

Report to ECC from the Board of Examiners

*SEMESTER ONE 2009*  
*PART III*  
*BOARD OF EXAMINERS REPORT*  
(PUBLIC VERSION)



Institute of Actuaries of Australia

***Publisher***

The Institute of Actuaries of Australia

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# CHAIR'S REPORT

## SUMMARY

### Examination Administration

The Semester One 2009 Part III examinations of the Institute of Actuaries of Australia ("Institute") were held between 28<sup>th</sup> April 2009 and 6<sup>th</sup> May 2009. Candidates attended the examinations in Australia (Sydney, Melbourne, Canberra, Perth, Adelaide, Brisbane and Hobart) and overseas (New Zealand, Hong Kong, Canada, China, Fiji, France, Japan, Malaysia, Singapore, Switzerland, Taiwan, The Netherlands, United Kingdom and USA).

This is the fifth year in which twice yearly examinations will be held. The tables below show the number of candidates sitting each exam over recent years. The number of candidates sitting in the latest period shows an increase over that in Semester One 2008 and Semester Two 2008.

**Table A: Candidate Numbers Sitting by Part III Course**

	Subject	2006 (1)	2006 (2)	2007 (1)	2007 (2)	2008 (1)	2008 (2)	2009 (1)
1	Investments	162	150	171	166	150	120	177
2A	Life Insurance	53	51	53	54	61	66	58
2B	Life Insurance	25	32	37	43	36	50	52
3A	General Insurance	69	65	64	82	69	51	65
3B	General Insurance	48	41	48	44	40	62	50
4A	Superannuation & Planned Savings	12	8	15	n/a <sup>6</sup>	n/a <sup>8</sup>	n/a	n/a
4B	Superannuation & Planned Savings	n/a <sup>1</sup>	7	n/a <sup>5</sup>	16	n/a <sup>8, 10</sup>	n/a	n/a
5A	Investment Management & Finance	14	18	17	n/a <sup>6</sup>	35	n/a <sup>11</sup>	n/a <sup>13</sup>
5B	Investment Management & Finance	14	15	n/a <sup>5</sup>	44	n/a <sup>10</sup>	35	44
6A	Global Retirement Income Systems					19 <sup>8</sup>	n/a <sup>11</sup>	14
6B	Global Retirement Income Systems						18 <sup>8</sup>	n/a <sup>13</sup>
10	Commercial Actuarial Practice	23 <sup>2</sup>	47 <sup>3</sup>	61 <sup>4</sup>	70 <sup>7</sup>	83 <sup>9</sup>	87 <sup>12</sup>	74 <sup>14</sup>
	<b>Total</b>	<b>420</b>	<b>434</b>	<b>466</b>	<b>519</b>	<b>493</b>	<b>489</b>	<b>534</b>

1. The 4B Course did not run in 2006 (1).
2. In Semester 1 2006 23 Individual Candidates enrolled, though some candidates only attempted either the Exam or the Case Study.
3. In Semester 2 2006 47 Individual Candidates enrolled, though some candidates only attempted either the Exam or the Case Study.
4. CAP Semester 1 2007 61 individual candidates enrolled, 44 full course, 1 exam only, 12 case study only and 4 re-sat the case study and exam.
5. Course 4B and 5B did not run Semester 1 2007.
6. Course 4A and 5A did not run Semester 2 2007.
7. CAP Semester 2 2007 70 individual candidates enrolled, 47 full course, 6 exam only, 11 case study only ( 3 re-sat the case study and exam).
8. 6A/6B GRIS introduced in Semester 1 2008 replacing Course 4A/4B.
9. CAP Semester 1, 2008, 83 candidates enrolled, 63 full course, 5 exam only, 13 case study only, 2 exam and case study.
10. Course 6B and 5B did not run Semester 1 2008.
11. Courses 5A and 6A did not run in Semester 2 2008.
12. CAP Semester 2, 2008, 87 candidates enrolled, 46 full course, 15 exam only, 24 case study only, 2 exam and case study.
13. Courses 5A and 6B did not run in Semester 1 2009.
14. CAP Semester 1, 2009, 74 candidates enrolled, 49 full course, 2 exam only, 21 case study only, 2 exam and case study.

## Results

### Pass Rates

The number of candidates presenting for the Semester One 2009 Part III Exams, the recommended passes and the resulting pass rates are shown in the table below:

**Table B: Recommended Number of Passes by Part III Course**

	2009 (1) Sat	2009 (1) Pass	2009 (1) %	2008 (2) Sat	2008 (2) Pass	2008 (2) %	2008 (1) Sat	2008 (1) Pass	2008 (1) %	2007 (2) Sat	2007 (2) Pass	2007 (2) %
1 Investments	177	86	49%	120	61	51%	150	59	39%	166	69	42%
2A Life Insurance	58	23	40%	66	32	48%	61	21	34%	54	21	39%
2B Life Insurance	52	20	38%	50	21	42%	36	14	39%	43	14	33%
3A General Insurance	65	24	37%	51	21	41%	69	36	52%	82	17	21%
3B General Insurance	50	16	32%	62	23	37%	40	16	40%	44	21	48%
4A Super & PS	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
4B Super & PS	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	16	7	44%
5A Invest. Man. & Fin.	n/a	n/a	n/a	n/a	n/a	n/a	35	17	49%	n/a	n/a	n/a
5B Invest. Man. & Fin.	44	22	50%	35	11	31%	n/a	n/a	n/a	44	15	34%
6A GRIS <sup>1</sup>	14	5	36%	n/a	n/a	n/a	19	11	58%			
6B GRIS <sup>3</sup>	n/a	n/a	n/a	18	10	56%						
10 CAP – Case Study	72	40	56%	73	50	68%	78	51	65%	63	47	75%
10 CAP – Exam	52	48	92%	63	60	95%	70	51	73%	57	49	86%
<b>Total</b>	<b>534</b>	<b>237</b>	<b>44%<sup>5</sup></b>	<b>489</b>	<b>241</b>	<b>49%<sup>4</sup></b>	<b>493</b>	<b>215</b>	<b>44%<sup>2</sup></b>	<b>519</b>	<b>211</b>	<b>41%</b>

1. 6A Global Retirement Income Systems new course Semester 1 2008
2. Figure represents pass rate in respect of all 83 CAP candidates
3. 6B Global Retirement Income Systems new course Semester 2 2008
4. Figure represents pass rate in respect of all 87 CAP candidates
5. Figure represents pass rate in respect of all 74 CAP candidates

The Chief Examiners aim to produce a consistent standard of passing candidates, rather than a consistent pass rate from year to year. This semester, the recommended overall pass rate of 44% is slightly below the previous semester and equivalent to Semester 1 2008.

## Prizes

Prizes are awarded only once in a calendar year following the Semester Two examinations.

### Subject Prizes

Each subject prize is awarded based on the performance of candidates in both semesters. The minimum standard for a subject prize has been set at 120% of the pass mark for both subjects. In addition, the candidate must have achieved A grades in at least 50% of questions in both exams.

## Fellows

The Part III Examination transition period from the pre-2005 system to the new post-2005 system ended at the end of 2007. So that students in transition (i.e. those who have passed at least one paper of a pre-2005 subject) would not be disadvantaged, a variation on the new pathway was approved in 2006. There are two ways in which candidates can qualify as Fellows.

- (i) Candidates must pass Module 1 (Investments), one full specialist subject (Modules 2 and 3) and Module 4 (Commercial Actuarial Practice).
- (ii) Candidates in transition (ie. those who have completed at least one paper of a pre-2005 subject) must pass three Modules and Module 4 (Commercial Actuarial Practice), providing that the equivalent of Modules 2 and 3 in one specialist area have been completed.

If the Council adopts the recommended passes, the number of members that will be made Fellows (subject to attendance at a Professionalism Course, satisfying the Practical Experience Requirement and paying any relevant exemptions) will be:

Category	2009 (1)	2008(2)	2008(1)	2007(2)	2007(1)	2006(2)	2006(1)
Pre-2005 system	0	0	0	1	1	7	14
Post-2005 system	34***	71**	37*	41	32	25	10
<b>Total New Fellows</b>	<b>34***</b>	<b>71**</b>	<b>37*</b>	<b>42</b>	<b>33</b>	<b>32</b>	<b>24</b>

\* 38 candidates completed all the Part III exams in semester one 2008 but one of these candidates had not completed all Part I exams. This candidate completed their last Part I exams in September 2008.

\*\* 72 candidates completed all the Part III exams in semester two 2008 but one of these candidates had not completed Part II.

\*\*\*35 candidates completed all the Part III exams in semester one 2009 but one of these candidates has a result pending for their last Part I exam.

# 1. Examination Administration

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## 1.1 The Board

The Board of Examiners oversees the Part III examination process of the Institute of Actuaries of Australia (Institute). The Board of Examiners consists of the Chair, her assistants and the Chief Examiners for each subject, supported by Institute staff.

For Semester One 2009 the Chair and her Assistants were:

Chair	Ms Caroline Bayliss
Assistant Chair	Mr Mike Fowlds
Assistant Chair	Mr Wesley Caine
Assistant Chair	Ms Raewin Davies
Assistant Chair	Ms Catherine Robertson-Hodder
Assistant Chair	Mr Martyn Gilling

The Chief Examiners for Semester One 2009 were:

Course 1: Investments	Mr Tim Kyng
Course 2A: Life Insurance	Mr Anthony Brien
Course 2B: Life Insurance	Mr Chris Johns
Course 3A: General Insurance	Mr David Gifford
Course 3B: General Insurance	Mr Adam Payne
Course 5B: Investment Management & Finance	Mr Tim Kyng
Course 6B: Global Retirement Income Systems	Mrs Debra Lewis
Course 10: Commercial Actuarial Practice	Mr Bruce Thomson

I would like to take this opportunity to thank all of the members of the Board of Examiners and their assistants for their efforts in preparing and marking the examination papers. The management of the examination process is an extremely important function of the Institute and it is currently being run by a small group of committed volunteers. I would also like to thank the Assistant Chairs, Mike, Raewin, Catherine, Martyn and Wesley for their support and untiring efforts in ensuring the overview process of the Board worked smoothly and that the quality of the examinations and results was maintained.

## 1.2 Meetings of the Board

The Board met on three occasions as part of the Semester One 2009 exam process.

- The first meeting was held on 15<sup>th</sup> January 2009. It was attended by representatives from each Course (Chief Examiners/Assistant Examiners). The purposes of this meeting were to:
  - update on enrolment numbers and course offerings for Semester One 2009
  - identify Chief & Assistant Examiners and Course Leaders for each course for Semester One 2009
  - outline the responsibilities of Chief Examiners and the Semester One schedule
  - review progress on the drafting of the exams to date
- The second meeting was held on 31<sup>st</sup> March 2009. It was attended by a representative from all courses. The purposes of this meeting were to:
  - discuss proposed changes to the BoE Handbook
  - the status of Semester One 2009 examination papers, model solutions and sign-off process.
  - discuss the marking spreadsheets and review the recruitment of markers.



