2,370	-5.2%	2,898	2,583	-315	-10.9%
2003	56,089	55,395	-693	-1.2%	2,868	2,892	24	0.8%
2002	44,780	46,001	1,221	2.7%	2,984	2,927	-57	-1.9%
Total	**870,183**	**868,954**	**-1,230**	**-0.1%**	**40,586**	**39,962**	**-624**	**-1.5%**

This table shows that in total the two systems reconcile reasonably well, with minor discrepancies across all accident years.

This is the second year for which self-insurers have completed Form B. Previously they complete Form 1, which took a slightly different form.

The following table shows the difference between the claim payments and reports for this financial year by accident year on Form B and on the WIMS system for self-insurers only.

Accident	Payments				Reports			
year	Form B	WIMS	Difference	Difference (%)	Form B	WIMS	Difference	Difference (%)
2016	735	706	-29	-3.9%	90	104	14	15.6%
2015	475	464	-11	-2.4%	34	19	-15	-44.1%
2014	135	178	43	32.0%	1	0	-1	-100.0%
2013	730	728	-1	-0.2%	1	1	0	0.0%
2012	114	233	119	104.4%	0	0	0	0.0%
2011 & earlier	8	10	2	22.0%	0	1	1	0.0%
Total	2,197	2,320	123	5.6%	126	125	-1	-0.8%

The information from Form B for the 2015 financial year reconciles fairly well with the WIMS data in aggregate, but with significant discrepancies by accident year. The difference in reports for the 2015 and 2016 accident years is due to a self-insurer switching the data by accident year. The difference in payments for the 2012 accident year is due to another self-insurer omitting a large redemption payment on Form B that is on the WIMS system.

As this is the second year the Form B has been produced we have continued to rely upon the WIMS data. We will continue to work with NT WorkSafe and the self-insurers to improve the quality of data.

Appendix B Assumptions

B 1 Financial assumptions

Future inflation and interest rates

Years ahead	Interest rate 30 Jun 2016	Inflation rate 30 Jun 2016	Real rate 30 Jun 2016	30 Jun 2015
1	1.63%	3.50%	-1.87%	-1.29%
2	1.49%	3.50%	-2.01%	-1.26%
3	1.53%	3.50%	-1.97%	-1.05%
4	1.74%	3.50%	-1.76%	-0.68%
5	2.02%	3.50%	-1.48%	-0.14%
6	2.17%	3.50%	-1.33%	0.36%
7	2.30%	3.50%	-1.20%	0.56%
8	2.42%	3.50%	-1.08%	0.66%
9	2.55%	3.50%	-0.95%	0.75%
10	2.67%	3.50%	-0.83%	0.84%
11	2.80%	3.50%	-0.70%	0.84%
12	2.92%	3.50%	-0.58%	0.84%
13	3.05%	3.50%	-0.45%	0.84%
14	3.17%	3.50%	-0.33%	0.84%
15 & onwards	3.30%	3.50%	-0.20%	0.84%

The 30 June 2016 real rates are lower than the 30 June 2015 rates for all future years. This is due to an increase in our estimate of future wage inflation compared to our 30 June 2015 valuation, for which we assumed 3.25% p.a, combined with decreases in the discount rates for all future periods.

Forward interest rates are those estimated to be anticipated over future years by the Commonwealth bond market as it stood at 30 June 2016.

The interest rates are obtained by fitting a curve to the 30 June 2016 Commonwealth Government Bond yield curve, to derive the one year forward rates of interest which are then independent of the cash flows of a particular portfolio of risks.

The central estimate of the outstanding claims liability is calculated as its "market value" i.e. the value it might attract in a hypothetical open market, in insurance claim liability portfolios. This is done by discounting the projected future cash flows at the market related future rates of interest, calculated as described above. By using this method the discounted value of the projected liability cash flows equals the market value of a matched hypothetical portfolio of Commonwealth Government Securities.

The interest rates assumed are therefore consistent with a market value approach to asset valuation and with the requirements in section 1.3. The application of this approach is theoretically correct for both reserving and premium rating.

The inflation and interest rates are chosen to be consistent with those currently used in our actuarial assessments for long tail classes.

The ***wage inflation*** assumptions we have adopted are higher than those used for the previous valuation. We have based future wage inflation on Deloitte Access Economics forecasts for NT as published on NT Treasury's website. Our analysis suggested an equivalent uniform rate of 3.50% p.a. which we adopt.

	Future wage inflation forecasts	
Financial year	Deloitte Access Economics forecasts (a)	PwC assumed (b)
2017	6.20%	3.50%
2018	2.50%	3.50%
2019	2.20%	3.50%
2020	2.50%	3.50%
2021	2.50%	3.50%
2022	2.50%	3.50%
2023	2.50%	3.50%
2024	2.50%	3.50%
2025 and later	2.50%	3.50%
Equivalent uniform rate	3.50%	3.50%

Notes : (a) from Deloitte Access Economics forecast for NT

(b) as assumed by PwC for long tail classes, based on (a)

Past wage inflation

Past wage inflation for bringing past payments and case estimates into current values is taken from ABS Cat 6302.0 Average Weekly Earnings for Northern Territory (persons full-time adult ordinary time earnings), as shown below:

			Claims escalation factors		
Year to 30-Jun	Mid Quarter AWE	End Quarter AWE	% Change p.a.	For payments	For case estimates
2002	835.4	839.5		1.916	1.882
2003	884.8	891.6	6.2%	1.833	1.772
2004	934.7	942.1	5.7%	1.723	1.677
2005	1,000.2	1,003.8	6.5%	1.622	1.574
2006	1,016.0	1,016.9	1.3%	1.559	1.553
2007	1,043.0	1,052.0	3.4%	1.537	1.502
2008	1,107.4	1,114.0	5.9%	1.456	1.418
2009	1,150.9	1,158.6	4.0%	1.389	1.363
2010	1,224.2	1,235.3	6.6%	1.323	1.279
2011	1,289.3	1,311.1	6.1%	1.243	1.205
2012	1,408.6	1,410.8	7.6%	1.146	1.120
2013	1,449.3	1,449.2	2.7%	1.106	1.090
2014	1,417.2	1,426.3	-1.6%	1.099	1.108
2015	1,513.5	1,523.3	6.8%	1.074	1.037
2016	1,569.7	1,579.8	3.7%	1.016	1.000

B 2 Superimposed inflation

A realistic level of superimposed inflation is allowed for in the outstanding claim reserves and projected break-even premium rate.

We have analysed the superimposed inflation separately for each payment type, and for each valuation method.

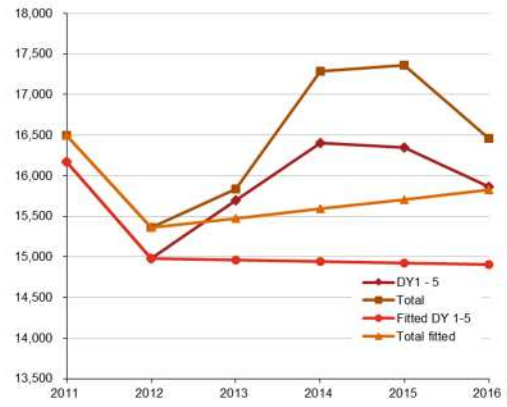
The recent trends in real growth, i.e. superimposed inflation, are shown in the charts below.

We have used the following averaging periods to analyse the superimposed inflation:

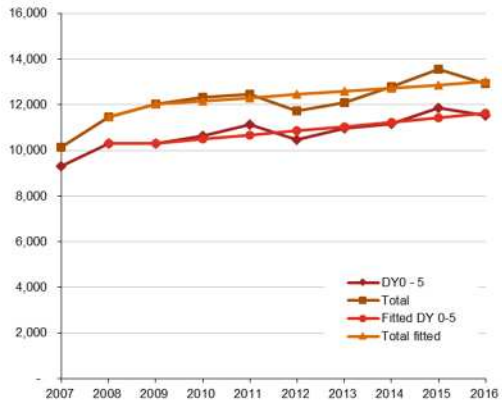
Superimposed Inflation - averaging periods (years)	Weekly Benefits	Medical And Hospital	Allied Health, Vocactional Rehabilitation, Non-Compsenation Payments (Other), Death	Other Goods And Services	Legals	Redemptions And Non-Economic Lump Sum
PPAC/PPCF	5	4	5	5	6	4
PPCI	8	8	8	8	7	5

Weekly benefits

PPAC

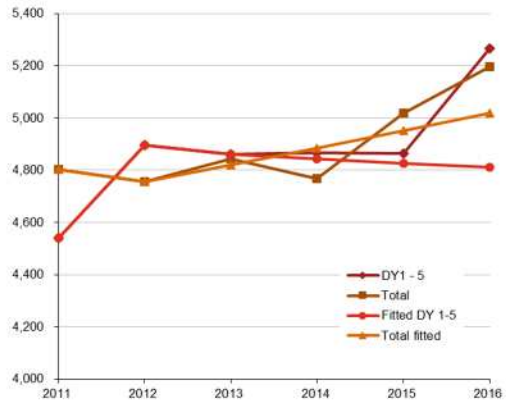


PPCI

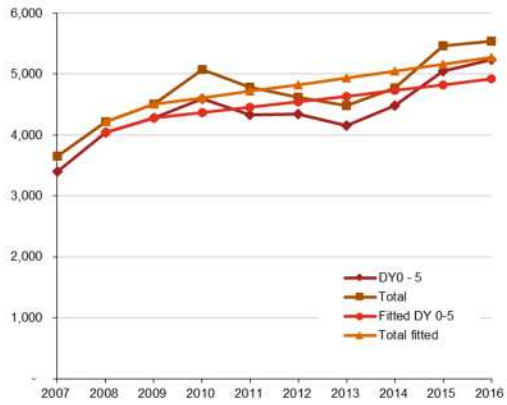


Medical and hospital

PPAC

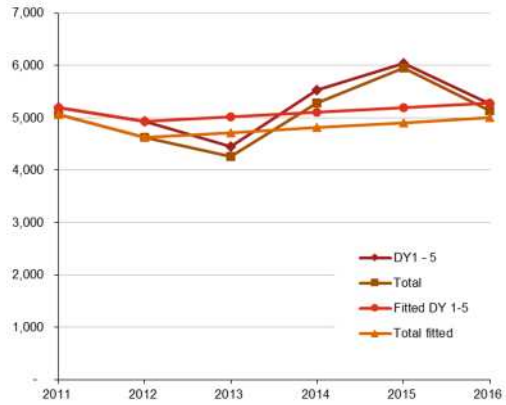


PPCI

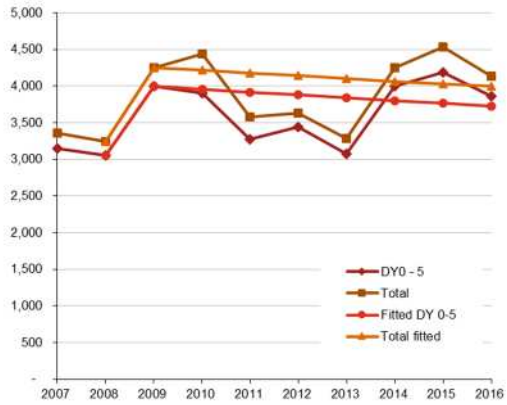


Allied health, vocational rehabilitation, non-compensation other and death

PPAC

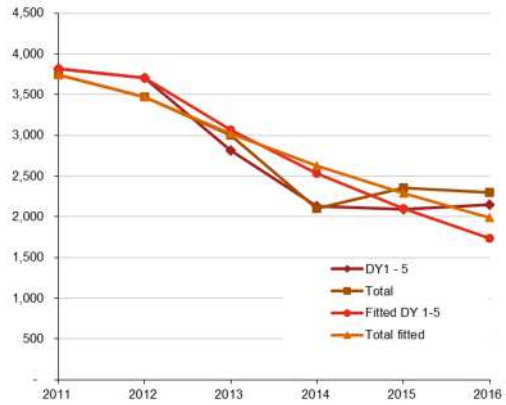


PPCI

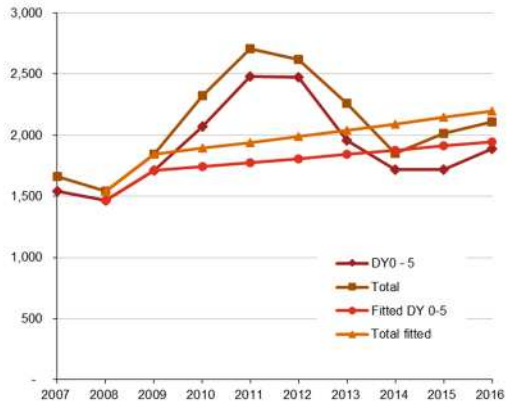


Other goods and services

PPAC

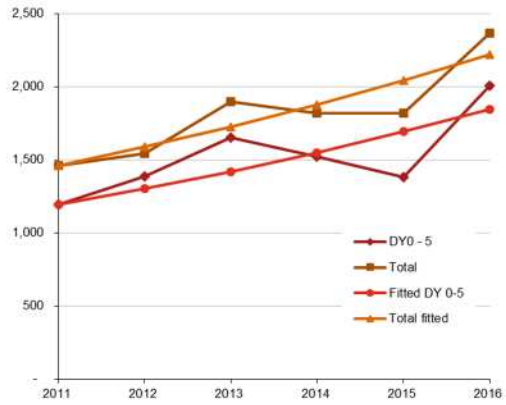


PPCI

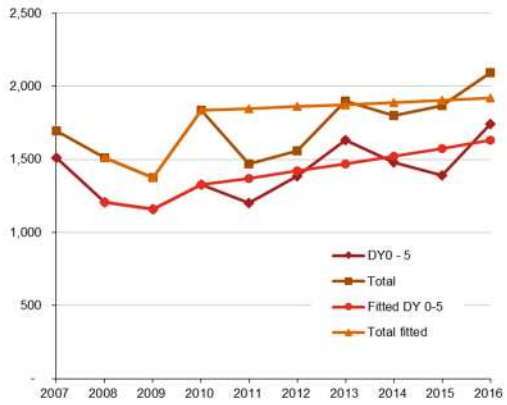


Legal

PPCF

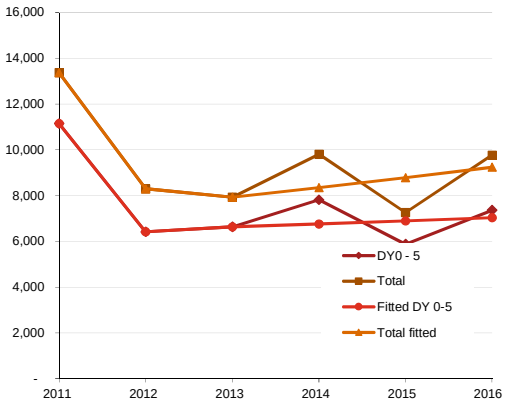


PPCI

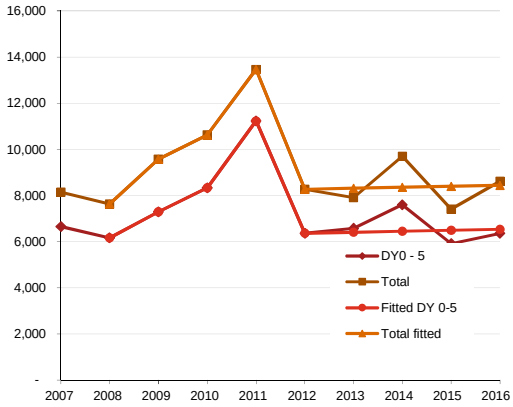


Redemptions and non-economic lump sum

PPCF



PPCI



The above graphs for *Redemptions and Non-Economic Lump Sum* payment group we have excluded payments over $1 million in an individual payment year. This has been done to try and reduce the volatility to find a true underlying superimposed inflation rate for the payment group.

This analysis of trends leads to the following assumed rates of superimposed inflation.

Superimposed Inflation	Weekly Benefits	Medical And Hospital	Allied Health, Vocactional Rehabilitation, Non-Compsenation Payments (Other), Death	Other Goods And Services	Legals	Redemptions And Non-Economic Lump Sum	Total
PPAC/PPCF	1.8%	2.0%	0.0%	0.0%	3.5%	1.6%	
PPCI	1.8%	2.0%	0.0%	0.0%	3.5%	1.6%	
30 Jun 16	1.8%	2.0%	0.0%	0.0%	3.5%	1.6%	1.6%
30 Jun 15	1.5%	1.3%	0.0%	0.0%	2.5%	1.6%	1.5%

Note a minimum of zero is applied to the superimposed inflation, hence classes with a revealed negative superimposed inflation have had a value of 0% applied. For weekly benefits, medical and hospital and legals we adopted the PPCI superimposed inflation for the PPAC method. For redemptions and non-economic lump sum we adopted the same superimposed inflation rate as last year due to the volatility.

In total, our superimposed inflation estimate of 1.6% p.a. is a 0.1% increase on the 1.5% p.a. adopted for the previous valuation. Our estimate of superimposed inflation is higher than the previous valuation for *'Medical and Hospital*', '*Legals*' and '*Weekly benefits'*.

We calculate the total as a weighted average across the payment groups, weighted by the total outstanding claims estimate.

B 3 Expenses

Claims handling expenses

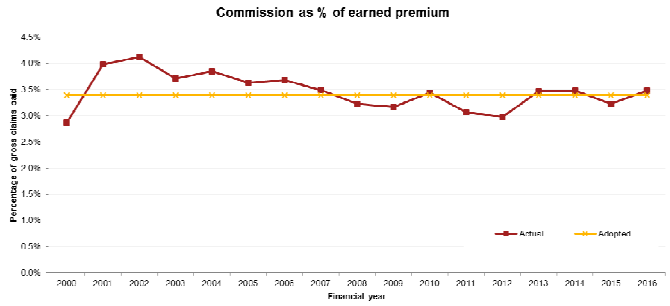
We have reviewed the allowances made for claims handling expenses in the insurers' and self-insurers' returns provided to us, and used our knowledge and experience of other workers compensation schemes in Australia to set the following claims handling expense assumptions for use in the outstanding claims liability:

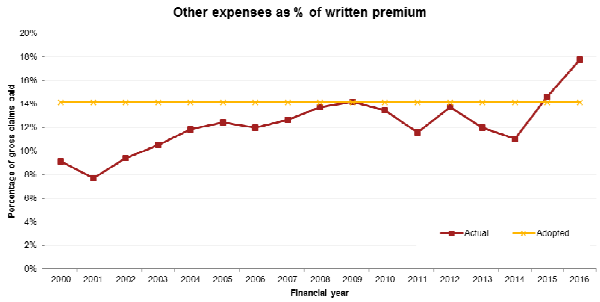
- 6% of projected future claim payments for insurers
- 7% of projected future claim payments for self-insurers.

These are the same as the previous valuation.

Commission and other expenses (includes claims handling expenses)

The historical commission rate as a percentage of earned premium and other expenses as a percentage of written premium are:





The commission as a percentage of earned premium decreased from 2001 to 2009, after which it has become more stable. Over 2001 to 2009, other expenses as a percentage of written premium increased significantly, and have been volatile since then, increasing significantly in 2015 and 2016. We don't know what has driven the increase in other expenses in 2015 and 2016 but it could be due to increases in IT costs and reallocation of expenses amongst the lines of insurance.

For the break-even premium we have used an average of the last three years to set the commission rate, as a proportion of earned premium, and average of three years for the other expense rate, as a proportion of written premium, as follows:

($000s)	Underwriting year					
	2016	2015	2014	2013	2012	Adopted
Gross written premium (a)	114,332	140,232	156,328	126,743	104,221	
Earned premium (b)	119,514	141,354	137,054	106,715	96,150	
Commission paid (c)	4,163	4,558	4,775	3,697	2,864	
Other expenses (d)	20,282	20,537	17,314	15,224	14,345	
Commission rate (e)	3.5%	3.2%	3.5%	3.5%	3.0%	3.4%
Other expense rate (f)	17.7%	14.6%	11.1%	12.0%	13.8%	14.1%

Notes : (a), (b), (c), (d) actual values taken from *Consolidated Form A*

(e) = (c) / (b)

(f) = (d) / (a)

The adopted rate is used in our calculation of the break-even premium rate for the next financial year. To show the adequacy of past rates we have used the actual dollar values of commission and other expenses paid.

Compared to the previous valuation, the adopted commission rate has remained stable at 3.4%, and the other expense rate has increased (from 12.5% to 14.1%). The increase in the other expense rate is mainly due to a high expense ratio for 2015 and 2016 underwriting years.

In total, the commission and other expense rate make up 17.5% of the break-even premium rate, which is higher than the 15.9% adopted for the 30 June 2015 valuation.

B 4 Reinsurance

We have used the additional information provided by insurers to allow for reinsurance recoveries on large claims which are expected to exceed the retention limit. This is equivalent to 10% of all claims. We compared the reinsurance recoveries based on the large claims with insurers' total reinsurance recoveries and they were similar so we did not feel it was necessary to allow for any further reinsurance recoveries on the smaller claims.

