



BENDZULLA ACTUARIAL PTY. LTD.
CONSULTING ACTUARIES

REPORT TO THE SCHEME MONITORING COMMITTEE

ON THE

ACTUARIAL REVIEW

OF THE

NORTHERN TERRITORY WORKERS COMPENSATION SCHEME

AS AT 30 JUNE 2007

Prepared by:

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Bendzulla Actuarial Pty Ltd

8 January 2008



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**ACTUARIAL REVIEW
OF THE
NORTHERN TERRITORY WORKERS COMPENSATION SCHEME
AS AT 30 JUNE 2007**

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CONSULTING ACTUARIES

8 January 2008

Ms Laurene Hull
Executive Director
NT WorkSafe
GPO Box 4160
DARWIN NT 8001

Dear Laurene

**Actuarial Review
of the
Northern Territory Workers' Compensation Scheme as at 30 June 2007**

We are pleased to provide our report on the actuarial review of the Northern Territory Workers' Compensation Scheme (the Scheme). The report has been prepared for the Scheme Monitoring Committee to assist with the fulfilment of its obligations under Section 145 of the Work Health Act 1986.

The report includes:

- ◆ a review of the experience of the Scheme since our last report;
- ◆ an estimate of the outstanding claims liabilities of the insured sector of the Scheme;
- ◆ analysis of the profitability of the Scheme;
- ◆ an assessment of the historical and current premiums that the insurers have charged, in comparison with the "break-even" premium they would have needed to charge in order to make neither loss nor profit on the business.

We look forward to presenting our findings to the Scheme Monitoring Committee in February. However if you have any questions or comments in the meantime, please do not hesitate to contact us.

Yours sincerely

Geoff Morley
Fellow of the Institute
of Actuaries of Australia

John Carroll
Fellow of the Institute
of Actuaries of Australia

Part I Executive Summary

1 Purpose and Scope

- 1.1 We have been asked by the Scheme Monitoring Committee (the Committee) to prepare this report to assist it in monitoring the ongoing viability and performance of the Northern Territory Workers' Compensation Scheme ("the Scheme") and to assist in the monitoring of premium rates.
- 1.2 As in previous years the report covers:
- ◆ a review of the experience of the Scheme since the last report;
 - ◆ an estimate of the outstanding claims liabilities of the insured sector of the Scheme;
 - ◆ an analysis of the profitability of the Scheme;
 - ◆ an assessment of the historical and current premiums that the insurers have charged, in comparison with the "break-even" premium they would have needed to charge in order to make neither loss nor profit on the business.
- 1.3 We understand that this report may be made available in full for public access on the NT Government website after it has been reviewed by the Committee and the Minister for Employment, Education and Training. We draw attention to the qualifications to and limitations of our report, as set out in Section 10 of this Executive Summary.
- 1.4 This Executive Summary highlights the results of our review, particular points of interest from the investigation and conclusions drawn. The executive summary does not present all our analyses and findings and should be considered in the context of the report as a whole.
- 1.5 A number of recommendations have been made as set out in Section 3 below.

2 Previous Advice and Reports

- 2.1 This is the second investigation conducted by Bendzulla Actuarial Pty Ltd for the Scheme Monitoring Committee. The results of the previous investigation as at 30 June 2006 were presented in a report dated 12 January 2007. That report is publicly available on the NT Government website.

3 Recommendations

- 3.1 Our recommendations arising from the review of the Scheme are outlined below.
- 3.2 *Data.* This year and in previous years, we (and the previous Scheme Actuary) have noted limitations to some aspects of the data. For example, the ANZSIC data has not always appeared reliable in relation to employee number and/or total wages. In addition, in our view it would be useful if the data provided for this report was suitable to allow analysis of claim development patterns separately for different Heads of Damage. Therefore we recommend that NT WorkSafe seek to identify how these data limitations can be addressed for future years' reports. We would be pleased to work with NT WorkSafe in responding to this recommendation.
- 3.3 *Scope of this Report.* Currently this report focuses on the privately underwritten sector of the Scheme. The privately underwritten sector is the sector for which the most detailed data is provided. Limited consideration is currently given to the public sector or to the private self-insured sector of the Scheme. Therefore we recommend that the Scheme Monitoring Committee and NT WorkSafe consider whether (and in what form) the progress of those sectors of the Scheme should be reviewed in future years.

4 Scheme Experience during 2006/07

- 4.1 Experience for the privately insured sector of the Scheme during 2006/07 included the following:
- ◆ Gross claim payments of \$52.0 million were made by the insurers, with reinsurance recoveries of \$2.1 million. Payments net of recoveries were 15% higher overall than in 2005/06.
 - ◆ 2,460 new claims were reported to the Scheme, 11% less than in 2005/06. The great majority of these claims were in respect of accidents occurring in 2006/07. Just four of these new claims were in respect of accidents that occurred more than eight years ago.
 - ◆ The insurers wrote around \$81.9 million of premiums, 2% more than in 2005/06.
 - ◆ The insurers' provisions for their outstanding claims liability (including claims handling expenses and prudential margin) reached approximately \$200.6 million, up 7% from last year.

The figures above exclude information relating to the Nominal Insurer (primarily claims previously borne by HHH), self-insurers and the government sector.

5 Principal Conclusions of our Investigation

5.1 Claim Frequency

5.1.1 In 2007, there is again some evidence of reducing claim numbers. This trend for reducing claim numbers has probably been occurring since around 2000/01, albeit a little unevenly in some years. In line with this assessment, our projected ultimate numbers of claims in the 2007 valuation are less than those from the previous report. As discussed elsewhere in this report, there are some limitations with the data regarding numbers of employees, and therefore it is difficult to reliably compare numbers of claims to numbers of employees.

5.1.2 Therefore the table below assesses the claim frequencies relative to earned premiums and total wages. While neither of these statistics are ideal measures of claim frequency, in our view the conclusion that there is an underlying trend of declining claim numbers is likely to be valid.

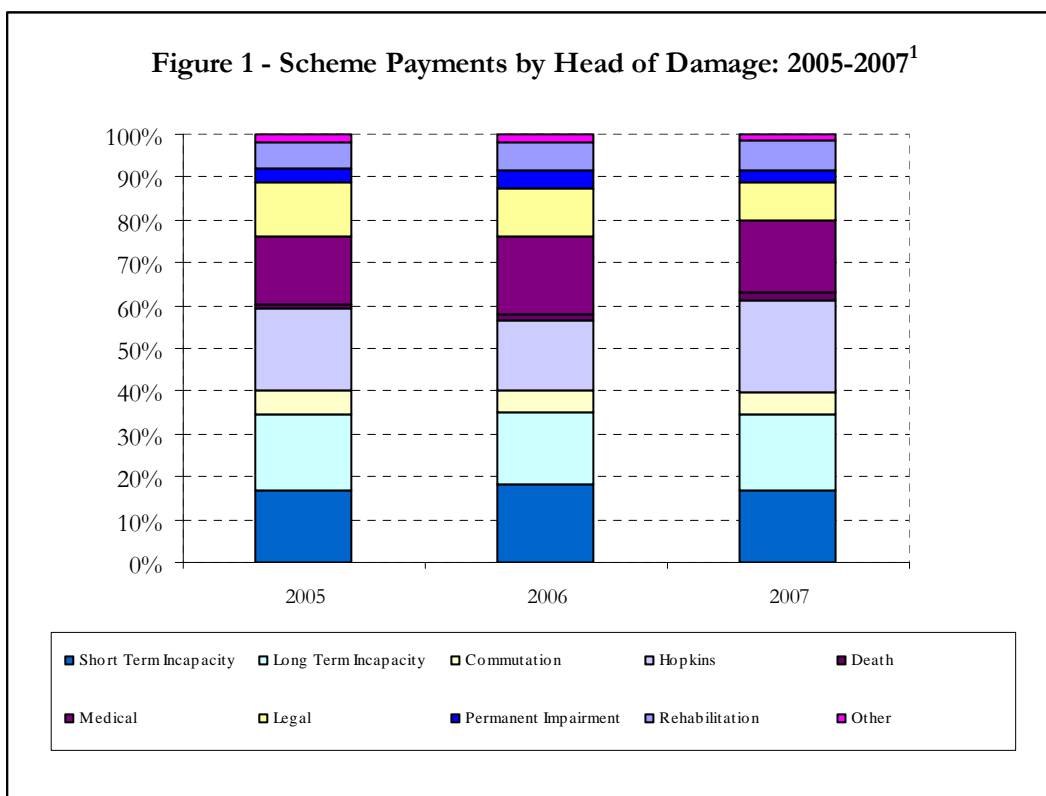
Financial Year	Net Earned Premium (1)	Wages \$m (2)	Ultimate Claims (3)	Claims per \$1M EP (3)/(1)*1000	Claims per \$1M Wages (3)/(2)*1000
2000/01	49,988	1,924	2,871	57	1,492
2001/02	60,149	2,130	2,901	48	1,362
2002/03	66,165	2,170	2,870	43	1,323
2003/04	70,704	2,201	2,576	36	1,170
2004/05	74,518	2,384	2,762	37	1,159
2005/06	78,139	2,880	2,724	35	946
2006/07	78,953	3,170	2,493	32	786

5.2 Average Claim Sizes

5.2.1 Claim sizes (as measured based on the observed average inflation-adjusted Payment Per Claim Incurred) have risen again, following a decline in 2005/06. Overall, the trend in recent years appears to be for claims sizes continuing to grow faster than wage inflation. However, the average claim sizes also continue to show significant volatility.

5.3 Heads of Damage

5.3.1 In Figure 1 below we have shown the break up of payments by Head of Damage over the last three financial years.



¹Data on which this figure is based is shown in Appendix G.

5.3.2 Commutations and negotiated settlements continue to be an important element of overall Scheme costs, currently making up around 25% of payments. In the table above (and elsewhere in this report), we refer to “commutations” as settlements made by the Work Health Court under section 74 of the Work Health Act. Negotiated settlements (referred to colloquially and in this report as “Hopkins’ agreements”) are settlements made outside the Work Health Court, and not currently covered by the Work Health Act. In 2006/07 Hopkins’ agreements comprised 21% of total payments (2005/06: 17%) while commutations covered by the Work Health Act comprised 5% of total payments (2005/06: 5%). We have discussed commutations and Hopkins’ agreements further in Section 4.1 of Part II of this report.

5.4 Net Central Estimate of Liability

5.4.1 Our central estimate of the liability (net of reinsurance recoveries) for outstanding claims at 30 June 2007 is \$209.7 million, which is 5% higher than the total of the insurers’ central estimates shown in their own actuarial reports. We note that there can be many reasons leading to different actuarial assessments of outstanding claims liabilities. In addition, we observe that the difference between the insurers’ estimate and the Scheme Actuary’s estimate has been declining in recent years (the difference was 11% at 30 June 2006, 11% at 30 June 2005 and 20% at 30 June 2004). In our opinion this difference is unlikely to be of material concern for policyholder protection or market stability.

5.5 Scheme Profitability

- 5.5.1 In our opinion, allowing for expenses and the cost of servicing the capital required to comply with the requirements of APRA, the result of this investigation suggests that business written since the 2000/01 financial year is likely to return an adequate profit for insurers (taking all insurers and all accident years together), as discussed in Section 6 of Part II.
- 5.5.2 We have assessed the net profit for the Scheme over the 2006/07 financial year to be \$35.4 million. The net profit for the Scheme as assessed by the insurers is less than this, at \$21.7 million. Section 6 of Part II provides more details on the methodology used to determine these figures. The profit achieved this year (as assessment by us) is similar to last year, while the profit this year as assessed by the insurers is lower than last year. These results partly reflect continuing favourable experience in 2006/07 and partly (in the case of the insurers' assessments) some strengthening of the assumptions in respect of future claims experience.

5.6 Premium Adequacy

- 5.6.1 In 2006/07 there has again been a small reduction in the premium rates charged by the insurers, following on from a reduction in 2005/06. This probably is a consequence of the continuing favourable market conditions and profitability in recent years. Our forecast "break-even" premium for 2007/08 is the same as the break even premium we have estimated for 2006/07, at 1.9% of wages.

5.7 Reconciliation between data sources

- 5.7.1 We note that this year the data again reconciled well at a group level and reasonably well at the individual accident year level. Where the data did not reconcile so well at the accident year level mainly related to the 2001/02 and prior accident years. Therefore some of the data limitations may be becoming more "historical".
- 5.7.2 However, we continue to have some concerns regarding the ANZSIC data. For example, while the total number of employees covered by the Scheme in 2006/07 was reasonably consistent with the previous year (showing a decline of 2%), some employee numbers by industry classification continue to show significant volatility.

6 Valuation Results and Assumptions

6.1 Valuation Results

6.1.1 Table 2 shows our estimate of the Scheme's outstanding claim liabilities as at 30 June 2007. The table also compares our assessment of the liability with the estimates from the reports provided to us by the insurers.

Table 2 - Valuation Results as at 30 June 2007		
	Scheme Actuary	Insurers
	\$000	\$000
Gross Central Estimate ¹	177,338	184,529
<i>less</i> Reinsurance Recoveries ²	<u>5,320</u>	<u>13,314</u>
<i>Equals</i> Net Central Estimate	172,018	171,215
<i>plus</i> Claims Handling Expense ³	<u>10,321</u>	<u>7,158</u>
	182,339	178,373
<i>plus</i> Prudential Margin ⁴	<u>27,351</u>	<u>22,183</u>
Total Provision	209,690	200,556
¹ Allows for wage inflation of 4% pa and superinflation of 2% pa, and discounted at 6.4% pa ² 3% of gross claim payments ³ 6% of net central estimates ⁴ 15% of net central estimates plus expenses		

6.1.2 Our calculation of the net central estimate of \$172.0 million is slightly lower than the \$173.0 million we estimated in our previous report. It is some \$0.8 million lower than the insurers' combined central estimates of \$171.2 million. At 30 June 2006 the difference between our estimates and the insurers' estimates was larger, at \$17 million.

6.2 Valuation Assumptions

6.2.1 The selection of the valuation assumption is discussed in more detail in Section 3 of Part II of this report. However, in this Section we have summarised the main changes to the actuarial assumptions, compared to those used in the last valuation, based on our analysis of the Scheme's emerging experience.

6.2.2 The discount rate was increased from 5.75% per annum to 6.4% per annum, reflecting an increase in the yields available on Commonwealth Government bonds between June 2006 and June 2007. An increase in the assumed discount rate decreases the outstanding claims liability.

6.2.3 The assumed average Payment Per Claim Incurred has been increased to \$19,000. This represents an increase of 5.6% over the assumption used last year. This level of increase is only slightly less than the total of wage inflation (4% pa) and superimposed inflation (2% pa) we adopted for this and the previous report.

6.2.4 We have made some slight adjustments to the assumed development pattern for both claim numbers and claim payments, taking into account our interpretation of the

emerging experience. The overall effect of these changes is to reduce the outstanding claims liability.

6.2.5 We have maintained the following assumptions used in last year's investigation:

- ◆ superimposed inflation of 2% per annum.
- ◆ wage inflation of 4% per annum.
- ◆ claims handling expenses of 6% of net claim payments.
- ◆ reinsurance recoveries of 3% of gross claim payments.
- ◆ a prudential margin of 15% of the net central estimate including claim handling expenses.

7 Movement in Central Estimate

7.1 Our net central estimate of the outstanding claim liabilities including claims handling expenses is \$182.3 million. As at 30 June 2006 the net central estimate including claims handling expenses was \$183.4.

7.2 Table 3 below shows the impact of the various changes in assumptions on the net central estimate of liabilities (including claims handling expenses).

Table 3 - Movement in Net Central Estimate (including expenses)	
	\$million
Net Central Estimate of Outstanding Claims Liabilities at 30 June 2006	183.4
Expected Payments in year	(42.1)
Interest expense due to 1 year's less inflation & discounting	10.5
Change in ultimate numbers	(0.7)
Change in average payment per claim	(0.7)
Change in discount rate	(3.9)
Change in claims development pattern	(1.9)
Cost of New Claims	38.9
Other factors	(1.2)
Net Central Estimate of Outstanding Claims Liabilities at 30 June 2007	182.3

7.3 The primary sources of increase are through the "unwind" of the discount (as cash flows are one year closer to payment) and the addition of one new year's claims. These are largely offset by claim payments made in 2006/07. Each of these three items will occur every year, and therefore are a normal part analysis of the movement in central estimates. Some other factors (for example, the impact of changes to the valuation model or assumptions) may not occur every year, or may vary greatly in their impact from year to year.

8 Comparison of Premiums to Costs

8.1 In table 4, below, we have compared our estimate of the “Break-even Premium” with the actual average premium rate charged (calculated from the insurers’ Form B returns). The break-even premium is the amount we estimate the insurers need to charge to cover claims costs and expenses. Information relating to HIH has been excluded from the analysis for all prior years.

Accident Year	Wages¹ \$m	Gross Incurred Claim Costs² \$m	Expenses, Commission \$m	Break-even Premium Rate	Average Premium Rate Charged by Insurers
1997/98	1,437	28.6	6.5	2.4%	1.6%
1998/99	1,586	33.1	7.5	2.6%	1.9%
1999/00	1,859	33.9	8.2	2.3%	2.6%
2000/01	1,924	35.6	8.9	2.3%	3.2%
2001/02	2,130	41.2	10.4	2.4%	3.1%
2002/03	2,170	45.0	11.4	2.6%	3.3%
2003/04	2,201	42.8	11.1	2.4%	3.3%
2004/05	2,384	49.1	12.5	2.6%	3.2%
2005/06	2,880	51.0	13.0	2.2%	2.8%
2006/07	3,170	47.4	12.4	1.9%	2.6%
<i>2007/08 (forecast)</i>	<i>3,297</i>	<i>49.6</i>	<i>12.0</i>	<i>1.9%</i>	

¹Source: ANZSIC Data - excluding HIH/FAI/WMG
²Including 4% inflation, 2% superimposed; discounted to middle of accident year.

8.2 From the table above, we can see that the break-even premium had been quite stable for a number of years up to 2004/05. In 2005/06 and 2006/07 we see a reduction in the break-even premium. This reduction is likely to be partly due to more favourable claims experience observed in recent years as well as more optimistic assumptions adopted for future experience. However, it may also be partly due to the substantial increase in the total wages data, particularly between 2004/05 and 2005/06. This suggests that the wages data between the two years may not have been consistent. Therefore this limitation in the data obscures any conclusions that might be drawn from the apparent reduction in the break-even premium in the last couple of years. We have projected a similar break-even premium for 2007/08 to that for 2006/07.

9 Qualifications and Limitations

9.1 Workers’ compensation liabilities of the type analysed for this report are affected by factors such as unknown future economic, social and environmental influences. Unknown events that have occurred in the past (e.g. unreported claims) may also impact on the liability. There is therefore considerable uncertainty as to the actual ultimate cost of claims that will be borne by the Scheme, and variations from the estimates provided in this report are normal.