- The third meeting was held on 10<sup>th</sup> June 2009 and was attended by Board of Examiners, Chief Examiners or their representative from all courses. The purposes of this meeting were to:
  - review the recommended pass lists and treatment of borderline candidates
  - review the recruitment of Chief Examiners for Semester Two 2009.
- A final meeting was held on 15 June 2009 to finalise results for Courses C1, 2B and 5A. This meeting was attended by the Chair, all Assistant Chairs and the relevant Chief Examiners.

### **1.3 Administration and Exam Supervision**

The Board of Examiners was ably assisted by a number of Institute staff, in particular Mr Stephen Wright, Mr Philip Latham and Ms Rebecca Moore. Philip and Rebecca were responsible for administering the entire process and ensuring key deadlines were met, compiling and formatting the examination papers, distributing material to candidates and to exam centres, processing results and collecting historical information for the production of this report. They did a great job for Semester One 2009 and the Board of Examiners team is indebted to them all.

The Semester One 2009 Part III Sydney and Melbourne examinations delivered by the Institute were once again run by an external consultancy – Language and Testing Consultancy (LTC). The Semester One 2009 Part III Sydney examinations delivered by Access Macquarie were arranged with Epping Boys High School as the venue. Other examinations were administered by Fellows or other approved supervisors. All examinations ran smoothly.

### **1.4 Course Leaders**

In October 2004, Course Leaders were appointed by the Institute to undertake a variety of tasks relating to modules 1-3 of the new Part III education program. One of the roles of the Course Leaders was to draft examination questions in consultation with the Chief Examiners. The following is a list of the Course Leaders for Semester One 2009:

Course 1 – Access Macquarie

Course 2A and 2B - Sue Howes (Faculty Convenor), Aaron Bruhn (2A Assignment and Exams), Bruce Thomson (2A tutorials and discussion forums), Chris John (2B Staff Actuary, Assignments, exams, discussion forums, tutorials)

Course 3A and 3B - GI Faculty, David Gifford (3A exam question writer and coordinator), Daniel Keating (3A exam question writer), Bruce Harris (3A exam question writer), Julie Evans (3A exam question writer), David Heath (3A tutorial), Don Jonstone (3A tutorial), Peter Mulquiney (3A tutorial), Felix Tang (3A discussion forums). Rachel Eagleton (3B assignments, exams, tutorials and discussion forums)

Course 5B – Access Macquarie

Course 6A – Peter May (Faculty Convenor), Jeffrey Chee (assignments and exams), David McNeice (tutorials and discussion forums)

Course 10 - David Service

Another role of the Course Leaders was to draft assignment questions in consultation with each subject Faculty. The Board of Examiners was not involved in this process.

## 1.5 The Examination Process

The Semester One 2009 examination process began with an initial meeting of the Board of Examiners and Course Leaders. Some had begun drafting examination questions from November 2008. Once Chief Examiners had been appointed in all subjects they met with Course Leaders (where applicable) to discuss the draft exam questions.

### Question setting

The basic framework followed by each subject to setting exam papers is the same. The Semester One 2009 Part III examinations were run on an open book basis. Each subject includes rigorous review processes. The general framework used to set examination papers is described as follows:

- The Course Leader (or equivalent) drafts the examination questions in consultation with the Chief Examiners.
- Draft exams and solutions are reviewed by scrutineers for coverage and fairness. The scrutineers are a mix of newly qualified actuaries and experienced actuaries. (Scrutineers were not used for the Access Macquarie run examinations)
- At least one scrutineer 'sits' the paper under exam conditions to assess the length of the paper.
- Exams are redrafted after feedback from the scrutineers.
- Draft exams, solutions and marking guides are then submitted to the BoE team for review. Two members of the BoE team review the draft exams and solutions.
- Exams, solutions and marking guides are finalised by the Chief Examiners and their Assistants.
- The Course Chief Examiners sign off the final examination papers and solutions.
- A member of the BoE team also signs off on the examination papers and solutions.

### Exam marking

The general framework used to mark examination papers, grade candidates and determine passes is described as follows:

- Two markers marked each question. Inconsistencies in marks for a candidate were discussed by the markers and resolved (in most cases), before the results were forwarded to the Chief Examiner.
- Marks were scaled to allow for the fact that some questions were more difficult than others.
- Each candidate was awarded a grade for each question of A, B, C, D or E, where A was regarded as a strong pass and B an ordinary pass.
- Candidates' overall performance was determined using several metrics including total raw mark, total scaled mark, weighted average grade, weighted average rank and number of pass grades per question. The key determinant however was total scaled mark.
- Candidates were ranked based on these metrics, particularly total scaled mark.
- Candidates' assignment grades and marks were added to the exam metrics, with a weighting of 15% for Course 1 Investments and Modules 2 and 3.
- Candidates were divided into clear passes, clear failures and a middle group that required further consideration.
- The Chief Examiner reviewed the middle group individually. The pass/fail decision was made after assessing the candidate's whole exam paper, his/her performance in the judgement questions, how badly he/she performed in the questions he/she failed and whether they were 'key' areas of the course and his/her performance in the assignments.

## **1.6 The Assignment Process (Modules 1-3)**

### **Question Setting**

The basic framework followed by each course to setting assignment questions is the same and all subjects contain review processes. The general framework used to set assignments is described as follows:

- The Course Leader drafts the assignment. They are each worth 15% of the total marks for the subject.
- Draft assignments and solutions are then reviewed by each Faculty for coverage and fairness.
- Each Faculty signs off the assignments.

Students were given access to the assignments via the specific link on the Institute learning management system.

The Board of Examiners did not review or comment on the assignments.

### **Assignment Marking**

The general framework used to mark assignments, grade candidates and determine passes is described as follows:

- Each question was marked only once, with the assignments being divided up among multiple markers. Different markers had different marking standards and pass criteria. Course Leaders sample marked 5% of all assignments (or at least one assignment from each marker). Inconsistencies in marks for a candidate were to have been discussed by the relevant marker and the Course Leaders and resolved, before the results were forwarded to the Chief Examiner.
- Marks were not scaled to allow for the fact that some questions were more difficult than others.
- Each candidate was awarded a grade for each question of A, B, C, D or E, where A was regarded as a strong pass and B an ordinary pass.
- Candidates' results were based on total raw marks.

In Semester One 2009 assignments were submitted electronically. Markers were allocated candidate numbers and accessed and marked on-line. Feedback was also posted electronically by the markers and/or IAA. This enabled a faster turn around and delivery of feedback as once all assignments were marked, students could access their feedback immediately.

## **1.7 Module 4 CAP - The Case Study Process**

The CAP course was developed and originally delivered for the Institute by the ANU. Semester One was run directly by the Institute. The CAP team included David Service, Pat McConnell, Richard Madden, Peter Martin, Colin Priest, Jill Green, Adam Butt and Aaron Bruhn. The team also developed the assessment materials for the course and did the marking.

The development and delivery of the course was overseen by a Faculty, consisting of Ken McLeod (Chair), Arie van den Berg, David Knox and Donna Walker. Bruce Thomson also acted as Chief Examiner, assisted by the other members of the Faculty.

During the one-week residential course, students were required to select one case study question from one of the four defined traditional practice areas, i.e. life insurance, general insurance, global retirement income systems or investments

## 1.8 Examination Dates

The Semester One 2009 Part III examinations were held on the following dates:

Course 1:	Investments	Monday 4 <sup>th</sup> May
Course 10:	Commercial Actuarial Practice	Wednesday 6 <sup>th</sup> May
Course 2A:	Life Insurance	Tuesday 28 <sup>th</sup> April
Course 2B:	Life Insurance	Wednesday 29 <sup>th</sup> April
Course 3A:	General Insurance	Wednesday 29 <sup>th</sup> April
Course 3B:	General Insurance	Tuesday 28 <sup>th</sup> April
Course 5B:	Investment Management & Finance	Tuesday 5 <sup>th</sup> May
Course 6A:	Global Retirement Income Systems	Thursday 30 <sup>th</sup> April

## 1.9 Assignment Dates

The Semester One 2009 Part III assignments were due on the following dates:

16<sup>th</sup> March (C1)  
25<sup>th</sup> February (2A, 3A, 6A)  
11<sup>th</sup> March (2B, 3B)  
17<sup>th</sup> March (5B)  
27<sup>th</sup> March Case Study (CAP)

## 1.10 Examination Centres

Candidates sat the exams in 7 centres in Australia and 14 centres overseas. Individual exam locations were arranged in Canada (1), China (3), Japan (3), Fiji (1), France (1), Switzerland (2), Taiwan (1), The Netherlands (1), and USA (1). This table includes candidates who sat the CAP Exam

**Table 1: Candidates by Exam Centre – Semester One 2009**

	Number of Candidates
Australia	433
Adelaide	2
Brisbane	5
Canberra	5
Hobart	1
Melbourne	90
Sydney	322
Perth	7
Overseas	79
Canada	1
China	3
Fiji	1
France	1
Hong Kong	15
Japan	3
Malaysia	5
New Zealand	15
Singapore	19
Switzerland	2
Taiwan	1
The Netherlands	1
United Kingdom	11
USA	1
Total	512

## 1.11 Exam Candidature

### Candidate Numbers

The number of candidates sitting the Part III exams in Semester One remained broadly consistent compared with the previous semesters, being slightly above the numbers in Semester One 2008 and Semester Two 2008. There was a considerable increase in the number of candidates sitting course C1 (Investments) over the previous semester. It is thought that some candidates waited for the course to be delivered by Access Macquarie before sitting this subject. Courses 2A (Life insurance) and 3B (General Insurance) had slight decreases in candidate numbers where as courses 2B (Life Insurance) and 3A (General Insurance) had slight increases in candidate numbers over Semester 2 2008.