For our previous valuation we allowed for a 100% reinsurance recovery on the separate large claims valuation category, adjusting for known non-reinsurance recoveries. This was equivalent to 13% of all claims.

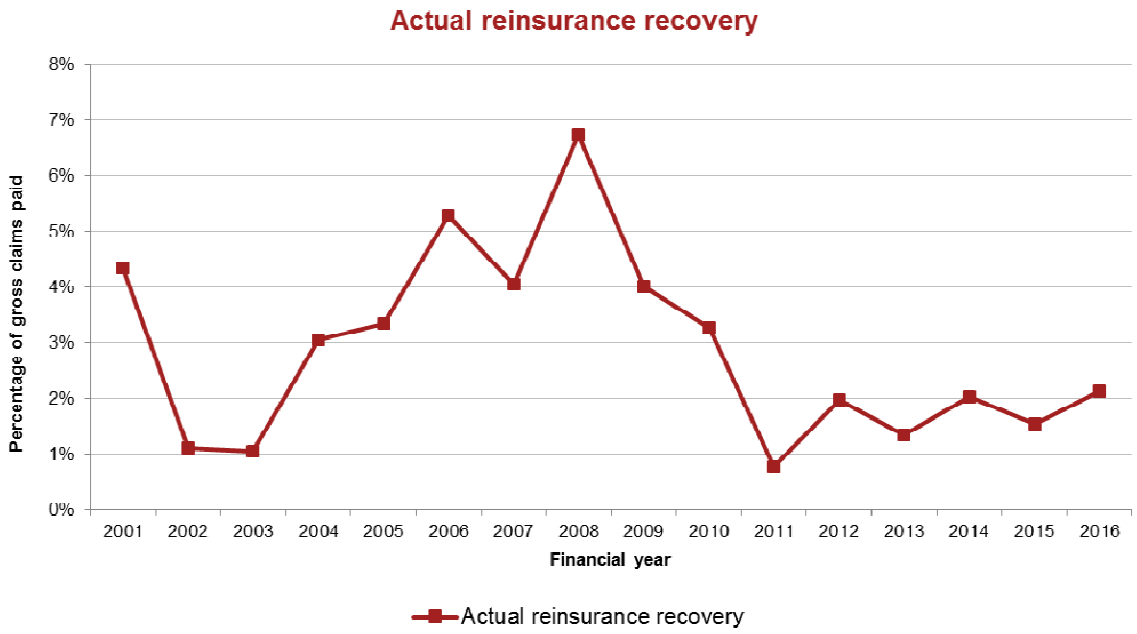
We reviewed the self-insurers' reports and as none of them allowed for any reinsurance recoveries, we have not allowed for any reinsurance recoveries for self-insurers.

The following table and chart show the historical reinsurance recoveries received by approved insurers. The reinsurance recovery rate is defined as a proportion of the gross claims paid. This is provided for information purposes and was not used for this valuation.

Financial year	Gross claims paid (a) ($000s)	Reinsurance recoveries (b) ($000s)	Reinsurance recovery (c) (%)
2001	44,638	1,941	4.3%
2002	38,683	432	1.1%
2003	40,584	429	1.1%
2004	47,842	1,457	3.0%
2005	49,586	1,658	3.3%
2006	45,946	2,431	5.3%
2007	52,003	2,106	4.0%
2008	57,010	3,837	6.7%
2009	71,840	2,886	4.0%
2010	77,791	2,537	3.3%
2011	83,908	649	0.8%
2012	82,569	1,630	2.0%
2013	89,191	1,199	1.3%
2014	91,942	1,876	2.0%

Notes : (a), (b) actual values taken from *Consolidated Form A*

(c) = (b) / (a)



B 5 GST

No explicit allowance has been made for GST net of ITC and/or DAM as our adopted bases rely on data which includes GST net of ITC and/or DAM. The 10% GST on the workers' compensation premium itself (which employers will generally be able to recover via an input tax credit) is not included in our analysis or the recommended premium rates.

B 6 2015 legislative amendments

The 2015 legislative amendments were set out in two parts.

The first amendment bill, Workers' Rehabilitation and Compensation Legislation Amendment Bill 2015, passed in March 2015 and came into effect 1 July 2015. The benefit changes that were part of this bill include:

- Presumptive legislation for firefighters and volunteers to make it easier for firefighters and volunteer firefighters to claim workers' compensation if they are diagnosed with one of the 12 cancers listed in the legislation schedule
- A change in the definition of work to align with the PAYG definition used by the Australian Taxation Office (ATO)
- Increased period of compensation for older workers by extending weekly benefits from 26 weeks to 104 weeks for workers aged 67 years and older
- Five year cap on weekly benefits for claimants with a permanent impairment of less than 15% and all medical and other costs are limited to one additional year
- Increase in death and funeral benefits to 364 times the average weekly earnings
- Compensation will not be provided for stroke or heart attacks that are not caused by work
- Capping the calculation for normal weekly earnings. During the first 26 weeks when a worker is unable to work, their compensation payments are paid at their normal weekly earnings. After 26 weeks, compensation payments are paid at 75% of their normal weekly earnings. There is now a cap on the calculation of a worker's normal weekly earnings after 26 weeks to 250% of the ABS average weekly earnings.

The second amendment bill, the Return to Work Legislation Amendment Bill 2015, was passed in August 2015 and came into effect on 1 October 2015. This bill included:

- Payment of up to 1.5 times Average Weekly Earnings for counselling and support
- While a claim is deferred, the employer is required to make weekly payments of compensation and, in the case of claims for mental stress, engage in rehabilitation
- Formal notice be provided to the worker of any pending step down or cancellation 14 days prior to it taking effect
- A mediator may recommend workers receive legal advice paid for by the employer.
- Negotiated settlements. There will be provision for the finalisation of the claim by the payment of a lump sum through negotiated settlement. The legislation requires a qualifying period of 104 weeks before a negotiated settlement
- Settlement of disputed claims. There is provision to allow for the settlement of disputed claims for compensation (whether disputed on a question of fact or law or both) and settlement of contested applications to the Work Health Court
- Exclusion of journey claims to and from work. Journeys that are considered to be in the course of employment are not excluded.

We costed the following changes in our report titled *Actuarial costing of Northern Territory workers compensation scheme changes* dated 11 September 2014:

- Increased period of compensation for older workers by extending weekly benefits from 26 weeks to 104 weeks for workers aged 67 years and older

- Five year cap on weekly benefits for claimants with a permanent impairment of less than 15% and all medical and other costs are limited to one additional year.

We also provided commentary on some other proposed scheme changes including:

- Increase in death and funeral benefits
- New settlement regime
- Exclusion of journey claims
- Weekly benefit cap of 250% of normal weekly earnings.

The estimated cost of the two changes above was a 2.8% reduction. This has been allowed for in our calculations of the outstanding claims liabilities as at 30 June 2016 for the 2015/16 accident year and the future costs for the 2016/17 accident year. There is no allowance for the 2015 legislative changes in the outstanding claims liability as at 30 June 2016 for accident years before 2015/16.

As the scheme changes were broader than covered by our report the actual impact could be different to estimated. We recommend WorkSafe NT and insurers closely monitor the experience to ensure that there aren't any unintended consequences.

B 7 Wage and premium development factors

This year we have used earned wages and premium for the first time. Earned wages and premium develop over time as wages are initially estimated at the beginning of the underwriting year and are updated with actual wages when known and reported to the insurers. Earned premium develops based on the development of earned wages but also based on adjustments for burner policies as the claim experience emerges.

The table below shows the development factors applied to earned wages. These are based on the development that occurred from 2015 to 2016.

Earned wages development factors	
Development year	2016
0	1.044
1	1.026
2	1.010
3	1.000

The table below shows the development factors applied to earned premium, including the earned but not yet raised (EBNYR) premium. These are based on the development that occurred from 2015 to 2016.

Earned premium development factors	
Development year	2016
0	1.042
1	1.040
2	1.000
3	1.000

Appendix C Insurer outstanding claim valuation

C 1 Data used in the valuation

C1.1 Number of claims reported

Accident	Number of claims reported (a) for development year:											
Year	0	1	2	3	4	5	6	7	8	9	10	Total
2004	2,338	248	5	4	1	0	0	0	1	0	2	2,599
2005	2,481	213	7	6	1	1	0	2	1	1	1	2,714
2006	2,483	254	9	6	0	0	0	0	0	2	4	2,758
2007	2,224	214	10	6	1	3	0	1	0	0	4	2,463
2008	2,463	229	10	3	3	4	2	0	0	0	0	2,714
2009	2,361	248	10	3	2	2	1	1	0	0	5	2,633
2010	2,257	230	9	4	1	0	1	0	0	0	19	2,521
2011	2,385	240	18	6	2	1	1	0	0	0	3	2,656
2012	2,348	254	10	5	3	2	1	0	1	1	2	2,627
2013	2,423	256	13	9	1	1	0	0	0	1	1	2,705
2014	2,385	320	15	6	4	0	0	1	1	1	4	2,737
2015	2,335	335	21	4	2	3	2	0	0	0	2	2,704
2016	2,257	280	16	7	1	1	2	0	0	0	0	2,564

Note: From summary of Form B returns up to 30 June 2016.

C1.2 Cumulative claims reported

Accident	Cumulative number of claims reported (a) for development year:										
Year	0	1	2	3	4	5	6	7	8	9	10
2004	2,338	2,847	2,884	2,863	2,962	2,920	2,829	2,494			
2005	2,481	2,551	2,854	2,890	2,864	2,963	2,920	2,831	2,495		
2006	2,483	2,735	2,560	2,860	2,890	2,864	2,963	2,920	2,831	2,497	
2007	2,224	2,697	2,745	2,566	2,861	2,893	2,864	2,964	2,920	2,831	2,501
2008	2,463	2,453	2,707	2,748	2,569	2,865	2,895	2,864	2,964	2,920	2,831
2009	2,361	2,711	2,463	2,710	2,750	2,571	2,866	2,896	2,864	2,964	2,925
2010	2,257	2,591	2,720	2,467	2,711	2,750	2,572	2,866	2,896	2,864	2,983
2011	2,385	2,497	2,609	2,726	2,469	2,712	2,751	2,572	2,866	2,896	2,867
2012	2,348	2,639	2,507	2,614	2,729	2,471	2,713	2,751	2,573	2,867	2,898
2013	2,423	2,604	2,652	2,516	2,615	2,730	2,471	2,713	2,751	2,574	2,868
2014	2,385	2,743	2,619	2,658	2,520	2,615	2,730	2,472	2,714	2,752	2,578
2015	2,335	2,720	2,764	2,623	2,660	2,523	2,617	2,730	2,472	2,714	2,754
2016	2,257	2,615	2,736	2,771	2,624	2,661	2,525	2,617	2,730	2,472	2,714

Note: Cumulative claim reports from table above.

C1.3 Active claims

Accident	Active claims (a) at the end of development year:											
Year	0	1	2	3	4	5	6	7	8	9	10	Total
2004	0	0	0	0	0	0	0	0	0	0	0	0
2005	0	0	0	0	0	0	0	0	0	0	0	0
2006	0	0	0	0	0	0	0	0	0	0	0	0
2007	0	0	0	0	0	0	0	0	0	0	0	0
2008	0	0	0	0	0	0	0	0	0	0	0	0
2009	0	0	0	0	0	0	0	0	0	0	0	0
2010	760	241	132	74	46	34	28	22	14	19	81	1,451
2011	778	238	112	70	42	31	29	19	22	12	87	1,440
2012	793	213	123	67	49	34	22	15	13	17	82	1,428
2013	844	231	110	72	44	37	26	15	14	10	83	1,486
2014	931	293	100	52	45	27	28	25	11	13	72	1,597
2015	854	279	145	57	37	35	25	23	19	10	59	1,543
2016	1,007	288	140	81	48	24	27	19	19	14	63	1,730

Note: From summary of Form B returns up to 30 June 2016. Active claims were provided for the first time at 30 June 2010.

C1.4 Claim payments

Accident	Claim payments for development year ($000s):											
Year	0	1	2	3	4	5	6	7	8	9	10	Total
2004	9,087	9,958	5,769	5,418	0	0	0	0	0	0	0	30,232
2005	9,859	9,677	6,938	7,693	3,082	0	0	0	0	0	0	37,249
2006	10,364	12,116	5,163	4,972	2,661	2,189	0	0	0	0	0	37,464
2007	10,102	12,555	7,357	5,581	5,574	3,397	1,173	0	0	0	0	45,739
2008	12,608	12,976	7,253	8,179	4,472	3,692	2,850	1,428	0	0	0	53,458
2009	13,725	17,159	10,609	6,702	5,625	3,113	3,122	1,584	1,138	0	0	62,778
2010	14,496	17,059	11,438	10,416	6,032	3,518	1,703	5,410	1,243	1,327	0	72,642
2011	15,305	18,855	13,740	9,562	7,328	7,050	1,695	1,446	3,003	2,297	4,766	85,048
2012	16,961	19,036	12,650	9,217	6,023	6,525	2,406	2,350	1,204	2,307	3,897	82,574
2013	18,500	22,422	11,430	7,731	16,149	3,794	2,519	661	726	1,124	4,378	89,434
2014	19,265	24,286	9,758	10,596	6,812	5,760	3,423	4,773	1,958	476	4,529	91,636
2015	19,194	24,958	15,563	9,394	3,885	4,147	3,316	2,818	1,704	1,546	5,280	91,807
2016	21,146	24,656	15,519	14,486	5,207	4,981	2,939	2,255	4,170	2,208	4,821	102,388

Note: Data extracted from the WIMS system up to 30 June 2016.

C1.5 Case estimates

Accident	Case estimates (a) for development year:											
Year	0	1	2	3	4	5	6	7	8	9	10	Total
2013	41,909	30,987	25,229	11,474	13,213	7,832	18,376	10,870	3,624	4,128	33,758	201,399
2014	49,148	25,816	20,696	16,394	10,023	7,330	9,704	15,151	8,164	2,212	32,364	197,002
2015	43,796	39,453	16,396	15,291	13,782	7,456	6,243	9,415	12,568	4,855	32,279	201,533

Note: From summary of Form B returns up to 30 June 2016. Case estimates were provided for the first time at 30 June 2014.

C 2 Actual and projected claims experience during 2015/16

This section compares the actual experience over the 2016 financial year with the expected experience based on the previous scheme valuation as at 30 June 2015.

C2.1 Number of claims reported

Accident year ended 30 June	Number of claims reported Combined total Actual (a)	Projected (b)	Actual / expected (c)
2015	280	318	88%
2014	16	18	87%
2013	7	5	133%
2012	1	2	41%
2011	1	1	70%
2010	2	1	263%
2009	0	0	0%
2008	0	0	0%
2007	0	1	0%
2006 and earlier	0	5	0%
Total	**307**	**352**	**87%**

Notes: (a) Extracted from the WIMS database to 30 June 2016

(b) Derived using the reporting rates in Appendix C3.1 of our previous scheme report dated 3 June 2016

(c) = (a) / (b) x 100.

C2.2 Proportion of claims finalised

Accident year ended 30 June	Proportion of claims finalised (a) during 2015/16 Actual	Projected (b)	Actual / expected (c)
2015	75%	77%	96%
2014	53%	54%	98%
2013	47%	47%	99%
2012	17%	35%	49%
2011	37%	28%	129%
2010	27%	23%	115%
2009	24%	26%	91%
2008	17%	25%	70%
2007	26%	21%	128%
2006 and earlier	9%	21%	42%
Total	**60.9%**	**64.8%**	**94%**

Note: (a) Defined as:

$$\frac{\text{number of claims finalised during the year}}{\text{number outstanding at beginning of year + number reported during the year}}$$

(b) According to claim finalised per handled rate in appendix C3.1 of previous scheme report dated 3 June 2016. Total is weighted average using the current year's actual number of claims handled by occurrence year as the weights.

C2.3 Claim payments

Accident year ended 30 June	Amount of claim payments during 2015/16 Combined total ($000s) Actual (a)	Projected (b)	Actual / expected (c)
2015	24,656	26,562	93%
2014	15,519	15,326	101%
2013	14,486	12,043	120%
2012	5,207	8,814	59%
2011	4,981	5,030	99%
2010	2,939	3,768	78%
2009	2,255	2,507	90%
2008	4,170	4,927	85%
2007	2,208	2,459	90%
2006 and earlier	4,821	18,900	26%
Total	**81,242**	**100,335**	**81%**

Notes: (a) Extracted from the WIMS database to 30 June 2016

(b) From previous scheme report dated 3 June 2016, in 30 June 2016 values

(c) = (a) / (b) x 100.

C 3 Analysis and projection models

C3.1 All payment types

Claim notification pattern

Accident Year	Chain ladder ratio (a) for development year: 1	2	3	4	5	6	7	8	9	10 onwards
2004	1.095	1.002	1.001	1.000	1.000	1.000	1.000	1.059	1.000	1.286
2005	1.091	1.002	1.002	1.000	1.000	1.000	1.001	1.000	1.056	1.100
2006	1.102	1.004	1.002	1.000	1.000	1.000	1.000	1.000	1.001	1.211
2007	1.086	1.004	1.002	1.000	1.001	1.000	1.000	1.000	1.000	1.002
2008	1.103	1.004	1.001	1.001	1.001	1.001	1.000	1.000	1.000	1.000
2009	1.101	1.004	1.001	1.001	1.001	1.000	1.000	1.000	1.000	1.002
2010	1.097	1.003	1.002	1.000	1.000	1.000	1.000	1.000	1.000	1.006
2011	1.106	1.007	1.002	1.001	1.000	1.000	1.000	1.000	1.000	1.001
2012	1.106	1.004	1.002	1.001	1.001	1.000	1.000	1.000	1.000	1.001
2013	1.109	1.005	1.004	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2014	1.132	1.006	1.002	1.002	1.000	1.000	1.000	1.000	1.000	1.002
2015	1.140	1.008	1.002	1.001	1.001	1.001	1.000	1.000	1.000	1.001
2016	1.120	1.006	1.003	1.000	1.000	1.001	1.000	1.000	1.000	1.000
Adopted (b)	**1.131**	**1.006**	**1.002**	**1.001**	**1.001**	**1.000**	**1.000**	**1.000**	**1.000**	**1.001**

Notes: (a) Using cumulative claim report numbers from data

(b) Calculated using a three year weighted average for development years (DY) 1 to 3 and a five year average for all other development years.

Numbers of claims incurred

Accident Year	Number of claims Reported to 30 June 2016 (a)	IBNR at 30 June 2016 (b)	Incurred (c)
2004	2,578	0	2,578
2005	2,754	0	2,754
2006	2,714	0	2,714
2007	2,472	2	2,474
2008	2,730	2	2,732
2009	2,617	3	2,620
2010	2,525	3	2,528
2011	2,661	4	2,665
2012	2,624	5	2,629
2013	2,771	8	2,779
2014	2,736	14	2,750
2015	2,615	30	2,645
2016	2,257	325	2,582

Notes: (a) from number reported in appendix C1.1

(b) from pattern in chain ladder ratio table above

(c) = (a) + (b)

Claim finalised per handled rate

Accident Year	Finalisation rate (a) for development year: 0	1	2	3	4	5	6	7	8	9	10 onwards
2013	0.652	0.780	0.513	0.455	0.353	0.260	0.235	0.318	0.067	0.286	0.170
2014	0.610	0.748	0.593	0.552	0.408	0.386	0.243	0.074	0.313	0.133	0.258
2015	0.634	0.780	0.538	0.452	0.315	0.271	0.138	0.179	0.240	0.091	0.322
2016	0.554	0.746	0.525	0.467	0.172	0.368	0.270	0.240	0.174	0.263	0.087
Adopted (b)	**0.613**	**0.763**	**0.542**	**0.480**	**0.320**	**0.317**	**0.226**	**0.196**	**0.203**	**0.203**	**0.215**

Notes: (a) Defined as: Number of claims finalised / number of claims handled

(b) Calculated using a four year weighted average for all development years.