- The actual claims outcomes may prove to be greater or lower than the figures set out in this report.
- 9.2 The actuarial models and approaches that we have adopted for this report also include components of uncertainty, including:
- ◆ Model selection error (the actual process generating the claims experience may be significantly different to the model that we have selected to carry out our calculations);
 - ◆ Parameter error (the estimates of the parameters used in the model are subject to sampling error);
 - ◆ Parameter evolution error (parameters that are treated as constants in the model may be subject to change over time); and
 - ◆ Process error (the future claims experience may randomly depart from the model expectations).
- 9.3 This report has been prepared for the use of the Scheme Monitoring Committee for the purpose stated in Section 1 above. It is not intended, nor necessarily suitable, for any other purpose. In particular, sections of the report that analyse premium adequacy are intended as a monitoring tool only. Use of this information for any other purpose (eg. premium pricing) is not appropriate.
- 9.4 We acknowledge that this report may be included on the NT Government website, to enable access by interested third parties. However readers of the report should recognise that it is not a substitute for their own investigations and analysis and should place no reliance on this report or the data contained herein which would result in the creation of any duty or liability by Bendzulla Actuarial Pty Ltd to the third party.
- 9.5 In preparing this report, we relied on the accuracy and completeness of the data and other information provided to us, including verbally provided information. We reviewed the data for consistency and reasonableness but have not independently verified or audited it.
- 9.6 If any data or other information is found to be inaccurate or incomplete, we should be advised so that our advice can be revised, where necessary.
- 9.7 The report should be considered as a whole. Consultants from Bendzulla Actuarial Pty Ltd are available to answer any queries, and the reader should contact us before drawing conclusions on any issue in doubt.

Part II Detailed Findings

1 Introduction

1.1 Purpose and Scope

1.1.1 We have been asked by the Scheme Monitoring Committee (the Committee) to make an assessment of the Northern Territory Workers' Compensation Scheme (the Scheme) as at 30 June 2007. Actuarial assessments of the Scheme are carried out annually. Bendzulla Actuarial Pty Ltd also prepared the last such assessment as at 30 June 2006, with the findings contained in a report dated 12 January 2007. In previous years, a similar assessment has been carried out by Finity Consulting Pty Limited and its predecessor firms.

1.1.2 The purpose of the investigation is to assist the Committee in fulfilling its obligations under Section 145 of the Work Health Act 1986 (the Act) to:

- ◆ monitor the viability and performance of the Workers' Compensation Scheme; and
- ◆ monitor the premium rates offered for Workers' Compensation insurance in the Northern Territory.

1.1.3 We understand our full report will be made available for public access in electronic form on the NT government website after it has been considered by the Committee and the Minister for Employment, Education and Training. The reader's attention is particularly drawn to the inherent limitations of our report for use by other parties as set out in Section 9 of this Part of the report.

1.2 Accounting and Professional Standards

1.2.1 The following prudential and professional standards are relevant to the preparation of reports regarding insurance company outstanding claim liabilities:

- ◆ APRA's Prudential Standard GPS310 *Audit and Actuarial Reporting and Valuation*;
- ◆ the Institute of Actuaries of Australia's (IAA's) Professional Standard 300 *Actuarial Reports and Advice on General Insurance Technical Liabilities*; and
- ◆ the IAA's Guidance Note GN353 - *Evaluation of General Insurance Technical Liabilities*.

1.2.2 Further, the accounting standard AASB1023 *General Insurance Contracts* has implications for the way in which entities establish provisions for outstanding claims.

1.2.3 This investigation and report are intended to comply with these Standards and Guidance Notes to an extent that we consider reasonable, given the purpose of our investigation.

1.3 Data Provided

- 1.3.1 We have been provided with copies of the Form A and B returns submitted by the authorised insurers from which we have extracted the Scheme data required for our assessment, and have relied on the accuracy of the information provided in these returns. We have also been supplied with other data relating to policies, premiums and outstanding claims estimates that were provided by the insurers to NT WorkSafe, including extracts of the most recent actuarial investigations into NT workers' compensation liabilities for each of the participating insurers. The assistance provided by NT WorkSafe staff in clarifying the data and resolving data queries is also acknowledged.
- 1.3.2 As noted by us in our report last year, and also in earlier reports, the employee data provided to NT WorkSafe continues to vary significantly from year to year, resulting in large movements in employee numbers. For this reason, we have again not relied on the accuracy of the employee numbers in the data, and we are unable to form an accurate assessment of claim frequency (claims/employees) in the Scheme.
- 1.3.3 We were also supplied with a summary of payments in 2006/07 by head of damage and year of accident, taken from the records of NT WorkSafe. As was the case last year, we were able to reconcile this data satisfactorily at a group level and reasonably well at the accident year level to the insurers' returns. We also note that where significant differences do exist at the accident year level, they relate to 2001/02 and prior years, which suggests the limitations in this aspect of the data are becoming more "historical" and therefore less significant to the analysis in this report. We have included some analysis from the heads of damage data in this report.
- 1.3.4 Further explanation of the data provided is included in Appendix A.

2 Scheme and Insurance Environment

2.1 Scheme Benefits

- 2.1.1 The Scheme provides a range of benefits to injured workers, including:
- ◆ weekly income-replacement benefits, related to pre-injury Normal Weekly Earnings;
 - ◆ all reasonable medical and related expenses;
 - ◆ lump sum impairment benefits, to the more seriously injured claimants;
 - ◆ limited access to commutations and negotiated settlements of future benefits; and
 - ◆ lump sum death benefits, and weekly benefits to dependents.
- 2.1.2 There has been no access to common law benefits since inception of the Scheme in January 1987.

2.2 Insurance Environment

- 2.1.1 Following a period of relative instability in the insurance markets in Australia (not least as a result of the HIH collapse), the most recent years have been more settled. The market has been more profitable, and following a period of increasing premiums since around 2000/01, the premiums have declined in 2005/06 and 2006/07. The same insurers have been active in the NT workers' compensation market for the last few years. These shorter-term changes are influenced by a combination of market conditions and claims costs.
- 2.1.2 In the long term, the premium rates are ultimately affected by the claims experience of the Scheme. The main cost drivers are the frequency and severity of claims. Therefore it is important to promote continual improvement in occupational health and safety policies and practices, to monitor and review cost trends and to encourage insurers to adopt proactive claims management practices. Initiatives of this type will help to promote a Scheme that operates as efficiently as possible.

3 Economic & Other Assumptions

3.1 Overview

- 3.1.1 In this section, we discuss the economic and other assumptions used in this investigation and compare them to those used in the previous investigation. Table 3.1 provides a summary of the main assumptions adopted.

Table 3.1 - Summary of Economic and Other Assumptions

	This Valuation	Previous Valuation
	% pa	% pa
Discount Rate	6.40%	5.75%
Wage Inflation	4.00%	4.00%
Superimposed Inflation	2.00%	2.00%
Reinsurance Recoveries ¹	3.00%	3.00%
Claims Handling Expenses ²	6.00%	6.00%
Prudential Margin ³	15.00%	15.00%
¹ Percentage of gross central estimate		
² Percentage of net central estimate		
³ Percentage of net central estimate plus claims handling expenses		

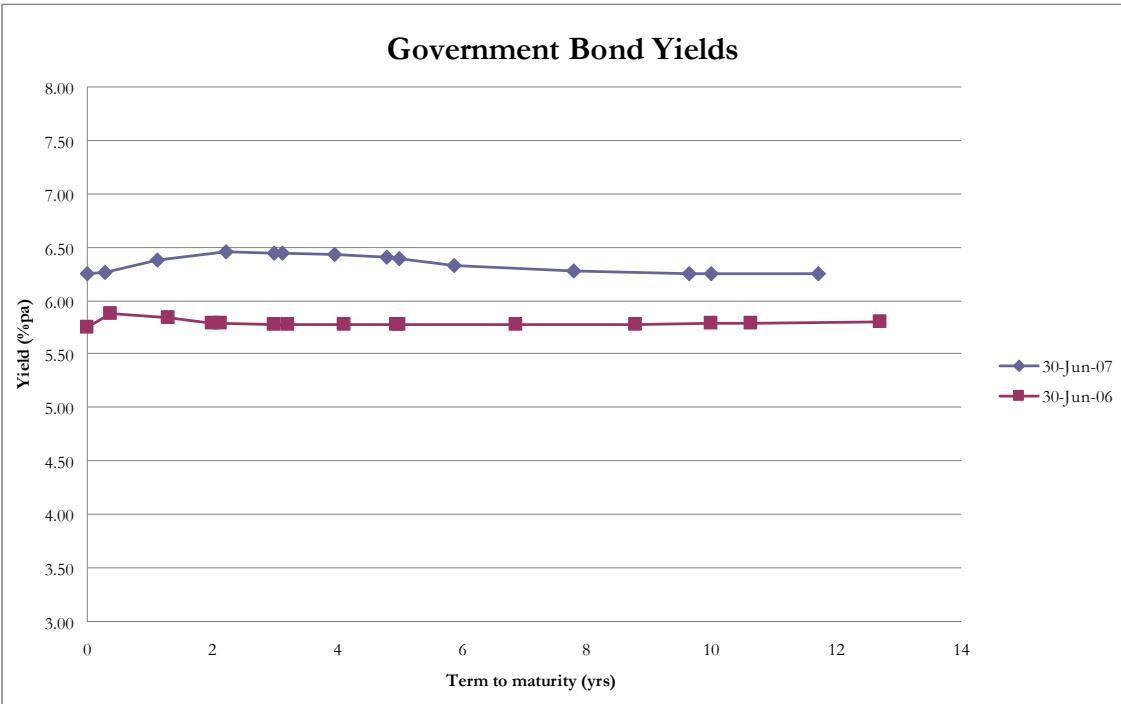
3.2 Discount Rate

3.2.1 To comply with the general insurance prudential standard GPS310 (governing the measurement and reporting of the insurance liabilities for general insurers) and AASB1023 (the relevant accounting standard), the discount rate should be based on current observable, market-based and objective risk-free rates that relate directly to the nature, structure and term of the liabilities of the Scheme. The discount rates should:

- ◆ reflect market conditions at the valuation date;
- ◆ represent the rate which can be earned between the valuation date and when claims are expected to be settled; and
- ◆ reflect the level of risk in a portfolio of assets that would closely match the expected pattern of payments arising from the liabilities.

3.2.2 We therefore consider that an appropriate discount rate should be a risk-free rate corresponding to the duration of the liabilities. The duration is a weighted average measure of the time over which payments are expected to be made. Our analysis of the Scheme's experience shows that the average duration of the liabilities is about seven years.

3.2.3 Australian government bonds are considered to be risk free investments. We have therefore examined the "yield curve" for Australian government bonds. The yield curve plots yield available on Australian government bonds with a range of outstanding terms to maturity. Figure 3.1 shows the bond yields at 30 June 2006 and 30 June 2007.



¹Data on which this figure is based is shown in Appendix G

3.2.4 The analysis shows that:

- ◆ the yield curve at 30 June 2007 has increased from that at 30 June 2006 at all terms to maturity;
- ◆ the yield curve remains reasonably flat, with yields varying only between about 6.25% and 6.5%; and
- ◆ the yield curve is highest for bonds with terms around 3 to 4 years, and slightly lower at shorter durations and at longer durations.

3.2.5 Based on the anticipated pattern of future payments, we have selected a discount rate of 6.4% per annum for the valuation of outstanding claims liabilities at 30 June 2007. This rate is 0.65% per annum higher than the rate used in last year's investigation.

3.2.6 If all other assumptions were the same as used in the previous investigation, such an increase in the discount rate would result in a decrease in the value of the outstanding claim liabilities. If an insurer was holding a matched portfolio of government bonds to support these liabilities, the market value of those assets would also fall and the net effect on the insurer's financial position would be small.

3.2.7 For the purposes of comparing premiums and claims costs by accident year (refer to Sections 6 and 7 below), we have adopted a discount rate that varies according to the accident year in which the premiums were received and the claims incurred. The discount rates chosen have been based on medium term bond rates on 31 December in the relevant accident year. The rationale for adopting these rates is that they are indicative of the discount rates that would have applied when the insurers actually received the premiums, paying due regard to the convention of matching the term of the assets to the term of the liabilities. The individual discount rates are shown in Appendix F.4.

3.3 Wage Inflation

3.3.1 It is normal to compare increases in workers' compensation claim costs with wage inflation, as many of the benefits payable increase with movements in wages. As with the discount rate, we consider it reasonable for valuation purposes to use a single wage inflation rate for all future years.

3.3.2 The difference between the assumed future wage inflation and discount rate ('the gap') is more important in determining the value of outstanding claims than is the absolute level of each rate.

3.3.3 Forecasts for wage inflation over the next few years are generally in the range of 3.5% to 4.5% per annum. We consider that a normal wage inflation rate of 4.0% per annum is appropriate for projecting future amounts of incurred claims over their expected future duration at this investigation. This is the same rate as adopted in the 2006 investigation and is reasonable having regard to wage inflation rates over the last few years, and our views of likely long-term future wage inflation. However it is widely accepted that there

are inflationary pressures in the economy at the present time, and any increase in wage inflation will impact on the Scheme liabilities.

- 3.3.4 We have used this rate both to value the outstanding claims liabilities and to compare claims costs to premiums.

3.4 Superimposed Inflation

- 3.4.1 It is possible that claims costs will increase at a rate in excess of normal wage inflation due to factors such as:

- ◆ increases in medical and legal costs; and
- ◆ the combined effect of other economic, social and political forces that are not easily identified nor consistent over time.

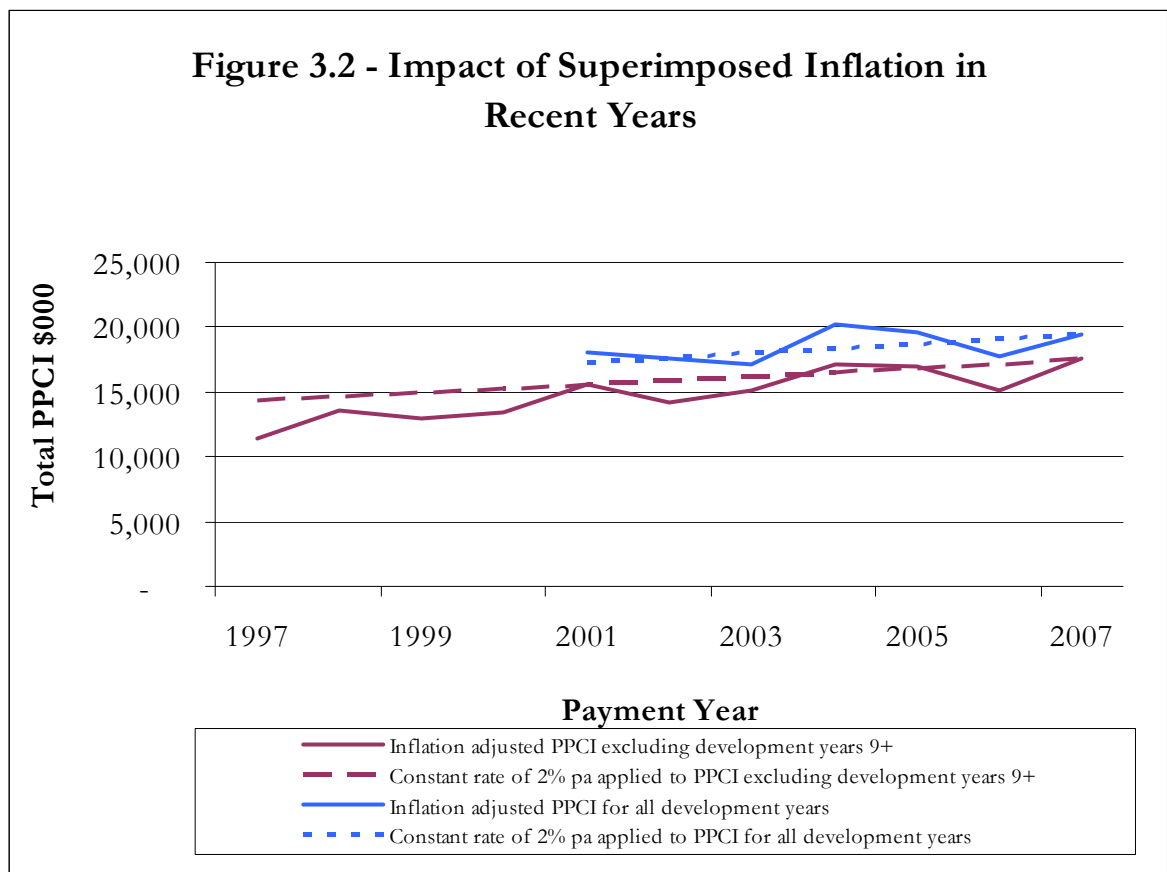
Such factors result in “superimposed inflation” of claims payments (also referred to as “superinflation”).

- 3.4.2 We have measured the historical impact of superimposed inflation in the Scheme over recent years, by calculating the average payments per claim incurred on a payment year basis. The data available to us readily allows calculation of the average payment per claim incurred (PPCI) including *all* development years since the 2000/01 payment year. For earlier payment years, the data allows calculation of the average payments per claim for only the first 8 years of development.

- 3.4.3 Therefore in our analysis of the observed superinflation we have firstly considered movements in the PPCI including *all* development years since the 2000/01 payment year. Secondly, we have separately calculated movements in the PPCI since the 1995/96 payment year for the first 8 development years the 1995/96 payment year. In our analysis, we have:

- ◆ updated these averages to 2007 dollars using actual movements in past average weekly earnings; and
- ◆ compared these inflation adjusted averages to those which would have emerged if a constant rate of superimposed inflation of 2% per annum had applied over the same time period. We used the 2007 payment year average as the base for this comparison.

Figure 3.2 shows the results of these calculations.



¹Data on which this figure is based is shown in Appendix G.

- 3.4.4 Where the solid line in Figure 3.2 is above the dotted line, this indicates an average rate of superimposed inflation to 2007 of less than 2% per annum; the converse is indicated where the solid line is below the dotted line.
- 3.4.5 Figure 3.2 also shows that the historical superimposed inflation experience is quite variable, with periods of low or negative superinflation (for example, in 2004/05 and 2005/06) and other periods where superinflation has exceeded 2% per annum. The lack of a clearly persistent trend makes the selection of an assumption regarding future levels of superinflation more subjective.
- 3.4.6 The nature of the benefits and our experience with other workers' compensation arrangements would suggest that some level of superinflation is appropriate. The major benefit provided is income replacement, and in respect of this benefit component there is unlikely to be any significant element of superinflation. However the costs of other benefit components such as medical and legal expenses are likely to have risen at a higher rate than wage inflation (and are likely to continue to do so in future).
- 3.4.7 The solid and dotted lines in Figure 3.2 are very close at 2000 and (by construction) at 2007; this indicates that based on the data provided, the average observed superinflation over the 7 years to 30 June 2007 was around 2% per annum. Over the 10 years to 30 June 2007, the average rate of superinflation was around 3% per annum.

3.4.8 In our opinion it is reasonable to give greater weight to the more recent years' data. Also, in light of the relatively subjective nature of the assumption for superinflation, we believe that it is preferable to minimise changes to the assumption for superinflation. Therefore for this investigation we have adopted an assumption of 2% per annum for superinflation, which is the same as was adopted last year.

3.5 Claims Handling Expenses

3.5.1 As part of calculating a provision for outstanding claims, we need to make an allowance for the cost of claims handling expenses. The allowance for claims handling expenses should exclude items such as medical and legal fees, which are already allowed for as part of future claim payments.