**Table 2: Candidate Numbers Sitting by Part III Courses**

	Subject	2006 (1)	2006 (2)	2007 (1)	2007 (2)	2008 (1)	2008 (2)	2009 (1)
1	Investments	162	150	171	166	150	120	177
2A	Life Insurance	53	51	53	54	61	66	58
2B	Life Insurance	25	32	37	43	36	50	52
3A	General Insurance	69	65	64	82	69	51	65
3B	General Insurance	48	41	48	44	40	62	50
4A	Superannuation & Planned Savings	12	8	15	n/a <sup>6</sup>	n/a <sup>8</sup>	n/a	n/a
4B	Superannuation & Planned Savings	n/a <sup>1</sup>	7	n/a <sup>5</sup>	16	n/a <sup>10</sup>	n/a	n/a
5A	Investment Management & Finance	14	18	17	n/a <sup>6</sup>	35	n/a	n/a
5B	Investment Management & Finance	14	15	n/a <sup>5</sup>	44	n/a <sup>10</sup>	35	44
6A	Global Retirement Income Systems					19 <sup>8</sup>	n/a	n/a
6B	Global Retirement Income Systems						18	14
10	Commercial Actuarial Practice	23 <sup>2</sup>	47 <sup>3</sup>	61 <sup>4</sup>	70 <sup>7</sup>	83 <sup>9</sup>	87 <sup>11</sup>	74 <sup>12</sup>
	<b>Total</b>	<b>420</b>	<b>434</b>	<b>466</b>	<b>519</b>	<b>493</b>	<b>489</b>	<b>534</b>

1. The 4B Course did not run in 2006 (1).
2. In Semester One 2006 23 Individual Candidates enrolled, though some candidates only attempted either the Exam or the Case Study.
3. In Semester Two 2006 47 Individual Candidates enrolled, though some candidates attempted either the Exam or the Case Study.
4. CAP Semester 1 2007 61 individual candidates enrolled, 44 full course, 1 exam only, 12 case study only and 4 re-sat the case study and exam.
5. Courses 4B and 5B did not run Semester 1 2007.
6. Courses 4A and 5A did not run Semester 2 2007.
7. CAP Semester 2 2007 70 individual candidates enrolled, 47 full course, 6 exam only, 11 case study only ( 3 re-sat the case study and exam)
8. Course 6A was introduced in Sem 1 2008, replacing Course 4A
9. CAP Semester 1, 2008, 83 candidates enrolled, 63 full course, 5 exam only, 13 case study only, 2 exam and case study only
10. Courses 4B (to be replaced by Course 6B) and 5B did not run Semester 1 2008.
11. CAP Semester 2, 2008, 89 candidates enrolled, 2 withdrew, 47 full course, 15 exam only, 24 case study only, 3 exam and case study only.
12. CAP Semester 1, 2009, 78 candidates enrolled, 4 withdrew, 52 full course, 2 exam only, 21 case study only, 3 exam and case study only.

### Withdrawal Rates

In Semester One 2009, 581 candidates initially enrolled in courses, however 48 candidates subsequently withdrew from courses or did not present for the examination.

The number of candidates that enrolled for a course but withdrew prior to the examination was highest in absolute terms for Investments (6 officially withdrew prior to the examinations and 9 did not present for the exam, out of 192 originally enrolled). 6B (Global Retirement Income Systems) had the highest rate of withdrawal at 18%, although this only represents three candidates. Compared to Semester 2 2008, the overall withdrawal rate was slightly higher and the number of candidates being absent from the exam significantly higher – there were 6 in Semester 2 2008. The withdrawal rates for all subjects were:

**Table 3: Withdrawal Rates by Part III Course – Semester One 2009**

	Subject	Initially Enrolled	Withdrew prior to Exam	Absent from exam	Total Withdrawing	%
1	Investments	192	6	9	15	8%
2A	Life Insurance	64	5	1	6	9%
2B	Life Insurance	59	5	2	7	12%
3A	General Insurance	72	5	2	7	10%
3B	General Insurance	52	2	0	2	4%
5B	Invest Management & Finance	47	2	1	3	6%
6B	Global Retirement Income Systems	17	1	2	3	18%
10	Commercial Actuarial Practice	78 <sup>1</sup>	4	0	4	5%
	<b>Total</b>	<b>581</b>	<b>30</b>	<b>18</b>	<b>48</b>	<b>8%</b>

1. Includes exam and case study CAP candidates

### Candidate Mix

The mix of courses sat by candidates is broadly similar to that in previous years. The increased proportion for Investments seems to be offset by a decreased proportion for Life Insurance. Typically, the percentage enrolling in Investments will be higher in Semester One than in Semester Two as it is compulsory under the new Part III structure and new students are likely to sit it first.

The enrolments for General Insurance have been fairly constant at approximately 22% with a slight decline over last semesters. The Global Retirement Income Systems course, which effectively replaced the Superannuation & Planned Savings course, has had a slight decline in proportion enrolled at 3%. The Investment Management and Finance enrolments show a slight increase over the previous semester. The CAP (Commercial Actuarial Practice) course has decreased in overall proportion comparing with previous semesters.

**Table 4: Candidate Mix by Part III Course – Enrolments Semester One 2009**

	Subject	2006 (1)	2006 (2)	2007 (1)	2007 (2)	2008 (1)	2008 (2)	2009 (1)
1	Investments <sup>1</sup>	39%	35%	38%	33%	32%	25%	33%
2	Life Insurance	19%	19%	20%	19%	19%	24%	21%
3	General Insurance	28%	25%	24%	24%	23%	23%	22%
4	Superannuation & P.S.	3%	3%	3%	3%	n/a	n/a	n/a
5	Investment Mgt & Finance <sup>2</sup>	7%	8%	4%	9%	8%	7%	8%
6	Global Retirement Income Systems					4%	4%	3%
10	Comm. Actuarial Practice	5%	9%	12% <sup>1</sup>	12% <sup>2</sup>	16% <sup>3</sup>	18% <sup>4</sup>	14% <sup>5</sup>
	<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

1. Includes all CAP candidates enrolled including case study and or exam only – 61
2. Includes all CAP candidates enrolled including case study and or exam only -70
3. Indicates all CAP candidates enrolled including case study and or exam only – 83
4. Includes all CAP candidates enrolled including case study and or exam only – 87
5. Includes all CAP candidates enrolled including case study and or exam only – 74

## 2. Examination Papers and Assignments

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### 2.1 Examination Structure

The structure of the examinations in Semester One 2009 was a single three-hour exam paper for Modules 1-3 and a two-hour exam paper for Module 4 (Course 10 – Commercial Actuarial Practice). The exams for Modules 1, 2 & 3 were worth 85% of the final assessment, with the assignment worth 15%.

For Modules 1-3, each course was assessed individually. That is, a candidate can choose to sit (and subsequently pass or fail) only Course A (relating to Module 2) or Course B (relating to Module 3) of the subject. This differs from 2004 and earlier exams where candidates sat for the entire course (both A and B parts). For the 2004 exams, candidates were awarded a transitional pass for a paper if they passed either Paper 1 (Course A) or Paper 2 (Course B).

For Module 4, Commercial Actuarial Practice, assessment was determined as follows:

- *First piece:* participation in a one-week residential course (5%) and completion of a case study in a traditional practice area, over 8 hours, on the course's 5<sup>th</sup> day (45%).
- *Second piece:* two-hour exam paper on non-traditional areas of actuarial practice, answering 2 out of 4 questions (50%).
- In order for a candidate to obtain an overall pass in Module 4, both pieces of the assessment had to be passed. Students receiving an overall fail could be awarded a pass for either assessment piece and would only need to complete the other piece in a future semester, within a two-year period.

### 2.2 Assignment / Case Study Structure

The structure of the assignments in Semester One 2009 was one assignment for Modules 1, 2 and 3 with the assignment worth 15% of the final assessment.

Module 4 (Course 10 – Commercial Actuarial Practice) was assessed by 50% exam and 50% case study. Within the 50% case study assessment, which needed to be passed independently of the exam, the case study itself was worth 90% of the final assessment. Candidates completed the case study on the final day of the residential course, under exam conditions. In addition, general participation in the residential course was assessed at 10% of the case study marks.

### 2.3 Examination Standards

In each course there was a mix of questions covering three categories:

- applying bookwork to familiar and unfamiliar circumstances. This category is aimed at testing the candidates' knowledge and understanding (KU)
- problem solving requiring simple judgement (SJ)
- problem solving requiring complex judgement (CJ).

The questions aimed to cover the whole syllabus. In the case of Module 1 (Investments) the examination was based on the syllabus and a previously determined set of readings.

The standards to be achieved by candidates sitting each course, the principles on which papers are to be set and the marking procedures, are set out in the Guidelines to Examiners.



To ensure the examination papers had proper balance, guidance as to the proportion of marks given to each category needed to be established. The standards of difficulty as determined by the Chief Examiners at the time they set the papers are set out below, with a comparison to the prior semester.

**Table 5: Standards of Difficulty by Part III Course**

		Knowledge & Understanding		Simple Judgement		Complex Judgement	
		2008 (2)	2009 (1)	2008 (2)	2009 (1)	2008 (2)	2009 (1)
1	Investments	18%	19%	43%	40%	39%	41 %
2A	Life Insurance	19%	20%	41%	45%	40%	35%
2B	Life Insurance	19%	21%	36%	40%	45%	39%
3A	General Insurance	24%	24%	36%	39%	40%	37%
3B	General Insurance	22%	22%	37%	38%	41%	40%
5A	Invest. Management & Finance	n/a	n/a	n/a	n/a	n/a	n/a
5B	Invest. Management & Finance	24%	22%	41%	40%	35%	38%
6A	Global Retirement Income Systems	n/a	18%	n/a	38%	n/a	44%
6B	Global Retirement Income System	19%	n/a	40%	n/a	41%	n/a
	<b>Targets</b>	<b>15% - 25%</b>		<b>35% - 45%</b>		<b>35% - 45%</b>	

The examination papers were broadly similar in standard of difficulty to prior periods.

Copies of the examination papers have not been included within this report in the interests of space. They are available from the Institute if required. Detailed comments on the quality of candidates' answers to the exam questions are contained in each Chief Examiner's report.

## **2.4 Assignment Standards**

The setting of standards for the assignments used the same approach as for the examinations, that is, questions were set covering the following three categories:

- applying bookwork to familiar and unfamiliar circumstances. This category is aimed at testing the candidates' knowledge and understanding (KU)
- problem solving requiring simple judgement (SJ)
- problem solving requiring complex judgement (CJ).

Whilst the target weighting of each category for the exams was essentially 20% KU / 40% SJ / 40% CJ, the target weighting for the assignments was 40% KU / 40% SJ / 20% CJ. With the introduction of assessable assignments the exam is only worth 85% of the final assessment from 2007. This means that a higher component of the assessment is KU ("bookwork") and a lower proportion of the assessment is CJ ("complex judgement"), under the new system, compared with 2004 and earlier.

Although the target weightings of the assignments for each subject were 40%/40%/20% the Board of Examiners was not informed of the actual weightings of any of the assignments. Copies of the assignments were not supplied to the Board of Examiners, but should be available from the Institute if required.

## **2.5 Security of Examination Papers**

Procedures adopted in 2002 to improve the security of examination papers were continued in 2009:

- A marking day was held on Saturday 2 May for Course 2B
- Scanned version of exam answers were made available to markers in an internal installation of the Institute's Learning Management System.
- Overseas supervisors were required to photocopy papers before sending them by courier to the Institute office.
- Secure couriers were used to transport papers between markers.
- Chief Examiners allocated two markers from the same city for each question as far as were possible (so papers were not moving too frequently between cities).

## **2.6 Security of Assignments**

In Semester One 2009 markers accessed and loaded comments via the on-line learning management system (LMS). This enabled students to receive feedback in a more timely manner than previous semesters.

For all results, spreadsheets were sent directly to either and/or the IAA and the Course Leader.

## **2.7 Comments on Candidates' Examination Performance**

General observations on candidates' performance in each subject are as follows. These observations include my own comments.

### **Course 1 – Investments**

The overall performance on this semester's exam is similar to last semester when the pass rate was 51%.