C3.2 Weekly benefits

Claim payments

Accident Year	Claim payments (a) for development year: 0	1	2	3	4	5	6	7	8	9	10 onwards	Total
2004	3,750,913	4,140,602	1,942,588	1,367,331	0	0	0	0	0	0	0	11,201,434
2005	4,648,838	3,782,442	2,407,078	2,072,924	890,009	0	0	0	0	0	0	13,801,291
2006	4,772,881	5,000,913	1,552,571	1,730,175	883,068	605,665	0	0	0	0	1,179,002	15,724,275
2007	4,621,258	5,522,676	2,312,112	1,299,739	1,642,490	672,462	632,222	0	0	0	812,307	17,515,266
2008	5,922,879	5,883,407	2,769,084	1,656,662	1,318,783	1,132,900	773,494	597,426	0	0	939,640	20,994,275
2009	6,228,835	6,655,731	3,960,452	1,258,278	832,907	604,411	884,027	399,102	380,034	0	1,955,917	23,159,694
2010	6,456,241	6,548,963	3,445,777	2,485,146	1,484,384	465,078	531,917	801,976	407,221	613,423	1,334,224	24,574,350
2011	7,024,860	8,365,356	2,792,467	2,222,666	1,470,556	1,455,385	512,217	523,367	686,608	257,529	968,287	26,279,298
2012	7,653,496	7,579,813	3,964,698	1,803,241	1,270,971	1,584,552	642,719	349,971	409,600	551,010	1,140,780	26,950,851
2013	8,827,197	8,886,932	3,561,415	2,734,261	1,115,920	1,368,720	967,895	4,494	372,833	302,744	1,131,243	29,273,654
2014	8,112,093	10,405,904	3,401,196	2,381,386	2,125,933	1,102,380	1,214,201	678,973	358,515	389,871	1,309,605	31,480,057
2015	8,223,357	11,079,237	5,605,649	2,512,465	1,283,333	1,155,455	573,282	805,123	922,606	332,210	1,553,111	34,045,828
2016	8,755,250	10,660,206	5,402,484	3,198,133	1,340,209	815,046	644,946	474,422	522,645	679,442	1,253,562	33,746,345

Notes: (a) Data extracted from the WIMS system up to 30 June 2016. DY10+ using the Report 4 payments

Average real payment per active claim

Accident Year	Weekly Benefits PPAC (a) for development year: 1	2	3	4	5	6	7	8	9	10 onwards
2011	13,681	14,402	20,929	24,700	39,325	18,725	23,232	38,791	22,863	12,035
2012	11,167	19,093	18,454	20,811	43,242	23,763	13,832	24,709	28,707	13,207
2013	12,396	18,495	24,589	18,423	30,898	31,489	226	27,494	25,760	12,640
2014	13,554	16,187	23,800	32,461	27,543	36,077	28,709	26,276	30,615	15,481
2015	12,778	20,543	26,977	26,499	27,570	22,798	30,875	39,626	32,428	19,619
2016	12,688	19,682	22,418	23,899	22,390	18,730	19,289	23,097	36,348	18,466
Adopted (b)	**12,735**	**20,123**	**24,249**	**25,451**	**27,400**	**27,643**	**26,496**	**29,852**	**31,768**	**17,739**

Notes: (a) In 30 June 2016 values

(b) Calculated using a two year weighted average for DYs 1 to 2, a four year weighted average for DY3 to 6, 7 and 8 and a three year weighted average for DY7 and 10, adjusting for outliers where necessary.

Average real payment per claim incurred

Accident Year	Weekly Benefits PPCI (a) for development year: 0	1	2	3	4	5	6	7	8	9	10 onwards	Total
2004	2,506	2,487	1,155	822	0	0	0	0	0	0	0	6,970
2005	2,738	2,380	1,361	1,160	504	0	0	0	0	0	0	8,143
2006	2,742	2,831	939	941	475	329	0	0	0	0	79,920	88,177
2007	2,871	3,127	1,290	775	880	357	339	0	0	0	499	10,139
2008	3,156	3,463	1,485	876	745	575	389	303	0	0	483	11,475
2009	3,304	3,384	2,224	644	420	326	428	191	184	0	929	12,035
2010	3,380	3,308	1,669	1,330	724	223	273	370	186	283	592	12,338
2011	3,276	4,113	1,325	1,011	739	667	231	252	298	110	420	12,442
2012	3,336	3,260	1,798	789	533	734	271	146	182	220	451	11,721
2013	3,514	3,739	1,478	1,196	471	554	433	2	150	130	436	12,103
2014	3,243	4,117	1,422	982	925	463	489	302	145	156	558	12,801
2015	3,338	4,326	2,166	1,026	517	491	235	316	400	131	606	13,553
2016	3,447	4,097	1,997	1,170	518	311	259	184	194	279	469	12,926
Adopted (b)	**3,392**	**4,214**	**2,082**	**1,033**	**590**	**508**	**338**	**267**	**211**	**182**	**502**	**13,320**

Notes: (a) In 30 June 2016 values

(b) Calculated using a two year average for DYs 0 to 2, a three year weighted average for DY7 and a five year average for all other DYs, adjusting for outliers where necessary. A decay factor of 73% has been assumed after DY9. The aggregate for DY10 onwards is shown.

Estimates from models

Weekly Benefits	Estimated outstanding claims claims at 30 June 2016 ($000s) (a)			Weighting	
Accident Year	PPAC	PPCI	Adopted	PPAC	PPCI
2016	32,451	26,813	29,069	40%	60%
2015	18,074	15,950	16,799	40%	60%
2014	12,089	10,621	11,208	40%	60%
2013	9,064	7,704	8,248	40%	60%
2012	5,866	5,627	5,866	100%	0%
2011	3,269	4,264	3,269	100%	0%
2010	3,464	3,129	3,464	100%	0%
2009	2,375	2,492	2,375	100%	0%
2008	2,147	1,983	2,147	100%	0%
2007 & earlier	7,069	5,297	5,297	0%	100%
Total	**95,869**	**83,882**	**87,743**		

Notes: (a) From models described above, in 30 June 2016 values and includes superimposed inflation but excludes the 2015 legislative amendments

C3.3 Medical and hospital

Claim payments

Accident Year	Claim payments (a) for development year: 0	1	2	3	4	5	6	7	8	9 10 onwards		Total
2004	2,406,951	1,542,861	447,390	186,476	0	0	0	0	0	0	0	4,583,678
2005	2,614,630	1,570,099	802,613	331,488	175,175	0	0	0	0	0	0	5,494,005
2006	2,749,613	2,074,713	419,634	386,572	296,048	62,150	0	0	0	0	0	5,988,730
2007	2,585,463	1,646,653	687,767	394,179	316,294	147,263	83,368	0	0	0	331,235	6,192,222
2008	3,579,319	2,209,555	540,753	606,722	187,383	220,673	65,565	69,104	0	0	228,214	7,707,288
2009	3,741,213	2,808,425	909,690	424,545	117,673	143,441	118,315	55,304	46,632	0	263,987	8,629,225
2010	4,113,780	2,539,692	1,039,031	655,342	466,859	170,986	145,452	112,152	150,648	66,583	549,506	10,010,031
2011	4,549,792	2,722,397	723,139	478,082	334,251	318,953	124,344	65,743	323,875	142,187	374,844	10,157,607
2012	4,665,246	3,373,354	927,818	474,053	269,961	250,060	137,885	60,493	51,395	158,574	272,036	10,640,875
2013	4,663,674	3,603,009	1,043,761	442,068	197,289	183,961	255,237	28,860	19,463	157,285	320,497	10,915,104
2014	5,388,134	3,841,439	764,401	626,885	315,116	213,159	120,997	185,779	39,070	17,751	317,818	11,830,549
2015	6,204,709	4,213,293	1,175,360	357,453	437,096	255,493	149,173	174,226	296,992	34,874	367,927	13,666,596
2016	6,444,279	4,983,741	1,240,415	427,403	202,805	253,257	153,222	126,842	95,932	50,978	352,183	14,331,057

Note: Data extracted from the WIMS system up to 30 June 2016. DY10+ using the Report 4 payments

Average real payment per active claim

Accident Year	Medical And Hospital PPAC (a) for development year: 1	2	3	4	5	6	7	8	9 10 onwards	
2011	4,452	3,729	4,502	5,614	8,618	4,546	2,918	18,298	12,623	4,659
2012	4,970	4,468	4,851	4,420	6,824	5,098	2,391	3,100	8,262	3,149
2013	5,026	5,420	3,976	3,257	4,153	8,304	1,451	1,435	13,383	3,581
2014	5,004	3,638	6,265	4,811	5,326	3,595	7,855	2,863	1,394	3,757
2015	4,859	4,307	3,838	9,026	6,096	5,932	6,681	12,756	3,404	4,648
2016	5,932	4,519	2,996	3,616	6,957	4,450	5,157	4,239	2,727	5,188
Adopted (b)	**5,158**	**4,451**	**4,305**	**4,373**	**5,789**	**5,423**	**4,781**	**5,565**	**5,880**	**3,975**

Notes: (a) In 30 June 2016 values

(b) Calculated using a five year weighted average for all DYs, adjusting for outliers where necessary.

Average real payment per claim incurred

Accident Year	Medical And Hospital PPCI (a) for development year: 0	1	2	3	4	5	6	7	8	9 10 onwards		Total
2004	1,608	927	266	112	0	0	0	0	0	0	0	2,913
2005	1,540	988	454	186	99	0	0	0	0	0	0	3,266
2006	1,580	1,175	254	210	159	34	0	0	0	0	0	3,411
2007	1,606	932	384	235	169	78	45	0	0	0	204	3,653
2008	1,907	1,300	290	321	106	112	33	35	0	0	117	4,222
2009	1,984	1,428	511	217	59	77	57	27	23	0	125	4,509
2010	2,154	1,283	503	351	228	82	75	52	69	31	244	5,070
2011	2,122	1,339	343	217	168	146	56	32	140	61	163	4,787
2012	2,034	1,451	421	207	113	116	58	25	23	63	108	4,619
2013	1,856	1,516	433	193	83	74	114	12	8	67	124	4,481
2014	2,154	1,520	320	259	137	89	49	83	16	7	136	4,768
2015	2,519	1,645	454	146	176	109	61	68	129	14	143	5,465
2016	2,537	1,915	459	156	78	97	62	49	36	21	132	5,542
Adopted (b)	**2,528**	**1,778**	**418**	**192**	**118**	**96**	**68**	**47**	**41**	**35**	**128**	**5,448**

Notes: (a) In 30 June 2016 values

(b) Calculated using a two year weighted average DYs 0 and 1 and a five year weighted average for all other DYs, adjusted for outliers where necessary. A decay factor of 79% has been assumed after DY9. The aggregate for DY10 onwards is shown.

Estimates from models

Medical And Hospital					
	Estimated outstanding claims				
Accident	claims at 30 June 2016 ($000s) (a)			Weighting	
Year	PPAC	PPCI	Adopted	PPAC	PPCI
2016	9,203	7,859	8,396	40%	60%
2015	3,654	3,237	3,404	40%	60%
2014	2,327	2,161	2,227	40%	60%
2013	1,792	1,613	1,685	40%	60%
2012	1,202	1,190	1,202	100%	0%
2011	663	928	663	100%	0%
2010	705	692	705	100%	0%
2009	497	582	497	100%	0%
2008	463	485	463	100%	0%
2007 & earlier	1,603	1,744	1,744	0%	100%
Total	**22,109**	**20,490**	**20,986**		

Notes: (a) From models described above, in 30 June 2016 values and includes superimposed inflation but excludes the 2015 legislative amendments

C3.4 Allied health, vocational rehabilitation, non-compensation (other) and death

Claim payments

Accident	Claim payments (a) for development year:											
Year	0	1	2	3	4	5	6	7	8	9	10 onwards	Total
2004	1,663,436	2,280,112	962,185	420,617	0	0	0	0	0	0	0	5,326,350
2005	1,358,925	1,890,566	1,041,944	479,728	240,606	0	0	0	0	0	0	5,011,769
2006	1,326,485	2,025,411	873,541	573,235	263,167	148,520	0	0	0	0	0	5,210,359
2007	1,589,128	1,942,786	927,530	397,675	336,791	243,939	136,410	0	0	0	209,668	5,783,927
2008	1,799,554	2,127,851	652,592	479,144	189,028	258,609	145,286	79,879	0	0	144,457	5,876,400
2009	2,353,552	3,397,234	983,622	480,839	325,118	106,012	225,114	86,876	60,346	0	167,101	8,185,814
2010	2,414,948	2,698,696	1,323,850	673,720	415,171	157,705	116,269	183,296	126,476	382,779	347,830	8,840,740
2011	1,619,548	2,841,896	969,159	764,929	342,332	321,059	136,660	81,571	145,650	70,965	237,272	7,531,041
2012	2,535,609	2,492,688	1,294,941	403,986	640,432	507,062	102,063	41,001	58,384	93,257	172,195	8,341,618
2013	2,450,461	2,841,420	1,134,442	509,938	298,929	216,879	143,948	94,135	33,874	30,464	202,871	7,957,361
2014	3,361,314	3,618,209	1,486,319	864,605	353,159	214,183	243,243	65,783	62,260	39,744	201,175	10,509,994
2015	2,553,935	4,060,744	2,104,344	995,769	451,970	386,902	140,082	191,187	166,531	116,635	232,894	11,400,993
2016	2,990,453	3,925,546	1,929,501	807,261	242,898	194,630	141,303	96,278	114,604	118,250	222,927	10,783,651

Note: Data extracted from the WIMS system up to 30 June 2016. DY10+ using the Report 4 payments

Average real payment per active claim

Accident	Allied Health, Vocational Rehabilitation, Non-Compensation Payments (Other), Death PPAC (a) for development year:									
Year	1	2	3	4	5	6	7	8	9	10 onwards
2011	4,648	4,998	7,203	5,750	8,675	4,996	3,621	8,229	6,300	2,949
2012	3,672	6,236	4,134	10,486	13,838	3,774	1,620	3,522	4,859	1,994
2013	3,963	5,891	4,586	4,935	4,896	4,683	4,733	2,498	2,592	2,267
2014	4,713	7,074	8,641	5,392	5,351	7,227	2,782	4,563	3,121	2,378
2015	4,683	7,712	10,692	9,333	9,232	5,571	7,332	7,152	11,385	2,942
2016	4,672	7,029	5,659	4,331	5,347	4,104	3,914	5,065	6,326	3,284
Adopted (b)	**4,689**	**7,291**	**8,001**	**6,872**	**7,695**	**5,108**	**4,051**	**4,826**	**5,439**	**2,516**

Notes: (a) In 30 June 2016 values

(b) Calculated using a three year weighted average for DYs 1 to 3, and a five year average for all other DYs.

Average real payment per claim incurred

Allied Health, Vocational Rehabilitation, Non-Compensation Payments (Other), Death												
Accident	PPCI (a) for development year:											
Year	0	1	2	3	4	5	6	7	8	9	10 onwards	Total
2004	1,112	1,370	572	253	0	0	0	0	0	0	0	3,306
2005	800	1,190	589	269	136	0	0	0	0	0	0	2,984
2006	762	1,147	528	312	142	81	0	0	0	0	0	2,971
2007	987	1,100	518	237	180	129	73	0	0	0	129	3,354
2008	959	1,252	350	253	107	131	73	41	0	0	74	3,240
2009	1,248	1,727	552	246	164	57	109	42	29	0	79	4,255
2010	1,264	1,363	641	360	202	76	60	85	58	177	154	4,440
2011	755	1,397	460	348	172	147	62	39	63	30	103	3,577
2012	1,105	1,072	587	177	269	235	43	17	26	37	68	3,636
2013	975	1,195	471	223	126	88	64	38	14	13	78	3,286
2014	1,344	1,431	621	357	154	90	98	29	25	16	86	4,251
2015	1,037	1,586	813	407	182	164	57	75	72	46	91	4,530
2016	1,177	1,509	713	295	94	74	57	37	43	49	83	4,131
Adopted (b)	**1,188**	**1,508**	**718**	**352**	**166**	**128**	**64**	**40**	**35**	**32**	**81**	**4,312**

Notes: (a) In 30 June 2016 values

(b) Calculated using a two year weighted average for DYs 0 to 3, a five year average for all other DYs. A decay factor of 72% has been assumed after DY9. The aggregate for DY10 onwards is shown.

Estimates from models

Allied Health, Vocational Rehabilitation, Non-Compensation Payments (Other), Death					
Accident	Estimated outstanding claims claims at 30 June 2016 ($000s) (a)			Weighting	
Year	PPAC	PPCI	Adopted	PPAC	PPCI
2016	9,905	8,065	8,801	40%	60%
2015	4,871	4,274	4,513	40%	60%
2014	2,785	2,470	2,596	40%	60%
2013	1,774	1,518	1,621	40%	60%
2012	1,038	1,000	1,038	100%	0%
2011	488	672	488	100%	0%
2010	497	475	497	100%	0%
2009	341	389	341	100%	0%
2008	302	309	302	100%	0%
2007 & earlier	931	756	756	0%	100%
Total	**22,932**	**19,929**	**20,952**		

Notes: (a) From models described above, in 30 June 2016 values and includes superimposed inflation but excludes the 2015 legislative amendments

C3.5 Other goods and services

Claim payments

Accident Year	Claim payments (a) for development year: 0	1	2	3	4	5	6	7	8	9	10 onwards	Total
2004	941,109	825,270	248,210	128,442	0	0	0	0	0	0	0	2,143,031
2005	869,796	757,593	352,912	141,350	59,290	0	0	0	0	0	0	2,180,941
2006	868,463	920,704	217,433	237,431	39,375	30,087	0	0	0	0	0	2,313,493
2007	1,073,145	800,665	358,966	160,880	185,147	44,076	46,077	0	0	0	159,908	2,828,864
2008	1,109,871	827,823	275,410	182,574	85,722	183,976	20,278	23,488	0	0	110,173	2,819,315
2009	1,234,445	1,149,196	468,962	165,602	170,877	66,805	103,871	31,142	22,987	0	127,444	3,541,331
2010	1,119,411	1,914,284	577,979	294,112	114,282	56,387	44,834	191,069	30,123	19,473	265,281	4,627,235
2011	1,357,986	1,419,516	1,774,413	370,817	199,111	85,453	59,446	48,905	211,722	15,125	180,961	5,723,455
2012	1,626,314	1,488,961	538,824	1,014,463	182,189	779,617	49,111	41,856	18,135	118,795	131,329	5,989,594
2013	1,568,276	1,464,369	610,500	294,071	630,061	166,282	509,228	22,570	12,114	7,029	154,724	5,439,224
2014	1,742,119	1,401,921	430,785	347,657	149,912	187,116	156,222	-13,833	12,821	19,453	153,431	4,587,604
2015	1,546,844	1,684,093	452,554	202,359	316,201	119,758	154,664	240,214	135,516	14,040	177,622	5,043,865
2016	1,991,625	1,971,623	486,263	233,675	96,645	114,752	80,224	92,729	146,768	89,762	170,021	5,474,087

Note: Data extracted from the WIMS system up to 30 June 2016. DY10+ using the Report 4 payments

Average real payment per active claim

Accident Year	Other Goods And Services PPAC (a) for development year: 1	2	3	4	5	6	7	8	9	10 onwards
2011	2,322	9,151	3,492	3,344	2,309	2,173	2,171	11,962	1,343	2,249
2012	2,194	2,595	10,382	2,983	21,276	1,816	1,654	1,094	6,189	1,520
2013	2,043	3,170	2,645	10,402	3,754	16,567	1,135	893	598	1,729
2014	1,826	2,050	3,475	2,289	4,675	4,642	-585	940	1,528	1,814
2015	1,942	1,658	2,173	6,529	2,858	6,151	9,212	5,820	1,370	2,244
2016	2,347	1,772	1,638	1,723	3,152	2,330	3,770	6,486	4,802	2,505
Adopted (b)	**2,036**	**1,810**	**2,358**	**4,743**	**3,579**	**6,335**	**4,088**	**3,536**	**3,438**	**1,919**

Notes: (a) In 30 June 2016 values

(b) Calculated using a three year weighted average for most DYs except DY4, 6 and7 which use a five year weighted, adjusted for outliers where necessary.

Average real payment per claim incurred

Accident Year	Other Goods And Services PPCI (a) for development year: 0	1	2	3	4	5	6	7	8	9	10 onwards	Total
2004	629	496	148	77	0	0	0	0	0	0	0	1,349
2005	512	477	200	79	34	0	0	0	0	0	0	1,301
2006	499	521	131	129	21	16	0	0	0	0	0	1,318
2007	667	453	200	96	99	23	25	0	0	0	98	1,662
2008	591	487	148	97	48	93	10	12	0	0	57	1,543
2009	655	584	263	85	86	36	50	15	11	0	61	1,846
2010	586	967	280	157	56	27	23	88	14	9	118	2,325
2011	633	698	842	169	100	39	27	24	92	6	78	2,708
2012	709	640	244	444	76	361	21	17	8	47	52	2,621
2013	624	616	253	129	266	67	228	9	5	3	60	2,260
2014	697	555	180	143	65	79	63	-6	5	8	65	1,853
2015	628	658	175	83	127	51	63	94	59	6	69	2,013
2016	784	758	180	85	37	44	32	36	55	37	64	2,112
Adopted (b)	**687**	**644**	**206**	**176**	**114**	**117**	**80**	**39**	**26**	**20**	**62**	**2,172**

Notes: (a) In 30 June 2016 values

(b) Calculated using a five year weighted average for all development years, adjusted for outliers where necessary. A decay factor of 75% has been assumed after DY9. The aggregate for DY10 onwards is shown.