3.5.2 Table 3.2 summarises the expense information for the Scheme as a whole from the Form A's supplied by the insurers.

Financial Year	Net Earned Premium	Net Claims Paid	Expenses	Commission	Expenses as % of (2)	Commission as % of (1)
	(1)	(2)	(3)	(4)	(5)	(6)
	\$000	\$000	\$000	\$000	%	%
1997/98	28,311	31,860	4,789	842	15.0%	3.0%
1998/99	31,987	33,350	5,210	424	15.6%	1.3%
1999/00	44,148	36,819	4,947	1,264	13.4%	2.9%
2000/01	52,432	42,697	5,039	2,089	11.8%	4.0%
2001/02	60,149	38,251	6,301	2,482	16.5%	4.1%
2002/03	66,165	40,155	7,436	2,458	18.5%	3.7%
2003/04	70,704	46,385	8,584	2,720	18.5%	3.8%
2004/05	74,518	47,928	9,561	2,702	19.9%	3.6%
2005/06	78,139	43,515	9,600	2,874	22.1%	3.7%
2006/07	78,953	49,897	10,363	2,753	20.8%	3.5%

¹Including HIH

3.5.3 For the previous report, we assumed that claims handling expenses would be equivalent to 6% of net claims paid.

3.5.4 As we did last year, we have again reviewed the claims handling expense assumptions we understand have been adopted by the insurers in their actuarial reports. Based on this information, we do not believe a change to the expense handling assumption is necessary this year and therefore we have retained an assumption that claims handling expenses will be 6% of net claims paid. This is lower than the average figure shown in column (5) of Table 3.2 because a large part of the expenses incurred by the insurers relates to acquiring the business. Therefore the costs of administering claims are only a portion of the expenses reflected in the table.

3.5.5 On the other hand, for estimating premiums (including the cost of acquiring business), we need an assumption that allows for all expenses and commission costs. For this purpose, we have adopted:

- ◆ an allowance for expenses of 20% of net claim payments; and
- ◆ an allowance for commission payments of 4% of premiums.

These assumptions are the same as were adopted in the previous report. While this year we have not increased the allowance for expenses further (it was increased from 19% to 20% last year), if the higher expenses exhibited in column (5) of Table 3.2 persist, it may be appropriate that a higher assumption is adopted in future.

3.6 Reinsurance Recoveries

3.6.1 As part of their normal business operations, the insurers have reinsurance programs in place to help protect them from adverse experience. While we have not been provided with details of these programs, Table 3.3 summarises the recent reinsurance experience of the Scheme (taken from individual insurers' Form A's).

Table 3.3 – Reinsurance Recoveries						
Financial Year	Gross Written Premium	Reinsurance Premium	Reinsurance premium as % of (1)	Gross Paid Claims	Reinsurance Recoveries	Recoveries as % of (4)
	(1)	(2)	(3)	(4)	(5)	(6)
	\$000	\$000	%	\$000	\$000	%
1997/98	29,036	2,432	8.4%	32,980	1,120	3.4%
1998/99	40,549	5,120	12.6%	35,353	2,003	5.7%
1999/00	54,114	5,064	9.4%	40,469	3,650	9.0%
2000/01	65,467	6,041	9.2%	44,638	1,941	4.3%
2001/02	66,903	1,535	2.3%	38,683	432	1.1%
2002/03	70,557	2,221	3.1%	40,584	429	1.1%
2003/04	72,206	2,514	3.5%	47,842	1,457	3.0%
2004/05	76,691	2,715	3.5%	49,586	1,658	3.3%
2005/06	80,002	2,950	3.7%	45,946	2,431	5.3%
2006/07	81,907	2,829	3.5%	52,003	2,106	4.0%

3.6.2 Last year, we assumed that future reinsurance recoveries would be equivalent to 3% of gross future claim payments when valuing the outstanding claims liabilities. We have maintained this assumption for our investigation but note the variability of reinsurance recoveries as a percentage of gross claims in recent years as shown by the last column of the above table.

3.6.3 When comparing premiums and claims costs, we have also retained our the same assumption as last year, which was for reinsurance recoveries of 3% of gross claim payments.

3.7 Prudential Margin

3.7.1 The estimate of liabilities produced in this report is a “central estimate” of the outstanding claim liabilities. In other words, it is the mean or expected value of the liabilities. We have selected valuation assumptions with the objective of producing estimates of future claim payments and other items that contain no deliberate bias, nor contain any deliberate element of conservatism.

3.7.2 There are several factors that suggest that the estimate of liabilities should be increased above the central estimate figure when considering the performance of the Scheme. These factors include:

- ◆ uncertainty in the central estimate figure;
- ◆ APRA requirements; and
- ◆ sound commercial management.

We comment briefly on these aspects below.

Uncertainty in central estimate

3.7.3 Variations between our estimates and the ultimate cost of claims, measured on a consistent basis, will arise for a number of reasons:

- ◆ the models chosen for analysing and projecting claims are unlikely to exactly match the actual claim process;
- ◆ random fluctuations in the claims experience (or undetected errors in the data) will result in uncertainty in assumptions regarding future experience;
- ◆ future economic and environmental conditions are not known and may be different from those experienced in the past and assumed in our calculations; and
- ◆ future random claim fluctuations in the projected payments.

Each of the potential sources of variation introduces uncertainty into the valuation process and hence into the central estimate result.

APRA requirements

3.7.4 Effective from 1 July 2002, the minimum capital requirement calculation for general insurers is based on insurance liabilities including risk margins designed to provide a 75% probability of sufficiency.

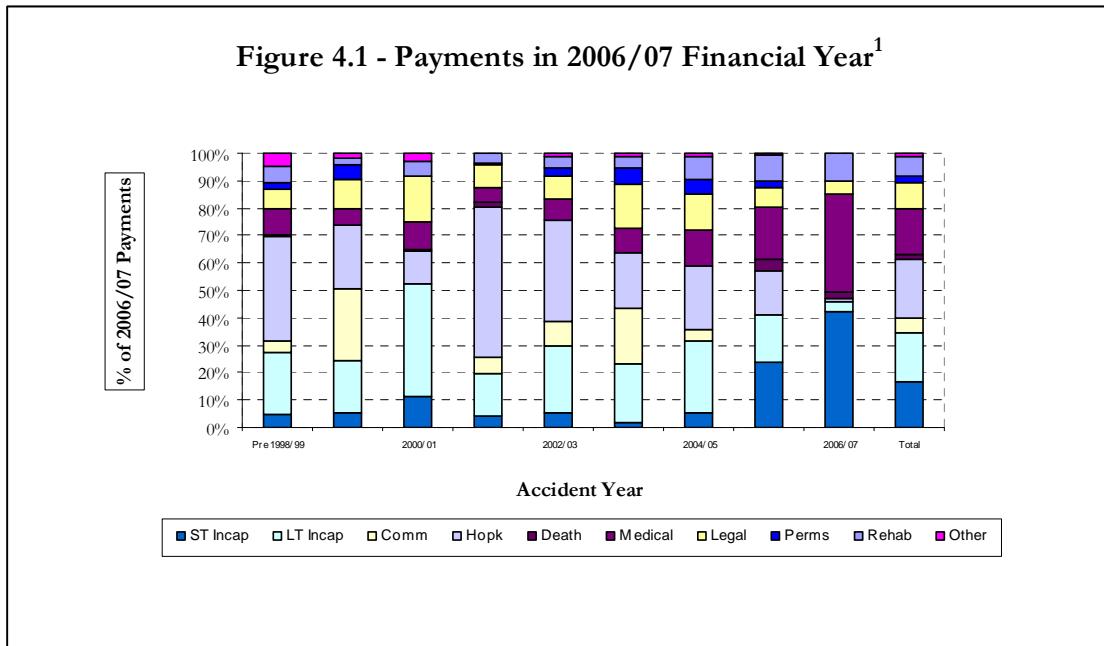
Sound commercial management

- 3.7.5 Sound commercial management requires that the provisions held in an insurer's accounts are significantly more than 50% likely to be adequate – a provision at the level of just 50% likelihood of adequacy would clearly leave policy holders and shareholders exposed to too high a risk.
- 3.7.6 In fact, it is common for insurers to hold a higher amount in the balance sheet than that necessary to meet the APRA requirement of a 75% probability of sufficiency. The reserves recorded in an insurer's financial statements may therefore differ from the amounts used for the APRA capital calculation. They may also differ between insurers, due to the different circumstances and risk tolerances of each insurer.
- 3.7.7 From the data provided by insurers, there is a range of risk margins held - from around 9% of central estimates to around 16%. Overall, the risk margins disclosed were approximately 12% of central estimates, which is slightly lower than the risk margins adopted by the insurers last year.
- 3.7.8 Compared to the Scheme, which involves a single class of insurance business (workers' compensation), insurers are able to reduce their risk margins to account for the diversification benefits of writing a range of classes of business. This is particularly the case for larger insurers. Taking this into account, we consider that the risk margin adopted for the Scheme should be higher than the average of the insurers' margins above.
- 3.7.9 For the purposes of this investigation, we have adopted a prudential margin of 15% to increase the central estimate figure. This is the same percentage margin as we adopted for the 2006 investigation.

4 Scheme Data

4.1 "Head of Damage" analysis

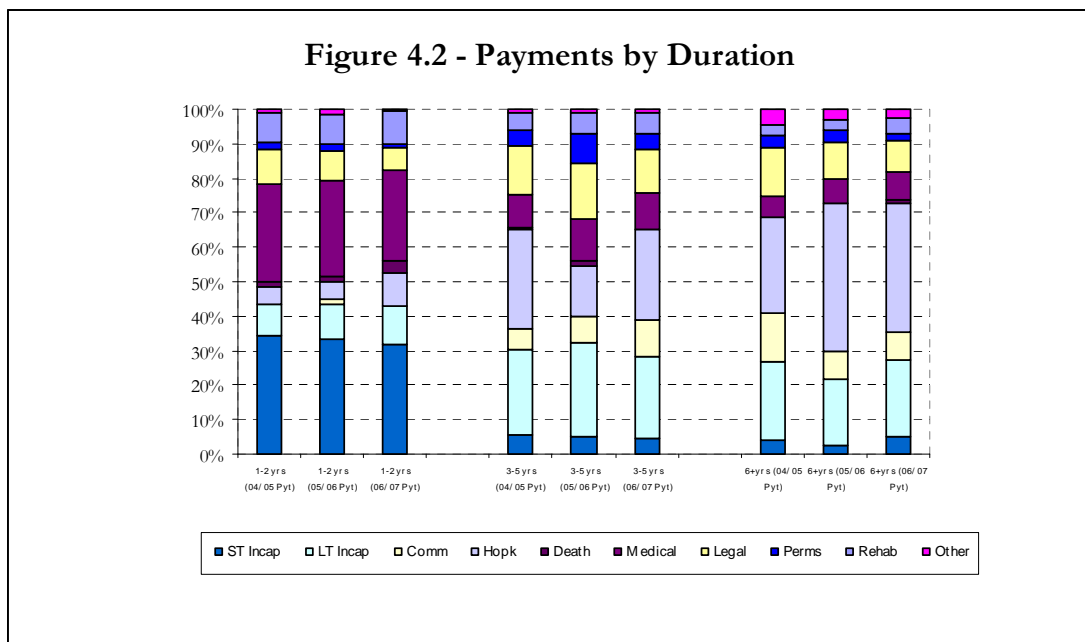
- 4.1.1 Figure 4.1 shows the split of payments made in the 2006/07 financial year by Head of Damage and accident year.
- 4.1.2 As we did last year, we have again separated commutations into those that were settled in the Work Health Court (under section 74 of the Work Health Act) and negotiated settlements "Hopkins' agreements" which were entered into outside the Court (and which are not currently covered by the Work Health Act).
- 4.1.3 The data in Figure 4.1 below shows quite a similar pattern to 2005/06. Short and long term incapacity benefits in respect of 2006/07 accidents were around 46% of payments (2006 report: 45%) and in respect of accident from all years were around 35% of payments (2006 report: 35%).
- 4.1.4 Hopkins' agreements represent around 5% of overall payments in 2006/07 (2005/06: 5%). However, they form a more significant of overall payments in the later development years – this is also apparent in Figure 4.2, below.



¹Data on which this figure is based is shown in Appendix G.

4.1.5 Figure 4.2 below groups payments over the last three financial years according to:

- ◆ duration between the date of accident and the payment year (with accidents in the year of payment being designated as being in Year 1); and
- ◆ type of payment.



¹Data on which this figure is based is shown in Appendix G.

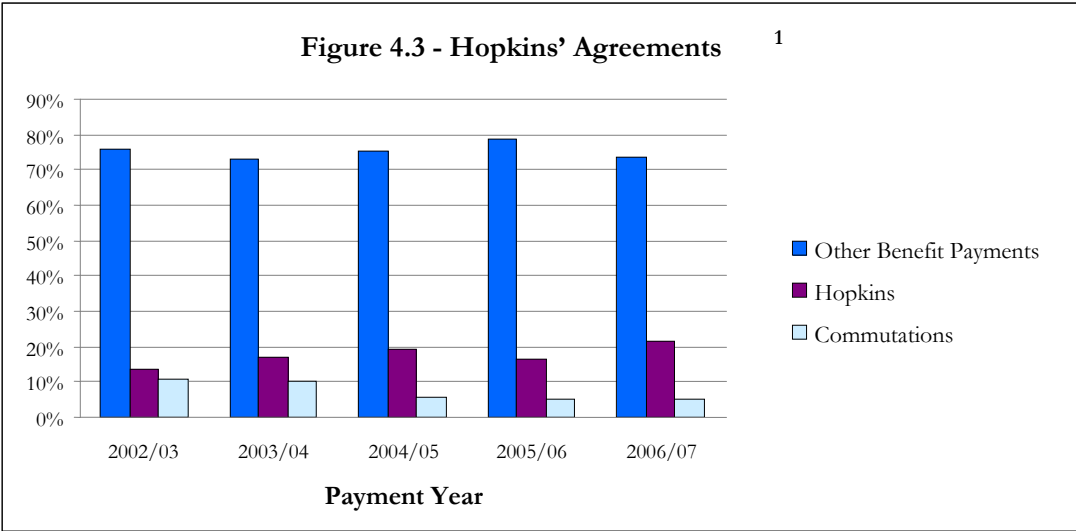
4.1.6 Figure 4.2 illustrates how payments over time can vary. For example, in the first couple of years post accident (the left most group of columns) income replacement (i.e. short and long term incapacity) and medical benefits make up the majority of payments.

Commutations and Hopkins' agreements, while present, are a relatively small proportion of overall payments.

4.1.7 In the second and third groups of payments, commutations and Hopkins' agreements become a progressively much more significant part of overall payments - making up around 30% to 50% of overall payments in those years, and long term weekly benefits also increase in importance.

4.1.8 Under a Hopkins' agreement, the worker retains the right to seek further payments under the Work Health Act (compared to a commutation under section 74 which extinguishes all future entitlements). If the insurer (or potentially the court) determines that further benefits are payable, the insurer is permitted to offset those already paid under the Hopkins' agreement.

4.1.9 In Figure 4.3, below, we have illustrated the relative significance of commutations, Hopkins agreements and other benefit types for the payment years 2002/03 to 2006/07. This shows that while the combined significance of commutations under section 74 of the Work Health Act and Hopkins' agreements has been reasonably stable (at around 25% of total benefits in each payment year), there appears to be a trend favouring increased use of Hopkins' agreements over section 74 commutations.



¹Data on which this figure is based is shown in Appendix G

4.1.10 At present, we do not have evidence whether this trend represents an increased cost to the Scheme. We consider that this may not emerge as an issue because Hopkins' Agreements are entered into voluntarily by the insurers, who can be expected to enter these agreements on a basis that the insurer considers to be financially prudent. However, we will continue to monitor the use of Hopkins' agreements in the years to come.

5 Valuation Approach, Experience and Assumptions

5.1 Treatment of HIH

- 5.1.1 As in previous reports, we have primarily considered the historical experience without HIH as part of this valuation. However, where appropriate some parts of our analysis do include HIH. The main assumptions would be similar whether or not they were chosen including HIH, as the data now substantially relates to the post-HIH period.
- 5.1.2 For the purposes of projecting the outstanding claims liability, it is appropriate to exclude the HIH group claims.

5.2 Valuation Approach

- 5.2.1 We have valued the Scheme liabilities using a model and set of assumptions selected taking into account past experience and our own assessment of likely future experience.
- 5.2.2 Ideally, we would value different benefit types separately, for example separating lump sum benefits from weekly benefits. However, the reports on the last several investigations of the Scheme have noted that the Heads of Benefit data has only been accurate since around 2002. We note from the data provide this year that the 2007 Heads of Benefit data on aggregate level is again reasonably consistent with the insurer data.
- 5.2.3 We now have 5 years of data from which to separately model the different benefit types. In our view, this does not yet provide quite enough experience to confidently develop separate approaches for the different benefit types. Therefore for this report we have continued to value all claim types together. However, if the Heads of Benefit data provided next year continues to reconcile reasonably well, that may be a suitable time to review the approach to modelling the benefits.
- 5.2.4 As in the previous report, we have again used the Payment Per Claim Incurred (PPCI) model to determine the estimate of the outstanding claims liability. The method assumes that, for each accident year, the average payment per claim (on an inflation adjusted basis) will progress in a reasonably steady fashion over time. The PPCI method requires assumptions regarding:
- ◆ the ultimate number of claims occurring in each accident year;
 - ◆ the average claim size;
 - ◆ the spread of payments over time (the payment pattern); and
 - ◆ rates of inflation (both wage and superimposed).

5.2.5 The projected cash flows for each accident year can be determined by multiplying together:

- ◆ the ultimate number of claims incurred;
- ◆ the assumed claim development in each accident year; and
- ◆ the assumed payment per claim incurred.

The present value of the liabilities is calculated by inflating the projected cash flows, then discounting the projected cash flows to the valuation date at the assumed discount rate.

5.2.6 In line with the approach we selected last year, we have adopted a PPCI model which projects claim payments not just in years 1 to 8 (as before) but also in years 9 to 15. Therefore only claim payments in the 16th and subsequent development years form part of the "tail".

Valuation of "tail" claims

5.2.7 The model and assumptions used for valuing those payments that remain part of the tail (those beyond the 16th development year) are less significant to the overall valuation.

5.2.8 In valuing the outstanding claims which are already in the 16th or later development year (i.e. for accident years 1991/92 and earlier), we have adopted an annuity model based on a payment per open claim of \$50,000 pa (in 2006/07 dollars), and an assumed claim closure rate of 20% per annum.

5.3 Legislative Changes

5.3.1 Historically, non-cash benefits (eg. board and lodgings, etc) and superannuation had not been included in the definition of Normal Weekly Earnings. However, in recent years there had been a number of court decisions leading to the interpretation that non-cash benefits and superannuation *should* be included.

5.3.2 In response, in December 2004 legislative amendments to the definition of Normal Weekly Earnings were passed to *exclude* superannuation from the definition of earnings, both prospectively and retrospectively. However, the *retrospective* application of this legislation was at first successfully challenged, but ultimately upheld by the courts (in August 2007). As a result, superannuation is now excluded from the definition of Normal Weekly Earnings. Therefore since the previous report, an element of uncertainty has been removed from the operation of the Scheme.