Where candidates performed poorly it seems that they tended to produce lists, even when asked to 'discuss' and failed to apply judgement as required.

### **Course 2A - Life Insurance**

The overall pass rate of 40% (of those sitting the exam) compares with a pass rate of 48% for the 2008, Semester 1 exam. The overseas pass rate has improved from 27% (4 out of 15) to 47% (7 out of 15).

Overall the exam paper acted as a reasonable discriminator, with raw marks (including the assignment) ranging from 16.2 to 130.8(excluding the candidates who did not present for the exam). This was an equivalent range to that achieved in the previous semester (after allowing for the bottom candidate).

Some consistent messages from the markers were as follows:

- Candidates are failing to read the questions carefully, and to make sure they are answering everything that is asked in them.
- Candidates are generally good at repeating bookwork, but are often not able to consider how the book work may apply in the particular situation presented to them.
- Candidates need to be specific in their response to directors if required in a question, not using words such as "could", "may", "need to consider", or asking questions. The directors are looking for guidance from the actuary and definitely not unanswered questions or alarming statements.

A few particular comments were:

- Question 1: Part (a) Whilst this was considered a straight forward question and was well answered by most candidates, there were many simple errors made. Candidates frequently failed to read the question and had failed to include the net profit figure in their answer.

- Question 2: In general, candidates did not perform very well in this question. A large number of candidates did not write in appropriate language and format. Most candidates did not mention to seek Appointed Actuary's advice in part (d), comment on the difficulty in proving the cause of claim of obesity or realise the incidence increase is 60% not 15%!
- Question 3: This question was relatively straightforward and gave the well-prepared candidate the opportunity to earn good marks. However, it was only answered reasonably well by a small number of candidates. Part (c) was not answered well. Comments on the sales idea were patchy. More than half of the candidates missed the minimum surrender value requirement, although equity and fairness was covered fairly well. The proposal's more critical elements were not covered by many candidates.
- Question 4: Part a) Most candidates were able to calculate the actual to expected ratios and obtain the majority of marks. Inconsistency of rounding was an issue and at this level candidates should understand that if their calculations and sub-steps are accurate to say 3 decimal points then the result should not be stated to more than 3 decimal points. Answered reasonably well on the whole, however, overall, little judgement was applied in analysing the results.
- Question 5: Many candidates missed easy marks by not stating obvious facts such as "holding extra cash would reduce credit risk, however other considerations are ..." or "investing in overseas equities does assist diversification, however ...". It was concerning that a number of candidates did not seem to realise that a "guaranteed minimum bonus rate" had to be paid. Frequently candidates missed marks for not connecting the assets with the liabilities.

### **Course 2B - Life Insurance**

Overall, the performance on this exam was slightly worse than last semester, indicated by the slightly lower raw marks. No overall A's were awarded. As detailed in the following sections, there were some questions that were answered reasonably, and others that were not answered well.

As usual, many candidates clearly did not allow sufficient time to complete each question. Consequently, many marks were lost due to poor, rushed responses to the last two questions of the exam. Marks were also lost in several questions where candidates did not answer the question asked.

It was clear from the marking that there were several examples of candidates who spent significant amounts of time trying to attain A grade answers to some questions at the expense of time allocated to other questions.

### **Course 3A - General Insurance**

In setting the paper, the intention was to have a consistent level of difficulty with previous papers. The standard was similar to semester 2 2008 (with a 41% pass rate), lower than semester 1 2008 (with a 52% pass rate), but higher than Semester 2 2007 (with only a 20% pass rate). The pass rate is well within the range of historic pass rates.

The average raw marks in each of the six exam questions ranged from 38% to 55% of the total marks available, slightly lower than the November 2008 exam (39% to 61%), with all questions except one being in excess of 45%, compared to only three having 45% or more in November 2008. Prior exam raw marks were (36% to 57% in May 2008, 27% to 45% in November 2007, 47% to 59% in May 2007, 29% to 58% in November 2006, 43% to 55% in May 2006 and 26% to 57% in November 2005).

The standard across questions was relatively even, with Question 1 having the lowest pass mark and Question 2 the highest.

### **Course 3B - General Insurance**

The examination acted as a good discriminator, with raw marks ranging from 49 to 132 out of 200. This range was wider than the range for last semester (70 to 132 out of 200). The lower average raw mark of 105 compared to last semester (106) was mainly due to the lower average assignment marks. Overall candidate performance was similar to that in prior semesters.

The impression that the examiners had after setting the paper was that it was not a particularly difficult paper, in the sense that it did not contain one or more questions that required candidates to apply core concepts in extraordinary new areas. However, we felt that on balance it was a reasonable paper that would provide a good broad test of candidates' knowledge and understanding and ability to apply this, and their judgement, to some practical situations.

Nonetheless, some consistent observations from the examiners were as follows:

- Candidates are not going beyond "stock" answers. They often ignore information given in the question in favour of "lists" of responses and standard approaches, without adapting these for the situation or considering the appropriateness in the circumstances. It is sometimes difficult to conclude whether the candidates have the requisite skills to apply their knowledge, or if this is exam technique issue.
- The "list" mentality is demonstrated by very few students showing sufficient depth of knowledge to score 'A' grades on the exam questions. Notably only three students scored more than one 'A' out of six exam questions.

Generally the scores assigned by the markers were consistent with what might normally be expected based on the marking guide. Marker pairs had generally reconciled any differences in their marks and the extent of remarking was fairly limited. Markers adjusted the grade cut-offs according to the perceived difficulty of the question. The examiners reviewed these scales where necessary and were satisfied with the thresholds assigned and the spread of marks.

There were few candidates meeting 3 or 4 of the pass criteria (only 9). Most candidates either did well overall (13 candidates satisfied 5 or more of the criteria with 11 of those satisfying all 6 of the criteria) or did poorly overall (28 candidates satisfied 2 or fewer of the criteria). This is consistent with last semester.

The overall pass rate is broadly comparable to recent semesters for this course.

Candidates found question 4 the easiest of the exam questions (64% pass rate) and question 6 the most difficult (33% pass rate).

### **Course 5B- Investment Management and Finance**

The exam paper proved to be a very good discriminator of student understanding and ability to apply judgement with raw marks (on the exam component only) ranging from 33% to 66% of raw marks.

The examiners felt that this year's exam would provide a suitable level of challenge to the candidates. A very detailed marking guide was prepared for the markers which meant that some candidates showed understanding but did not pick up as many marks as they may have thought they would. This fact was taken into account by both the markers and examiners in determining the cut-off points for the letter grades awarded to each question.

### **Course 6A – Global Retirement Income Systems**

Overall the exam provided strong differentiation between good candidates and those who still have some way to go. Only 5 passes of 14 candidates (or 36% pass rate) reflects both the quality of candidates presenting and a lack of preparation by those who were borderline.

### **Course 10 – Commercial Actuarial Practice**

The Commercial Actuarial Practice (CAP) Course was conducted for the eighth time in Semester One 2009. The overall assessment was focused on the practical application of judgement and on the communication skills of the students, rather than on bookwork.

There are two separate pieces of assessment. The first assessment is based on participation in a one-week residential course and on completion of a case assessment in one of the traditional areas of actuarial practice on the last day of the residential course. The second assessment is a 2-hour examination on non-traditional areas of actuarial practice. Students are required to pass each of these assessments in order to pass the Module. Students who fail one or both of these assessments may be permitted to resit the assessment(s) they failed without completing the whole course again.

The pass rate for the case assessment was 56% with the rate for candidates who presented for the examination being 92% with an overall pass rate of 55% being the rate of those passing the entire course (not necessarily all at this sitting). In total for the candidates who presented for one or both of the assessments, the overall pass rate is 71.3%. This is up on the three previous semesters of 49%, 67% and 57% respectively (the most recent being first). The case study pass rates varied considerably by subject, with Life Insurance and Investments at 62% and 64% respectively, down to GRIS at 25%. For the exam the pass rates were considerably higher for Environment at 97%, down to 38% for Banking.

At this time no analysis has been done to find possible reasons for the higher overall pass rate, although we note that the pass rate is consistent with last semester. There does however appear to be a lack of correlation between those doing well in the case study and those doing well in the exam.

## **2.8 *Comments on Candidates' Assignment Performance***

As the Chief Examiners were unable to review candidates' assignments, no comments on assignment performance can be provided.

## **2.9 *Feedback on Assignments in Part III Courses***

The assignments in each Part III course (Modules 1-3) are compulsory and now count for 15% (Modules 1, 2-3). Overall, the Chief Examiners have been disappointed with the assignments since they were introduced in Semester One 2005 and have made the following comments:

- The assignments are not always a large learning exercise for students, with most markers providing limited feedback and comments to students. The volume of feedback has improved, following changes made by the Institute.
- The assignments are not typically a good discriminator of candidates, with very high proportions passing. Coupled with the absence of qualitative comments on the standard of the student's work, this makes assignments a less useful tool for assessment than would otherwise be the case. However, we note that assignments in some subjects had a broader spread of marks than has sometimes been the case in the past, and were used in discriminating between candidates by the Chief Examiner.
- Assignments were single-marked and scaling was used to achieve consistency across markers. The Course Leaders are responsible for the assignment marking and carry out sample (re)marking of the assignments to check consistency across markers.

- Chief Examiners felt there may be a significant amount of collaboration by students in producing their assignments, particularly in the larger centres. This disadvantages candidates in the smaller centres.
- The assignment marks rarely impacted on the overall borderline pass/fail decisions.

The Chief Examiners did not report any particular difficulties with incorporating the assignments into the overall assessment of candidates.

## 3. Results

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### 3.1 Pass Standards

The standards for determining whether a candidate should be granted the status of Fellow of the Institute of Actuaries of Australia are based on whether an individual demonstrates core capabilities required for an actuary practicing professionally in their specialty area(s). Candidates are required to demonstrate:

- a strong knowledge of the nature, operations, legislation and current issues of the selected practice area(s)
- a detailed knowledge and understanding of the application of actuarial concepts and skills to the chosen practice area(s)
- an ability to apply judgement to solve problems in the chosen practice area(s) that may be characterised by complexity, varying degrees of clarity of definition and novel or unseen circumstances.

A candidate is not expected to demonstrate these capabilities at the level of an experienced and skilled practitioner. It is unreasonable to expect candidates to demonstrate the degree of understanding of an actuary of some year's experience. Rather, the benchmark is whether the candidate is proficient to commence practicing professionally in their specialty area(s). Provided the candidate shows a grasp of the main principles, a pass should be awarded. Conversely, a candidate who demonstrates dangerous misconceptions or misapplication of concepts or ideas is viewed more seriously than a candidate who shows a simple lack of knowledge.

The Chief Examiners in the Part III Courses place greater emphasis on the questions that require the candidate to demonstrate the ability to apply bookwork to specific situations and show judgement to solve problems. When grading borderline candidates, their ability to do well in such questions has a greater bearing on whether they pass or fail. The Chief Examiners however, are very conscious of the fact that it is unreasonable to expect candidates to demonstrate the degree of understanding of an actuary with years of experience. In addition, actuaries are expected to be able to demonstrate their skills to those outside the profession. Candidates are expected to be able to communicate clearly and may be penalised if their answers are not clearly expressed.