Estimates from models

Other Goods And Services					
Accident Year	Estimated outstanding claims claims at 30 June 2016 ($000s) (a) PPAC	PPCI	Adopted	Weighting PPAC	PPCI
2016	4,232	3,833	3,993	40%	60%
2015	2,057	2,223	2,156	40%	60%
2014	1,544	1,745	1,664	40%	60%
2013	1,293	1,275	1,282	40%	60%
2012	775	905	775	100%	0%
2011	439	604	439	100%	0%
2010	390	372	390	100%	0%
2009	246	283	246	100%	0%
2008	217	224	217	100%	0%
2007 & earlier	710	664	664	0%	100%
Total	**11,903**	**12,128**	**11,827**		

Notes: (a) From models described above, in 30 June 2016 values and includes superimposed inflation but excludes the 2015 legislative amendments

C3.6 Legals

Claim payments

Accident Year	Claim payments (a) for development year: 0	1	2	3	4	5	6	7	8	9 10 onwards		Total
2004	128,021	630,523	698,061	821,687	0	0	0	0	0	0	0	2,278,292
2005	156,955	445,754	720,803	640,892	296,808	0	0	0	0	0	0	2,261,212
2006	220,962	521,023	630,304	568,796	234,876	237,764	0	0	0	0	0	2,413,725
2007	101,442	499,512	688,390	786,769	365,276	216,776	139,945	0	0	0	177,302	2,975,412
2008	102,809	409,304	632,966	486,280	454,738	118,188	292,904	178,138	0	0	122,157	2,797,484
2009	104,263	553,131	459,063	465,487	473,244	166,346	146,740	72,882	86,698	0	141,306	2,669,160
2010	110,485	572,976	563,716	752,159	321,759	303,526	171,042	341,489	66,246	222,859	294,137	3,720,394
2011	119,748	435,187	911,353	435,657	327,544	296,488	143,894	73,735	73,122	116,630	200,645	3,134,003
2012	189,595	633,460	574,349	768,389	248,978	705,228	75,826	105,448	52,297	46,709	145,614	3,545,893
2013	192,251	592,132	775,905	604,921	1,139,497	588,270	216,238	139,320	58,533	56,996	171,554	4,535,617
2014	200,375	738,137	874,295	623,968	499,375	640,462	283,856	219,827	80,257	8,704	170,120	4,339,376
2015	143,327	946,655	883,762	500,120	660,560	354,453	344,651	349,078	114,010	181,815	196,943	4,675,374
2016	419,883	905,704	1,232,367	1,174,123	447,374	450,979	140,213	497,677	66,402	13,080	188,515	5,536,317

Note: Data extracted from the WIMS system up to 30 June 2016. DY10+ using the Report 4 payments

Average real payment per claim finalised

Accident Year	Legals PPCF (a) for development year: 0	1	2	3	4	5	6	7	8	9 10 onwards	
2011	93	710	7,706	7,963	11,974	23,032	29,808	10,183	0	72,481	15,587
2012	140	887	5,266	17,614	11,891	80,831	8,691	8,633	8,563	8,923	8,784
2013	135	801	7,399	11,152	52,519	50,055	29,899	22,015	64,746	15,761	11,163
2014	152	932	6,583	10,718	17,709	41,418	34,673	120,835	17,646	4,784	7,481
2015	104	1,030	5,615	11,426	41,722	29,276	92,517	74,964	20,403	195,223	7,552
2016	341	1,088	8,081	16,809	45,472	32,742	14,252	84,309	16,873	2,659	31,935
Adopted (b)	**191**	**1,016**	**6,729**	**13,277**	**29,534**	**35,070**	**35,854**	**86,334**	**18,543**	**27,261**	**10,002**

Notes: (a) In 30 June 2016 values

(b) Calculated using a three year weighted average for all development years.

Average real payment per claim incurred

Accident Year	Legals PPCI (a) for development year: 0	1	2	3	4	5	6	7	8	9	10 onwards	Total
2004	86	379	415	494	0	0	0	0	0	0	0	1,373
2005	92	280	408	359	168	0	0	0	0	0	0	1,307
2006	127	295	381	309	126	129	0	0	0	0	0	1,368
2007	63	283	384	469	196	115	75	0	0	0	109	1,694
2008	55	241	340	257	257	60	147	90	0	0	63	1,510
2009	55	281	258	238	239	90	71	35	42	0	67	1,376
2010	58	289	273	402	157	146	88	158	30	103	130	1,834
2011	56	214	432	198	165	136	65	36	32	50	87	1,470
2012	83	272	260	336	104	327	32	44	23	19	58	1,558
2013	77	249	322	265	481	238	97	57	24	24	66	1,899
2014	80	292	366	257	217	269	114	98	33	3	73	1,801
2015	58	370	341	204	266	151	141	137	49	72	77	1,867
2016	165	348	456	429	173	172	56	193	25	5	71	2,093
Adopted (b)	**100**	**336**	**388**	**299**	**219**	**198**	**105**	**143**	**35**	**27**	**73**	**1,924**

Notes: (a) In 30 June 2016 values

(b) Calculated using a three year weighted average for all DYs. A decay factor of 73% has been assumed after DY9. The aggregate for DY10 onwards is shown.

Estimates from models

Legals					
	Estimated outstanding claims				
Accident	claims at 30 June 2016 ($000s) (a)			Weighting	
Year	PPCF	PPCI	Adopted	PPCF	PPCI
2016	6,589	5,305	5,819	40%	60%
2015	5,078	4,377	4,657	40%	60%
2014	3,838	3,348	3,544	40%	60%
2013	2,974	2,451	2,660	40%	60%
2012	1,792	1,675	1,792	100%	0%
2011	871	1,123	871	100%	0%
2010	876	769	876	100%	0%
2009	348	400	348	100%	0%
2008	320	309	320	100%	0%
2007 & earlier	936	800	800	0%	100%
Total	**23,624**	**20,557**	**21,689**		

Notes: (a) From models described above, in 30 June 2016 values and includes superimposed inflation but excludes the 2015 legislative amendments

C3.7 Redemptions and non-economic lump sum

Claim payments

Accident Year	Claim payments (a) for development year: 0	1	2	3	4	5	6	7	8	9	10 onwards	Total
2004	197,062	538,264	1,470,677	2,493,133	0	0	0	0	0	0	0	4,699,136
2005	209,768	1,230,788	1,612,489	4,026,245	1,420,089	0	0	0	0	0	0	8,499,379
2006	425,384	1,572,841	1,469,834	1,475,560	944,031	1,104,674	0	0	0	0	0	6,992,324
2007	131,929	2,142,270	2,382,640	2,541,463	2,728,467	2,072,153	135,271	0	0	0	2,477,508	14,611,701
2008	93,842	1,517,939	2,381,761	4,767,251	2,235,901	1,778,006	1,552,447	480,349	0	0	1,706,950	16,514,446
2009	62,563	2,595,444	3,827,537	3,907,582	3,705,432	2,026,427	1,644,063	938,726	541,239	0	1,974,521	21,223,534
2010	280,698	2,784,712	4,487,364	5,555,307	3,229,869	2,364,519	693,696	3,779,622	462,428	21,995	4,110,085	27,770,295
2011	633,217	3,071,083	6,569,632	5,289,766	4,654,321	4,572,384	718,199	652,827	1,562,328	1,694,999	2,803,686	32,222,442
2012	290,423	3,467,687	5,349,468	4,752,877	3,410,329	2,698,787	1,398,278	1,750,848	614,058	1,338,167	2,034,719	27,105,641
2013	798,093	5,034,020	4,304,159	3,146,178	12,767,423	1,269,418	426,392	371,696	228,690	569,448	2,397,190	31,312,707
2014	461,434	4,280,115	2,801,334	5,751,145	3,368,411	3,402,835	1,404,766	3,636,688	1,404,997	0	2,377,149	28,888,874
2015	522,306	2,974,003	5,341,548	4,826,066	735,591	1,874,791	1,954,630	1,058,632	68,471	866,380	2,751,951	22,974,369
2016	544,312	2,208,806	5,228,454	8,645,902	2,877,308	3,152,006	1,778,661	966,730	3,223,685	1,256,746	2,634,186	32,516,796

Note: Data extracted from the WIMS system up to 30 June 2016. DY10+ using the Report 4 payments

Note that 90% to 95% of this category relates to Hopkins settlements.

Average real payment per claim finalised

Accident Year	Redemptions And Non-Economic Lump Sum PPCF (a) for development year: 0	1	2	3	4	5	6	7	8	9	10 onwards
2011	490	5,009	55,548	96,688	170,146	355,195	148,778	90,157	0	1,053,377	217,798
2012	214	4,853	49,051	108,952	162,868	309,328	160,267	143,341	100,545	255,629	122,744
2013	559	6,807	41,043	58,002	588,442	108,012	58,956	58,736	252,964	157,473	155,979
2014	349	5,402	21,094	98,790	119,455	220,055	171,594	1,999,015	308,920	0	104,534
2015	379	3,235	33,938	110,255	46,461	154,850	524,694	227,340	12,253	930,271	105,532
2016	443	2,654	34,286	123,774	292,457	228,842	180,788	163,768	819,160	255,478	446,243
Adopted (b)	**388**	**4,535**	**35,193**	**100,069**	**240,084**	**217,151**	**217,151**	**217,151**	**217,151**	**217,151**	**139,258**

Notes: (a) In 30 June 2016 values

(b) Calculated using a five year weighted average for DYs 0 to 4 and 10, and a five year tail average for DY 5 to DY 9.

Average real payment per claim incurred

Accident Year	Redemptions And Non-Economic Lump Sum PPCI (a) for development year: 0	1	2	3	4	5	6	7	8	9	10 onwards	Total
2004	132	323	874	1,498	0	0	0	0	0	0	0	2,827
2005	124	774	912	2,254	803	0	0	0	0	0	0	4,867
2006	244	890	889	802	508	601	0	0	0	0	0	3,934
2007	82	1,213	1,330	1,515	1,462	1,099	73	0	0	0	1,522	8,296
2008	50	893	1,278	2,520	1,263	903	780	244	0	0	878	8,808
2009	33	1,320	2,150	2,000	1,869	1,092	796	450	262	0	938	10,911
2010	147	1,407	2,173	2,972	1,575	1,136	356	1,744	211	10	1,823	13,555
2011	295	1,510	3,117	2,406	2,339	2,094	324	315	677	727	1,215	15,020
2012	127	1,491	2,426	2,079	1,431	1,251	591	729	273	535	805	11,736
2013	318	2,118	1,787	1,377	5,391	514	191	151	92	244	925	13,107
2014	184	1,693	1,171	2,372	1,465	1,428	565	1,616	569	0	1,014	12,079
2015	212	1,161	2,064	1,971	296	796	801	416	30	343	1,073	9,163
2016	214	849	1,933	3,162	1,112	1,202	715	375	1,199	516	987	12,265
Adopted (b)	**212**	**1,462**	**1,874**	**2,210**	**1,932**	**1,034**	**576**	**642**	**442**	**327**	**1,025**	**11,734**

Notes: (a) In 30 June 2016 values

(b) Calculated using a five year weighted average for all DYs except 10 which uses a three year weighted average. A decay factor of 76% has been assumed after DY9. The aggregate for DY10 onwards is shown.

Estimates from models

Redemptions And Non-Economic Lump Sum					
	Estimated outstanding claims				
Accident	claims at 30 June 2016 ($000s) (a)			Weighting	
Year	PPCF	PPCI	Adopted	PPCF	PPCI
2016	38,578	31,767	34,492	40%	60%
2015	31,680	28,201	29,593	40%	60%
2014	25,577	23,745	24,478	40%	60%
2013	19,391	17,529	18,274	40%	60%
2012	10,893	11,287	10,893	100%	0%
2011	5,432	8,528	5,432	100%	0%
2010	5,542	6,518	5,542	100%	0%
2009	3,813	4,981	3,813	100%	0%
2008	3,506	3,917	3,506	100%	0%
2007 & earlier	11,971	11,950	11,950	0%	100%
Total	**156,384**	**148,423**	**147,973**		

Notes: (a) From models described above, in 30 June 2016 values and includes superimposed inflation but excludes the 2015 legislative amendments

C3.8 Large claims

Large claims ($000s)			
	Case estimates (a)	Development factor (b)	Current values (c)
2016	3,014	0.00	0
2015	13,699	1.00	13,699
2014	0	0.00	0
2013	1,761	0.00	0
2012	5,465	1.00	5,465
2011	1,608	0.00	0
2010	0	0.00	0
2009	6,546	1.00	6,546
2008	6,490	1.00	6,490
2007 & earlier	21,279	0.00	21,279
Total	**59,862**		**53,479**

Notes: (a) Provided by the insurers,

(b) We have adopted a development factor of 1 where we consider that the valuation by payment types include insufficient allowance for the large claims. Where the valuation by payment type has sufficient allowance we have adopted a development factor of 0

(c) = (a) x (b)

C 4 Adopted estimates of outstanding claims

C4.1 Gross central estimates from models in 30 June 2016 values, excluding allowance for Act changes

	Estimates of outstanding claims at 30 June 2016 ($000s) (a) (b)							
Accident year	Weekly Benefits	Medical And Hospital	Allied Health, Vocational Rehabilitation, Non-Compensation Payments (Other), Death	Other Goods And Services	Legals	Redemptions And Non-Economic Lump Sum	Allowance for active large claims	Total
2016	29,069	8,396	8,801	3,993	5,819	34,492	0	90,569
2015	16,799	3,404	4,513	2,156	4,657	29,593	13,699	74,821
2014	11,208	2,227	2,596	1,664	3,544	24,478	0	45,718
2013	8,248	1,685	1,621	1,282	2,660	18,274	0	33,769
2012	5,866	1,202	1,038	775	1,792	10,893	5,465	27,032
2011	3,269	663	488	439	871	5,432	0	11,163
2010	3,464	705	497	390	876	5,542	0	11,473
2009	2,375	497	341	246	348	3,813	6,546	14,167
2008	2,147	463	302	217	320	3,506	6,490	13,445
2007 & earlier	5,297	1,744	756	664	800	11,950	21,279	42,491
Total	**87,743**	**20,986**	**20,952**	**11,827**	**21,689**	**147,973**	**53,479**	**364,649**

Notes: (a) From models described in appendix C3, excluding allowance for the 2015 legislative amendments described in Appendix B6

(b) In 30 June 2016 values and includes superimposed inflation

C4.2 Gross central estimates from models in 30 June 2016 values, including allowance for Act changes

	Estimates of outstanding claims at 30 June 2016 ($000s) (a) (b)							
Accident year ending 30 June	Weekly Benefits	Medical And Hospital	Allied Health, Vocactional Rehabilitation, Non-Compensation Payments (Other), Death	Other Goods And Services	Legals	Redemptions And Non-Economic Lump Sum	Active large claims allowance	Total
2016	27,483	8,141	8,557	3,731	5,819	34,492	0	88,223
2015	16,799	3,404	4,513	2,156	4,657	29,593	13,699	74,821
2014	11,208	2,227	2,596	1,664	3,544	24,478	0	45,718
2013	8,248	1,685	1,621	1,282	2,660	18,274	0	33,769
2012	5,866	1,202	1,038	775	1,792	10,893	5,465	27,032
2011	3,269	663	488	439	871	5,432	0	11,163
2010	3,464	705	497	390	876	5,542	0	11,473
2009	2,375	497	341	246	348	3,813	6,546	14,167
2008	2,147	463	302	217	320	3,506	6,490	13,445
2007 & earlier	5,297	1,744	756	664	800	11,950	21,279	42,491
Total	**86,158**	**20,730**	**20,708**	**11,566**	**21,689**	**147,973**	**53,479**	**362,303**

Notes: (a) From models described in appendix C3, including allowance for the 2015 legislative amendments described in Appendix B6

(b) In 30 June 2016 values and includes superimposed inflation

C4.3 Average claim sizes

	Average claim size at 30 June 2016 ($) (a)							
Accident year	Weekly Benefits	Medical And Hospital	Allied Health, Vocational Rehabilitation, Non-Compensation Payments (Other), Death	Other Goods And Services	Legals	Redemptions And Non-Economic Lump Sum	Allowance for active large claims	Adopted
2016	14,092	5,690	4,492	2,229	2,419	13,574	0	42,498
2015	13,786	5,721	4,251	2,201	2,167	12,249	5,179	45,555
2014	13,643	5,068	4,587	2,139	2,194	12,181	0	39,813
2013	13,934	4,593	4,098	1,901	2,097	13,813	0	40,435
2012	12,272	4,551	3,818	1,920	1,756	10,642	2,079	37,037
2011	11,052	4,786	3,094	2,006	1,673	9,483	0	32,095
2010	13,532	4,692	4,043	1,960	1,568	10,628	0	36,424
2009	10,985	4,290	3,689	3,445	2,331	16,087	2,499	43,326
2008	12,092	4,566	4,358	2,059	1,543	11,357	2,375	38,351

Note: (a) In 30 June 2016 values, from results in appendix C4.2, includes superimposed inflation and 2015 legislation amendments

C4.4 Relationship to case estimates

	Ratio of outstanding to case estimates at 30 June 2016 ($) (a)							
Accident year	Weekly Benefits	Medical And Hospital	Allied Health, Vocational Rehabilitation, Non-Compensation Payments (Other), Death	Other Goods And Services	Legals	Redemptions And Non-Economic Lump Sum	Allowance for active large claims	Adopted
2016	63%	19%	20%	9%	13%	79%	0%	201%
2015	43%	9%	11%	5%	12%	75%	35%	190%
2014	68%	14%	16%	10%	22%	149%	0%	279%
2013	54%	11%	11%	8%	17%	120%	0%	221%
2012	43%	9%	8%	6%	13%	79%	40%	196%
2011	44%	9%	7%	6%	12%	73%	0%	150%
2010	55%	11%	8%	6%	14%	89%	0%	184%
2009	25%	5%	4%	3%	4%	41%	70%	150%
2008	17%	4%	2%	2%	3%	28%	52%	107%
2007 & earlier	14%	5%	2%	2%	2%	32%	57%	114%

Note: (a) In 30 June 2016 values, from results in appendix C4.2, includes superimposed inflation and 2015 legislation amendments

C4.5 Summary of gross adopted estimates in 30 June 2016 values

Accident year	Estimate of outstanding claims (a)	Estimate of outstanding claims (b)	Average claim size (b)	Ratio of outstanding to ise estimates (b)
	$000s	$000s	$	
2016	90,569	88,223	42,498	201%
2015	74,821	74,821	45,555	190%
2014	45,718	45,718	39,813	279%
2013	33,769	33,769	40,435	221%
2012	27,032	27,032	37,037	196%
2011	11,163	11,163	32,095	150%
2010	11,473	11,473	36,424	184%
2009	14,167	14,167	43,326	150%
2008	13,445	13,445	38,351	107%
2007 & earlier	42,491	42,491		114%
Total	**364,649**	**362,303**		**180%**

Notes: (a) in 30 June 2016 values, including superimposed inflation but excluding the 2011 Amendment Act

(b) including the 2011 Amendment Act

C4.6 Gross adopted estimates excluding expenses

Gross estimates at 30 June 2016 excluding expenses ($000s)			
Accident year ending 30 June	30 June 2016 values	Inflated values	Infl/disc values
2016	88,223	99,195	92,996
2015	74,821	85,653	79,498
2014	45,718	51,793	48,312
2013	33,769	38,388	35,726
2012	27,032	30,861	28,659
2011	11,163	12,931	11,885
2010	11,473	13,263	12,202
2009	14,167	16,049	14,983
2008	13,445	15,254	14,237
2007 & earlier	42,491	47,608	44,838
Total	**362,303**	**410,995**	**383,337**

Note: Includes superimposed inflation and 2015 legislative amendments

C4.7 Net outstanding claims provision

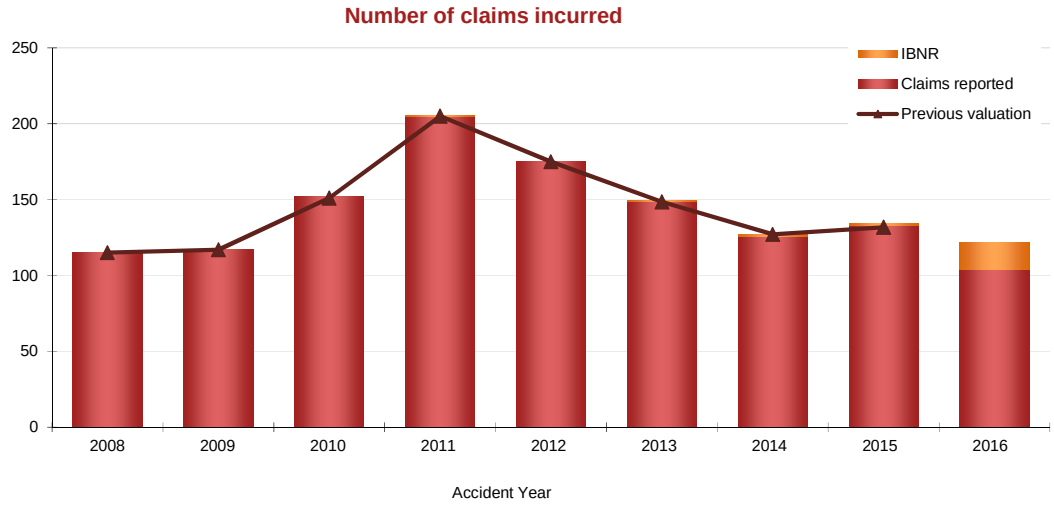
Estimates at 30 June 2016 ($000s)	Gross o/s liability (a)	Reinsurance recoveries (b)	Net o/s liability (c)	Claims handling expenses (d)	Net central estimate (e)	Risk margin (f)	Net Provision (g)
Total	383,337	39,458	343,879	20,633	364,512	53,003	417,515