5.3.3 The exact impact of this decision on the Scheme remains uncertain. However, we make the following observations:

- ◆ the impact on future premiums is likely to be small, since superannuation had already been excluded from Normal Weekly Earnings for accidents on or after 26 January 2005;

- ◆ the insurers may be able to reduce their outstanding claims provisions (if they have not already done so), to the extent that they are no longer liable for superannuation in respect of accidents before 26 January 2005. From the insurers' actuarial reports provided to us, it appears there were differing approaches to allowing for this potential superannuation liability in their 30 June 2007 provisions.

5.3.4 To date, no legislative response has been passed to codify the nature of non-cash benefits that are (or are not) to be included in Normal Weekly Earnings. However we understand that legislation to clarify the definition of Normal Weekly Earnings in this respect may be considered in future. Such legislation may assist stakeholders in the Scheme by providing greater certainty.

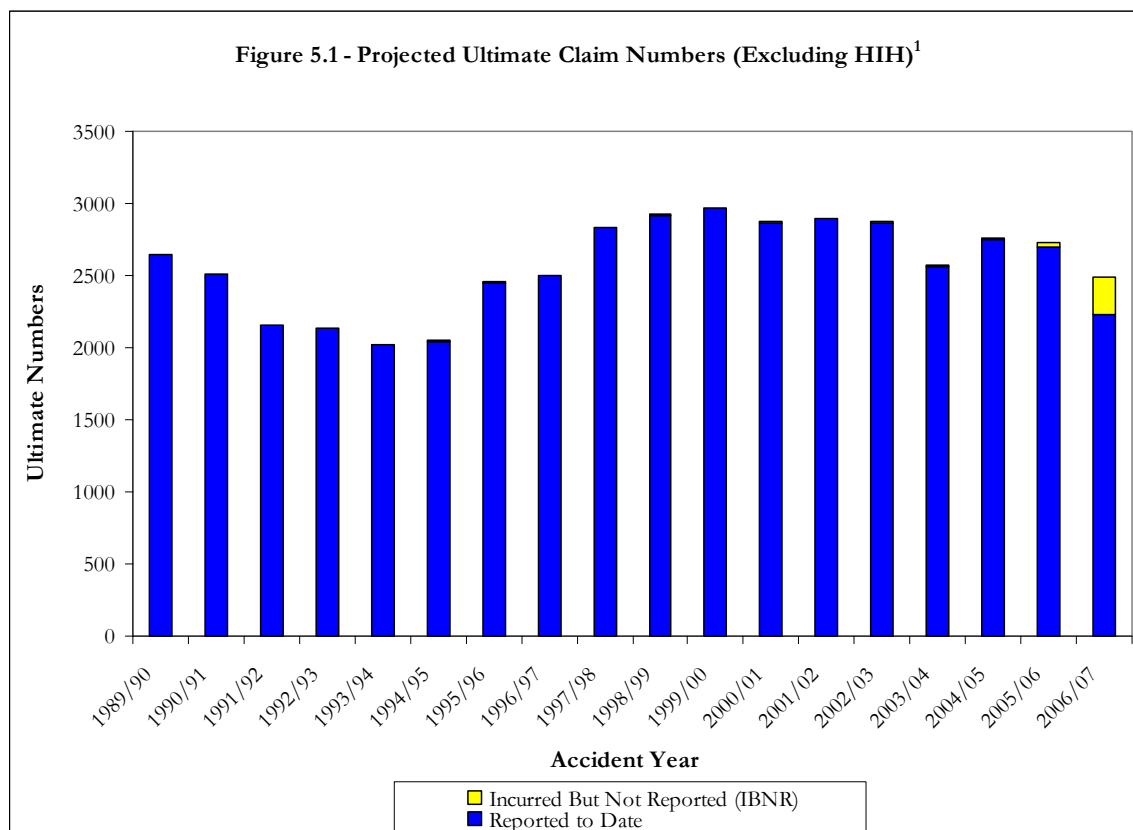
5.3.5 The governing legislation of the Scheme was amended in 2002/03. Changes included:

- ◆ an increase in death benefits;
- ◆ linking the benefits beyond two years to a claimant's capacity to work; and
- ◆ increasing the focus on rehabilitation and return to work procedures.

5.3.6 The impact of these changes will have started to flow through to the historical payment data. Therefore we have not explicitly adjusted the valuation assumptions from those that we consider are appropriate in light of the experience. Any improvements brought about by these changes will thus be gradually incorporated into our valuation basis as they emerge in the experience of the Scheme.

5.4 Numbers of Claims Incurred

5.4.1 In Figure 5.1, below, we show the estimated ultimate claim numbers we expected will be incurred in each accident year (excluding HIH). The chart shows the number of claims reported to date and also the estimate of claims incurred but not yet reported (IBNR).



¹Data on which this figure is based is shown in Appendix G.

5.4.2 This year, we have made some slight changes to the assumed development pattern for claim numbers in years 5 to 7, to reflect the emerging experience. Overall, the financial impact of these changes is quite small. The assumed pattern for the development of claim numbers is shown in appendix B.1.

5.4.3 Based on the adopted pattern, we estimate there will be 2,724 claims in respect of the 2005/06 accident year, lower than the claim numbers (2,783) we projected for that year when we prepared the previous report. For the 2006/07 year, we estimate there will be 2,493 claims.

5.4.4 Since around 2000, Figure 5.1 above is suggestive of a gradual decline in claim numbers, albeit with some years showing variations from this trend.

5.4.5 It can also be useful to analyse the overall claim frequency. This is generally best done using a “claims per worker” basis. However, as noted in several previous reports, the changes in employee numbers provided to us have been erratic between some past years. While the change in aggregate numbers from 2006 to 2007 (declining by 2%) was modest, we have continued to observe substantial volatility of employee numbers in some

industry classifications. Therefore we continue to have doubts about the reliability of this data, and have again avoided using employee numbers to analyse the claim frequency.

5.4.6 As an alternative to using employee number data to analyse claim frequency, we have estimated claim frequencies per \$1m of Earned Premium and per \$1m of Wages. The results are shown in Table 5.1, below.

5.4.7 From the table below, we see that in the last few years, the increase in total Wages has been relatively high. This may in part reflect the current strength of the economy in the Northern Territory, but also suggests there may be limitations to this data, too. Despite this, we believe the declining claim frequencies observed below is likely to reflect the underlying trend.

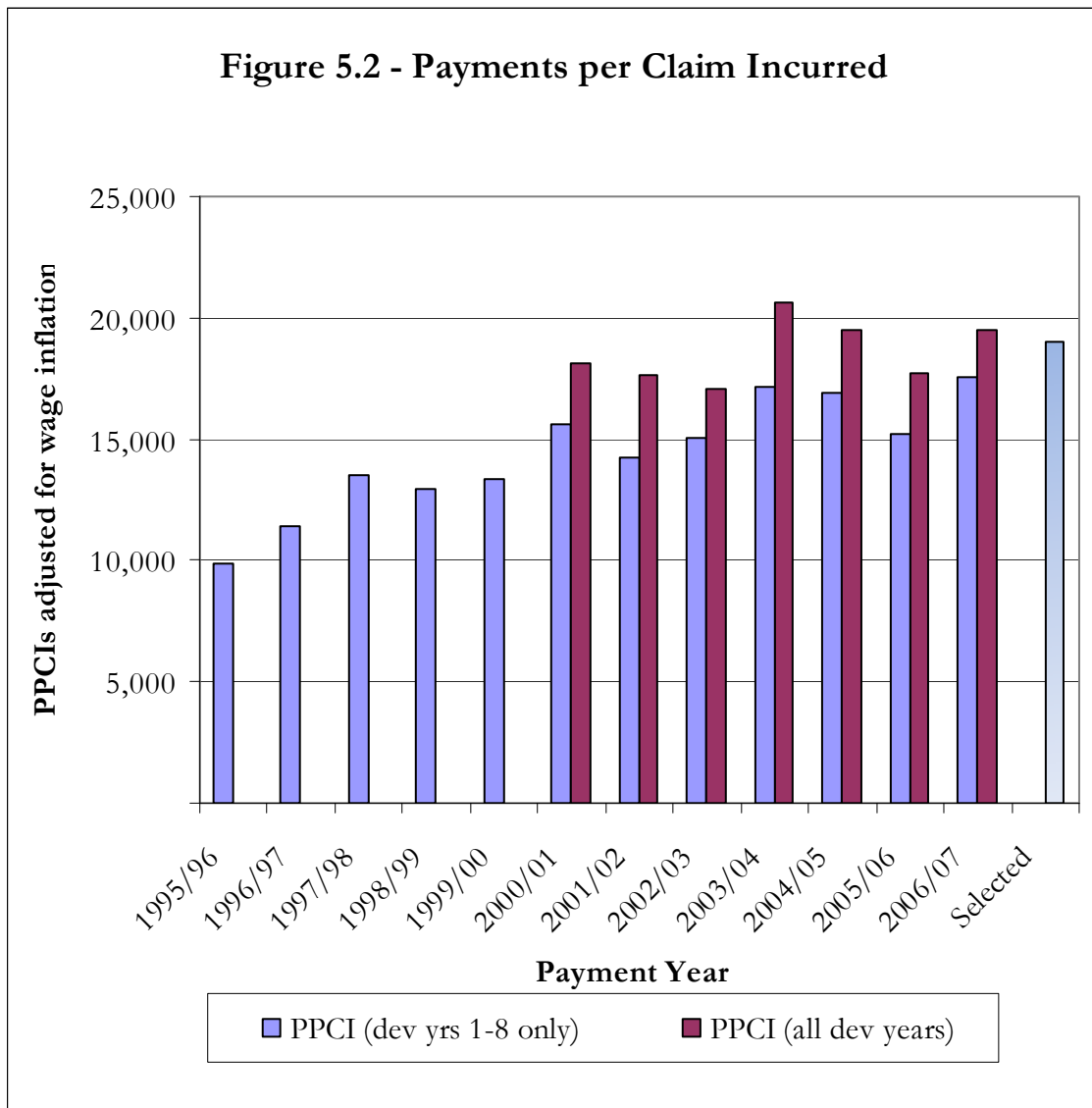
Table 5.1 - Claim Frequency (excluding HIH)					
Financial Year	Net Earned Premium \$000 (1)	Wages \$m (2)	Ultimate Claims (3)	Claims per \$1M EP (3)/(1)*1000	Claims per \$1M Wages (3)/(2)*1000
2000/01	49,988	1,924	2,871	57	1,492
2001/02	60,149	2,130	2,901	48	1,362
2002/03	66,165	2,170	2,870	43	1,323
2003/04	70,704	2,201	2,576	36	1,170
2004/05	74,518	2,384	2,762	37	1,159
2005/06	78,139	2,880	2,724	35	946
2006/07	78,953	3,170	2,493	32	786

5.5 Payment Per Claim Incurred (PPCI)

5.5.1 Figure 5.2 shows the average historical payment per claim incurred for both the first 8 years of development only, as well as the average for all development years. We have presented the table in this way to make best use of the available data. Ideally, we would have been able to show the historical PPCI including all development years for each payment year in the chart. However, the data relating to development years 9+ is only available since 2000/01.

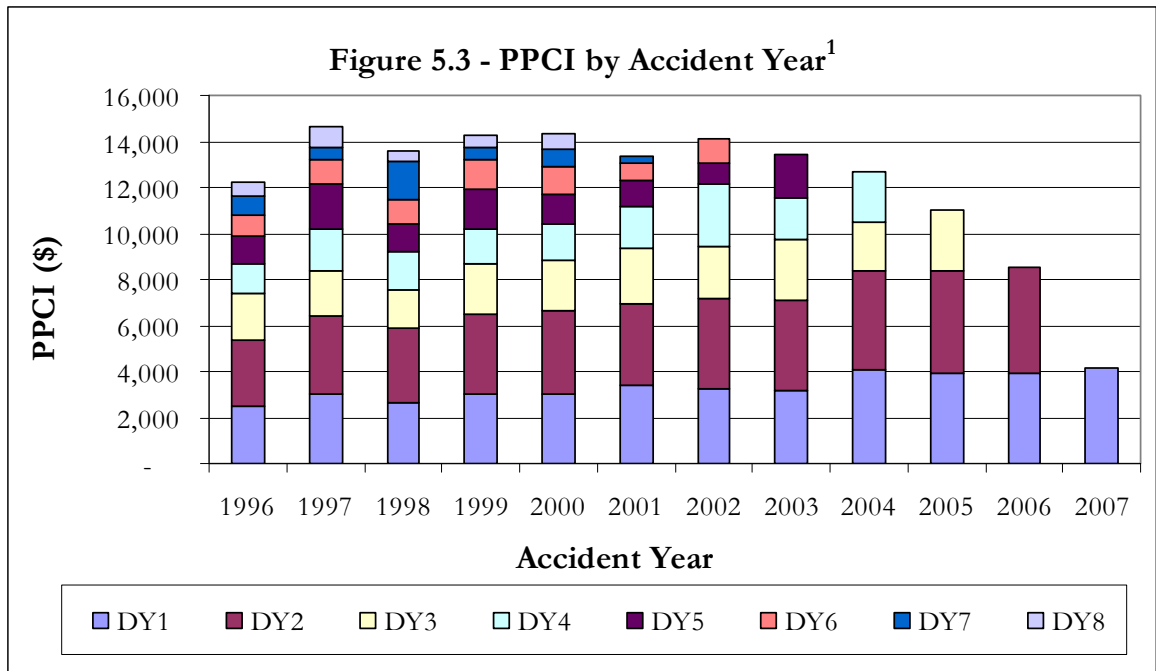
5.5.2 The chart shows that the PPCI continues to be relatively variable, with no clear trend emerging. However, in our view the data overall is suggestive of the presence some level of superinflation.

5.5.3 The last column on the chart shows our selected PPCI for 2007, (including all development years). We comment on this in paragraph 5.5.6.



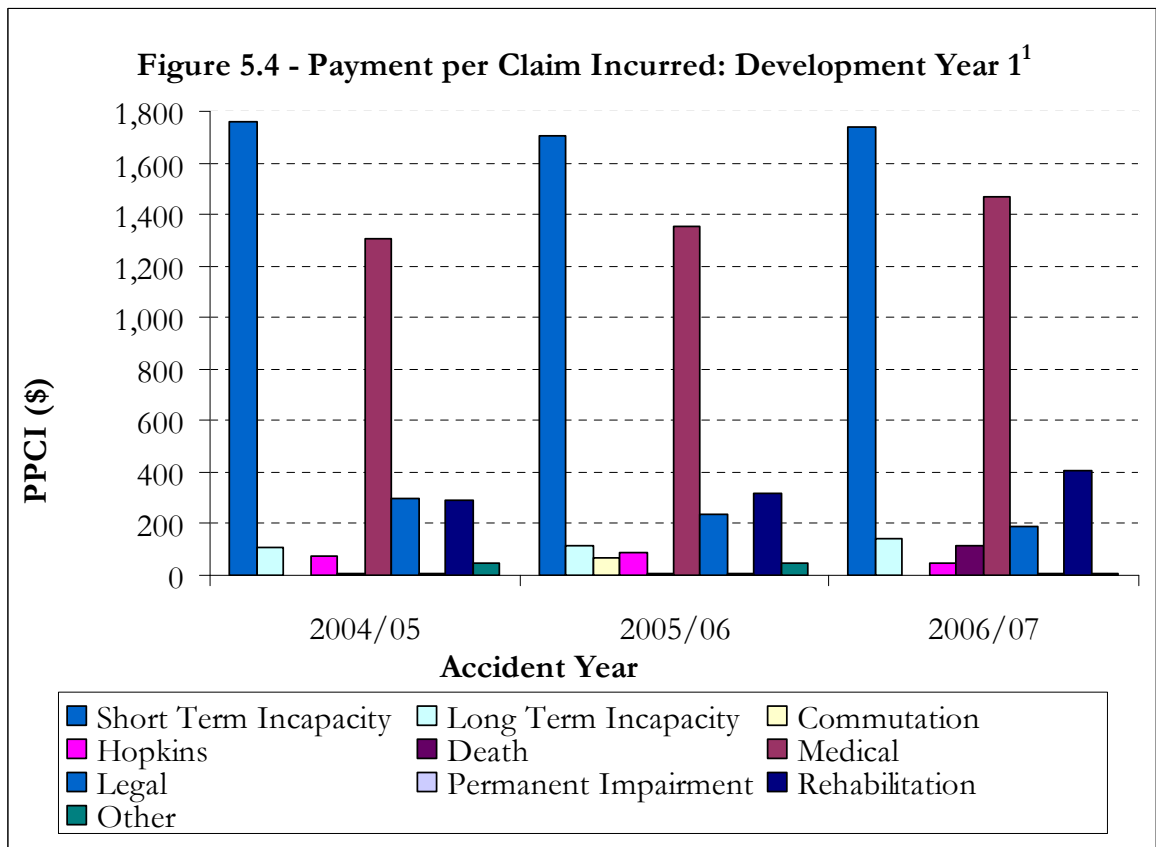
¹Data on which this figure is based is shown in Appendix G.

5.5.4 It is valuable to consider further whether there are any underlying trends in the PPCI. Figure 5.3 shows the PPCI for recent accident years and development years 1 to 8.



¹Data on which this figure is based is shown in Appendix G.

5.5.5 The chart above suggests that the increases in payments in the first two development years observed in 2003/04 has plateaued in 2005/06 and 2006/07.



¹Data on which this figure is based is shown in Appendix G.

5.5.6 At this review we have assumed a PPCI for future years of \$19,000. This is reasonably close to both the 3-year (\$18,930) and 5-year (\$18,833) average figures for the years up to 2007, and slightly below the observed figure of \$19,461 for 2007/08. Last year, we adopted a figure of \$18,000. Therefore the new figure represents an increase of around 5.6%.

6 Valuation of Outstanding Claims Liabilities

6.1 Overview

6.1.1 This section discusses the results of our valuation of the Scheme's outstanding claims liabilities using the methodology described in Sections 3 to 5. Our estimates in this Section of the report include just the privately insured section of the Scheme. They do not include liabilities in respect of the HIIH group.

6.2 Valuation Results

6.2.1 The results of our valuation are shown below in Table 6.1 below, along with a comparison (by accident year) to the insurers' reserves at 30 June 2007.

Accident Year	Net Central Estimate ¹	Net Outstanding Provision ²	Insurer Reserves 2007	Difference between Scheme Actuary and Insurer Estimates	
				\$000	%
91/92 and Prior	\$000	\$000	\$000	\$000	%
1992/93	8,253	10,060	4,830	5,230	52%
1993/94	1,011	1,232	1,309	(77)	-6%
1994/95	1,182	1,441	3,567	(2,126)	-147%
1995/96	1,504	1,833	1,741	92	5%
1996/97	2,262	2,757	2,719	38	1%
1997/98	2,911	3,549	5,313	(1,764)	-50%
1997/98	4,147	5,055	3,925	1,130	22%
1998/99	5,426	6,614	3,690	2,924	44%
1999/00	6,951	8,473	8,802	(329)	-4%
2000/01	8,597	10,480	11,660	(1,180)	-11%
2001/02	11,291	13,764	14,486	(722)	-5%
2002/03	14,227	17,343	17,348	(5)	0%
2003/04	16,381	19,968	18,502	1,466	7%
2004/05	22,467	27,387	28,040	(653)	-2%
2005/06	28,781	35,084	29,678	5,406	15%
2006/07	36,629	44,650	44,948	(298)	-1%
TOTAL	172,018	209,690	200,558	9,132	4%

¹Net of reinsurance recoveries of 3% of gross claim payments
²Including claims handling expenses of 6% and prudential margin of 15%

6.2.2 Our net central estimate at this valuation is \$172.0 million. Our estimated net outstanding claims provision (including claims handling expenses and prudential margin) is \$209.7 million. These are quite close to the equivalent figures from last year's report of \$173.0 million and 210.9 million respectively.