### 3.2 Candidates' Results

Candidates' results in each subject and at each level are set out in the attachments to each Chief Examiner's report. In summary the results are:

**Table 6: Recommended Candidate Passes by Part III Course**

	Subject	2006 (1)	2006 (2)	2007 (1)	2007 (2)	2008 (1)	2008 (2)	2009 (1)
1	Investments	45	46	56	69	59	61	86
2A	Life Insurance	17	14	18	21	21	32	23
2B	Life Insurance	8	13	8	14	14	21	20
3A	General Insurance	28	25	24	17	36	21	24
3B	General Insurance	24	16	23	21	16	23	16
4A	Superannuation & P.S.	6	3	7	n/a	n/a	n/a	n/a
4B	Superannuation & P.S.	n/a	4	-	7	n/a	n/a	n/a
5A	Invest. Mngmt & Finance	7	8	6	n/a	17	n/a	n/a
5B	Invest. Mngmt & Finance	6	4	-	15	n/a	11	22
6A	Global Retirement Income Systems					11	n/a	5
6B	Global Retirement Income Systems						10	n/a
10	Comm. Actuarial Practice	14 <sup>1</sup>	30	35 <sup>2</sup>	47 <sup>3</sup>	41 <sup>4</sup>	62 <sup>5</sup>	41 <sup>6</sup>
	<b>Total</b>	<b>156</b>	<b>163</b>	<b>177</b>	<b>211</b>	<b>215</b>	<b>241</b>	<b>237</b>

1 CAP had 30 overall passes. out of 47 candidates presenting. It had 28 passes out of 44 candidates presenting for the case study and 38 passes out of 43 presenting for the exam.

2 61 candidates, 35 passes in the course (including case study and/or exam)

3 70 candidates, 47 passes in the course (including case study and/or exam)

4 83 candidates, 41 passes in the course (including case study and/or exam)

5 87 candidates, 62 passes in the course (including case study and/or exam)

6 74 candidates, 41 passes in the course (including case study and/or exam)

**Table 7: Recommended Pass Rates by Part III Course**

	Subject	2006(1)	2006(2)	2007 (1)	2007 (2)	2008 (1)	2008 (2)	2009 (1)
1	Investments <sup>1</sup>	28%	31%	33%	42%	39%	51%	49%
2A	Life Insurance	32%	28%	34%	39%	34%	48%	40%
2B	Life Insurance	32%	41%	22%	33%	39%	42%	38%
3A	General Insurance	42%	38%	38%	21%	52%	41%	37%
3B	General Insurance	50%	39%	48%	48%	40%	37%	32%
4A	Superannuation & P. S.	50%	38%	47%	n/a	n/a	n/a	n/a
4B	Superannuation & P. S.	n/a	57%	-	44%	n/a	n/a	n/a
5A	Invest. Mngmt & Finance	50%	44%	35%	n/a	49%	n/a	n/a
5B	Invest. Mngmt & Finance	43%	27%	-	34%	n/a	31%	50%
6A	GRIS					58% <sup>3</sup>	n/a	36%
6B	GRIS					n/a	56% <sup>5</sup>	n/a
10	CAP – Case Study	73%	64%	66%	75%	65%	68%	56%
10	CAP – Exam	78%	77%	76%	86%	73%	95%	92%
	<b>Total</b>	<b>37%</b>	<b>38%</b>	<b>38%<sup>1</sup></b>	<b>41%<sup>2</sup></b>	<b>44%<sup>4</sup></b>	<b>49%<sup>6</sup></b>	<b>44%<sup>7</sup></b>

1 Based on CAP results of 61 candidates, 35 passes in the course (including case study and/or exam) = 57%

2 Based on CAP results of 70 candidates, 47 passes in the course (including case study and/or exam) = 67%

3 6A GRIS –new course Semester 1 2008.

4 Based on CAP results of 83 candidates, 41 passes in the course (including case study and/or exam) = 49%

5 6B GRIS –new course Semester 2 2008.

6 Based on CAP results of 87 candidates, 62 passes in the course (including case study and/or exam) = 54%

7 Based on CAP results of 74 candidates, 41 passes in the course (including case study and /or exam) = 55%



The Chief Examiners aim to produce a consistent standard of passing candidates, rather than a consistent pass rate from year to year. This semester, the recommended overall pass rate of 44% is slightly below the range achieved in the previous semester. The overall pass rate is in line with semester one 2008 with the latest results as a whole boosted once again by the strong results in Course 10 CAP of 56% for the Case Study and 92% for the Exam. However, excluding the CAP results the overall pass rate would have still been 43%.

The pass rate for Course 10, Commercial Actuarial Practice (CAP), of 55% overall and 56% for the Case Study and 92% for the exam was significantly higher than the average pass rate for Modules 1-3 of 44%. We believe that this is due to the following factors:

- CAP is a fundamentally different subject to those in Modules 1-3. It is undertaken as a one-week taught residential course, rather than as distance education, and has two assessment pieces, that is, the case study and the exam.
- CAP is undertaken by more experienced candidates that are generally closer to final qualification. These candidates would be expected to achieve a higher pass rate than the average rate across all candidates.
- Each assessment piece was double marked and then reviewed by the CAP Chief Examiner. To ensure consistency across the different subjects, one of the markers marked all case studies and all exams.
- CAP will be compulsory to all Part III students once transition ends. Any fundamental differences between CAP and Modules 1-3 will impact equally on all students.

The Board agreed that the standard applied to marking the exams for all subjects was ultimately the same as in previous years.

Further detail on the deliberations of each Chief Examiner is contained in their individual reports. I am satisfied that the processes adopted in the marking of papers and grading of exam papers have been fair and robust. The single marking of assignments may have led to some discrepancies among candidates, though due to the relatively few candidates whose results were changed by their assignment result (partly as a result of the reduced weighting given to assessments), this would not have had a big impact overall. Every effort has been made to ensure consistency between years and between subjects.

### 3.4 Pass Rates by Centre

The pass rates by exam centre were as follows:

**Table 8: Comparison of Pass Rates by Centre**

	2006(1)	2006(2)	2007 (1)	2007 (2)	2008 (1)	2008 (2)	2009 (1)
Sydney	36%	42%	40%	45%	47%	55%	50%
Melbourne	38%	37%	50%	44%	50%	45%	44%
Other*	39%	25%	34%	29%	43%	44%	43%
<b>Total</b>	<b>37%</b>	<b>38%</b>	<b>38%<sup>1</sup></b>	<b>41%<sup>2</sup></b>	<b>47%<sup>3</sup></b>	<b>51%<sup>4</sup></b>	<b>48%<sup>5</sup></b>

\* Other Australian and overseas exam centres

1. Number incorporates only 49 CAP students sitting the exam out of a total of 61 candidates
2. Number incorporates only 57 CAP students sitting the exam out of a total of 70 candidates
3. Number incorporates only 70 CAP students sitting the exam out of a total of 83 candidates
4. Number incorporates only 63 CAP students sitting the exam out of a total of 87 candidates
5. Number incorporates only 52 CAP students sitting the exam out of a total of 74 candidates

I have examined the pass rates by specialist subject and examination centre. This analysis revealed a number of interesting features, including:

- The overall pass rate for non-Sydney/Melbourne examination centres is slightly lower than the overall pass rate for the Sydney/Melbourne examination centres (43% compared with

50%). The difference between Sydney/Melbourne and other centres was also marked in Semester 2 2007

- The pass rate in Sydney, the largest centre with 63% of all candidates, was 50% this semester.
- In Singapore only 6 candidates from 20 attempts passed (30%).

### 3.5 Pass Marks and Scaling

The scaled pass marks for 2006 Semesters one and onward, out of 200 marks have been as follows:

**Table 9: Scaled Pass Marks by Part III Course**

	Subject	2006 (1)	2006 (2)	2007 (1)	2007 (2)	2008 (1)	2008 (2)	2009 (1)
1	Investments	103	120	121	90 <sup>1</sup>	100	100	100
2A	Life Insurance	114	122	115	123	123	123	120
2B	Life Insurance	119	124	111	110	110	117	121.5
3A	General Insurance	116	113	111	113	115	120	115
3B	General Insurance	115	118	120	120	120	120	120
4A	Superannuation & P.S.	122	127	120	-	n/a	n/a	n/a
4B	Superannuation & P.S.	n/a	128	-	122	n/a	n/a	n/a
5A	Invest. Mngmt & Finance <sup>2</sup>	120	102	100	-	120	n/a	n/a
5B	Invest. Mngmt & Finance	120	123	-	121	n/a	120	100
6A	Global Retirement Income Systems					120	n/a	120
6B	Global Retirement Income Systems					n/a	115	n/a
10	Comm. Actuarial Practice <sup>1</sup>	50 - 50	50 - 50	50-50	50-50	50-50	50-50	50-50

1 For CAP, the case study and the exam each had a pass mark of 50%.

2 Grossed up from 45/100 for consistency with historic data

The relationship between scaled and raw marks for 2009 Semester One was:

**Table 10: Raw and Scaled Pass Marks by Part III Subject**

	Subject	Raw	Scaled
1	Investments	90	100
2A	Life Insurance	107.9	120
2B	Life Insurance	111	121.5
3A	General Insurance	105	115
3B	General Insurance	109	120
5B	Investment Management and Finance	100	100
6B	Global Retirement Income Systems	99	120

Consistent pass criteria have been used for all subjects. The criteria are:

- the scaled mark
- a grade point average of around 2.5
- number of questions passed being "50% of questions + 1, rounded down" e.g. pass 4 from 6 questions; pass 4 from 7 questions or pass 3 from 5 questions.
- no more than 1D and no E grades.
- borderline candidates are to be assessed carefully, with the examiners re-marking their papers, as in previous years.

- assignments were included in the assessment process, being weighted at 15% of the overall assessment.

The range of scaled marks in Semester One 2009 was 100-121.5 out of 200, a range of 21.5 marks. The range in Semester One 2008 was 20 marks.

It should be noted that, as discussed above, the scaled mark was not the sole factor used to determine whether a candidate passed or did not pass.

### **3.6 *Andrew Prescott Memorial & Katherine Robertson Prizes***

In December 1978, Council agreed to establish the Andrew Prescott Memorial Prize, in honour of the late Andrew Prescott, for meritorious performance in the Institute's examinations. Prizes are awarded in two divisions:

- Prizes for the highest mark in the examination in each Part III subject provided a certain minimum standard is attained.
- A prize for outstanding performance over the whole examination process on completing the Fellowship.

Since 2001, the Katherine Robertson Prize has been awarded for General Insurance in lieu of the Andrew Prescott Memorial Prize. Katherine Robertson was an outstanding young actuary working in General Insurance who passed away in October 2000.

#### **Subject Prizes**

Prizes are awarded only once in a calendar year following the Semester Two examinations.