Notes:
(a) from table above
(b) allows for reinsurance recoveries on large claims which are expected to exceed the reinsurance retention
(c) = (a) – (b)
(d) = (c) x 6%
(e) = (c) + (d)
(f) = (e) x 14.5%
(g) = (e) + (f)

Appendix D Insurer claims statistics

D 1 Number of claims incurred

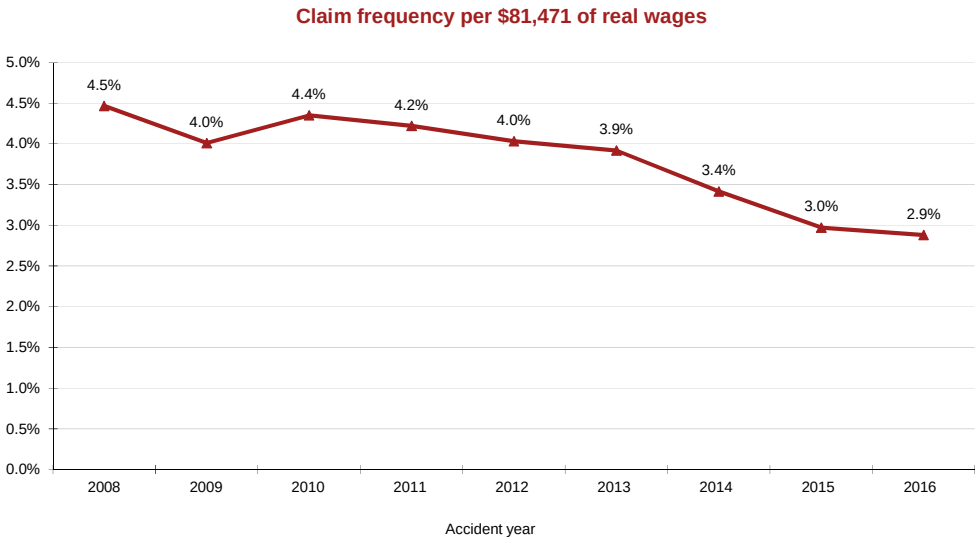
Decreasing trend from 2011 peak to 2016



The main points to highlight from this chart are:

- Since 2008 the number of claims incurred has varied from one year to the next, but has generally exhibited stability
- For the 2009 to 2012 accident years, the number of claims incurred was between 2,500 and 2,700
- There was a spike in the number of claims incurred for the 2013 accident year to just under 2,800
- From the 2013 to 2016 accident years, there has been a decreasing trend in the number of claims incurred
- Incurred claims estimated for the 2016 accident year are 2,582, which is 63 (2.4%) fewer than 2015
- The number of claims are similar to estimated at the previous valuation.

Declining claim frequency due to significant increases in wages with relatively stable number of claims



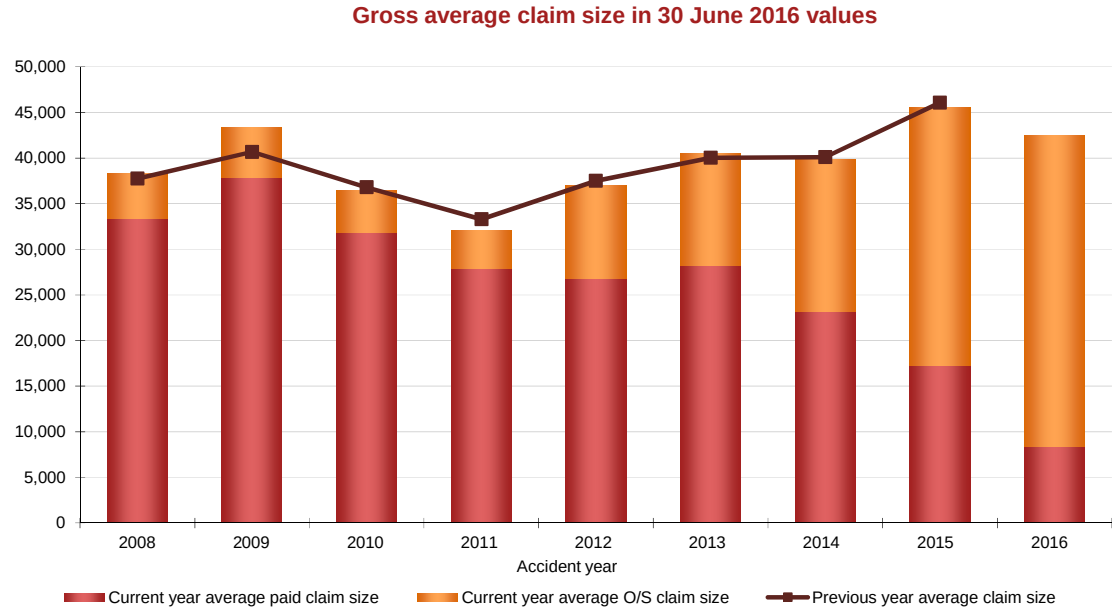
The claim frequency is calculated as:

$$\frac{\text{the number of claims incurred}}{\text{estimated number of full time equivalent employees}}$$

To estimate the number of employees we have used the wages provided, inflated this to 2016 values and divided by $81,471 (the full time average weekly earnings for the NT from the ABS catalogue 6302). We have not used the number of employees provided in the ANZSIC data as these are not full time equivalent.

D 2 Gross average claim size

Average claim size for 2016 is estimated to be below the very high 2015 but higher than most recent years



Since 2008 the gross average claim size (in 2016 values):

- Exhibited volatility due in part to large claims, which have the largest impact on 2009 and 2015
- Dropped to a low of around $32,000 in 2011, caused by lower than average redemption payments
- Exhibited an increasing trend from around $32,000 in 2011 to around $42,500 in 2016

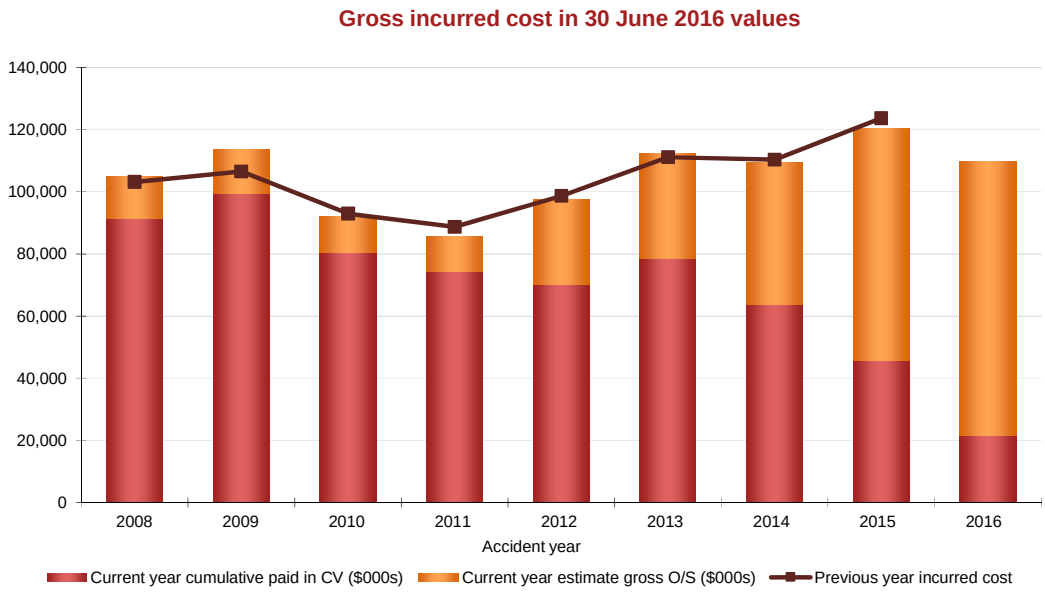
The uncertainty about the future development means that the ultimate level and our estimates may differ from those projected for recent accident years. This is especially true for the 2016 accident year, where a high proportion (80%) of the average claim size relates to uncertain future claims development.

Compared to the previous valuation, the gross average claim size is similar for most years with the exception of 2009, where estimates increased. This was due to a large non-reinsurance recovery that was not received and is no longer expected to be received, and an increase in the size of a large claim. Conversely, 2011 reduced due to lower than expected payments and development.

Appendix E contains the average claim size split by payment type. The mix of payment types across the accident years has remained fairly stable. Redemptions and non-economic lump sums (90% to 95% are Hopkins settlements) are the largest payment type, closely followed by weekly benefits. These two payment types account for two thirds of total incurred costs.

D 3 Gross incurred cost

2016 incurred cost is $109.7 million, which is lower than 2015 but in line with prior years



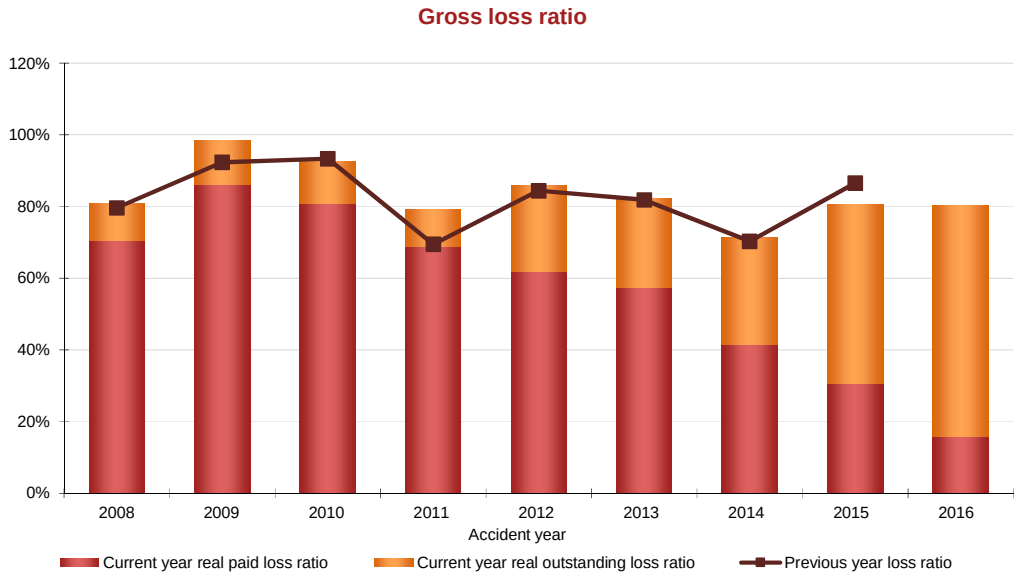
The gross incurred cost in 30 June 2016 values follows a similar pattern to the average claim size.

Over the period shown in the graph, the proportion outstanding increases from 12% of the total incurred cost to 80% of the total incurred cost for 2016.

As for the average claim size graph, the changes since the previous valuation are mostly due to higher or lower claims payments and development than expected over the year.

D 4 Gross loss ratios

Loss ratio for 2016 estimated at 80%, similar to 2015



The gross loss ratios are calculated for each accident year using the following formula:

$$\frac{\text{(Past claim payments to 30 June 2016+ estimated outstanding liability at 30 June 2016)}}{\text{Gross developed earned premium}}$$

The past claim payments, estimated outstanding liability and gross developed earned premium are all in 30 June 2016 values i.e. current values, and the estimated outstanding liability includes allowance for future superimposed inflation.

We have used the developed earned premium for 2011 onwards. For 2010 and prior we have continue to use premium processed as earned premium is not available.

These ratios are not a proper measure of profitability as they do not allow for investment returns or expenses. Nevertheless, as a crude measure, they do provide an indication of trends in the experience.

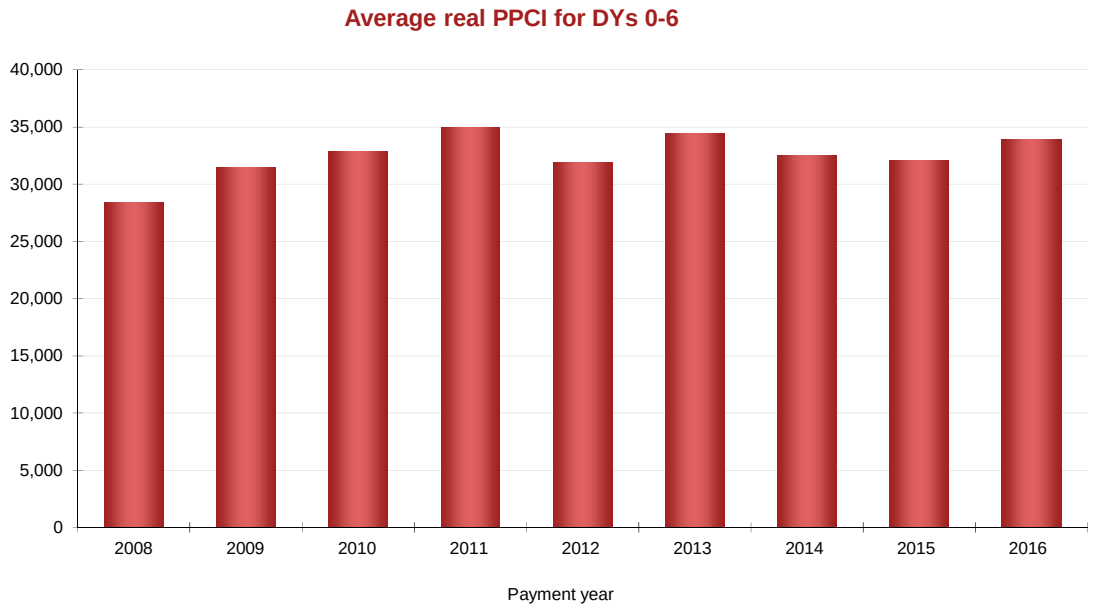
The chart shows:

- There was a decreasing trend in the loss ratio from the high of 98% in 2009 to the low of 71% in 2014 due to premium and wages growth exceeding claims cost increases
- The loss ratio has stabilised in recent years at around 80%
- The loss ratio has increased for 2009 due to a large non-reinsurance recovery no long being expected to be recovered
- The 2011 loss ratio is higher than last year due to a decrease in the premium as the basis changed from premium processed to earned premium. This more than offsets the decrease in the incurred cost
- The 2015 loss ratio is lower than last year due to the decrease in incurred cost and the premium increasing as the basis changed from premium processed to developed earned premium

D 5 Payment per claim incurred

By payment year

Relatively stable experience over most recent five payment years

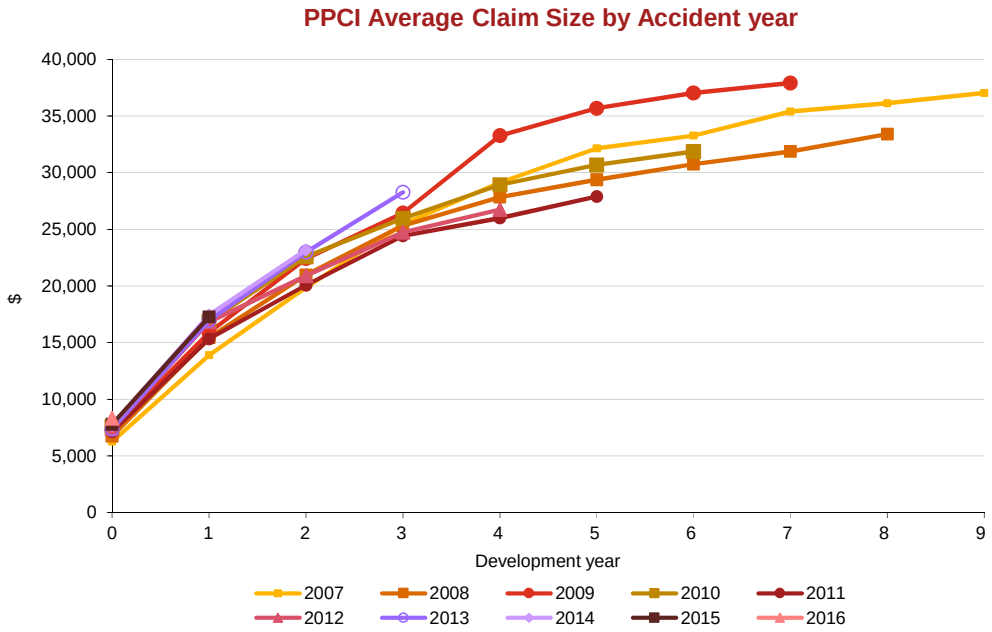


There was an increasing trend from $28,400 in 2007 to $35,000 in 2011. However since then it has been relatively stable between $31,900 and $34,500.

The 2016 payment year is $33,900, which is $1,900 (5.8%) higher than 2015.

By accident year

Reducing evidence of superimposed inflation for recent accident years



The chart above shows cumulative PPCI by accident year. This is calculated as:

$$\frac{\text{sum of claim payments by development year made to date (in 30 June 2016 values)}}{\text{number of claims incurred to date}}$$

As the values in the chart are all in current values, any differences are the result of a change in the real cost of each claim. This is also referred to as superimposed inflation. The chart is based entirely on actual experience, and there are no future projections included in this graph.

The experience by accident year has been variable, and there is no clear evidence of superimposed inflation over recent years.

Appendix E Insurer financial year claims experience

E 1 Aggregate claims experience during 2015/16

E1.1 Summary of overall claim experience over 2015/16

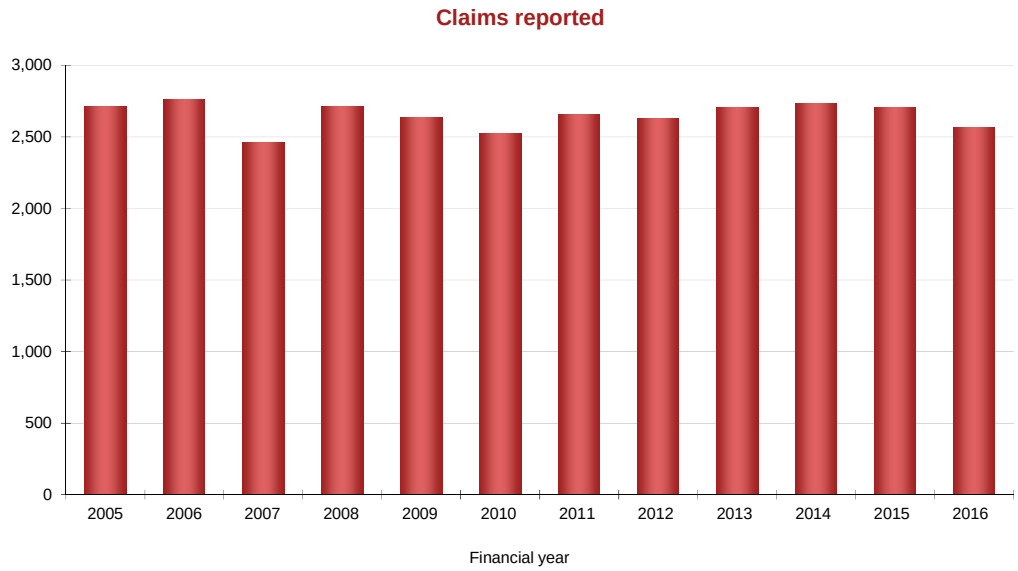
The overall claims experience over 2015/16 is generally unfavourable compared to 2014/15, with the exception of number of claims reported:

- A decrease (5.2%) in the number of claims reported
- An increase (11.5%) in the amount of claim payments
- An increase (12.1%) in the number of active claims at the end of the year
- A slower finalisation rate (57.9% compared to 64.8%)
- An increase (2.3%) in case estimates.

The experience for each of these items is described in more detail below.