6.2.3 Relative to last year, the two most significant changes to the valuation assumptions have been the higher discount rate (increasing from 5.75% to 6.4%) and a lower projected ultimate number of claims. Both of these will tend to reduce the size of the estimated provision, other things being equal. These factors together with the reduction in the number of claims projected for accident year 2006/07 compared with previous years, largely account for the estimates for 2006/07 being little changed from last year's estimates.

6.2.4 Our estimate of the provision at 30 June 2007 is 5% higher than the estimate prepared by the insurers of \$200.6 million. At 30 June 2006 the differential was 11% (our estimate of the provision of \$210.9 million compared with the estimate prepared by the insurers of \$188.0 million). Hence the estimates have come closer together and this has ramifications for the current year's profitability (refer to Table 6.2 below and analysis in Section 6.5).

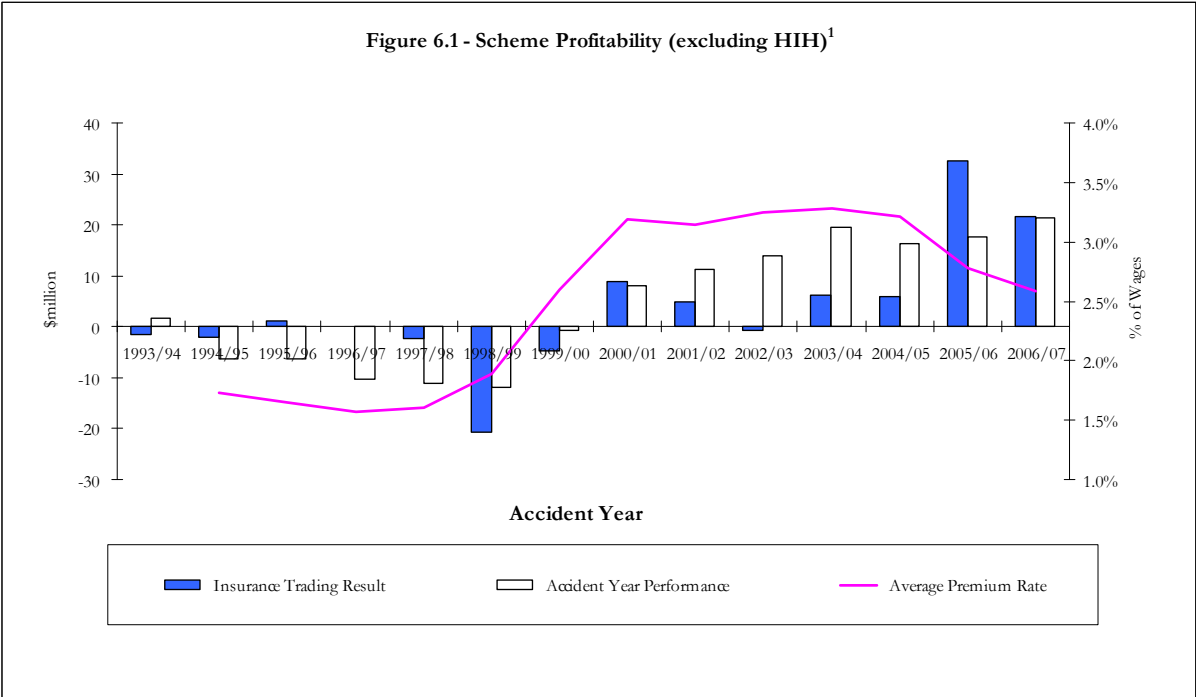
6.3 Scheme Profitability

Insurer Profitability

6.3.1 To analyse the profitability of the Scheme's insurers, we have used 3 approaches.

- ◆ The combined profit reported, as reported by each insurer on an accident year basis. This is known as the "insurance trading result".
- ◆ The profit for each accident year, calculated by comparing the claims incurred in each accident year with the premiums earned on policies written in that accident year. For this measure, we have used the valuation assumptions (other than the discount rate) and model adopted for the 2007 valuation. The discount rates have been chosen to reflect medium term bond rates on 31 December in the relevant accident year. We refer to this as the "accident year performance".
- ◆ The average premium rate charged to employers by the insurers.

6.3.2 We have shown the results of these analyses in Figure 6.1, below.



¹Data on which this figure is based is shown in Appendix G.

6.3.3 Figure 6.1 shows that overall the insurers reported significant profits during 2006/07, although not as large as in 2005/06. This result continues the trend in improved profitability of the Scheme since around 2000 and follows the lengthy period of unprofitability in the 1990's.

6.3.4 Figure 6.1 shows that the insurers responded to the unprofitable results of the 1990's by increasing their premiums significantly around the year 2000. The reductions in premium rates for 2005/06 and 2006/07 would seem to reflect the softer insurance market now prevailing. The results of the "accident year performance" analysis suggest that the premiums charged by the insurers since 2000 have been appropriate to the risks borne. However, note that it takes some years before the profitability of a particular accident year can be confirmed with reasonable certainty. Therefore a degree of uncertainty remains regarding the accident year performance, particularly for the most recent accident years.

Overall Scheme Profit

6.3.5 As we did last year, we have calculated a measure of the overall profit for the Scheme for the latest financial year. There are a number of possible approaches to measuring scheme profitability. We have adopted the same approach as used last year, which can be compared to the profitability figures that the Scheme's insurers provide to NT WorkSafe. This measure takes into account both the impact of the Scheme's actual experience in the past year, (via the premiums earned, the actual claims paid, expenses and investment income) and also any changes in the assumed future experience that have been made during the year (via the changes in the outstanding claims provision). Table 6.2 summarises how this has been calculated for the 2006/07 year based on the values of the outstanding claims provisions prepared at 30 June 2006 and 30 June 2007. The table also shows the results based on the data provided by the insurers.

Table 6.2 - Scheme Profitability in 2006/07		
	Scheme Actuary \$000s	Insurers \$000s
Net Earned Premium (1)	78,953	78,953
Net Claims Paid ¹	52,891	52,891
less		
Outstanding claims provision at start of year	210,864	188,015
plus		
Outstanding claims provision at end of year	209,690	200,558
Equals Claims Incurred (2)	51,717	65,434
Commission and Expenses (3)	10,122	10,122
Investment Income (4)	18,305	18,305
Scheme Profit/Loss in 2006/07 = (1)-(2)-(3)+(4)	35,419	21,702

¹Net of reinsurance recoveries and including claims handling expenses of 6%.

6.3.6 Our calculation of the Scheme profit for 2006/07 (\$35.4 million) is higher than the aggregate of the insurers' figures (\$21.7 million).

6.3.7 The significant profits in 2006/07 are partly due to favourable claims experience during 2007 (ie. favourable *actual* experience). The difference in the profitability figure calculated by us and that from the insurers' results reflects a change in the relative strengths of the actuarial assumptions and models over the year. That is, the insurers have used a relatively more conservative basis at 30 June 2007 than they did at 30 June 2006. This undoubtedly includes upwards revisions in some of the case estimates for older claims which are likely to directly impact on their provisions. Further comments on this aspect are set out in Section 6.5 below.

6.4 Movement in Central Estimates

6.4.1 Based on our estimates of the outstanding claims in this and the previous report, the incurred claims cost for the Scheme based on central estimates in the last financial year is calculated in Table 6.3 below.

Table 6.3 - Incurred Claims Cost for the 2006/07 Payment Year	
	Central Estimate ¹
	\$000s
Net Central Estimate at beginning of year (1)	183,361
Net Claims Payments (2)	52,891
Net Central Estimate at end of year (3)	<u>182,339</u>
Incurred Claims (3) + (2) - (1)	51,869
¹ Net of reinsurance, including claims handling expenses, excluding prudential margins	

6.4.2 The major components of the incurred claims cost are set out in Table 6.4.

Table 6.4 - Components of Incurred Claims Cost	
	\$000s
Cost of run-off claims	
Change in ultimate numbers	(669)
Change in claims development pattern	(1,887)
Net claim payments higher than expected in 2006/07	324
Interest expense due to 1 year less discounting	10,543
Change in average payment per claim	(731)
Change in discount rate	(3,930)
Other factors	<u>(1,159)</u>
Total	2,491
Cost of New Claims	49,378
Total Incurred Claims Cost	51,869

6.4.3 After allowing for the cost of new claims, the most significant items contributing to the total incurred claims cost are:

- ◆ Interest expense: This component will occur every year, as one year of discounting is removed from the outstanding claims liabilities that were estimated last year, and the projected cash flows are a year closer to payment.
- ◆ Change in discount rate: A higher discount rate in 2007 has reduced the value of the outstanding claims liability and therefore also reduced the incurred claims cost.
- ◆ Change in claims development pattern: This year, we have amended the assumed claims development pattern used to project future claim payments. The financial impact of this overall has been to reduce the outstanding claims liability, and also the incurred claims cost.
- ◆ Other factors: Other items, including changes in the projected ultimate claims numbers, actual versus expected claim payments in 2006/07, and the change in the assumed Payment Per Claim Incurred have also had small impacts on the incurred claims cost.

6.5 Movement in Provisions

6.5.1 From Table 6.2, above, we note that the incurred claims cost (including claims handling expenses and prudential margins) in 2006/07 was \$51,717,000 (based on our calculations) or \$65,434,000 (based on the insurers' calculations).

6.5.2 A significant element of the incurred claims cost is the addition of a new year's claims. Table 6.5 splits the incurred cost into two parts: the movement due to a new year of claims, and the change in respect of prior years. This includes the unwinding of the discount for prior years' claims.

Table 6.5 - Comparison of Changes in Reserve Basis ¹		
	Scheme	
	Actuary	Insurers
	\$000s	\$000s
Change in Liability for Prior Years	(3,195)	10,224
Cost of New Claims	54,912	55,210
Net Incurred Cost in 2006/07	51,717	65,434
¹ All figure based on provisions, ie. net of reinsurance and gross of claims handling expenses and prudential margins		

6.5.3 Table 6.5 indicates that this year the insurers have adopted relatively more conservative assumptions about the cost of prior year claims (as the change in the liability for prior years has contributed \$10,224,000 to the incurred claims cost).

- 6.5.4 An examination of the provisions adopted by the insurers at 30 June 2007 compared with the corresponding provisions at 30 June 2006, indicates that for many of the older accident years, the provisions have not decreased to the extent expected from our model. For some accident years the current amount of the provision has increased compared to the 30 June 2006 amount in spite of the payments made. The higher than expected provisions could have arisen from the insurers' actuaries making more conservative assumptions regarding the future development of these claims compared with the assumptions made at 30 June 2006. Also bearing in mind that for these older accident years the provision made by the insurers would largely reflect the individual case estimates made in respect of the active claims, it appears likely that substantial uplifts have been made to some of the case estimates.
- 6.5.5 The higher liabilities have brought the overall provisions adopted by the insurers closer to those derived from our modeling, which does not take account of any case estimate data.

7 Premiums

7.1 Overview

7.1.1 Under Section 145(1) of the Work Health Act, one of the functions of the Committee is to “monitor premium rates offered for workers’ compensation in the Territory”. As in previous reports, we have therefore reviewed the premium rates charged by insurers in the Northern Territory, and provided a brief comparison with other Australian jurisdictions. As with most Sections of this report, the analysis here has been conducted excluding information relating to HIH, except where noted.

7.2 Premium Pool by Industry Classification

7.2.1 As discussed elsewhere in this report and in previous reports, there remain some concerns about the quality of some aspects of the ANZSIC data provided. However, the data relating to the breakdown of premium income by industry classification has tended to be reasonably stable from year to year, giving us greater confidence in its veracity.

Table 7.1 - Comparison of Premium Pool				
	2003/04	Premiums - % of pool		2006/07
		2004/05	2005/06	
A. Agriculture, Forestry & Fishing	6%	7%	7%	6%
B. Mining	10%	10%	10%	13%
C. Manufacturing	7%	7%	6%	5%
D. Electricity, Gas & Water Supply	1%	2%	2%	1%
E. Construction	13%	10%	17%	18%
F. Wholesale Trade	4%	4%	4%	4%
G. Retail Trade	9%	9%	7%	8%
H. Accommodation, Cafes & Restaurants	7%	9%	7%	7%
I. Transport & Storage	10%	8%	8%	9%
J. Communication Services	1%	1%	0%	0%
K. Finance & Insurance	1%	1%	1%	1%
L. Property & Business Services	9%	11%	10%	9%
M. Government Administration & Defence	9%	8%	7%	6%
N. Education	4%	3%	4%	3%
O. Health & Community Services	5%	5%	5%	4%
P. Cultural & Recreational Services	2%	3%	2%	2%
Q. Personal & Other Services	2%	3%	3%	3%
TOTAL	100%	100%	100%	100%
Excludes any unallocated wages.				

7.2.2 Table 7.1 shows that there has been significant growth in the proportion of the premiums being sold in the construction sector over the past couple of years. This growth in the construction sector may be a consequence of the resources boom in northern Australia.

7.2.3 As in previous years, we have not shown premium rates by industry classification as the rates show considerable variation both between insurers and from year to year. This may

be for a number of reasons, including limitations of the data (particularly the wages data). The variability of the results, and the doubt over their accuracy, may make such an analysis misleading.

7.3 Development of the Break-even Premium

7.3.1 In Table 7.2, below, we have estimated the “break-even premium” for the insurers in recent accident years, and a forecast of the break-even premium for 2006/07. The break-even premium is the amount we estimate insurers would need to charge to cover both claims costs and expenses. The actual premium charged should be higher than this, to provide an appropriate profit to the insurers. The results in the table illustrate the difference between the cost of the Scheme and the premium rates that have been charged by the insurers over time.

7.3.2 We have used the following expense assumptions to estimate the break-even premium for each accident year:

- ◆ administration expenses of 20% of claim costs; and
- ◆ commission of 4% of net premiums.
- ◆ as a proxy for the investment returns earned by insurers, we have adopted discount rates for each accident year based on the medium term government bond yields on 31 December in the relevant accident year. These discount rates are used to calculate the present values of claims costs. The individual discount rates for each accident year are shown in Appendix F.4

7.3.3 The other assumptions used for the forecast of the break-even premium for the 2007/08 year include:

- ◆ an increase in total wages of 4% over 2006/2007;
- ◆ claim numbers in 2007/08 equal to our projected ultimate claim numbers in 2006/07 levels; and
- ◆ an increase in the average payment per claim incurred of 6% (in line with the total of the wage and superimposed inflation rates assumed for this report).

Table 7.2 - Comparison of Premiums Charged and Expected "Break-even Premiums					
Accident Year	Wages¹ \$m	Gross Incurred Claim Costs² \$m	Expenses, Commission \$m	Break-even Premium Rate	Average Premium Rate Charged by Insurers
1997/98	1,437	28.6	6.5	2.4%	1.6%
1998/99	1,586	33.1	7.5	2.6%	1.9%
1999/00	1,859	33.9	8.2	2.3%	2.6%
2000/01	1,924	35.6	8.9	2.3%	3.2%
2001/02	2,130	41.2	10.4	2.4%	3.1%
2002/03	2,170	45.0	11.4	2.6%	3.3%
2003/04	2,201	42.8	11.1	2.4%	3.3%
2004/05	2,384	49.1	12.5	2.6%	3.2%
2005/06	2,880	51.0	13.0	2.2%	2.8%
2006/07	3,170	47.4	12.4	1.9%	2.6%
<i>2007/08 (forecast)</i>	<i>3,297</i>	<i>49.6</i>	<i>12.0</i>	<i>1.9%</i>	

¹Source: ANZSIC Data - excluding HIH/FAI/WMG
²Including 4% inflation, 2% superimposed; discounted to middle of accident year.

7.3.4 From the table above, we can see that the break-even premium had been quite stable for a number of years up to 2004/05. In 2005/06 and 2006/07 we can see a reduction in the break-even premium. This reduction is likely to be partly due to more favourable claims experience observed in recent years, as well as more optimistic assumptions adopted for future experience. However, it may also be partly due to the substantial increase in the total wages data, particularly between 2004/05 and 2005/06. This suggests that the wages data between those two years may not have been consistent. Therefore this limitation in the data obscures any conclusions that might be drawn from the apparent reduction in break-even premium in the last couple of years. We have projected a similar break-even premium for 2007/08 to that for 2006/07.

7.4 Comparison to Earned Premiums

7.4.1 In Table 7.3, below, we have summarised the performance of the Scheme over the last ten accident years, using loss ratios to compare estimates of the insurers' total outgoings (claims and expenses) to the earned premiums for the year. A loss ratio less than 100% is an indication of a profitable year for the insurer. A lower loss ratio indicates an accident year that is more profitable for the insurers; a higher loss ratio indicates a less profitable year.

7.4.2 It should be noted that the loss ratios for 2007 below provide only an indication of Scheme performance for each accident year, for several reasons, including:

- ◆ the allowances for expenses and commission are based on our assumptions for this investigation;
- ◆ as for the break-even premium analysis above, we have used government bond yields in each accident year as a proxy for the insurers' actual investment returns; and
- ◆ to the extent that a given accident year's claims have not fully developed, they include projections of uncertain future events.

7.4.3 The loss ratios for 2006 and 2005 have been taken from the previous reports.

Table 7.3 - Earned Premium vs. Accident Year Cost (excluding HIH)					
Accident Year	Net Earned Premium	Total Net Claims Cost ¹	Loss Ratio 2007 ¹	Loss Ratio 2006 ¹	Loss Ratio 2005 ¹
	\$000s	\$000s	%	%	%
1997/98	22,472	34,208	152%	152%	157%
1998/99	25,825	39,594	153%	157%	156%
1999/00	40,779	41,042	101%	101%	108%
2000/01	49,988	43,473	87%	90%	93%
2001/02	60,149	50,362	84%	85%	89%
2002/03	66,165	55,012	83%	82%	82%
2003/04	70,704	52,616	74%	73%	77%
2004/05	74,518	60,122	81%	80%	83%
2005/06	78,139	62,466	80%	80%	
2006/07	78,953	58,384	74%		

¹Including commission of 4% of net earned premium and expenses of 20% of net claim costs

7.4.4 The table above is broadly consistent with the other forms of profitability analysis earlier. That is, the years since around 2000/01 have generally been profitable, while the latter 1990's were generally unprofitable.

7.5 Comment on Profitability

7.5.1 The difference between the break-even premium and the actual premium (see Table 7.2) represents the profit margin to the insurer. Insurers will expect to earn a reasonable level of profit on their workers' compensation portfolios commensurate with the risks being borne, whereas the Committee may wish to ensure that excessive profits are not being made. One of the main purposes of this investigation is to assist the Committee to monitor the premium rates offered for Workers' Compensation in the Territory.