Each subject prize is awarded based on the performance of candidates in both semesters. The minimum standard for a subject prize has been set at 120% of the pass mark for both subjects. In addition, the candidate must have achieved A grades in at least 50% of questions in both exams. Candidates achievements will be assessed and recommended following the release of results in Semester 2 2009.

### **3.7 *Fellows***

The Part III Examination transition period from the pre-2005 system to the new post-2005 system ended at the end of 2007. So that students in transition (i.e. those who have passed at least one paper of a pre-2005 subject) would not be disadvantaged, a variation on the new pathway was approved in 2006. There are two ways in which candidates can qualify as Fellows.

- (i) Candidates must pass Module 1 (Investments), one full specialist subject (Modules 2 and 3) and Module 4 (Commercial Actuarial Practice).
- (ii) Candidates in transition (ie. those who have completed at least one paper of a pre-2005 subject) must pass three Modules and Module 4 (Commercial Actuarial Practice), providing that the equivalent of Modules 2 and 3 in one special area have been completed.

If the Council adopts the recommended passes, the number of members that will be made Fellows (subject to attendance at a Professionalism Course, satisfying the Practical Experience Requirement and paying any relevant exemptions) will be:

Category	2009(1)	2008(2)	2008(1)	2007 (2)	2007 (1)	2006 (2)	2006 (1)
Pre-2005 system	0	0	0	1	1	7	14
Post-2005 system	34	71**	37*	41	32	25	10
<b>Total New Fellows</b>	<b>34***</b>	<b>71**</b>	<b>37*</b>	<b>42</b>	<b>33</b>	<b>32</b>	<b>24</b>

\* 38 candidates completed all the Part III exams in semester one 2008 but one of these candidates had not completed all Part I exams. This candidate completed their last Part I exams in September 2008.

\*\* 72 candidates completed all the Part III exams in semester two 2008 but one of these candidates had not completed Part II.

\*\*\* 34 candidates completed all of the Part III exams in semester 1 2009. An additional candidate may be included pending on the release of the Part I results on 3<sup>rd</sup> July 2009.

# **CHIEF EXAMINERS' REPORTS**

## **C1 Investments Chief Examiner's Report Semester 1 2009**

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### **1. Summary**

#### **1.1. Pass Rates**

192 Candidates enrolled for the Semester 1 2009, C1 Investments exam. Of these, 6 withdrew prior to the exam and 9 did not present at the exam. The assessment comprised one assignment worth 15% and an exam worth the remaining 85%.

It is proposed that 86 Candidates be awarded a pass, which implies a pass rate of 49% for those sitting the exam. This compares with the following pass rates for this subject in recent semesters:

#### **Overall Pass Rates**

<b>Year</b>	<b>Semester 1</b>	<b>Semester 2</b>
2009	49%	
2008	39%	51%
2007	33%	42%
2006	28%	31%
2005	24%	29%

#### **1.2. Candidate Numbers**

The Candidate numbers can be summarised as follows:

**Table 1 – Candidate Numbers**

	<b>Number of candidates</b>
Originally enrolled	192
Withdrawn prior to exam	6
Absent from exam	9
Presented at exam	177
Passed	86
Failed	91

The analysis by examination centre is as follows:

**Table 2 – Analysis by Examination Centre**

<b>Centre</b>	<b>Presented</b>	<b>Passed</b>	<b>Pass Rate</b>
Adelaide	1	1	100%
Brisbane	4	3	75%
Canberra	2	1	50%
Hobart	1	1	100%
Sydney	109	58	53%
Melbourne	34	12	35%
Perth	4	2	50%
<b>Subtotal: Australia</b>	155	78	50%
Beijing	1	1	100%
Malaysia	3	0	0%
Hong Kong	6	2	33%
Singapore	6	1	17%
Minneapolis	1	1	100%
Auckland	5	3	60%
<b>Subtotal: International</b>	22	8	36%
<b>Total</b>	177	86	49%

## **2. Examination Administration**

### **2.1. Examiners**

The examiners for this semester were:

Chief Examiner (CE): Tim Kyng  
External Examiner (EE): Stuart Crockett

### **2.2. Scrutineers / review of exam**

The examination paper was not scrutineered this year. This year the teaching of the C1 subject has been subcontracted to Access Macquarie Ltd. The arrangements for reviewing the exam did not include having scrutineers this time. However the exam was reviewed by the external examiners appointed by IAAust for subjects C1 & 5B and considered by two members of the Board of Examiners who provided feedback on the exam and solutions. The paper was considered by four different people appointed by the IAAust.

### **2.5. Exam Marking Process**

The examination was held on Monday 4<sup>th</sup> May. This year, the IAAust has subcontracted Access Macquarie Ltd to teach the course, to write the exam and the assignment and their solutions, and to organise the marking of the exam and the assignment.

The assessment procedures followed are identical to those followed for all the other IAAust part III exams. Each marker was provided with the question, the model solution/marketing guide, a marking sheet and written guidelines for marking. For each question, two markers independently marked each candidate's answer.

The markers were asked to recommend cut-off marks for each of the grades Strong Pass (A), Pass (B), Slightly Below Standard (C) and Weak (D). The remainder of the candidates, who attempted the question, were graded Showed Little Knowledge (E). Markers were also asked to comment on the questions, and in particular whether the questions were misinterpreted or ambiguous. There were no ambiguities or misinterpretations reported by the markers. General feedback from the markers on the candidates' performance is included in Section 3.6: Question by Question Analysis of this report.

The candidates' marks and the markers' recommended cut-offs were entered into an Excel spreadsheet. The spreadsheet performed the following tasks:

- ranked and graded candidates on each marker's assessment;
- measured the correlation between the markers on mark, rank and grade;
- identified candidates where the markers' assessment varied by more than one grade, by more than 20% of the candidates in terms of rank or by more than one standard deviation in terms of mark (after adjustment for the mean for all candidates of each marker); and
- produced scaled marks which adjusted raw marks to produce a more even distribution of marks for each question (an attempt to moderate for the varying levels of difficulty for the questions).

As in earlier examinations, the markers for each question were asked to review the discrepancies tab on the spreadsheet and resolve any major discrepancies, with any unresolved discrepancies being referred to the examiners.

For each examination question, the markers agreed on a grading scale (A, B, C, D, E, X) that they believed reflected the standard of the candidates. The two results from the markers were then combined to provide an overall raw score.

Cut-off marks for grades were adjusted where necessary to reflect the examiners' final assessment. Such adjustments were made to two of the five questions. It was generally found that the examiners agreed with the cut-off marks provided by at least one of the two examiners.

The final marks were added to obtain a total mark (both raw and scaled) for each candidate. The candidates were ranked by raw total and the preliminary total pass mark was determined by considering the following:

- the sum of the total pass marks determined for individual questions;
- the total marks for each candidate;
- the distribution of grades for each candidate;
- the number of questions actually passed by each candidate;
- the grade point average for each candidate;
- natural groupings which occurred in the distribution of total marks;
- consistency with previous year's process for determining the pass mark.

In previous semesters for this subject, the IAAust has had to use 2 or 3 different teams of 2 markers for each question on the exam, in order to meet the deadline for completing the marking, grading and production of the CE report. This created the need to consider the differences in marking standards applied by the different teams, and how to measure it and possibly correct for it. This created a lot of extra work and the need for various ad hoc adjustments to the marks for each question to achieve consistency and fairness of the marking and assessment processes. For this semester's exam we used only 1 pair of 2 markers for each question, which is what is usually done for the other Part III exams. The exam marking and assessment processes are identical to those used by IAAust in the other part III subjects.

## **2.6 Course Leader**

There was no individual person who served as course leader for this examination session. Instead the course was taught by a team of 3 people. The course is comprised of 3 units. These were Paul Scully, Andrew Leung and Brian Chu and they taught units 1, 2 and 3 respectively. This was arranged as part of the IAAust's subcontracting of the teaching of the course this semester.



### 3. Examination Papers and Assignments

#### 3.1. Degree of Difficulty and Course Coverage

The following table shows the distribution of questions and marks by level of difficulty and course coverage:

Table 3 – Degree of Difficulty of Exam

Question	Units	Knowledge & Understanding	Straight-forward Judgement	Complex Judgement	Total Marks
1a	1	4			4
1b	1	2			2
1c	1		4		4
1d	1			6	6
2a	3	3			3
2b	3		3		3
2c	3		3	2	5
2d	3			6	6
3a	3		3		3
3b	3	1	4½	3½	9
3c	3		2	1	3
4a	2, BM		3		3
4b	2, BM		4		4
4c	2, BM			6	6
4d	2, BM			3	3
4e	2, BM			4	4
5a	2	6			6
5b	2		4		4
5c	2			4	4
5d	2		4		4
5e	2		2		2
6a	1			6	6
6b	1	3	3		6
<b>TOTAL</b>		<b>19</b>	<b>39½</b>	<b>41½</b>	<b>100</b>

#### 3.5. Overall Performance

The exam paper proved to be a very good discriminator of student understanding and ability to apply judgement with raw marks (on the exam component only) ranging from 20% to 66%

of raw marks. It had a coefficient of variation of 33% which indicates good discriminating power.

The following table summarises the exam performance in terms of raw marks:

	Question 1	Question 2	Question 3	Question 4	Question 5	Question 6
AVE	63.4%	46.0%	46.5%	29.5%	37.5%	41.9%
STD DEV	10.9%	13.4%	14.4%	10.3%	12.6%	13.9%
CV	17.2%	29.1%	30.9%	34.9%	33.7%	33.2%
% PASSING	57.1%	55.9%	40.7%	24.3%	31.6%	47.5%

The coefficient of variation measures the relative variability of the mark and gives some information about the discriminating power of the question / exam. The average mark and the % passing give some idea of how difficult the questions are relative to each other.

The examiners felt that this year's exam would provide a suitable level of challenge to the candidates. A very detailed marking guide was prepared for the markers which meant that some candidates showed understanding but did not pick up as many marks as they may have thought they would. This fact was taken into account by both the markers and examiners in determining the cut-off points for the letter grades awarded to each question.

Candidates found that Q1 was the easiest. Questions 4 and 5 were the most difficult. This is reflected in the average mark, coefficient of variation and the % passing. The figures for % passing are before the adjustments made for borderline candidates.

### **3.6. Question by Question Analysis**

#### **Question 1 (16 marks)**

This question was about market efficiency, private equity as an asset class and its relative attractiveness compared to listed (public) equity. It was a reasonably straightforward question. The average mark was 63% and the proportion passing was 55%.

**(a)(i)** Generally answered well, with no common misinterpretations. Some students left out the general explanation of what differentiates each form of the EMH from the others.

**(a)(ii)** Generally answered well, with no common misinterpretations. Some students didn't address each of the levels of the EMH but instead made general comments about active and passive management. Some students didn't specifically mention technical and fundamental analysis.

**(b)** Surprisingly, candidates only scored 1 out of 2 marks on average for this KU question, with around 15% of candidates scoring zero for this question. Some candidates demonstrated a lack of knowledge of AMH. Most candidates were able to provide general definition of AMH from the course notes and scored 1 mark. However, most candidates failed to contrast the key features of AMH to EMH.