E1.2 Claim reports

Claim reports have reduced by 5.2% in 2016

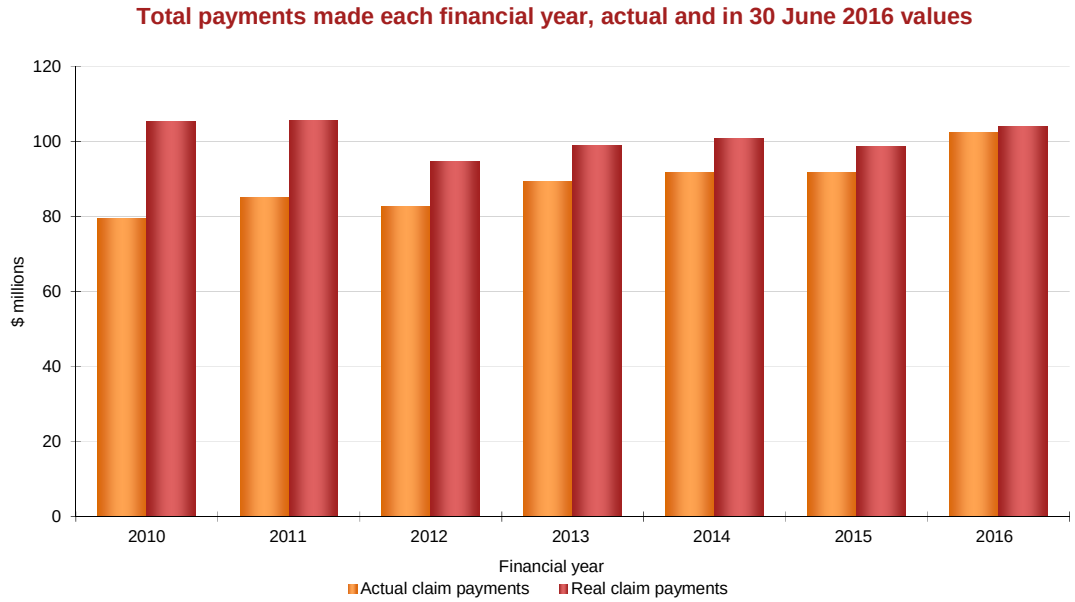


The number of claims reported in each financial year has been relatively stable since 2008, with between 2,500 and 2,750 reported each year.

In 2016 there were 2,564 claims reported, which was 140 (5.2%) less than 2015.

E1.3 Claim payments

Real payments are relatively stable between $94 million and $106 million over the period shown



We have only included payments from the 2010 financial year onwards as payments in our data prior to this have less payment years included so would give a misleading increasing trend. The red bars of payments have been adjusted for wage inflation to allow for comparison between the financial years.

Claim payments in 30 June 2016 values have varied between $94 million and $106 million over the period shown.

Total actual payments in 2015/16 were $102.4 million, which is $10.6 million (11.5%) higher than actual payments 2014/15. In real values this is an increase of $5.5 million (5.6%).

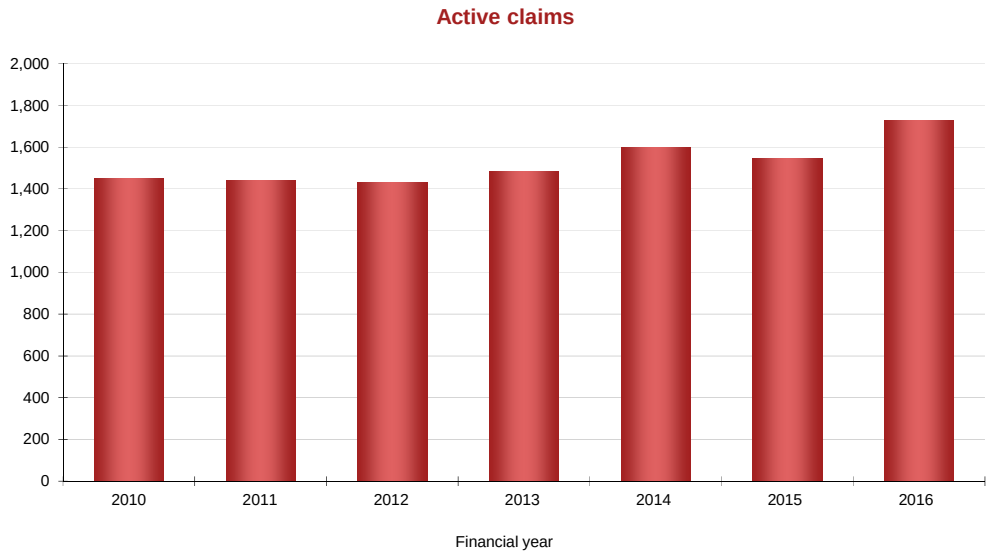
A breakdown of the change in payments by payment group is presented in the table below.

Payment group	Payments in 2015/16 ($000s)	Payments in 2014/15 ($000s)	Difference	Difference (%)
Weekly benefits	33,746	34,046	-299	-0.9%
Medical and hospital	14,331	13,667	664	4.9%
Allied health, vocational rehabilitation, non-compensation payments (other), death	10,784	11,401	-617	-5.4%
Other goods and services	5,474	5,044	430	8.5%
Legals	5,536	4,675	861	18.4%
Redemptions and non-economic lump sum	32,517	22,974	9,542	41.5%
Total	102,388	91,807	10,581	11.5%

The increase in actual payments is largely driven by *'Redemptions and non-economic lump sum',* which increased by $9.5 million (41.5%).

E1.4 Active claims

Active claim numbers increased from 1,543 in 2015 to 1,730 in 2016 (12%)

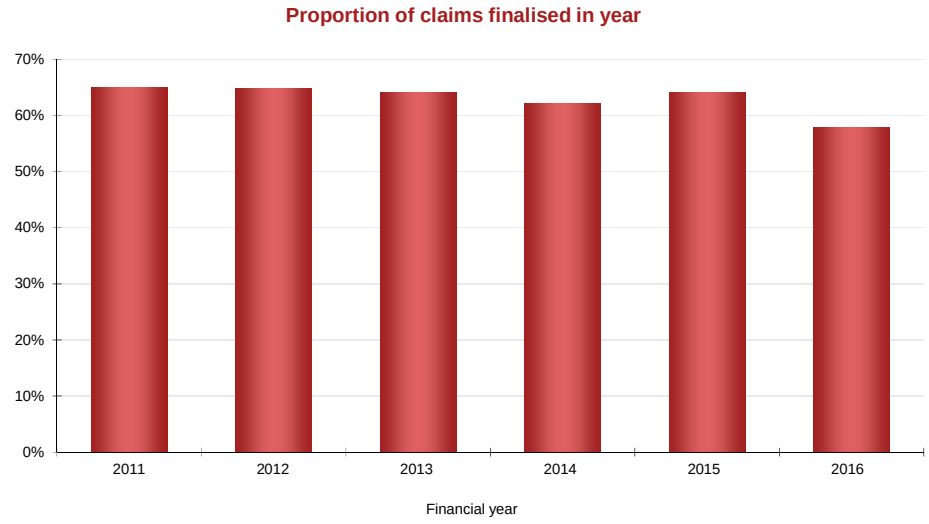


We have only received data on the number of active claims at the end of each year since 2010.

From 2010 to 2012 the number of active claims at the end of each financial year was stable at just over 1,400 active claims. From 2012 to 2015 there has been a slight increasing trend, due to a slight increase in claim reports. From 2015 to 2016, there has been a significant increase from 1,543 in 2015 to 1,730 in 2016 (12%), caused by slower finalisation in this financial year particularly for the most recent accident year.

E1.5 Proportion of claims finalised

2016 finalisation rate was 58% which is lower than 64% in 2015 and below the range of prior years



Probabilities of claim finalisation is defined as:

$$\frac{\text{Number of claims finalised in year}}{\text{(Number of outstanding at beginning of the year plus number reported during the year)}}$$

Since we only received data on active claims from the 2010 financial year we can only present the finalisation rate from 2011 onwards.

From 2011 to 2015 the finalisation rate was stable between 62% and 65%. In 2016, there was a significant decrease in finalisation rate to 58%. This is driven by lower finalisation rates particularly for the 2016 accident year.

E1.6 Claims incurred in 2015/16

There were 2,257 claims reported to 30 June 2016 for the 2015/16 accident year and the projected number of incurred claims is 2,582. This is 2.4% lower than the 2,645 projected incurred for the 2014/15 accident year. This decrease is despite the increase in wages.

The expected number of open claims for the 2015/16 accident year at 30 June 2016 is 2,257 x (1 – 0.6394) = 814. The actual number of open claims for the 2015/16 accident year at 30 June 2016 is 1,007, which is 23.7% higher than expected.

The 30 June 2015 projection basis lead to an expected 7,374 x (1.0325 ^0.5 x 1.015) = $7,602 to be paid on each of the 2015/16 accident year claims in the year of claim. The actual amount paid per claim was $8,325 i.e. $723 (9.5%) more in real values.

The 2015/16 accident year shows unfavourable experience with higher than expected open claims and payments compared to 2014/15, but favourable experience in relation to a lower number of claims incurred.

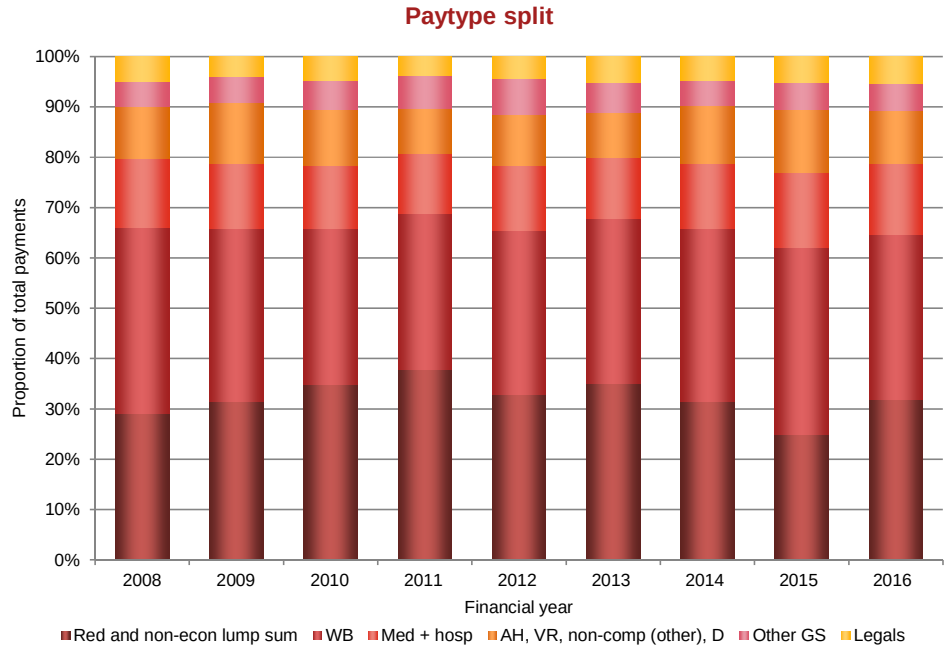
For details of the claims experience for claims incurred up to 30 June 2015 see appendix C2.

E 2 Analysis by payment group

The purpose of this section is to investigate trends in the composition of incurred costs by benefit type. We use higher level groups to explore the relative movement of periodic and lump sum benefits. We have performed this analysis based on the claim payment data and our outstanding claims valuation results.

E2.1 Distribution by financial year

The following chart shows how the actual payments made in a financial year are split between the payment groups over the past nine years.



Payment type split	2008	2009	2010	2011	2012	2013	2014	2015	2016
Legals	5%	4%	5%	4%	4%	5%	5%	5%	5%
Other GS	5%	5%	6%	7%	7%	6%	5%	5%	5%
AH, VR, non-comp (other), D	10%	12%	11%	9%	10%	9%	11%	12%	11%
Med + hosp	14%	13%	13%	12%	13%	12%	13%	15%	14%
WB	37%	34%	31%	31%	33%	33%	34%	37%	33%
Red and non-econ lump sum	29%	31%	35%	38%	33%	35%	32%	25%	32%
Total	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

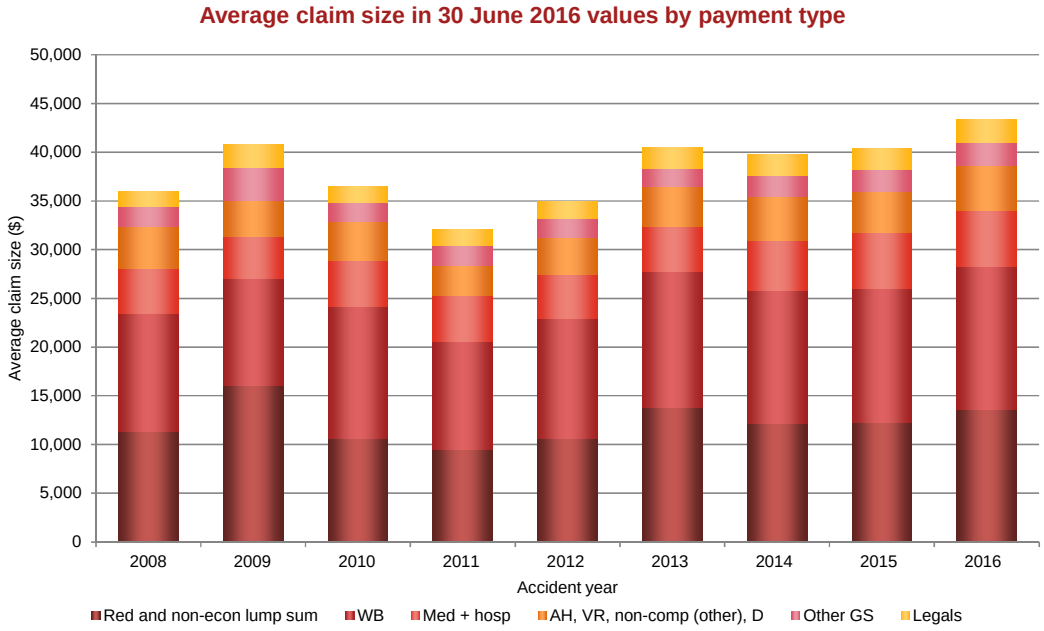
Over the last nine years the split of payments by type have been variable, but there has been no maintained increase or decrease in any group. The key trends have been:

- Redemptions had a notable increase between 2008 and 2011 from 29% to 38%. It has since ranged from 32% to 35%, except for the low in 2015 of 25%
- Any increases or decreases in redemptions payments have been matched by decreases or increases in weekly benefits payments, such that in total the proportion of total payments which are weekly benefits or redemptions has been relatively stable between 64% and 66%, except 2015 which is lower at 62% and 2011 at 69%
- The proportion of payments attributable to the other payment types has been stable over the last nine years.

This sort of analysis is important as it gives an indication of the cost drivers for the scheme and how these are changing, whether there is more use of periodic type payments, such as *weekly benefits*, or more lump sum payments, such as *redemptions and non-economic lump sum.* The dominance of one payment type over another will influence other cost drivers such as the total aggregate superimposed inflation.

E2.2 Gross average claim size by payment group

Mix by payment type is relatively stable with weekly benefits and redemptions and non-economic lump sum combined around two thirds of the total

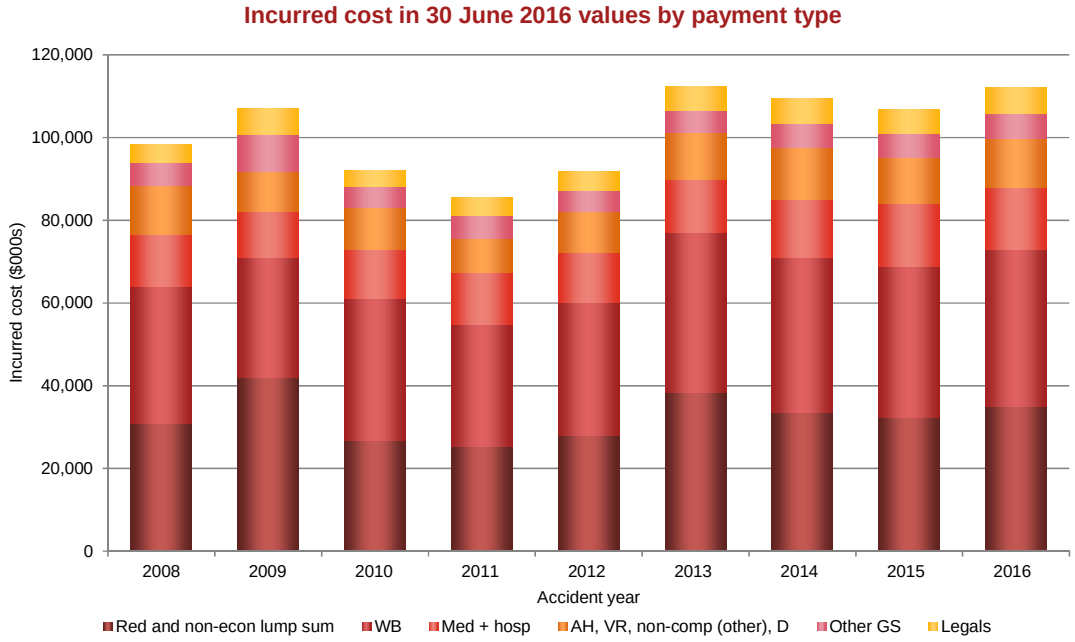


Average claim size (exclude explicit large claims) ($)	2008	2009	2010	2011	2012	2013	2014	2015	2016
Legals	1,543	2,331	1,568	1,673	1,756	2,097	2,194	2,167	2,419
Other GS	2,059	3,445	1,960	2,006	1,920	1,901	2,139	2,201	2,331
AH, VR, non-comp (other), D	4,358	3,689	4,043	3,094	3,818	4,098	4,587	4,251	4,586
Med + hosp	4,566	4,290	4,692	4,786	4,551	4,593	5,068	5,721	5,789
WB	12,092	10,985	13,532	11,052	12,272	13,934	13,643	13,786	14,706
Red and non-econ lump sum	11,357	16,087	10,628	9,483	10,642	13,813	12,181	12,249	13,574
Total	**35,976**	**40,828**	**36,424**	**32,095**	**34,958**	**40,435**	**39,813**	**40,376**	**43,407**

The mix of payment types across the accident years has remained fairly stable. Redemptions and non-economic lump sums (90% to 95% are Hopkins settlements) and weekly benefits are the two largest payment types. These two groups combined account for two thirds of total payments.

E2.3 Gross incurred cost by payment group

Stable distribution by payment type across accident years



Incurred cost in current values (exclude explicit large claims) ($000s)	2008	2009	2010	2011	2012	2013	2014	2015	2016
Legals	4,216	6,105	3,963	4,458	4,617	5,827	6,033	5,732	6,246
Other GS	5,627	9,026	4,954	5,347	5,048	5,281	5,882	5,821	6,017
AH, VR, non-comp (other), D	11,908	9,664	10,220	8,247	10,037	11,389	12,612	11,245	11,841
Med + hosp	12,475	11,239	11,861	12,755	11,965	12,763	13,936	15,132	14,947
WB	33,041	28,778	34,207	29,452	32,268	38,722	37,514	36,464	37,968
Red and non-econ lump sum	31,032	42,143	26,866	25,271	27,981	38,385	33,493	32,399	35,045
Total	**98,300**	**106,956**	**92,071**	**85,531**	**91,916**	**112,367**	**109,470**	**106,793**	**112,063**

Percentage of incurred cost by paytype	2008	2009	2010	2011	2012	2013	2014	2015	2016
Legals	4%	6%	4%	5%	5%	5%	6%	5%	6%
Other GS	6%	8%	5%	6%	5%	5%	5%	5%	5%
AH, VR, non-comp (other), D	12%	9%	11%	10%	11%	10%	12%	11%	11%
Med + hosp	13%	11%	13%	15%	13%	11%	13%	14%	13%
WB	34%	27%	37%	34%	35%	34%	34%	34%	34%
Red and non-econ lump sum	32%	39%	29%	30%	30%	34%	31%	30%	31%
Total	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

The table above shows that the proportion of the incurred cost attributable to each payment group has been variable between accident years, though with more stability between the accident years than the percentage by financial year in E2.1. *Redemptions and non-economic lump sum* payment group in particular is more stable as a percentage of the incurred cost, except for the high 39% for the 2009 accident year.