7.5.2 In our report last year (in line with the reports of the previous Scheme Actuary from earlier years), we agreed with the opinion that a profit loading of 25% of the net premium (before commissions and expenses) would be a reasonable benchmark for an adequate

but not excessive profit. This was derived on the basis that, assuming the insurer holds free capital in respect of its Northern Territory business equal to one year's premium as well as a 15% risk margin in its insurance liabilities, it would need to charge rates of the order of 25% more than the "break-even premium" in order to return a commercial rate of return to its shareholders (taken to be 12% per annum after tax). While different insurers will have different capital and return targets, in our opinion such parameters form a reasonable benchmark in a commercial insurance environment.

- 7.5.3 A loss ratio of about 82% (calculated on the basis adopted for table 7.3 above) provides this level of profit margin.
- 7.5.4 The loss ratios from the current review are generally around this level (with some higher and some lower), indicating a reasonable level of profitability. While the loss ratio for 2006/07 is relatively low (indicating a particularly profitable year) we note that there has only been one year of claims development for this accident year so far, so the final result for that year remains relatively uncertain.

7.6 Comparison with other Australian jurisdictions

- 7.6.1 Comparisons of premiums charged in the NT with those charged in other Australian jurisdictions are difficult for a number of reasons.
- 7.6.2 Despite their limitations, we understand that the Committee is interested in these comparisons, and therefore we have again in this report provided information on average premium rates where available. The results are shown in Table 7.4 below.
- 7.6.3 Some of the particular limitations of this comparison to consider when reviewing the premium rates in Table 7.4 include:
- ◆ These premium have not been standardised to a common industry mix, and so reflect the different workforce compositions in each jurisdiction.
 - ◆ The different benefit structures in each jurisdiction also have a significant impact on the cost of the scheme. For example, Victoria has a one week threshold before claiming benefits - thus removing the costs associated with relatively trivial claims.
 - ◆ Comcare, South Australia and the Northern Territory are the only jurisdictions without common law.
 - ◆ The ACT, Tasmania, Western Australia and the Northern Territory are privately underwritten schemes; the other schemes are centrally managed.
 - ◆ The rates quoted are the averages rates charged; they do not necessarily reflect the rates required to cover expected claims costs (i.e. the schemes will have varying levels of profitability).

Year	NT	ComCare (ACT Gov)	SA	Vic	NSW	WA	Qld	Tas	ACT
1995/96	1.6	5.2	2.9	2.0	2.5	2.6	1.9	3.0	2.4
1996/97	1.5	5.0	2.9	1.8	2.8	2.7	2.0	3.2	2.5
1997/98	1.5	3.0	2.9	1.8	2.8	2.4	2.1	3.1	2.6
1998/99	1.9	2.6	2.9	1.9	2.8	2.5	2.1	2.7	2.6
1999/00	2.3	2.8	2.9	1.9	2.8	3.1	1.9	3.1	2.6
2000/01	3.2	3.1	2.9	2.2	2.8	3.0	1.8	3.1	2.5
2001/02	3.1	3.4	2.5	2.2	2.8	2.6	1.6	3.2	3.1
2002/03	3.3	3.1	2.5	2.2	2.8	2.5	1.6	3.1	3.6
2003/04	3.3	3.1	3.0	2.2	2.6	2.3	1.6	2.8	3.5
2004/05	3.2	3.1	3.0	2.0	2.6	2.3	1.6	2.5	3.6
2005/06	2.8	3.1	3.0	1.8	2.6	2.3	1.4	2.2	3.3
2006/07	2.6	3.0	3.0	1.6	2.2	2.1	1.2	1.9	n/a

Source: Average rates for the NT are based on the data supplied for the preparations of this report. Average rates for other jurisdictions are taken from page 20 of the report on the Comparison of Workers' Compensation Arrangements 2006.

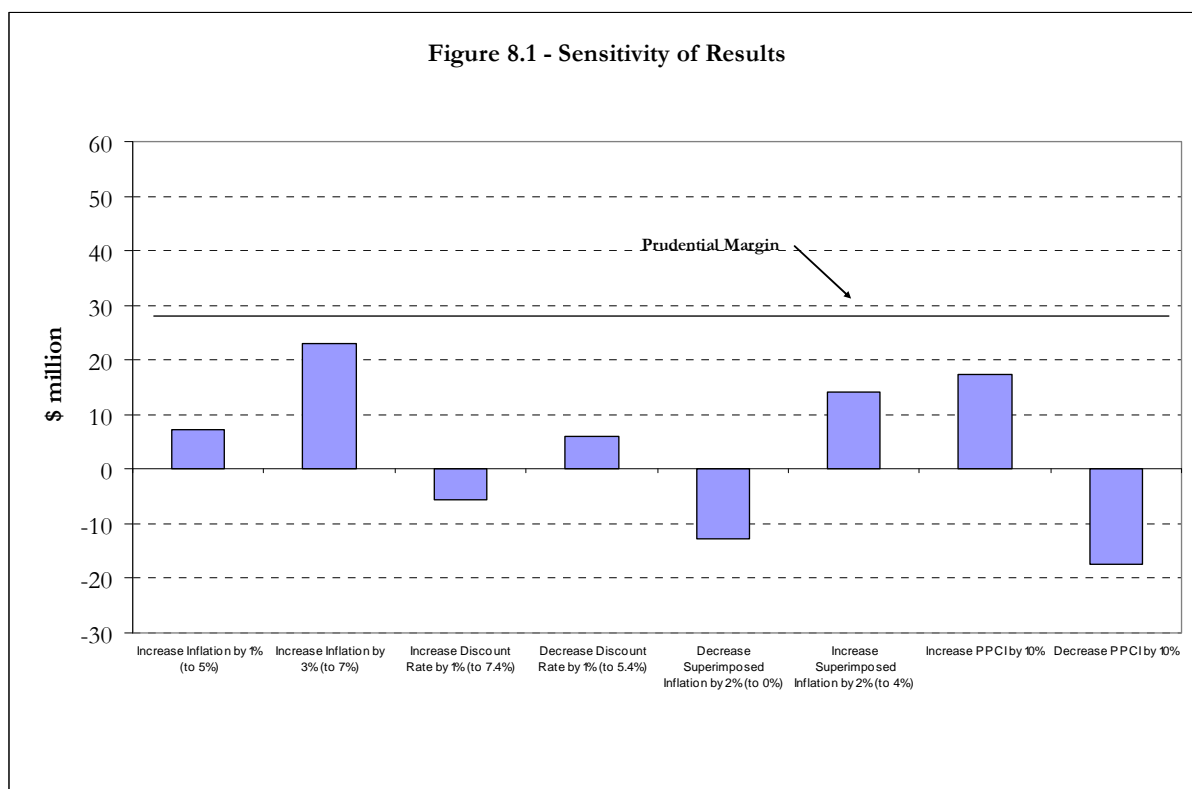
7.7 Funding Ratio

- 7.7.1 We understand that NT WorkSafe is asked from time to time to provide the Scheme's "funding ratio" for purposes of inter-jurisdictional comparisons, for example for inclusion in the "Comparison of Workers' Compensation Arrangements" report prepared by the Heads of Workers' Compensation Authorities. The funding ratio is the ratio obtained by dividing the assets supporting the scheme liabilities, by the assessed value of the liabilities. For centrally operated workers' compensation schemes such as apply in some States, the funding ratio is a measure of the ability of the scheme to meet its benefit commitments. A ratio of 100% or more means that sufficient assets are held by the scheme to cover the assessed liabilities in respect of workers' compensation incidents that occurred up to the measurement date (including incidents that have yet to be reported).
- 7.7.2 For jurisdictions that operate privately insured workers' compensation schemes such as the Northern Territory, security for the arrangement is provided by the strength of the insurers, and not by any separately identified pool of assets. Hence the security of the scheme benefits cannot be measured by a funding ratio, even if an asset figure could be determined. We have therefore not attempted to provide a measure of the Scheme's security on this basis.
- 7.7.3 The Comparative Performance Monitoring Report of the Workplace Relations Ministers' Council ("the CPM Report") does provide a table showing the "standardised ratio of assets to net outstanding claim liabilities" for each jurisdiction. For States that operate centrally funded workers' compensation schemes, the calculation is the same as for the funding ratio referred to above, with the modification that the liabilities of each scheme are adjusted to eliminate as far as possible differences caused by differing economic and actuarial assumptions used by each jurisdiction in the liability assessment.

- 7.7.4 The CPM Report also shows indicative ratios for jurisdictions that operate privately insured schemes. The measure adopted for these schemes takes assets to be equal to the insurers' balance sheet claims provisions, excluding solvency reserves. Hence the ratios for insured schemes shown in the report are not a comprehensive indication of adequacy of insurer assets. As for centrally funded schemes, the liabilities used in the calculation are adjusted to standardise the economic and actuarial assumptions used by each jurisdiction.
- 7.7.5 We have been requested to estimate the standardised ratio of assets to net outstanding claim liabilities on the basis adopted in the CPM Report, based on the 2007 data. Our estimate of the "standardised ratio" that applies to the NT Scheme at 30 June 2007 is 110% (2006: 103%).
- 7.7.6 The adjustment to standardise the liabilities for differences in economic and actuarial assumptions has been ignored in our calculation of the 2007 standardised ratio as we do not know the assumptions that will be used for other jurisdictions so that the average of the assumptions across jurisdictions cannot be calculated. In the past the economic and actuarial assumptions used to calculate the liabilities in the NT Scheme for the purposes of the CPM report have been fairly central in the range of assumptions used in other jurisdictions, and the adjustments to the value of liabilities as a result of adopting standardised assumptions have been small. We would anticipate that any adjustment to the result in the 2007 CPM report from standardising the assumptions would also be minor.

8 Sensitivity of Results

- 8.1 Actuarial estimates of uncertain future events are inevitably partly dependent on the assumptions selected. Therefore it is useful to investigate the sensitivity of the results to changes in assumptions, as a simplified indication of the possible variance between the projected outcomes and the actual future experience.
- 8.2 Therefore in Figure 8.1 below, we illustrate the effect on the central estimate of the outstanding claims liability (including claims handling expenses but excluding the prudential margin) of changing some of the valuation assumptions. The "buffer" provided by the 15% prudential margin is also shown.



¹Data on which this figure is based is shown in Appendix G.

8.3 We have commented on the analysis shown in Figure 8.1 below:

- ◆ An increase or decrease of 1% in either the inflation or discount rate assumption produces a movement in the value of outstanding claims of around \$6 to \$7 million. Note that if both assumptions were to increase or decrease by the same amount then the impact on the valuation would be quite small. It is the gap between the two rates that primarily determines the change in liabilities, rather than their absolute values.
- ◆ A change of 1% in the gap could be considered a moderately significant change. Nevertheless, we have also shown the impact of a 3% increase in inflation rates for illustrative purposes. In our view, such a large change in isolation may be relatively unlikely (it is likely that such a change would be at least partly offset by an increase in the discount rate).
- ◆ The sensitivity of the valuation result to our selected PPCI assumptions is also shown. A 10% change, in absolute terms, will result in a movement in our valuation result of around \$17.4 million.
- ◆ The effect of a change to the assumed level of superimposed inflation has also been tested. Decreasing the rate of superimposed inflation by 2% (ie. assuming no superimposed inflation), reduces the valuation result by around \$12.8 million, while increasing it by 2% would increase the valuation results by around \$14.3 million.

- ◆ We note that each of the changes we have tested, if they were to occur individually, would not result in a claims liability that exceeds the prudential margin. While this is an encouraging result, note that it is possible for other changes (or a combination of changes) to lead to an actual claims outcome that exceeds the prudential margin, due to the inherent uncertainty in insurance arrangements such as the NT Scheme.

9 Qualifications and Limitations

- 9.1 Workers compensation liabilities of the type analysed for this report are affected by factors such as unknown future economic, social and environmental influences. Unknown events that have occurred in the past (e.g. unreported claims) may also impact on the liability. There is therefore considerable uncertainty as to the actual ultimate cost of claims that will be borne by the Scheme, and variations from the estimates provided in this report are normal. The actual claims outcomes may prove to be greater or lower than the figures set out in this report.
- 9.2 The actuarial models and approaches that we have adopted for this report also include components of uncertainty, including:
- ◆ Model selection error (the actual process generating the claims experience may be significantly different to the model that we have selected to carry out our calculations);
 - ◆ Parameter error (the estimates of the parameters used in the model are subject to sampling error);
 - ◆ Parameter evolution error (parameters that are treated as constants in the model may be subject to change over time); and
 - ◆ Process error (the future claims experience may randomly depart from the model expectations).
- 9.3 This report has been prepared for the use of the Scheme Monitoring Committee for the purpose stated in Section 1 above. It is not intended, nor necessarily suitable, for any other purpose. In particular, sections of the report that analyse premium adequacy are intended as a monitoring tool only. Use of this information for any other purpose (eg. premium pricing) is not appropriate.
- 9.4 We acknowledge that this report may be included on the NT Government website, to enable access by interested third parties. However readers of the report should recognise that it is not a substitute for their own investigations and analysis and should place no reliance on this report or the data contained herein which would result in the creation of any duty or liability by Bendzulla Actuarial Pty Ltd to the third party.
- 9.5 In preparing this report, we relied on the accuracy and completeness of the data and other information provided to us, including verbally provided information. We reviewed the data for consistency and reasonableness but have not independently verified or audited it.

- 9.6 If any data or other information is found to be inaccurate or incomplete, we should be advised so that our advice can be revised, where necessary.
- 9.7 The report should be considered as a whole. Consultants from Bendzulla Actuarial Pty Ltd are available to answer any queries, and the reader should contact us before drawing conclusions on any issue in doubt.

Part III Appendices

A Information Provided

A.1 Sources of Claims and Other Data

A.1.1 For this investigation, we were supplied with the following information:

- ◆ Forms A and B for each insurer and combined for financial year 2006/2007 and prior years. (This included profit and loss details and claims information).
- ◆ ANZSIC data from individual insurers and combined for 2006/2007 financial year, showing:
 - policies written;
 - employee numbers covered;
 - wages paid;
 - premiums received;by major ANZSIC code.
- ◆ Payment information from the NT WorkSafe system split by Head of Damage and accident year for financial year 2006/2007 and prior financial years.

A.2 Data Reconciliation and Adequacy

A.2.1 We reviewed the data provided for general reasonableness and attempted to reconcile the insurers' data (from forms A and B) with that provided directly from the NT Worksafe system.

A.2.2 The data from these two sources reconciled satisfactorily this year at an aggregate level (the discrepancy was less than 1%) but the results by individual accident years continues to show some variation. Table A.1 below summarises the differences in relation to the 2006/2007 financial year.

Table A.1 - Form B and NT WorkSafe payment comparison Paid in 2006/07 Financial Year			
Accident Year	From Form B	From NT WorkSafe	Difference
	\$000s	\$000s	
1997/98 and prior	4184	4,248	-2%
1998/99	545	420	23%
1999/00	1,965	1,972	0%
2000/01	1,070	1,144	-7%
2001/02	2,926	3,398	-16%
2002/03	5,606	5,577	1%
2003/04	5,632	5,518	2%
2004/05	7,310	7,377	-1%
2005/06	12,661	12,591	1%
2006/07	10,262	10,089	2%
TOTAL	52,161	52,334	0%

A.2.3 The ANZSIC data provided as at 30 June 2007 was complete. The number of employees data provided to NT WorkSafe at this update showed a decrease of around 2% since 2005/06. The aggregate wages data showed a 21% increase over 2005/06. NT WorkSafe should continue to monitor the way in which employee data is collected to ensure that it is consistent with other measures of workforce participation in the Territory, noting the differences that may exist between workers' compensation coverage and other employee statistics.

A.2.4 The information provided for policies written and premiums appears credible and has been used, where relevant, for the purposes of our analysis.

A.2.5 Table A.2 summarises and compares the differences in employee numbers over the last three years.

Table A.2 - Comparison of ANZSIC Employee Numbers				
	2005	2006	2007	% change
A. Agriculture, Forestry & Fishing	4,208	3,462	3,553	3%
B. Mining	3,202	3,019	3,617	20%
C. Manufacturing	3,257	3,755	4,577	22%
D. Electricity, Gas & Water Supply	840	830	798	-4%
E. Construction	4,463	8,922	6,206	-30%
F. Wholesale Trade	2,359	2,810	3,176	13%
G. Retail Trade	10,742	9,464	9,893	5%
H. Accommodation, Cafes & Restaurants	11,898	11,455	8,659	-24%
I. Transport & Storage	4,109	4,191	4,645	11%
J. Communication Services	477	410	964	135%
K. Finance & Insurance	915	993	974	-2%
L. Property & Business Services	9,107	10,138	10,400	3%
M. Government Administration & Defence	13,678	18,500	16,443	-11%
N. Education	6,088	7,972	7,783	-2%
O. Health & Community Services	4,484	5,209	4,524	-13%
P. Cultural & Recreational Services	3,696	3,543	6,932	96%
Q. Personal & Other Services	2,373	3,113	2,764	-11%
Total	85,896	97,786	95,908	-2%

A.2.6 The data limitations described above introduce additional uncertainty in the results of our analysis of the Scheme liabilities.

B Claim Numbers

B.1.1 The chain ladder method estimates the ultimate number of reported claims in each accident year by analysing past claim reporting patterns and estimating a pattern for the future. The steps are as follows:

1. Produce a triangle of cumulative claim reports, subdivided by accident year and development year.
2. Calculate development ratios (or chain ladder factors) by dividing the cumulative reports to the end of development year x by the cumulative reports to the end of development year $x-1$.
3. Select a development ratio for each development year, based on a combination of the historical experience, application of judgement, and expectations for the future.
4. Apply these ratios to cumulative reports to date to project the ultimate number of claims in each accident year.