**(c)** The first part of the question required students to briefly discuss what differentiates private and public equity:

Most students gave much too much detail here, describing not only what differentiates the two types but also all the consequent differences in the pattern of returns, issues with getting the correct exposure etc. The main focus in the context of this question is that private equity is not listed and therefore there is less readily-available information about it.

The second part of the question required students to discuss the potential attractions of private equity in the context of the EMH:

Most students scored 1 mark for pointing out that the private equity market is likely to be less efficient and therefore to offer scope for additional returns.

Most students did not go on to discuss all of the specific forms of inefficiency in the context of the EMH. The forms of inefficiency that could have been discussed include pricing inefficiency due to lack of readily-available market prices, inefficiency due to the difficulty / cost of getting access to and analysing statutory returns and other information, opportunity to capitalise on private information, and inefficiency due to lower liquidity.

Overall this part was not well attempted.

**(d) (i)** Overall, this part was well answered. Most candidates were able to score 2 out of 3 marks. Some candidates failed to provide adequate explanations for the points listed (e.g. some candidates listed lack of regulation and lack of disclosure as pitfalls without discussing why these are pitfalls.) Marks were not awarded for poorly explained points.

Some candidates failed to provide enough points where the mark clearly indicated that at least 6 points are required for full marks.

Most common points for merits answered by the candidates are diversification benefit, higher returns, and opportunity to expose to businesses not available from the listed equity. Most common points for pitfalls provided by the candidates are lack of liquidity, J-curve return pattern and high management fees.

**(d) (ii)** This part of the question was poorly attempted by the candidates. The intention of this question was to ask candidates to discuss the reason for introducing a new asset class into an existing asset allocation. However, most of the candidates interpreted this question as to discuss why the private equity should be considered as a separate asset class rather than treat it as the same asset class as the listed growth asset or the defensive asset. Marks were given for the later interpretation if answers were sensible, such as different risk-return profile, different benchmarks, different liquidity level, etc.

The second part of this question asked how the inclusion of private equity might change the existing asset allocation. Most candidates were able to identify that this will reduce the proportion of allocation in listed equity assets or defensive assets. Better candidates also commented that consideration should be given to fund's overall risk appetite, investment objectives and the level of liquidity required. However, very few candidates mentioned the points about contribution redirection and partly-paid basis suggested in the marking guide.

## **Question 2 (17 marks)**

This question was about a small listed financial services company which plans to set up a managed fund to exploit mispricing of small cap stocks. The question proposed a scenario where the fund was to be managed by external specialist fund managers but the company had been adversely affected by the global financial crisis. It asked about the pros and cons of the proposed management structure, the firm's role in forming portfolios and the risks faced by retail investors in the fund.

Overall, most candidates were able to demonstrate a good understanding of book knowledge, but failed to apply sufficient judgement to the underlying problem of this particular scenario in question 2.

Part a: The majority of candidates successfully identified key indicators and quantitative measures of 'Value' stock, with 39% of candidates further identifying the need to look for prospective and historical performances. For most cases where candidates failed to score 2 marks or above, they failed to give quantitative measures as requested by the question.

Part b: Close to half of the candidates pitched the question from the correct angle, i.e. focusing on the 'ROLE' of the company. Those who scored more than 2 marks successfully identified both the investment overseeing side and the administration side of the company's responsibilities. Where candidates scored less than 2, most of the time they were off the track and focused on stock selection of small caps.

Part c: This is the weakest section of the question; considering the mix of simple and complex judgement points available. There is an observable tendency for candidates to approach the question from the investor's point of view, focusing on the pros & cons of investing in small caps, instead of focusing on the 'outsourced investment management' structure of the fund. Very few candidates managed to identify complex judgement points. Some candidates have been awarded marks for their answer in this section to carry forward to part d.

Part d: Close to three quarters of candidates successfully identified at least two of the three main risks outlined in the solution. However, less than half of the candidates managed to relate the identified risks back to the investment scenario described in the question. These candidates also failed to elaborate on the potential impact these risks have on the investors' money. A number of candidates mistakenly described the risks associated with investing in the financial services company as opposed to the risks of investing in the new managed fund. Lastly, in regards to the 2nd dot point of part d, we recommend making an amendment to the model solution. Candidates should not be awarded full marks by simply stating that the investors risk losing their investments if the company goes under. A reasonable explanation as to how or why is required.

### **Question 3 (15 marks)**

This question was about the investment policy for a General Insurance Personal Liability Insurance portfolio. It covered the issues of investment objectives, investment restrictions, single fund manager approach vs multiple specialist fund managers and benchmarking / investment performance monitoring.

(a) Many candidates failed to mention the key objective of ensuring solvency whilst others spent too much time discussing the finer points of matching.

(b)(i) Many candidates failed to mention that the size of the portfolio was a key point in determining whether a multi-manager strategy would be appropriate. Only a few candidates realised the complexities involved in hiring multiple fund managers. Almost all candidates missed the point that, with 70% of the portfolio in fixed interest, it would be worthwhile considering multiple bond managers in due course.

(b)(ii) Although some easy marks were on offer here, many candidates chose to repeat themselves by finding different ways to essentially make the same point (eg. limit investment to large listed equities, avoid small caps, invest in solid companies with good track records etc).

(b)(iii) A number of candidates failed to mention that one of the key purposes of the benchmark is to assess the performance of the investment manager. Many candidates thought that an index benchmark would be appropriate as the sole means with which to assess the portfolio. Many candidates needlessly gave long exposes as to which index benchmark would be used for the different components of the portfolio. Those that recognized the usefulness of a benchmark which was consistent with the investment objectives were in the minority. Similarly, most candidates failed to recognize the importance of inflation in developing a suitable alternative benchmark.

(c) Many candidates incorrectly offered Sharpe's ratio or tracking error as the relevant measures.

#### **Question 4 (20 marks)**

This question was about current economic conditions, the recent history of interest rates and bond yields, the term structure of interest rates and factors relevant to interest rates and bond market investments at the current time. It also covered the issues of asset modelling of bond market investments and immunisation of inflation linked liabilities.

Part A - This is a fairly straight forward question and most candidates managed to answer this part fairly well.

Part B - Most candidates also answered this quite well although a number of them missed the part of the question where it specifically asked to "refer to theories of the term structure of interest rates".

Part C - Many candidates did not answer this question well, mainly due to misinterpreting the question. Many interpreted the question as "LIST the factors that are relevant to the prospects for bond yields in GENERAL". They did not realise the question asked them to "discuss" (not just list) nor did they realise the question asked them to apply it to "present time" rather than in general. Quite a number of candidates also did not discuss what investment implications it would have for their clients. - A few candidates commented that one of the factors is the potential increase in government bonds due to the current budget deficit caused by the government's stimulus package. They then commented on how this would affect the bond yields in the future. One mark was awarded for this point.

Part D - Most candidates know about the golden rule and how it should be applied.

Part E - Similar to part c, candidates misinterpreted the question purely as "What is immunisation?". Most of them simply write down everything they know on the topic of immunisation but failed to apply this knowledge to the current situation and hence are not answering the question properly. - A few candidates commented that before removing the strategy, concerns for the client's risk tolerance level should be considered. One mark was awarded for this point

#### **Question 5 (20 marks)**

This question was about asset allocation in general, and static asset allocations and asset allocation strategies in particular. It covered the issues of how these may be modelled in an asset liability model and the complexities of modelling asset allocation strategies compared with modelling static asset allocations.

a. Some (most) candidates launched straight into a discussion of the asset strategy without starting with a discussion of liabilities. Many candidates were able to supply the list of features of asset modeling – i.e. dynamic volatility, serial correlations etc. even if not fully understanding the implications of all of these terms. Fewer mentioned modeling a full yield curve in line with the duration of liabilities. Some, but by no means all, got credit for stating that the assessment for solvency should be for any given time horizon.

b. Very few considered the determinant factors for solvency – i.e. interaction between asset returns, yields and inflation. Perhaps this was assumed as a starting point by the students or they interpreted 'meeting investor objectives' as being wider than being solvent. Most got a mark for stating the greater flexibility achieved under AAS (vs SAA). Some of the better candidates recognized the last point – i.e. dynamic strategies can better accommodate changes in solvency arising from the stochastic nature of liabilities.

c. Most candidates got credit for stating the great scope of models for investigating AAS. The model answer was clearly looking for a discussion of the concept of triggers – i.e. starting with a choice of triggers, examples of triggers etc. Some (few) candidates picked this up and so did well. Some might have mentioned triggers without elaborating further. Some discussed other features of asset modeling which were perhaps covered in part a. Very few would

have mentioned that the model needed to be more sophisticated than an iid model; some did try to express this I think by alluding to option pricing models.

d. Very few made the point about how outcomes under SA are determinable thus allowing the construction of an efficient frontier. Few candidates seemed to recognize that AAS would give rise to a family of strategies for each set of triggers. Of course, if they hadn't made the previous point (family of strategies), they would not have gone on to talk about the work and difficulty in optimizing these strategies. Many did seem to recognize that more modeling was required (more variables were often cited).

e. Most candidates did quite well here with quite a few scoring the full 2 marks. Quite a few seemed to think that tactical allocation was active to the point of daily 'trading' – however I did not mark them down for this. Some candidates I only awarded 1 mark because whilst they were right in identifying the shorter duration of focus associated with TAA, they did not say why (i.e. to exploit market opportunities, by, as the model answer puts it, operating on the paradigm that it is possible to generate alpha).

General comments: Quite a few candidates mentioned being cognizant of transaction costs in implementing any chosen strategy. Whilst I think this is a valid point in real life, I don't feel this was the thrust of Q5, and so did not award marks for those who mentioned it. Some candidates mentioned specific models by name GARCH etc. Unfortunately I must confess I don't know enough about the specifics of this model – however I did not award or detract marks for this.

Most students struggled with this question and I am not sure if many really had an understanding of the differences between AAS and SAA

#### **Question 6 (12 marks)**

This question was about the practical issues involved in property investment management, both domestic and international for a fund manager. It covered the issues of listed vs unlisted property investments and the complexities involved in international property investment for the fund manager concerned. This was a practitioner oriented question which tested student's ability to apply their investment knowledge to an area they are likely to be unfamiliar with.

A few candidates mis-read the question by assuming reference to the balanced fund itself being unlisted meant that some of the property investments were unlisted and proceeded to go through the various issues associated with investing in Direct versus Listed Property.

a(i) Surprisingly few candidates mentioned that they would choose to deal with the issue on materiality grounds (ie could ignore if negligible impact). The ASX300 Accumulation index has approximately 5% in Australian LPT's and few (if any) noted this so that it could actually be ignored in practice.

b(i) Some of the better candidates noted that the Australian market is very concentrated and also the effects of increasing globalisation and economic integration could reduce the impact of differing economic, population etc. impacts between countries.

b(ii) Few (if any) candidates noted that the question of whether the global mandate should be inclusive or exclusive of Australia would also need to be considered (as with part (a)).

b(ii) A number of candidates went into too much detail in relation to issues associated with hedging or not hedging currency exposure for Global Listed Property.

b(ii) Some candidates noted that one of the benefits of investing in Global Listed Property was to gain from currency returns from unhedged exposure but were not given credit on the basis

that this wouldn't be a major reason for investing in the asset class - particularly in the context of comparing whether or not to have a domestic only or a domestic and global exposure.