Appendix F Self-insurer outstanding claims valuation

F 1 Data used in the valuation

F1.1 Numbers of claims reported

	NT WorkSafe self-insurers - Incremental Claims Reported											
Year to 30 June	0	1	2	3	4	5	6	7	8	9	10 onwards	Total
2008	106	10	1	0	0	0	0	0	0	0	0	**117**
2009	110	8	0	0	0	0	0	0	0	0	0	**118**
2010	139	6	0	1	0	0	0	0	0	0	0	**146**
2011	180	10	0	1	0	0	0	0	0	0	0	**191**
2012	153	23	1	1	0	0	0	0	0	0	0	**178**
2013	121	22	2	1	0	0	0	0	0	0	0	**146**
2014	114	26	0	0	0	0	0	0	0	0	0	**140**
2015	114	12	1	0	0	0	0	0	0	0	0	**127**
2016	104	19	0	1	0	0	1	0	0	0	0	**125**

Note: Data extracted from the WIMS system up to 30 June 2016

F1.2 Cumulative claims reported

	NT WorkSafe self-insurers - Cumulative Claims Reported											
Year to 30 June	0	1	2	3	4	5	6	7	8	9	10 onwards	Total
2008	106	122	123	117	92	102	89	23	0	0	0	**774**
2009	110	114	122	123	117	92	102	89	23	0	0	**892**
2010	139	116	114	123	123	117	92	102	89	23	0	**1,038**
2011	180	149	116	115	123	123	117	92	102	89	23	**1,229**
2012	153	203	150	117	115	123	123	117	92	102	112	**1,407**
2013	121	175	205	151	117	115	123	123	117	92	214	**1,553**
2014	114	147	175	205	151	117	115	123	123	117	306	**1,693**
2015	114	126	148	175	205	151	117	115	123	123	423	**1,820**
2016	104	133	126	149	175	205	152	117	115	123	546	**1,945**

Note: Cumulative claim reports from table above.

F1.3 Active claims

	NT WorkSafe self-insurers - Active Claims											
Year to 30 June	0	1	2	3	4	5	6	7	8	9	10 onwards	Total
2016	43	15	3	0	1	2	0	0	0	0	0	**64**

Note: From the self-insurers' reports as at 30 June 2016.

F1.4 Claim payments

NT WorkSafe self-insurers - Incremental Actual Claim Payments ($000s)												
Year to 30 June	0	1	2	3	4	5	6	7	8	9	10 onwards	Total
2008	309	337	131	306	0	0	0	0	0	0	0	**1,083**
2009	383	437	222	106	147	0	0	0	0	0	0	**1,297**
2010	358	256	138	170	92	470	0	1	1	0	0	**1,485**
2011	401	740	496	236	318	0	349	0	7	5	15	**2,566**
2012	646	754	80	189	205	0	0	0	0	82	0	**1,955**
2013	379	1,145	184	72	8	170	0	16	0	0	195	**2,169**
2014	334	1,029	565	99	0	61	24	0	2	0	0	**2,115**
2015	425	430	622	574	86	0	5	189	0	12	0	**2,343**
2016	706	464	178	728	233	3	2	5	0	0	0	**2,320**

Note: Data extracted from the WIMS system up to 30 June 2016.

F1.5 Case estimates

NT WorkSafe self-insurers - Case Estimates Outstanding ($000s)												
Year to 30 June	0	1	2	3	4	5	6	7	8	9	10 onwards	Total
2013	333	406	373	4	40	199	14	0	0	0	0	**1,369**
2014	349	525	461	45	4	20	192	0	0	0	0	**1,596**
2015	340	216	482	239	50	4	58	0	0	0	0	**1,389**
2016	565	274	79	3	15	40	33	0	0	0	0	**1,009**

Note: From the self-insurers' reports as at 30 June 2016 and prior years.

F 2 Actual and projected claims experience during 2015/16

F2.1 Numbers of claims reported

Accident year ended 30 June	Number of claims reported during 2015/16		Actual / projected %
	Actual	Projected (a)	
2008	0	0	0.0%
2009	0	0	0.0%
2010	1	0	0.0%
2011	0	0	0.0%
2012	0	0	0.0%
2013	1	0	25333.3%
2014	0	0	0.0%
2015	19	17	114.1%
Total	**21.0**	**16.7**	**125.6%**

Note: (a) From previous scheme report dated 3 June 2016.

F2.2 Claim payments

Accident year ended 30 June	Actual payments ($000s)	Expected Payments ($000s) (a)	Actual / expected %
2008	0	5	0.0%
2009	5	16	30.3%
2010	2	19	9.7%
2011	3	61	5.2%
2012	233	88	265.0%
2013	728	231	315.0%
2014	178	293	60.9%
2015	464	749	61.9%
Total	**1,613**	**1,461**	**110.4%**

Note: (a) From previous scheme report dated 3 June 2016.

F 3 Analysis and projection models

F3.1 Payment per claim incurred model

Claim notification pattern

Financial year ending 30 June	Chain ladder ratio (a) for development year: 1	2	3	4	5	6	7	8	9	10 onwards
2008	1.09	1.01	1.00	1.00	1.00	1.00	1.00	0.00	0.00	0.00
2009	1.08	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00
2010	1.05	1.00	1.01	1.00	1.00	1.00	1.00	1.00	1.00	0.00
2011	1.07	1.00	1.01	1.00	1.00	1.00	1.00	1.00	1.00	1.00
2012	1.13	1.01	1.01	1.00	1.00	1.00	1.00	1.00	1.00	1.00
2013	1.14	1.01	1.01	1.00	1.00	1.00	1.00	1.00	1.00	1.00
2014	1.21	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
2015	1.11	1.01	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
2016	1.17	1.00	1.01	1.00	1.00	1.01	1.00	1.00	1.00	1.00
Adopted (b)	**1.16**	**1.01**	**1.00**	**1.00**	**1.00**	**1.00**	**1.00**	**1.00**	**1.00**	**1.00**

Notes: (a) Using cumulative claim report numbers from data

(b) Calculated using a four year weighted average for development year (DY) 1, and a five year weighted average for DYs 2 to 11. It is assumed there is no more development for DY12+

Numbers of claims incurred

Accident year ending 30 June	Number of claims: Reported to 30 Jun 2016 (a)	IBNR at 30 Jun 2016 (b)	Incurred (c)
2008	115	0	115
2009	117	0	117
2010	152	0	152
2011	205	0	205
2012	175	0	175
2013	149	0	149
2014	126	1	127
2015	133	1	134
2016	104	18	122

Notes: (a) from number reported in appendix F1.1

(b) from pattern in chain ladder ratio table above

(c) = (a) + (b)

Average real payment per claim incurred

Financial year ending 30 June	Average Real Payment Per Claim Incurred (a) for development year: 0	1	2	3	4	5	6	7	8	9	10 onwards	Total
2008	3,906	3,991	1,556	3,804	0	0	0	13	0	0	0	**13,269**
2009	4,549	5,283	2,512	1,200	1,750	1	0	0	8	0	0	**15,304**
2010	3,115	2,891	1,588	1,824	992	5,320	0	16	9	0	0	**15,756**
2011	2,428	6,053	5,270	2,556	3,211	0	3,705	0	81	67	785	**24,155**
2012	4,224	4,206	604	1,853	2,043	0	0	0	0	918	0	**13,848**
2013	2,806	7,228	990	523	72	1,639	0	148	0	0	2,120	**15,525**
2014	2,898	7,580	3,543	533	0	576	230	0	20	0	0	**15,381**
2015	3,397	3,643	4,477	3,515	447	0	48	1,761	0	108	0	**17,396**
2016	5,904	3,507	1,430	4,961	1,353	16	13	41	0	0	0	**17,224**
Adopted (b)	**3,819**	**5,303**	**2,183**	**2,206**	**749**	**707**	**401**	**348**	**260**	**205**	**590**	**16,772**

Notes: (a) In 30 June 2016 values

(b) Calculated using a five year weighted average for DYs 0 to 4, and a proportion of the insurers' average real PPCI, weighted by a factor of 33% to account for the size of the self-insurers compared to the insurers average claim size. A decay factor of 74% is applied from DY7 onwards.

F 4 Adopted estimates of outstanding claims

F4.1 Gross central estimates from models in current values

Accident year ending 30 June	Estimates of Outstanding Claims ($000s) at 30 June 2016 (a)(b) PPCI	Case estimates
2008 & earlier	327	0
2009	131	0
2010	226	33
2011	393	40
2012	466	15
2013	516	3
2014	727	79
2015	1,079	274
2016	1,643	565
Total	**5,506**	**1,009**

Notes: (a) From models described in appendix F3

(b) In 30 June 2016 values and includes superimposed inflation and excluding 2015 legislative changes

F4.2 Average claim sizes

Accident year ending 30 June	Average Claim Size ($000s) at 30 June 2016 (a)(b) PPCI	Case estimates
2008	20	19
2009	16	15
2010	12	11
2011	11	9
2012	23	20
2013	23	20
2014	14	9
2015	15	9
2016	19	11

Note: (a) In 30 June 2016 values, from results in appendix F4.1, includes superimposed inflation and excluding 2015 legislative changes

F4.3 Adopted estimates in 30 June 2016 values

Accident year ending 30 June	Estimate of o/s claims ($000s)(a)(b)	Estimate of o/s claims ($000s)(b)(c)	Average claim size ($000s)(b)(c)	Ratio to case estimates (b)(c)
2008 & earlier	33	33		0%
2009	13	13	15	0%
2010	52	52	11	158%
2011	75	75	9	188%
2012	60	60	20	401%
2013	54	54	20	1809%
2014	338	338	11	428%
2015	918	918	14	335%
2016	1,643	1,598	19	283%
Total	**3,187**	**3,142**		**311%**

Notes: (a) in 30 June 2016 values, including superimposed inflation and excluding 2015 legislative changes

(b) in 30 June 2016 values, including superimposed inflation and including 2015 legislative changes

(c) The adopted model is a composite weighted average of the statistical models. The weights attached to the models reflect the extent to which they are considered to appropriately project the experience of each accident year. We have used the PPCI method, except where the result is less than the case estimates.

	Weights Adopted For Estimates (a)(b)		
	Method		
Accident year ending 30 June	PPCI	Case estimates	Total
2008 & earlier	0.10	0.90	1.00
2009	0.10	0.90	1.00
2010	0.10	0.90	1.00
2011	0.10	0.90	1.00
2012	0.10	0.90	1.00
2013	0.10	0.90	1.00
2014	0.40	0.60	1.00
2015	0.80	0.20	1.00
2016	1.00	0.00	1.00

F4.4 Gross adopted estimates including expenses

NT WorkSafe self-insurers Estimates ($000s) at 30 June 2016					
Accident year ending 30 June	30 June 2016 values (a)	Inflated values (b)	Inflated & discntd values (b)	Case estimates (c)	Ratio % (d)
2008 & earlier	33	39	37	0	-
2009	13	16	15	0	-
2010	52	64	60	33	158%
2011	75	93	86	40	188%
2012	60	74	68	15	401%
2013	54	67	62	3	1809%
2014	338	408	382	79	428%
2015	918	1,104	1,035	274	335%
2016	1,598	1,886	1,788	565	283%
Total	**3,142**	**3,749**	**3,532**	**1,009**	**311%**

Note: (a) In 30 June 2016 values, includes superimposed inflation

(b) includes 7% claims handling expenses, inflation and discounting assumptions in Appendix B 1

(c) as at 30 June 2016 as provided by the self-insurers

(d) = (a) / (c)

F4.5 Net outstanding claims provision

Estimates at 30 June 2016 ($000s)						
Gross o/s liability (a)	Reinsurance recoveries (b)	Net o/s liability (c)	Claims handling expenses (d)	Net central estimate (e)	Risk margin (f)	Net Provision (g)
3,301	0	3,301	231	3,532	813	4,345

Notes: (a) from table above

(b) there are no expected reinsurance recoveries in the self-insurers actuary's valuations

(c) = (a) – (b)

(d) (c) x 7%

(e) = (c) + (d)

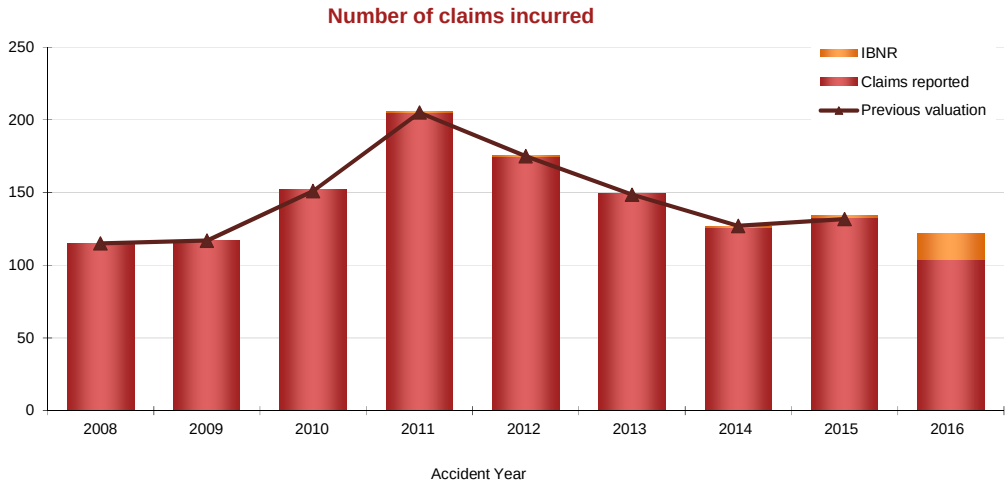
(f) = (e) x 23.0%

(g) = (e) + (f)

Appendix G Self-insurer claims statistics

G 1 Number of claims incurred

Decreasing trend from 2011 peak to 2016

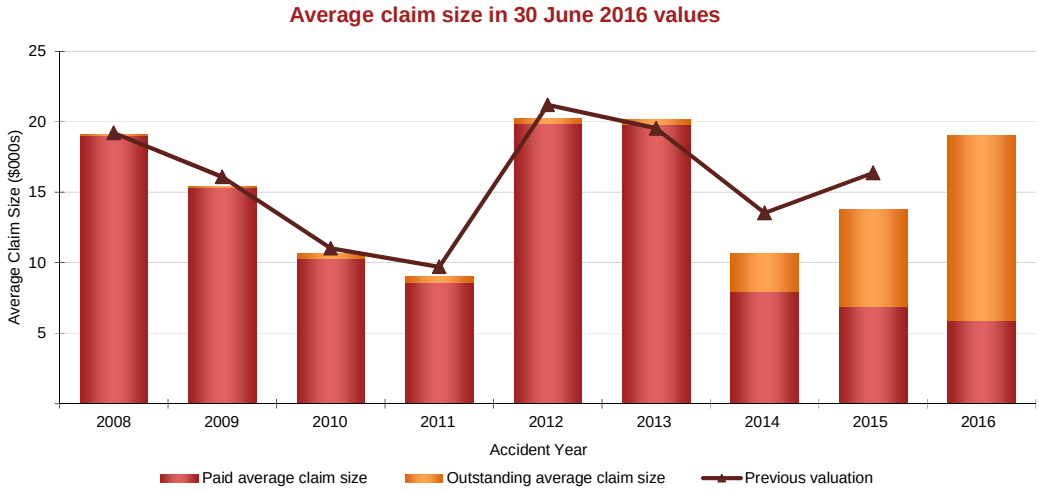


The main points to highlight from this chart are:

- There were stong increases in the number of incurred claims from the 2009 to 2011 accident years, from 117 to 205 claims. We are unaware of what drove this increase
- Since the high in 2011, the number of claims has reduced each year to a level of 127 claims in 2014. From a review of the self-insurer reports, we understand that one self-insurer has changed its management and recording of small claims, which has contributed to the decrease
- There was a slight increase in 2015 to 134 claims
- The total estimated claims for 2016 is 122, lower than both 2014 and 2015 accident years. Of this estimate, 18 claims are IBNR
- The number of claims are similar to estimated at the previous valuation

G 2 Gross average claim size

2016 average claim size is $19,000 which is $5,300 (39%) higher than 2015



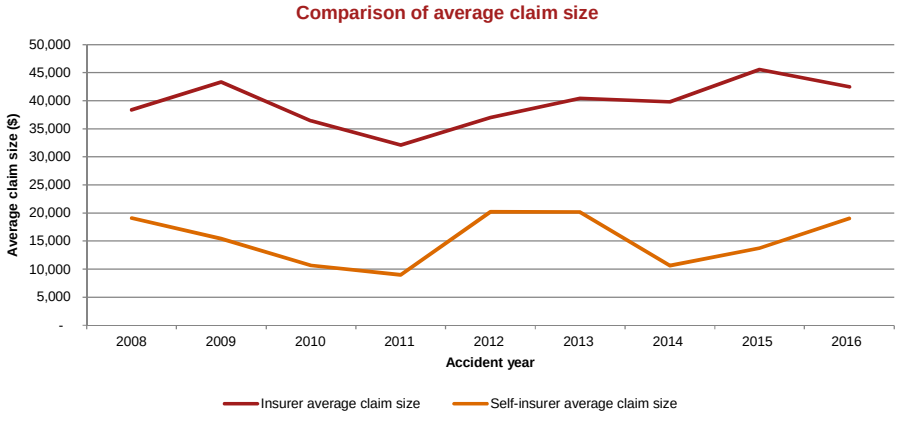
The average claim size has been volatile between accident years and there has been no discernible trend. Since 2008 the average claim size has ranged been between $9,000 and $20,500, with lows in 2010, 2011 and 2014 surrounding highs in 2012 and 2013. This implies that the spike in incurred claim numbers in 2011 shown in 3.2.1 is related to smaller claims.

Our estimated average claim size for the 2014 and 2015 accident years is significantly lower than our previous valuation due to lower than expected payments and development for these accident years over the 2016 financial year.

Our estimated average claim size for the 2016 accident year is $19,000 which is $5,300 (39%) higher than the 2015 accident year. The 2016 estimate is high compared with recent years due to high claim payments over the year and high case estimates.

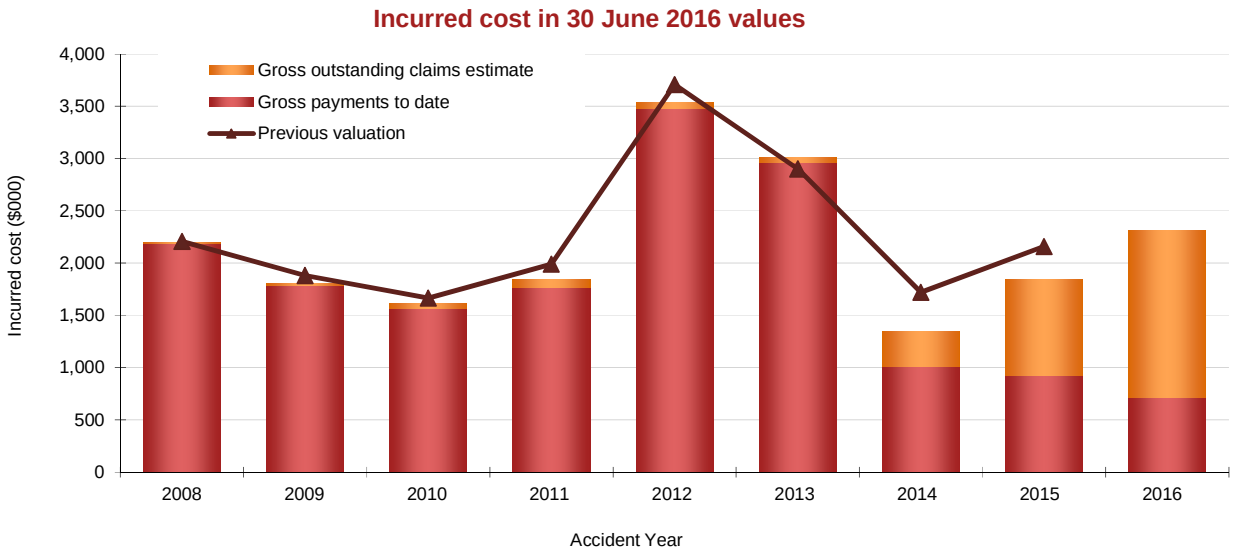
The uncertainty about the future development means that the ultimate level and our estimates may differ from that projected for recent accident years. This is especially true for the 2016 accident year, where a high proportion (69%) of the average claim size consists of the uncertain future estimate.

The chart below compares the average claim size of self-insurers to insurers.



G 3 Incurred cost

2016 incurred cost is $2.3 million which is higher than 2014 and 2015 but lower than 2012 and 2013



Between 2008 and 2011 the gross incurred cost in 30 June 2016 values is less volatile than the average claim size graph and is between $1.6 million to $2.2 million for each accident year. For 2010 and 2011 the higher number of claims is offset by a lower average claim size. The increase in the incurred cost for 2012 is due to a higher average claim size compared to 2010 and 2011, and higher incurred claims relative to the 2009 and prior accident years.