Appendix B.1 - Chain Ladder Analysis (Excluding HIH Group)

This table shows the chain ladder analysis for the number of claims reported

Cumulutive Number of Claims																
Accident Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16+
1988/89	2,208	2,425	2,447	2,449	2,451	2,451	2,453	2,454	2,454	2,454	2,454	2,454	2,462	2,463	2,463	2,463
1989/90	2,265	2,616	2,628	2,632	2,633	2,635	2,635	2,635	2,635	2,635	2,635	2,640	2,640	2,641	2,641	2,642
1990/91	2,242	2,483	2,497	2,499	2,502	2,504	2,506	2,506	2,506	2,506	2,507	2,508	2,508	2,510	2,510	2,514
1991/92	1,890	2,136	2,146	2,148	2,148	2,149	2,149	2,149	2,149	2,149	2,149	2,149	2,149	2,149	2,149	2,149
1992/93	1,923	2,114	2,120	2,123	2,128	2,131	2,131	2,133	2,134	2,134	2,134	2,134	2,134	2,134	2,134	2,134
1993/94	1,853	1,997	2,004	2,012	2,015	2,016	2,017	2,018	2,018	2,019	2,019	2,019	2,019	2,019	2,019	2,019
1994/95	1,792	2,027	2,035	2,038	2,040	2,043	2,045	2,045	2,045	2,045	2,045	2,045	2,045	2,045	2,045	2,045
1995/96	2,150	2,434	2,442	2,446	2,446	2,447	2,449	2,451	2,452	2,453	2,453	2,453	2,453	2,453	2,453	2,453
1996/97	2,190	2,475	2,486	2,488	2,490	2,490	2,494	2,495	2,497	2,497	2,498	2,498	2,498	2,498	2,498	2,498
1997/98	2,406	2,799	2,819	2,827	2,827	2,829	2,830	2,831	2,831	2,831	2,831	2,831	2,831	2,831	2,831	2,831
1998/99	2,527	2,897	2,910	2,916	2,920	2,920	2,920	2,920	2,920	2,920	2,920	2,920	2,920	2,920	2,920	2,920
1999/00	2,655	2,943	2,960	2,961	2,962	2,963	2,964	2,964	2,964	2,964	2,964	2,964	2,964	2,964	2,964	2,964
2000/01	2,566	2,847	2,859	2,863	2,864	2,864	2,864	2,864	2,864	2,864	2,864	2,864	2,864	2,864	2,864	2,864
2001/02	2,581	2,879	2,884	2,890	2,892	2,893	2,893	2,893	2,893	2,893	2,893	2,893	2,893	2,893	2,893	2,893
2002/03	2,599	2,847	2,854	2,860	2,861	2,861	2,861	2,861	2,861	2,861	2,861	2,861	2,861	2,861	2,861	2,861
2003/04	2,338	2,551	2,560	2,566	2,566	2,566	2,566	2,566	2,566	2,566	2,566	2,566	2,566	2,566	2,566	2,566
2004/05	2,481	2,735	2,745	2,745	2,745	2,745	2,745	2,745	2,745	2,745	2,745	2,745	2,745	2,745	2,745	2,745
2005/06	2,483	2,697	2,697	2,697	2,697	2,697	2,697	2,697	2,697	2,697	2,697	2,697	2,697	2,697	2,697	2,697
2006/07	2,224	2,224	2,224	2,224	2,224	2,224	2,224	2,224	2,224	2,224	2,224	2,224	2,224	2,224	2,224	2,224

Chain Ladder Factors															
Accident Year	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16
1988/89	1.0983	1.0091	1.0008	1.0008	1.0000	1.0008	1.0004	1.0000	1.0000	1.0000	1.0000	1.0033	1.0004	1.0000	1.0000
1989/90	1.1550	1.0046	1.0015	1.0004	1.0008	1.0000	1.0000	1.0000	1.0000	1.0000	1.0019	1.0000	1.0004	1.0000	1.0004
1990/91	1.1075	1.0056	1.0008	1.0012	1.0008	1.0008	1.0000	1.0000	1.0000	1.0004	1.0004	1.0000	1.0008	1.0000	1.0016
1991/92	1.1302	1.0047	1.0009	1.0000	1.0005	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1992/93	1.0993	1.0028	1.0014	1.0024	1.0014	1.0000	1.0009	1.0005	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	
1993/94	1.0777	1.0035	1.0040	1.0015	1.0005	1.0005	1.0005	1.0000	1.0005	1.0000	1.0000	1.0000	1.0000		
1994/95	1.1311	1.0039	1.0015	1.0010	1.0015	1.0010	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000			
1995/96	1.1321	1.0033	1.0016	1.0000	1.0004	1.0008	1.0008	1.0004	1.0004	1.0000	1.0000				
1996/97	1.1301	1.0044	1.0008	1.0008	1.0000	1.0016	1.0004	1.0008	1.0000	1.0004					
1997/98	1.1633	1.0071	1.0028	1.0000	1.0007	1.0004	1.0004	1.0000	1.0000						
1998/99	1.1464	1.0045	1.0021	1.0014	1.0000	1.0000	1.0000	1.0000							
1999/00	1.1085	1.0058	1.0003	1.0003	1.0003	1.0003	1.0000								
2000/01	1.1095	1.0042	1.0014	1.0003	1.0000	1.0000									
2001/02	1.1155	1.0017	1.0021	1.0007	1.0003										
2002/03	1.0954	1.0025	1.0021	1.0003											
2003/04	1.0911	1.0035	1.0023												
2004/05	1.1024	1.0037													
2005/06	1.0862														
2006/07															

Summary Statistics															
	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16
Maximum	1.1633	1.0091	1.0040	1.0024	1.0015	1.0016	1.0009	1.0008	1.0005	1.0004	1.0019	1.0033	1.0008	1.0000	1.0016
Minimum	1.0777	1.0017	1.0003	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Simple average	1.1155	1.0044	1.0017	1.0007	1.0005	1.0005	1.0003	1.0002	1.0001	1.0001	1.0003	1.0005	1.0003	1.0000	1.0005
Column Sum avg	1.1174	1.0045	1.0016	1.0007	1.0005	1.0005	1.0003	1.0002	1.0001	1.0001	1.0004	1.0006	1.0003	1.0000	1.0007
Standard Deviation	0.0237	0.0018	0.0009	0.0007	0.0005	0.0005	0.0003	0.0003	0.0002	0.0002	0.0007	0.0012	0.0003	0.0000	0.0008

Selected development factors															
	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16
Selected Ratios 2006	1.1100	1.0040	1.0020	1.0005	1.0004	1.0004	1.0004	1.0003	1.0003	1.0002	1.0002	1.0002	1.0002	1.0002	1.0004
Cum Ratio 2006	1.1208	1.0097	1.0057	1.0037	1.0032	1.0028	1.0024	1.0020	1.0017	1.0014	1.0012	1.0010	1.0008	1.0006	1.0004
Selected Ratios 2007	1.1100	1.0040	1.0020	1.0007	1.0005	1.0004	1.0004	1.0003	1.0003	1.0002	1.0002	1.0002	1.0002	1.0002	1.0004
Cum Ratio 2007	1.1211	1.0100	1.0060	1.0040	1.0033	1.0028	1.0024	1.0020	1.0017	1.0014	1.0012	1.0010	1.0008	1.0006	1.0004

Number of Claims - Incremental & Projected Ultimate																	
Accident Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16+	Ultimate
1988/89	2,208	217	22	2	2	0	2	1	0	0	0	0	8	1	0	0	2,463
1989/90	2,265	351	12	4	1	2	0	0	0	0	0	5	0	1	0	1	2,642
1990/91	2,242	241	14	2	3	2	2	0	0	0	1	1	0	2	0	4	2,514
1991/92	1,890	246	10	2	0	1	0	0	0	0	0	0	0	0	0	3	2,152
1992/93	1,923	191	6	3	5	3	0	2	1	0	0	0	0	0	0		2,135
1993/94	1,853	144	7	8	3	1	1	1	0	1	0	0	0	0			2,020
1994/95	1,792	235	8	3	2	3	2	0	0	0	0	0	0				2,047
1995/96	2,150	284	8	4	0	1	2	2	1	1	0	0					2,455
1996/97	2,190	285	11	2	2	0	4	1	2	0	1						2,501
1997/98	2,406	393	20	8	0	2	1	1	0	0							2,835
1998/99	2,527	370	13	6	4	0	0	0	0								2,925
1999/00	2,655	288	17	1	1	1	1	0									2,970
2000/01	2,566	281	12	4	1	0	0										2,871
2001/02	2,581	298	5	6	2	1											2,901
2002/03	2,599	248	7	6	1												2,870
2003/04	2,338	213	9	6													2,576
2004/05	2,481	254	10														2,762
2005/06	2,483	214															2,724
2006/07	2,224																2,493

C Claim Payments

C.1 Payment Information (Excluding HIH Group)

Incremental claims payments (\$000)																
Accident Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16+
1985/86																375
1986/87															86	132
1987/88														281	274	333
1988/89	2,770	2,543	1,196	1,085	1,286	814	584	865					439	476	363	1,016
1989/90	3,609	3,631	2,058	2,285	1,789	1,350	1,165	1,281				950	1,760	622	486	1,255
1990/91	3,288	2,935	1,510	1,280	883	935	709	1,365			1,016	1,608	1,002	567	925	1,976
1991/92	3,034	3,044	1,198	694	791	719	1,001	783		300	797	163	308	669	299	1,402
1992/93	3,836	3,592	1,540	1,185	1,562	1,566	1,271	530	1,716	998	564	517	513	505	325	
1993/94	2,957	2,621	1,599	1,628	1,414	1,100	1,386	961	757	181	1,268	230	218	175		
1994/95	3,304	3,439	1,890	2,391	1,775	1,220	2,021	1,056	1,054	1,108	531	702	146			
1995/96	3,807	4,402	3,414	2,159	2,171	1,588	1,598	1,268	783	504	887	370				
1996/97	4,781	5,690	3,358	3,343	3,605	2,128	1,213	1,902	1,292	550	470					
1997/98	4,955	6,388	3,430	3,562	2,692	2,523	4,098	1,187	664	1,260						
1998/99	6,103	7,228	4,951	3,406	4,412	3,141	1,495	1,399	545							
1999/00	6,419	8,211	5,164	4,003	3,153	3,437	2,122	1,965								
2000/01	7,299	8,212	5,747	4,635	3,023	1,937	1,070									
2001/02	7,493	9,612	5,716	7,353	2,490	2,926										
2002/03	7,682	9,916	6,870	4,921	5,606											
2003/04	9,222	10,222	5,117	5,632												
2004/05	9,927	11,889	7,310													
2005/06	10,278	12,661														
2006/07	10,262															

Inflation - adjusted claim payments (\$000)																
Accident Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16+
1988/89	6,029	5,193	2,326	2,015	2,348	1,439	985	1,403					580	598	429	1,166
1989/90	7,369	7,063	3,823	4,172	3,163	2,277	1,890	2,006				1,256	2,212	736	558	1,358
1990/91	6,395	5,454	2,757	2,263	1,489	1,517	1,110	2,047			1,343	2,021	1,185	651	1,001	2,068
1991/92	5,638	5,558	2,118	1,171	1,283	1,125	1,501	1,136		397	1,002	193	353	724	313	1,402
1992/93	7,005	6,350	2,597	1,922	2,445	2,348	1,844	738	2,269	1,254	667	593	555	528	325	
1993/94	5,227	4,421	2,594	2,548	2,120	1,596	1,930	1,270	952	214	1,455	249	228	175		
1994/95	5,572	5,579	2,959	3,585	2,576	1,698	2,672	1,327	1,247	1,271	575	735	146			
1995/96	6,177	6,891	5,119	3,133	3,022	2,099	2,009	1,500	899	546	928	370				
1996/97	7,485	8,532	4,873	4,654	4,766	2,675	1,435	2,183	1,399	575	470					
1997/98	7,430	9,269	4,775	4,709	3,384	2,984	4,703	1,285	695	1,260						
1998/99	8,856	10,063	6,545	4,281	5,219	3,604	1,618	1,464	545							
1999/00	8,936	10,855	6,491	4,735	3,618	3,720	2,220	1,965								
2000/01	9,649	10,322	6,798	5,319	3,272	2,027	1,070									
2001/02	9,419	11,370	6,559	7,959	2,605	2,926										
2002/03	9,087	11,379	7,436	5,149	5,606											
2003/04	10,583	11,065	5,354	5,632												
2004/05	10,745	12,440	7,310													
2005/06	10,754	12,661														
2006/07	10,262															

D PPCI Method

D.1.1 The PPCI method models the claims process by assuming that the payments arising from a cohort of claims develop in a predictable pattern over a period of years. The PPCI method requires assumptions about:

- ◆ Claim numbers by accident year;
- ◆ Average claim size; and
- ◆ Payment patterns (i.e. the proportion of the overall claim payment made in each development period).

D.1.2 Future payments for each accident year are projected by multiplying together:

- ◆ The number of claims incurred;
- ◆ The assumed payments per claim incurred in each future development period;
and
- ◆ An inflation index based on the projected rates of claims inflation.

D.1.3 The present value of liabilities is calculated by discounting the projected payments to the valuation date at the assumed discount rate.

Appendix D.1 Payments Per Claim Incurred (Excluding HIH Group)

This table shows the PPCI analysis.

Inflation-adjusted payments per claim incurred (\$)																	Pmt Yr Total	
Accident Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16+	Dev Yrs 1-8 only	All Yrs
1988/89	2,448	2,108	944	818	953	584	400	570					236	243	174	473		
1989/90	2,789	2,673	1,447	1,579	1,197	862	715	759				475	837	278	211	514		
1990/91	2,544	2,169	1,097	900	592	603	442	814			534	804	471	259	398	822		
1991/92	2,620	2,583	984	544	596	523	697	528		184	466	90	164	336	145	651		
1992/93	3,281	2,974	1,216	900	1,145	1,100	864	346	1,063	588	312	278	260	247	152			
1993/94	2,588	2,189	1,284	1,262	1,050	790	955	629	471	106	720	123	113	87				
1994/95	2,722	2,725	1,446	1,752	1,258	830	1,305	648	609	621	281	359	71					
1995/96	2,516	2,807	2,085	1,276	1,231	855	818	611	366	222	378	151					9,910	
1996/97	2,993	3,412	1,948	1,861	1,906	1,070	574	873	559	230	188						11,376	
1997/98	2,621	3,270	1,684	1,661	1,194	1,053	1,659	453	245	444							13,530	
1998/99	3,028	3,440	2,238	1,464	1,784	1,232	553	500	186								12,962	
1999/00	3,009	3,655	2,186	1,594	1,218	1,253	748	662									13,356	
2000/01	3,361	3,595	2,368	1,853	1,140	706	373										15,610	18,102
2001/02	3,247	3,919	2,261	2,744	898	1,009											14,221	17,630
2002/03	3,166	3,965	2,591	1,794	1,953												15,069	17,110
2003/04	4,108	4,295	2,078	2,186													17,169	20,262
2004/05	3,890	4,504	2,647														16,919	19,614
2005/06	3,948	4,584															15,176	17,716
2006/07	4,116																17,530	19,461

Summary statistics																
Development Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16+
Maximum	4,116	4,584	2,647	2,744	1,953	1,253	1,659	873	1,063	621	720	804	837	336	398	822
Minimum	2,448	2,108	944	544	592	523	373	346	186	106	188	90	71	87	145	473
Simple average	3,105	3,270	1,794	1,512	1,208	891	777	616	500	342	411	326	308	242	216	615
Average last 5 yrs	3,846	4,253	2,389	2,034	1,399	1,050	781	620	393	325	376	200	216	242	216	n.a.
Standard Deviation	557	792	568	558	408	236	367	151	293	207	179	252	267	83	105	158

Selected payments per claim incurred																	
Development Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16+	Total
Selected PPCI	4,085	4,180	2,470	1,805	1,425	1,083	912	665	494	399	304	247	190	152	114	475	19,000

E Summary of Claim Finalisations and Claims Open Data

Appendix E.1 – Claim Finalisation Rates (Excluding HIH Group)

Cumulative Number of Claims Finalised															
Accident Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1988/89	1,448	2,285	2,359	2,381	2,405	2,405	2,416	2,424					2,448	2,450	2,452
1989/90	1,546	2,428	2,516	2,546	2,559	2,572	2,584	2,583				2,611	2,617	2,622	2,625
1990/91	1,460	2,331	2,416	2,436	2,452	2,460	2,464	2,468			2,474	2,479	2,492	2,492	2,494
1991/92	1,190	2,017	2,056	2,093	2,107	2,117	2,124	2,128		2,139	2,141	2,142	2,141	2,142	2,145
1992/93	1,253	1,917	2,044	2,056	2,071	2,086	2,094	2,102	2,103	2,115	2,117	2,116	2,118	2,125	2,127
1993/94	1,167	1,856	1,917	1,954	1,968	1,971	1,981	1,993	1,998	2,004	2,004	2,007	2,013	2,013	
1994/95	1,109	1,822	1,937	1,967	1,981	1,997	2,014	2,023	2,026	2,031	2,030	2,036	2,035		
1995/96	1,331	2,233	2,336	2,378	2,399	2,412	2,423	2,429	2,429	2,438	2,444	2,446			
1996/97	1,432	2,308	2,368	2,411	2,441	2,458	2,463	2,472	2,475	2,480	2,484				
1997/98	1,580	2,589	2,704	2,748	2,783	2,794	2,797	2,806	2,816	2,816					
1998/99	1,782	2,679	2,807	2,848	2,865	2,877	2,888	2,899	2,904						
1999/00	1,563	2,721	2,831	2,881	2,888	2,912	2,937	2,944							
2000/01	1,770	2,618	2,740	2,759	2,800	2,827	2,832								
2001/02	1,638	2,614	2,720	2,796	2,839	2,857									
2002/03	1,668	2,539	2,700	2,774	2,802										
2003/04	1,320	2,303	2,451	2,495											
2004/05	1,532	2,514	2,628												
2005/06	1,687	2,487													
2006/07	1,374														

Summary Statistics															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Maximum	61.93%	93.73%	96.10%	97.37%	98.17%	98.55%	98.89%	99.12%	99.33%	99.40%	99.55%	99.63%	99.65%	99.65%	99.67%
Minimum	51.24%	88.47%	93.76%	96.09%	96.78%	97.56%	98.01%	98.17%	98.50%	99.06%	98.41%	98.61%	99.12%	99.12%	99.20%
Simple Average	56.75%	91.02%	95.13%	96.70%	97.56%	98.13%	98.49%	98.80%	98.99%	99.24%	99.19%	99.28%	99.38%	99.46%	99.50%
Column Sum															
Average	57.00%	91.15%	95.17%	96.69%	97.54%	98.06%	98.42%	98.69%	99.01%	99.24%	99.18%	99.20%	99.32%	99.41%	99.47%
Standard Deviation	3.01%	1.39%	0.65%	0.40%	0.39%	0.37%	0.31%	0.30%	0.27%	0.11%	0.38%	0.38%	0.21%	0.23%	0.26%

Appendix E.2 - Claim Numbers Open at Year End (Excluding HIH Group)

Number of Claims Open at Year End																	Total Open (end of Pt Yr)
Accident Year	1	2	3	4	5	6	7	8	9/9+	10	11	12	13	14	15	16+	
1980/81									31								
1981/82								11	42								
1982/83							17	7	39								
1983/84						35	24	19	48								
1984/85					44	34	25	18	60								
1985/86				59	40	27	23	17	48								8
1986/87			97	69	52	40	34	26	62						5		6
1987/88		144	80	59	49	43	38	25	72					11	9		17
1988/89	760	140	88	68	46	46	37	30	91				14	13	11		23
1989/90	719	188	112	86	74	63	51	52	118			29	23	19	16		36
1990/91	782	152	81	63	50	44	42	38	121		33	29	16	18	16		33
1991/92	700	119	90	55	41	32	25	21	122	10	8	7	8	7	4		32
1992/93	670	197	76	67	57	45	37	31	31	19	17	18	16	9	7		
1993/94	686	141	87	58	47	45	36	25	20	15	15	12	6	6			
1994/95	683	205	98	71	59	46	31	22	19	14	15	9	10				
1995/96	819	201	106	68	47	35	26	22	23	15	9	7					
1996/97	758	167	118	77	49	32	31	23	22	17	14						
1997/98	826	210	115	79	44	35	33	25	15	15							
1998/99	745	218	103	68	55	43	32	21	16								
1999/00	1,092	222	129	80	74	51	27	20									
2000/01	796	229	119	104	64	37	32										
2001/02	943	265	164	94	53	36											
2002/03	931	308	154	86	59												
2003/04	1,018	248	109	71													
2004/05	949	221	117														
2005/06	796	210															
2006/07	850																