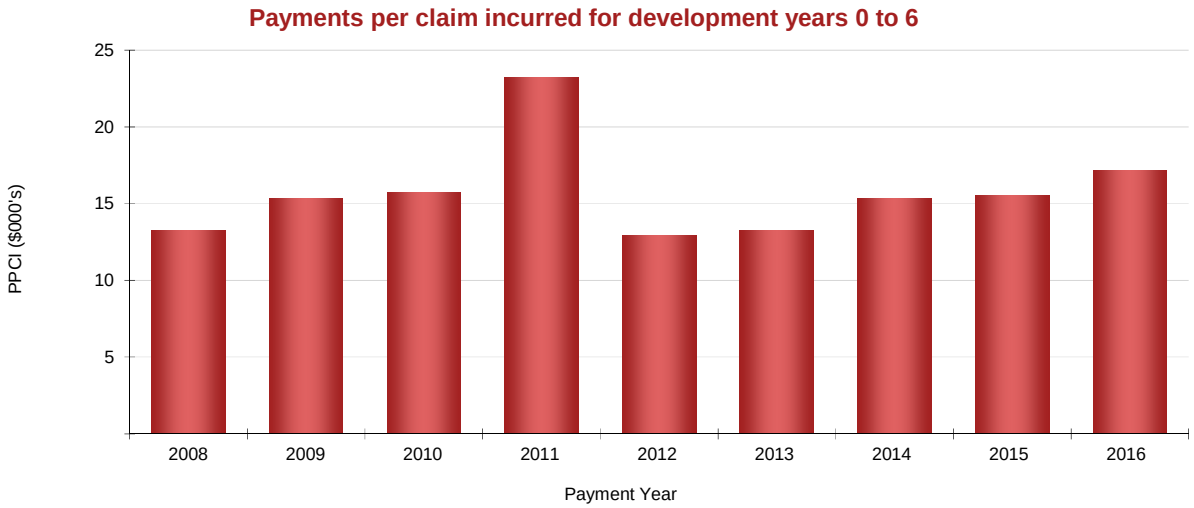
Compared to our previous valuation, there has been a decrease in the incurred costs for the 2014 and 2015 accident years due to lower than expected payments and claim development.

The incurred cost for 2016 is $2.3 million, which is $0.5 million (25%) higher than the 2015 accident year incurred cost of $1.8 million.

Over the period shown in the graph, the proportion outstanding increases from 0% of the total incurred cost to 69% of the total incurred cost for 2016.

G 4 Payment per claim incurred

2012 to 2016 exhibits an increasing trend



Payments per claim incurred for development years 0 to 6 increased from $13,300 in 2007 to $15,700 in 2010. There was a spike to $23,200 in 2011 due to multiple large claim payments.

After this spike there was a sharp reduction to $12,900 in 2012, but since then there has been an increasing trend, to $17,200 in 2016.

Appendix H Insurer break-even premium rate

H 1 Calculation of discounted gross incurred cost

The following tables present the data and assumptions we have used to calculate the discounted gross incurred cost, which when combined with the actual expenses give a break-even premium to compare to the actual premium rates charged.

H1.1 Actual claim payments

Accident	Claim payments ($000s) (a) for development year:											
Year	0	1	2	3	4	5	6	7	8	9	10	Total
2004	9,070	9,671	5,117	5,530	4,037	3,113	1,703	1,446	1,204	1,124	2,778	44,794
2005	9,859	12,254	7,372	8,179	5,625	3,518	1,695	2,350	726	476	793	52,845
2006	10,364	12,610	7,253	6,702	6,034	7,050	2,406	661	1,958	1,546	462	57,044
2007	10,102	13,046	10,637	10,416	7,329	6,525	2,519	4,773	1,704	2,208	0	69,259
2008	12,608	17,178	11,438	9,562	6,023	3,794	3,423	2,818	4,170	0	0	71,014
2009	13,725	17,104	13,740	9,217	16,149	5,760	3,316	2,255	0	0	0	81,266
2010	14,496	18,976	12,680	7,732	6,812	4,147	2,939	0	0	0	0	67,781
2011	15,305	19,102	11,430	10,597	3,885	4,981	0	0	0	0	0	65,300
2012	16,961	22,430	9,758	9,394	5,222	0	0	0	0	0	0	63,765
2013	18,496	24,313	15,564	14,486	0	0	0	0	0	0	0	72,860
2014	19,249	25,135	15,552	0	0	0	0	0	0	0	0	59,935
2015	19,194	24,695	0	0	0	0	0	0	0	0	0	43,890
2016	21,135	0	0	0	0	0	0	0	0	0	0	21,135

Notes : (a) from data extracted from the WIMS system as at 30 June 2016

Note that the data in the table presented above is in a different form to the claim payments data in Appendix C1. Each row in the table shows the payments relating to that specific accident year, i.e. development year 1 for 2012 shows the actual payments made in 2013 financial year in relation to incidents which occurred in 2012. In the previously presented table this same cell represented payments made in 2012 financial year for incidents which occurred in 2011.

H1.2 Historic one-year forward rates

	One year forward rate for the year to 30 June											
	2016	2015	2014	2013	2012	2011	2010	2009	2008	2007	2006	2005
Forward rate	1.96%	2.47%	2.54%	2.79%	4.76%	4.48%	3.44%	7.07%	6.50%	6.00%	5.32%	5.38%

These rates are the one year forward rate, projected from one year prior, e.g. the rate to 30 June 2016 is the one year forward rate from the Commonwealth Bond yield curve as at 30 June 2015.

H1.3 Discounted claim payments

Accident Year	Discounted claim payments ($000s) (a) for development year: 0	1	2	3	4	5	6	7	8	9	10	Total
2004	8,875	9,020	4,551	4,674	3,235	2,359	1,242	1,009	803	724	1,662	38,154
2005	9,604	11,331	6,450	6,754	4,374	2,620	1,203	1,587	471	297	470	45,160
2006	10,099	11,629	6,315	5,496	4,740	5,280	1,715	453	1,291	981	283	48,281
2007	9,812	11,925	9,127	8,535	5,706	4,821	1,783	3,241	1,110	1,384	0	57,444
2008	12,217	15,588	9,888	7,837	4,673	2,813	2,429	1,915	2,718	0	0	60,080
2009	13,264	15,706	11,930	7,556	12,620	4,296	2,361	1,537	0	0	0	69,271
2010	14,252	17,948	11,521	6,813	5,828	3,446	2,378	0	0	0	0	62,185
2011	14,974	17,864	10,315	9,239	3,273	4,066	0	0	0	0	0	59,731
2012	16,571	21,118	8,865	8,237	4,430	0	0	0	0	0	0	59,221
2013	18,243	23,358	14,569	13,245	0	0	0	0	0	0	0	69,414
2014	19,009	24,215	14,653	0	0	0	0	0	0	0	0	57,877
2015	18,962	23,867	0	0	0	0	0	0	0	0	0	42,828
2016	20,931	0	0	0	0	0	0	0	0	0	0	20,931

Notes : (a) payments from I1.1 above, discounted using the rates in I1.2

H1.4 Discounted gross incurred cost

Underwriting year	Discounted gross claim payments (a) ($000s)	Discounted gross outstanding claims (b) ($000s)	Discounted gross incurred cost (c) ($000s)
2016	20,931	91,205	112,136
2015	42,828	76,087	118,915
2014	57,877	45,094	102,971
2013	69,414	32,440	101,854
2012	59,221	24,841	84,062
2011	59,731	9,861	69,592
2010	62,185	9,787	71,972
2009	69,271	11,224	80,495
2008	60,080	10,014	70,094

Notes : (a) from I1.3 above

(b) outstanding claims inflated/discounted from Appendix C4, discounted to the start of the underwriting year using rates in Appendix H1.2 above

(c) = (a) + (b)

H 2 Estimated historic break-even premium rate

	Calculated break even premium							Actual premium			
Accident year	Reported earned wages (a) ($000s)	Developed earned wages (b) ($000s)	Discounted gross incurred cost (c) ($000s)	Commission in financial year (d) ($000s)	Discounted other expenses in the fin year (e) ($000s)	Premium (f) ($000s)	Estimated premium rate (g)	Reported earned premium (h) ($000s)	Developed earned premium (i) ($000s)	Actual premium rate charged (j)	Difference (break even - actual)
2016	6,636,006	7,183,504	112,136	4,163	20,086	137,049	1.9%	124,270	134,654	1.9%	-2,395
2015	6,515,167	6,752,618	118,915	4,558	20,288	144,642	2.1%	134,133	139,445	2.1%	-5,196
2014	5,904,348	5,964,292	102,971	4,775	17,098	125,629	2.1%	139,448	139,448	2.3%	13,819
2013	5,223,143	5,223,143	101,854	3,697	15,016	121,401	2.3%	123,600	123,600	2.4%	2,199
2012	4,633,724	4,633,724	84,062	2,864	14,015	102,121	2.2%	99,026	99,026	2.1%	-3,095
2011	4,138,004	4,138,004	69,592	2,863	11,998	85,383	2.1%	86,936	86,936	2.1%	1,553
2010	3,576,580	3,576,580	71,972	2,624	10,680	86,000	2.4%	75,252	75,252	2.1%	-10,748
2009	3,829,000	3,829,000	80,495	2,544	11,837	96,510	2.5%	83,089	83,089	2.2%	-13,421
2008	3,423,000	3,423,000	70,094	2,658	11,713	85,806	2.5%	88,998	88,998	2.6%	3,192

Notes : (a) earned wages provided by insurers

(b) (a) x development factors in Appendix B7

(c) calculated in Appendix H1

(d) actual commission, from the consolidated Form A returns

(e) other expenses, from the consolidated Form A returns, discounted by half a year

(f) = (c) + (d) + (e) x (1+ one year historical interest rate) ^ (3/12) to allow for the fact that premiums are received 3 months after the commencement of the underwriting period

(g) = (f) / (b)

(h) earned premium, including earned but not yet reported premium provided by insurers

(i) (h) x development factors in Appendix B7

(j) = (i) / (b)

H 3 Calculation of break-even premium rate for 2015/16

H3.1 Discounted incurred cost for 2015/16

We selected the number of incurred claims and average claim size for 2015/16 based on the experience over the last five years, and allowing for future inflation and superimposed inflation. The following table shows the number of incurred claims, claim frequency and average claim size over the last five years and our adopted values.

	Accident year					
	2016	2015	2014	2013	2012	Adopted
Number of claims incurred (a)	2,582	2,645	2,750	2,779	2,629	2,671
Claim frequency per $81,471 of wages (b)	2.9%	3.0%	3.4%	3.9%	4.0%	2.9%
Average claim size (in 30 June 2016 values) (c)	42,498	45,555	39,813	40,435	37,037	41,697

Notes: (a) The adopted number of claims incurred is based on the adopted claim frequency in (b) times the projected wages.

(b) The adopted claim frequency is a three year average

(c) The adopted average claim size is a five year average (2016 excluding the 2015 legislative amendments), with a reduction of 2.8% due to the 2015 legislative amendments

Allowing for inflation of 3.50%, superimposed inflation of 1.60% and an inflation/discount factor to allow for the timing of payments of 1.0252 the discounted incurred cost for 2015/16 can be calculated as:

2,671 x [41,697 x (1 + 3.50%) x (1 + 1.60%) x 1.0252] = $120.1 million.

H3.2 Expense loadings

To calculate the break-even premium rate the discounted incurred cost must be loaded for expenses. To calculate an appropriate allowance for expenses in the premium rate we have analysed the commission rate and the other expenses (including claims handling) separately over a five year period.

This analysis is shown in the following table.

($000s)	Underwriting year 2016	2015	2014	2013	2012	Adopted
Gross written premium (a)	114,332	140,232	156,328	126,743	104,221	
Earned premium (b)	119,514	141,354	137,054	106,715	96,150	
Commission paid (c)	4,163	4,558	4,775	3,697	2,864	
Other expenses (d)	20,282	20,537	17,314	15,224	14,345	
Commission rate (e)	3.5%	3.2%	3.5%	3.5%	3.0%	3.4%
Other expense rate (f)	17.7%	14.6%	11.1%	12.0%	13.8%	14.1%

Notes : (a), (b), (c), (d) from the consolidated Form A returns

(e) commission / earned premium, the adopted value uses a three year average

(f) other expenses / gross written premium, the adopted value uses a three year average

H3.3 Projected break-even premium for 2015/16

Using the analysis above, the projected break-even premium rate for 2015/16 is:

Underwriting year	Actual wages (a) ($000s)	Discounted gross incurred cost (b) ($000s)	Expenses (c) ($000s)	Premium (d) ($000s)	Calculated premium rate (e)
2017	7,434,926	120,083	25,542	146,216	2.0%

Notes : (a) 2016 developed earned wages, inflated for one year's wage inflation at 3.50%

(b) from H3.1 above

(c) = (b) / (1 – commission rate (3.4%) – other expense rate (14.1%)) – (b)

(d) = (b) / (1 – commission rate (3.4%) – other expense rate (14.1%)) x (1 + interest rate (1.6%)) ^ (3/12) to allow for the fact that premiums are received 3 months after the commencement of the underwriting period

(e) = (d) / (a)

This break-even premium rate allows for the same timing aspects as the historic calculations of the break-even rate.

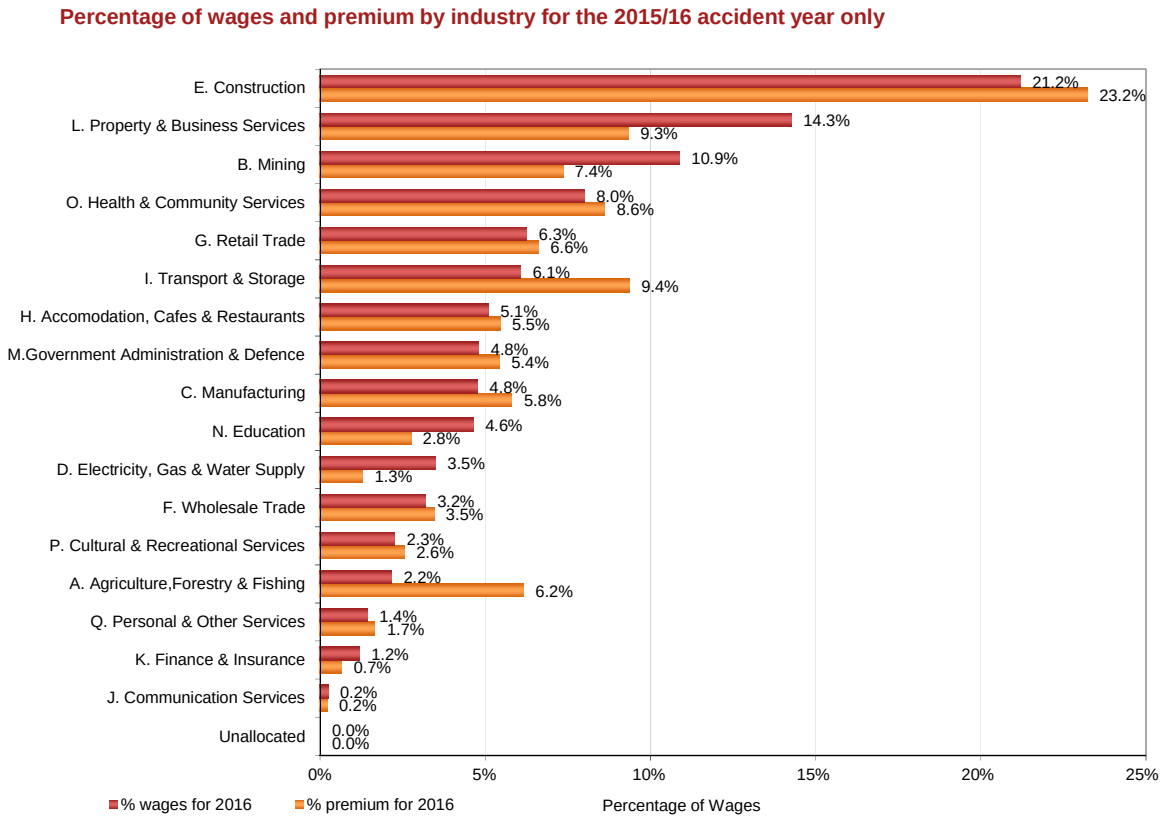
H 4 Historical rates by industry

The following tables show the historical premium rates charged by industry (excluding self-insurers) on an underwriting/earned year basis.

The underwriting year basis should be more accurate than the processing year previously used as it aligns with the claims data. The data on a processed year basis includes premium and wages adjustments for historical years, which may distort the results.

Underwriting year basis						Difference
Premium rate by ANZSIC division	2012	2013	2014	2015	2016	2016 / 2015
A. Agriculture,Forestry & Fishing	6.10%	6.43%	6.40%	6.31%	5.28%	-16.3%
B. Mining	1.81%	2.54%	2.04%	1.39%	1.26%	-9.5%
C. Manufacturing	2.75%	2.97%	3.16%	2.88%	2.26%	-21.4%
D. Electricity, Gas & Water Supply	1.21%	1.19%	1.08%	1.04%	0.69%	-33.8%
E. Construction	2.64%	2.91%	2.80%	2.24%	2.04%	-9.3%
F. Wholesale Trade	1.98%	2.09%	2.10%	2.21%	2.01%	-8.9%
G. Retail Trade	1.89%	2.01%	2.11%	2.05%	1.96%	-4.4%
H. Accomodation, Cafes & Restaurants	1.99%	2.31%	2.24%	2.11%	1.99%	-5.8%
I. Transport & Storage	3.22%	3.50%	3.63%	2.99%	2.86%	-4.1%
J. Communication Services	2.09%	1.79%	1.89%	1.66%	1.66%	0.0%
K. Finance & Insurance	1.10%	0.99%	1.14%	0.90%	1.02%	13.5%
L. Property & Business Services	1.30%	1.49%	1.51%	1.12%	1.22%	8.2%
M.Government Administration & Defence	1.93%	2.00%	2.29%	2.25%	2.10%	-6.7%
N. Education	1.15%	1.04%	1.14%	1.05%	1.10%	4.7%
O. Health & Community Services	2.33%	2.40%	2.37%	2.18%	2.00%	-8.1%
P. Cultural & Recreational Services	3.45%	3.12%	2.91%	2.84%	2.10%	-26.2%
Q. Personal & Other Services	2.61%	2.44%	2.50%	2.47%	2.15%	-12.9%
Unallocated	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Total	2.14%	2.37%	2.36%	2.05%	1.86%	-9.2%

The percentage of wages and premium by industry, on an underwriting year basis for the current year are:



This shows that the sectors with significantly higher premium rate than the scheme average are:

- Transport and storage
- Agriculture, forestry and fishing

Meanwhile the sectors with significantly lower premium rate than the scheme average are:

- Property and business services
- Mining
- Education
- Electricity, gas and water supply
- Finance and insurance.

The chart below shows wages by ANZSIC class on an underwriting year basis. This split requires insurers to split wages and premium across the years that a multi-year policy is in force for.

Presenting the information in this way acts to smooth the variation in wages by industry from one year to the next. Of note is the strong increase in Construction over the last five years, driven by the Inpex project.

Appendix I Glossary

AASB

Australian Accounting Standards Board

ABS

Australian Bureau of Statistics

Accident year

The financial year ending 30 June, in which the accident event leading to a claim occurs, irrespective of when the claim is reported, paid and finalised.

APRA

Australian Prudential Regulation Authority

Break-even premium rate

This is the expected cost for policies, including an allowance for associated expenses and timing of premium payments. It is calculated as:

Break-even premium rate = Discounted incurred cost / (1 – commission rate – other expense rate) x (1 + interest rate) ^ 3 / 12

Central estimate

Unbiased actuarial estimate which has 50% probability of being sufficient. It is the median of the range of possible outcomes. The central estimate is inflated and discounted and includes claims handling expenses (unless where specified) and does not include a risk margin.

Development year

The number of completed years since the end of the accident year. Development year zero refers to the financial year ending 30 June in which the accident event occurs. Development year is also abbreviated to DY in this report.

EBNYR premium

Earned but not yet raised premium.

The earned but not yet raised premium is the aggregate of the burner policy premium adjustments where the estimated claims experience suggests that either more premium will need to be collected or some premium will be refunded.

Funding ratio

The funding ratio is measuring the liabilities held by the insurers or self-insurers (the notional assets) compared to the aggregate outstanding claims liability calculated by the scheme actuary. The funding ratio is as defined by the Comparative Monitoring Committee.

For the insurers this is calculated as: $\frac{\text{inflated and discounted provision (including risk margin)}}{\text{inflated and discounted central estimate (excluding risk margin)}}$

For the self-insurers this is calculated as: $\frac{\text{bank guarantee provision (1.5 x central estimate)}}{\text{inflated and discounted central estimate (excluding risk margin)}}$

Hopkins settlements

These settlements are contained in the redemption and non-economic lump sum payment category and represent between 90% to 95% of the payments in that category.

Inflated and discounted values

The estimates in current values are inflated to the dollar values in the estimated future year of payment. These values are discounted to 30 June 2016 values to allow for future investment income that will be earned until the claim is paid. The inflation and discount rates are outlined in appendix B1.

NT

Northern Territory

Provision

The central estimate plus the risk margin.

Risk margin

The margin added to the central estimate to increase its level of adequacy to above 50%.

Risk premium

The risk premium is an estimate of the pure risk cost of claims and does not include allowance for expenses or margins.

Risk Premium = estimated incurred cost of the risk covered i.e. of the claims with dates of occurrence in the risk/cover period

= number of claims x average claim size

pwc.com.au