F Valuation Results, including Scheme Cost

Appendix F.1 - Valuation Results by Accident Year

Accident Year	Gross Central Estimate ¹	Reinsurance Recoveries ²	Net Central Estimate	Margins and Expenses ³	Provision	Insurer Reserves 2007
			\$000		\$000	\$000
91/92 and Prior	8,508	255	8,253	1,807	10,060	4,830
1992/93	1,042	31	1,011	221	1,232	1,309
1993/94	1,219	37	1,182	259	1,441	3,567
1994/95	1,550	47	1,504	329	1,833	1,741
1995/96	2,332	70	2,262	495	2,757	2,719
1996/97	3,001	90	2,911	638	3,549	5,313
1997/98	4,275	128	4,147	908	5,055	3,925
1998/99	5,593	168	5,426	1,188	6,614	3,690
1999/00	7,166	215	6,951	1,522	8,473	8,802
2000/01	8,863	266	8,597	1,883	10,480	11,660
2001/02	11,641	349	11,291	2,473	13,764	14,486
2002/03	14,667	440	14,227	3,116	17,343	17,348
2003/04	16,887	507	16,381	3,587	19,968	18,502
2004/05	23,162	695	22,467	4,920	27,387	28,040
2005/06	29,671	890	28,781	6,303	35,084	29,678
2006/07	37,762	1,133	36,629	8,022	44,650	44,948
TOTAL	177,338	5,320	172,018	37,672	209,690	200,558

¹Assumed future wage inflation at 4% pa, superimposed inflation at 2% pa, discounted at 6.4% pa

²Reinsurance recoveries assumed to be 3% of gross claim payments

³Claims handling expenses 6% of net central estimate, prudential margin 15% of net central estimate plus handling Expenses

Appendix F.2 - Projected Cashflows (Undiscounted, inflated and excluding years pre 1991/92)

Accident Year	Payment Year															Total	
	2007/08	2008/09	2009/10	2010/11	2011/12	2012/2013	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22		
1992/93	1,074,973																1,074,973
1993/94	244,097	1,078,094															1,322,191
1994/95	329,813	262,201	1,158,055														1,750,068
1995/96	494,437	419,283	333,330	1,472,206													2,719,255
1996/97	654,812	533,923	452,767	359,950	1,589,779												3,591,231
1997/98	913,550	786,795	641,541	544,027	432,501	1,910,213											5,228,627
1998/99	1,237,100	999,105	860,479	701,622	594,975	473,005	2,089,106										6,955,392
1999/00	1,555,211	1,331,500	1,075,345	926,140	755,161	640,376	509,099	2,248,521									9,041,353
2000/01	2,023,768	1,593,573	1,364,343	1,101,870	948,985	773,788	656,172	521,657	2,303,985								11,288,141
2001/02	2,804,455	2,167,610	1,706,838	1,461,316	1,180,186	1,016,436	828,786	702,810	558,734	2,467,743							14,894,914
2002/03	3,294,703	2,940,956	2,273,114	1,789,915	1,532,442	1,237,630	1,065,908	869,125	737,018	585,930	2,587,856						18,914,595
2003/04	3,891,048	3,134,628	2,798,068	2,162,674	1,702,951	1,457,988	1,177,499	1,014,121	826,899	701,210	557,462	2,462,124					21,886,671
2004/05	5,284,535	4,422,321	3,562,622	3,180,109	2,457,959	1,935,467	1,657,058	1,338,271	1,152,586	939,801	796,951	633,576	2,798,295				30,159,552
2005/06	7,131,977	5,524,539	4,623,167	3,724,423	3,324,538	2,569,591	2,023,369	1,732,315	1,399,051	1,204,932	982,483	833,146	662,351	2,925,384			38,661,266
2006/07	11,045,984	6,918,803	5,359,411	4,484,981	3,613,101	3,225,168	2,492,786	1,962,891	1,680,537	1,357,233	1,168,917	953,117	808,243	642,553	2,837,944		48,551,670
Total	41,980,460	32,113,331	26,209,079	21,909,231	18,132,578	15,239,661	12,499,784	10,389,712	8,658,809	7,256,850	6,093,669	4,881,963	4,268,890	3,567,937	2,837,944		216,039,899

Note: Payments are gross of reinsurance recoveries
 Payments do not include allowance for claim handling expenses

Appendix F.3 - Projected Cashflows (Discounted, inflated)

Accident Year	Payment Year															Total	
	2007/08	2008/09	2009/10	2010/11	2011/12	2012/2013	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22		
1992/93	1,042,141																1,042,141
1993/94	236,642	982,300															1,218,942
1994/95	319,740	238,903	991,688														1,550,331
1995/96	479,336	382,027	285,443	1,184,876													2,331,683
1996/97	634,813	486,482	387,722	289,699	1,202,539												3,001,255
1997/98	885,649	716,885	549,377	437,849	327,152	1,358,010											4,274,922
1998/99	1,199,317	910,330	736,862	564,686	450,051	336,269	1,395,854										5,593,369
1999/00	1,507,712	1,213,189	920,860	745,386	571,218	455,257	340,159	1,412,000									7,165,781
2000/01	1,961,959	1,451,976	1,168,341	886,818	717,831	550,102	438,427	327,584	1,359,802								8,862,840
2001/02	2,718,802	1,975,007	1,461,633	1,176,111	892,716	722,605	553,760	441,343	329,763	1,368,846							11,640,586
2002/03	3,194,077	2,679,637	1,946,557	1,440,577	1,159,169	879,856	712,196	545,783	434,985	325,012	1,349,127						14,666,978
2003/04	3,772,209	2,856,101	2,396,096	1,740,585	1,288,145	1,036,514	786,756	636,836	488,032	388,958	290,622	1,206,372					16,887,226
2004/05	5,123,137	4,029,376	3,050,813	2,559,448	1,859,248	1,375,963	1,107,177	840,392	680,252	521,303	415,475	310,435	1,288,615				23,161,634
2005/06	6,914,155	5,033,657	3,959,000	2,997,529	2,514,745	1,826,775	1,351,931	1,087,839	825,714	668,370	512,198	408,218	305,013	1,266,108			29,671,252
2006/07	10,708,623	6,304,034	4,589,475	3,609,648	2,733,020	2,292,838	1,665,576	1,232,633	991,846	752,851	609,392	467,001	372,196	278,098	1,154,384		37,761,613
Total	40,698,311	29,259,905	22,443,867	17,633,212	13,715,834	10,834,188	8,351,835	6,524,411	5,110,394	4,025,341	3,176,814	2,392,025	1,965,824	1,544,206	1,154,384		168,830,550
Note:	Payments are gross of reinsurance recoveries														Pre 1992/93 Accident Years	8,507,928	
	Payments do not include allowance for claim handling expenses														Total Outstanding Claims Liability	177,338,478	

Appendix F.4 - Estimated Annual Scheme Cost

Accident Year	Discount Rate	Net Earned Premiums ⁴	Net Paid to Date ³		Net Outstanding ³		Total Net Claims Cost	Assumed Expenses ²	Total Cost	Loss Ratio
			Undisc	Disc ¹	Undisc	Disc ¹				
		\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000	%
1997/98	5.75%	22,472	29,836	25,273	5,072	2,485	27,758	6,450	34,208	148%
1998/99	4.75%	25,825	31,700	28,278	6,747	3,856	32,134	7,460	39,594	153%
1999/00	6.75%	40,779	33,440	28,633	8,770	4,210	32,842	8,200	41,042	101%
2000/01	5.25%	49,988	30,965	28,145	10,949	6,417	34,561	8,912	43,473	87%
2001/02	5.50%	60,149	34,522	31,283	14,448	8,681	39,964	10,399	50,362	84%
2002/03	4.75%	66,165	33,945	31,377	18,347	12,261	43,638	11,374	55,012	83%
2003/04	5.50%	70,704	29,287	27,456	21,230	14,034	41,490	11,126	52,616	74%
2004/05	5.25%	74,518	28,252	26,987	29,255	20,630	47,618	12,504	60,122	81%
2005/06	5.25%	78,139	22,251	21,638	37,501	27,813	49,451	13,016	62,466	80%
2006/07	6.00%	78,953	9,954	9,954	47,095	36,068	46,022	12,362	58,384	74%

¹Discounted to the middle of injury period, inflation of 4% pa and superimposed inflation of 2% pa used in calculations
²Claims Handling Expenses 20% of Net Claims Cost, Commission 4% of premiums
³Reinsurance Recoveries assumed to be 3% of gross central estimate
⁴Excludes HIH

G Data used in graphs and bar charts in Parts I and II of the Report

	2005	2006	2007
	\$	\$	\$
Short Term Incapacity	8,198,925	8,396,267	8,687,935
Long Term Incapacity	8,904,977	7,894,710	9,422,922
Commutation	2,805,941	2,247,524	2,697,767
Hopkins	9,375,699	7,687,808	11,233,169
Death	395,436	536,561	964,279
Medical	7,953,463	8,603,803	8,776,791
Legal	6,119,805	5,126,892	4,779,528
Permanent Impairment	1,681,753	1,942,180	1,328,719
Rehabilitation	2,892,198	3,091,095	3,814,341
Other	953,282	766,662	628,770
Total	49,281,479	46,293,502	52,334,221

Payment Year	Inflation adjusted PPCI excluding development years 9+		Inflation adjusted PPCI for all development years	
	Actual	Constant rate of 2% pa applied	Actual	Constant rate of 2% pa applied
1996/97	11,376	14,380		
1997/98	13,530	14,668		
1998/99	12,962	14,961		
1999/00	13,356	15,261		
2000/01	15,610	15,566	18,102	17,280
2001/02	14,221	15,877	17,630	17,626
2002/03	15,069	16,195	17,110	17,979
2003/04	17,169	16,518	20,262	18,338
2004/05	16,919	16,849	19,614	18,705
2005/06	15,176	17,186	17,716	19,079
2006/07	17,530	17,530	19,461	19,461

Table for Figure 4.1 - Payments in 2006/07 Financial Year										
Description of Benefit	Accident Year									
	Pre 1998/99	1999/00	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	Total
	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
Short Term Incapacity	212,894	103,213	132,384	139,754	295,688	103,406	401,745	3,037,537	4,261,314	8,687,935
Long Term Incapacity	1,077,355	383,503	467,781	523,911	1,351,333	1,182,583	1,909,652	2,177,667	349,137	9,422,922
Commutation	171,517	514,594	0	215,268	514,732	1,099,322	325,767	0	0	2,841,200
Hopkins	1,782,153	454,055	135,271	1,843,963	2,052,058	1,118,291	1,687,878	2,048,681	110,819	11,233,169
Death	27,715	0	5,370	69,965	0	0	17,521	567,317	276,391	964,279
Medical	453,450	118,818	115,255	175,158	442,354	508,183	984,362	2,387,352	3,591,859	8,776,791
Legal	340,517	205,120	195,445	293,412	464,461	887,166	968,735	954,872	469,800	4,779,528
Permanent Impairment	92,927	110,216	0	12,922	161,677	323,850	368,995	237,022	21,110	1,328,719
Rehabilitation	288,005	41,681	56,815	114,754	225,525	220,457	632,139	1,241,529	993,436	3,814,341
Other	221,490	40,903	35,476	8,786	69,470	74,800	79,777	82,609	15,459	628,770
Total										52,477,654

Table for Figure 4.2 - Payments by Duration

Development Year/s	1-2 yrs			3-5 yrs			6+ yrs		
	2004/05	2005/06	2006/07	2004/05	2005/06	2006/07	2004/05	2005/06	2006/07
Description of Benefit	\$	\$	\$	\$	\$	\$	\$	\$	\$
Short Term Incapacity	6,727,079	7,449,193	7,298,851	985,935	675,126	800,839	485,911	271,948	588,245
Long Term Incapacity	1,840,109	2,326,630	2,526,804	4,410,560	3,471,136	4,443,568	2,654,308	2,096,944	2,452,550
Commutation	19,665	371,245	0	1,091,169	952,249	1,939,821	1,695,107	924,030	901,379
Hopkins	981,610	1,110,254	2,159,500	5,155,110	1,878,707	4,858,227	3,238,979	4,698,847	4,215,442
Death	279,878	307,728	843,708	70,635	197,603	17,521	44,923	31,230	103,050
Medical	5,536,052	6,329,535	5,979,211	1,723,641	1,512,654	1,934,899	693,770	761,614	862,681
Legal	1,976,284	1,846,500	1,424,672	2,458,562	2,082,902	2,320,362	1,684,959	1,197,490	1,034,494
Permanent Impairment	439,281	534,726	258,132	851,313	1,054,146	854,522	391,159	353,308	216,065
Rehabilitation	1,636,354	1,934,425	2,234,965	918,419	816,392	1,078,121	337,425	340,278	501,255
Other	244,883	303,676	98,068	151,987	112,661	224,047	556,412	350,325	306,655

Data for Figure 4.3 - Hopkins' Agreements

Description of Benefit	2,003	2,004	2,005	2,006	2,007
Other Benefit Payments	32,269,393	34,596,541	37,099,839	36,358,170	38,403,285
Hopkins	5,810,449	7,952,888	9,375,699	7,687,808	11,233,169
Commutations	4,471,293	4,840,069	2,805,941	2,247,524	2,697,767
Total	42,551,135	47,389,498	49,281,479	46,293,502	52,334,221

Table for Figure 5.1 - Projected Ultimate Claim Numbers (Excluding HIH)			
Accident Year	Reported to Date	Incurred But Not Reported (IBNR)	Ultimate
1989/90	2,642	0	2,642
1990/91	2,514	0	2,514
1991/92	2,152	0	2,152
1992/93	2,134	1	2,135
1993/94	2,019	1	2,020
1994/95	2,045	2	2,047
1995/96	2,453	2	2,455
1996/97	2,498	3	2,501
1997/98	2,831	4	2,835
1998/99	2,920	5	2,925
1999/00	2,964	6	2,970
2000/01	2,864	7	2,871
2001/02	2,893	8	2,901
2002/03	2,861	9	2,870
2003/04	2,566	10	2,576
2004/05	2,745	17	2,762
2005/06	2,697	27	2,724
2006/07	2,224	269	2,493

Table for Figure 5.2 - Chart of Payments per Claim Incurred		
	Dev Years 1-8 only	All Dev Years
	\$	\$
Financial Year	Payment per Claim	
1995/96	9,910	
1996/97	11,376	
1997/98	13,530	
1998/99	12,962	
1999/00	13,356	
2000/01	15,610	18,102
2001/02	14,221	17,630
2002/03	15,069	17,110
2003/04	17,169	20,596
2004/05	16,919	19,481
2005/06	15,176	17,716
2006/07	17,530	19,461
Selected		19,000

Accident Year	DY1	DY2	DY3	DY4	DY5	DY6	DY7	DY8	Total
1,996	2,516	2,807	2,085	1,276	1,231	855	818	611	12,199
1,997	2,993	3,412	1,948	1,861	1,906	1,070	574	873	14,637
1,998	2,621	3,270	1,684	1,661	1,194	1,053	1,659	453	13,595
1,999	3,028	3,440	2,238	1,464	1,784	1,232	553	500	14,239
2,000	3,009	3,655	2,186	1,594	1,218	1,253	748	662	14,325
2,001	3,361	3,595	2,368	1,853	1,140	706	373		13,396
2,002	3,247	3,919	2,261	2,744	898	1,009			14,078
2,003	3,166	3,965	2,591	1,794	1,953				13,469
2,004	4,108	4,295	2,078	2,186					12,667
2,005	3,890	4,504	2,647						11,041
2,006	3,948	4,584							8,532
2,007	4,116								4,116

Description of Benefit	2004/05	2005/06	2006/07
	\$	\$	\$
Short Term Incapacity	1,757	1,702	1,739
Long Term Incapacity	108	117	142
Commutation	1	69	0
Hopkins	72	90	45
Death	5	9	113
Medical	1,306	1,353	1,465
Legal	297	238	192
Permanent Impairment	9	5	9
Rehabilitation	291	318	405
Other	46	46	6

Accident Year	Insurance Trading Result	Accident Year Performance	Average Premium Rate
	\$ million	\$ million	
1993/94	(1.61)	1.64	
1994/95	(2.06)	(6.33)	1.7%
1995/96	1.24	(6.21)	1.6%
1996/97	0.05	(10.28)	1.6%
1997/98	(2.19)	(11.00)	1.6%
1998/99	(20.73)	(11.77)	1.9%
1999/00	(4.74)	(0.70)	2.6%
2000/01	8.85	7.97	3.2%
2001/02	4.92	11.13	3.1%
2002/03	(0.78)	13.90	3.3%
2003/04	6.31	19.43	3.3%
2004/05	6.05	16.37	3.2%
2005/06	32.62	17.73	2.8%
2006/07	21.71	21.24	2.6%

Table for Figure 8.1 - Sensitivity of Results	
Changes to Assumptions	Effect on Total Outstanding Claims Liability
Increase Inflation by 1% (to 5%)	7,264,221
Increase Inflation by 3% (to 7%)	23,027,724
Increase Discount Rate by 1% (to 7.4%)	(5,704,992)
Decrease Discount Rate by 1% (to 5.4%)	6,123,116
Decrease Superimposed Inflation by 2% (to 0%)	(12,806,050)
Increase Superimposed Inflation by 3% (to 5%)	14,252,783
Increase PPCI by 10%	17,359,157
Decrease PPCI by 10%	(17,359,157)

H Glossary of Terms

This appendix provides a description of a number of terms used throughout the report.

Term	Definition
Accident Year	The year (defined in years ending 30 June) in which an accident occurred: eg. a claim occurring on 30 November 2005 is said to belong to the 2005/2006 accident year
Break-even Premium	Expected discounted costs of claims for an accident year plus the expected cost of expenses for that year
Central Estimate	An estimate of the liability which is intended to contain no deliberate bias to either over or underestimate
Claims Cost	Expected net (i.e. after allowing for reinsurance) cost of claims for an accident year. This is equal to the net payments to date plus the discounted net central estimate for outstanding claims
Claims Handling Expenses	The expected expenses of administering the claims that have been valued from the valuation date until they are all settled
Development Year	The number of years after an accident year (counting the accident year as year 1) in which an event occurs. For example a claim which occurs on 30 November 2000 but is not reported until 15 October 2002 is said to be reported in Development Year 3
Gap	Difference between discount rate and wage inflation rate
GST	Goods and Services Tax
IBNR	Incurred but Not Reported claims - i.e. claims that have occurred at the investigation date but have not yet been reported to the insurer
Incurred Claims Cost	Net Central Estimate at end of the period <i>plus</i> Payments made in the period <i>less</i> Net Central Estimate at beginning of the period
Inflated/Discounted Provision	The central estimate after allowing for future inflation and discounting, together with an allowance for claims handling expenses and a prudential margin
Loss Ratio	Expected Claims Cost as a percentage of Net Earned Premium
Net Earned Premium	The premium (net of reinsurance) in respect of insurance cover that was provided to policyholders during the accounting period, regardless of when the policy was issued.

Term	Definition
PPCI	Payment per Claim Incurred
PPCF	Payment per Claim Finalised
PPAC	Payment per Active Claim
Prudential Margin	An additional amount, held above the central estimates to increase the probability of the overall provision being sufficient
Run-off Claims	Claims occurring prior to the most recent accident year, i.e. claims occurring prior to 1 July 2005
Superimposed Inflation	The tendency for claims costs to increase faster than movements in general inflation
Tail	Claims belonging to accident years more than 15 years old at the date of investigation
Total Provision	Net Central Estimate plus Claims Handling Expenses plus Prudential Margin
Ultimate Claims Incurred	The total expected number of claims for an accident year. This will include all claims reported to the investigation date together with any IBNR claims for the accident year