Some candidates noted that an unhedged exposure to Global Listed Property might provide benefits from an asset liability perspective if their liabilities were denominated in an overseas currency and were not given credit as there was no reference in the question to any of the assets being denominated in a foreign currency.

# 2A Life Insurance Chief Examiner's Report

## Semester 1 2009

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### 1. Summary

#### 1.1. Pass Rates

64 Candidates enrolled for the Semester 1 2009, 2A course. Of these, 3 transferred to other courses and 2 withdrew prior to the exam. One further candidate did not present at the exam. The assessment comprised one assignment worth 15% and an exam worth the remaining 85%.

It is proposed that 23 Candidates be awarded a pass, which implies a pass rate of 40%. This compares with a pass rate of 48% for the 2008, Semester 2 exam.

#### 1.2. Candidate Numbers

The Candidate numbers can be summarised as follows:

**Table 1 – Candidate Numbers**

	Number of candidates
Originally enrolled	64
Withdrawn prior to exam	5
Absent from exam	1
Presented at exam	58
Passed	23
Failed	35

Following an application for special consideration, it is recommended that the candidate who was absent from the exam be given the right to sit the exam next semester for 50% of the course cost.

The analysis by examination centre is as follows:

**Table 2 – Analysis by Examination Centre**

Centre	Presented	Passed	Pass Rate
Sydney	27	10	37%
Melbourne	16	6	38%
Auckland	1	0	0%
Hong Kong	4	1	25%
Singapore	6	3	50%
Taiwan	1	1	100%
Tokyo	1	1	100%
London	2	1	50%
Total	58	23	40%



Overall candidates from international locations performed better than those within Australia with little difference between Sydney and Melbourne.

## 2. Examination Administration

### 2.1. Examiners

The examiners for this semester were:

Chief Examiner: Anthony Brien

Assistant Examiners: Gary Musgrave

Aaron Bruhn (Course leader for 2A)

### 2.5. Exam Marking Process

The examination was held on Tuesday 28<sup>th</sup> April 2009. The examination scripts were delivered to the markers with a deadline for completion of Friday 22<sup>nd</sup> May 2009.

For each question, two markers independently marked each candidate's answer. The markers were also asked to recommend cut-off marks for each of the following grades (based on the raw marks awarded):

A: Strong Pass

B: Pass

C: Slightly Below Standard (SBS)

D: Weak

E: Showed Little Knowledge (SLK)

X: Did not attempt.

After finalisation of the exam markers, an instruction letter was sent together with the proposal for an exam marking day. As only one or two of the markers were interested / able to attend an exam marking day it was decided not to go ahead with it.

A phone conference was arranged so that all markers could attend or dial in to ensure there was consistency in understanding and approach to the marking and how the spreadsheets need to be completed. Unfortunately due to technology problems the two markers who tried to dial in were unsuccessful and I spoke to them individually after the main meeting.

Each pair of examiners reviewed several papers for their question and then compared notes to confirm consistency in the awarding of marks and then proceeded to mark the rest of the papers.

Having marked all the papers, markers established the cut-off marks between grades and reconciled any discrepancies between marks awarded, particularly where the difference in the resulting grades and rankings exceeded reasonable tolerances. This process was well performed by all markers with few cases requiring further investigation.

The examiners then reviewed several papers for each question to assess the appropriateness of the cut off marks for each question and to review the few discrepancies that remained particularly for those candidates who were close to the pass mark. Grade cut-off marks were adjusted as follows:

#### **Question 1      20 Marks – 14(SJ) 9(CJ)**

Whilst the markers had no remarking required on the basis of raw mark or ranking, they had set different grade cut-offs resulting in several discrepancies. Whilst this question was considered to be relatively straight forward it had the largest proportion of candidates with Weak (D) answers. In resolving the discrepancies, the lower cut-off mark in each case was chosen as this was more in line with the proportion of marks required to achieve each grade for other questions:

Grade	Marker 1 Cut-off	Marker 2 Cut-off	Proportion in Grade	Examiners' Cut-off	Proportion in Grade
Strong Pass	16	17	10%	16	14%
Pass	13.5	14	24%	13.5	21%
Slightly Below Standard	10	9	28%	9	26%
Weak	5	5	24%	5	22%
Showed Little Knowledge	0.5	0.5	10%	0.5	10%

After reviewing the spread of results for the other questions the examiners accepted the cut-off marks for the remaining questions without adjustment.

## **2.6. Course Leader**

Course Leader (exam and assignment setting): Aaron Bruhn  
Course Leader (other duties): Bruce Thomson

Aaron produced an exam paper that proved to be a good differentiator with both technical and topical content. Each question covered a range of the units and syllabus aims, giving candidates ample opportunity to demonstrate their understanding. Bruce was responsible for the tutorials and discussion forums and made a conscious effort to be completely divorced from the exam setting so that he could provide candidates with unbiased advice as to the content and coverage of possible exam questions.

This combination has been seen to work effectively in the past and also proved to be the case for this semester. As Bruce was not involved in the exam setting in any way he was free to discuss issues and advise on topical issues for candidates to consider without potential for bias towards the exam content.

### 3. Examination Papers and Assignments

#### 3.1. Degree of Difficulty and Course Coverage

The following tables show the distribution of questions and marks by level of difficulty and course coverage:

**Table 3 – Degree of Difficulty of Exam**

Question	Units	Knowledge & Understanding	Straight-forward Judgement	Complex Judgement	Total Marks
1(a)	1		4		4
1(b)(i)	1,2,4		3		3
1(b)(ii)	1,4		1	3	4
1(c)	1,2,3,4		6		6
1(d)	1,2,3,4			6	6
2(a)	1,2,3,4		2	2	4
2(b)	1,2,3,4		3	3	6
2(c)	1,2,3,4		5		5
2(d)	1,2,3,4			5	5
3(a)	1,2,3,4	5	5		10
3(b)	1,2	1		2	3
3(c)	1,2,3,5			5	5
4(a)(i)	1,2,3	6			6
4(a)(ii)	1,2,3		3	3	6
4(b)	1,2,3,4,5			3	3
4(c)	1,2,3,4,5		4	3	7
5(a)	1,2		4		4
5(b)	2,3	4			4
5(c)	2,3	4			4
5(d)	1,2,3,5		5		5
<b>TOTAL</b>		<b>20</b>	<b>45</b>	<b>35</b>	<b>100</b>

Based on the table above, each of the five questions have similar coverage of the course material but a differing spread of KU, SJ and CJ type marks. This means that although the questions had differing degrees of difficulty, candidates were required to demonstrate an understanding of the course material in each question.

#### 3.5. Overall Performance (Exam out of 200)

#### 3.6. Question by Question Analysis

## QUESTION 1

	Marks Required	% of Total Marks	Number of Candidates	Proportion of Candidates
Strong Pass	32.0	69.6%	8	14%
Pass	27.0	58.7%	12	21%
Slightly Below Standard	18.0	39.1%	17	29%
Weak	10.0	21.7%	13	22%
Showed Little Knowledge	0.1	0.2%	6	10%
Did Not Attempt	0.0	0.0%	3	3%
Maximum Mark	36.5			
Average Mark	21.2			
Standard Deviation	9.7			

### Part (a)

Whilst this was considered a straight forward question and was well answered by most candidates, there were many simple errors made. Candidates frequently failed to read the question and had failed to include the net profit figure in their answer.

Also, whilst this was only a single product new business projection, many candidates calculated the answer assuming tax could not be negative and carried forward negative amounts to year two.

### Part (b)

Also well answered by most candidates, although some candidates appeared to believe the life policy would only run for two years (didn't read the question properly), commenting only on the comparison of the first two years calculated in the question.

A few candidates answered this part based upon the impact of the tax change on the company as a whole i.e. considering the level of future new business sales and amount of current in-force business. A few others interpreted the figures being the cashflow of the whole company in the first two years and not a new business projection

### Part (c)

Most candidates were able to suggest changing commission level, introducing other distribution channels, increasing premiums, reducing company expenses and switching to non-commission benefit as viable options. However, there were some poor answers, with some candidates suggested selling superannuation products (because tax rate is 15%), closing the life business altogether and moving to another country. In many cases these were the first options considered.

An interesting answer (and also a popular one) was to shift to a managed trust/unit trust structure such that wealth management products are to be taxed at 30% only. This is a valid approach for future new business only but most candidates did not specify this point in their answers. As such, zero mark was awarded.

### Part (d)

There is a high correlation between the quality of answer in part (c) and (d). Most candidates were able to list the advantages and disadvantages of their suggested actions in part c.

## QUESTION 2

	Marks Required	% of Total Marks	Number of Candidates	Proportion of Candidates
Strong Pass	24.0	60.0%	4	7%
Pass	19.0	47.5%	17	29%
Slightly Below Standard	14.0	35.0%	19	33%
Weak	12.0	30.0%	11	19%
Showed Little Knowledge	0.1	0.3%	7	12%
Did Not Attempt	0.0	0.0%	1	0%
Maximum Mark	29.0			
Average Mark	16.3			
Standard Deviation	5.4			

In general, candidates did not perform very well in this question. A large number of candidates did not write in appropriate language and format. Most candidates did not mention to seek Appointed Actuary's advice in part (d), comment on the difficulty in proving the cause of claim of obesity or realise the incidence increase is 60% not 15%!

Most candidates identified the need to have a precise definition of obesity and realised the potential moral hazard issue as well as the need for help or advice from external experts or the reinsurer. Many also identified the need for capital to support the new business initiative.

## QUESTION 3

	Marks Required	% of Total Marks	Number of Candidates	Proportion of Candidates
Strong Pass	24.0	66.7%	2	3%
Pass	20.0	55.6%	22	38%
Slightly Below Standard	15.0	41.7%	21	36%
Weak	8.0	22.2%	12	21%
Showed Little Knowledge	0.1	0.3%	1	2%
Did Not Attempt	0.0	0.0%	1	0%
Maximum Mark	25.5			
Average Mark	17.7			
Standard Deviation	4.9			

This question was relatively straightforward and gave the well-prepared candidate the opportunity to earn good marks. However, it was only answered reasonably well by a small number of candidates.

### Part (a)

The knowledge & understanding segment of this part was answered fairly well by many candidates, but mostly only a standard set of risks were described. Risk mitigation suggestions, requiring simple judgement, were less well answered with many candidates giving longer term actions rather than the short term actions asked for in the question.

Other risk mitigation suggestions were not practical in the circumstances faced by NMM.

### Part (b)

The basic point that NMM is responsible for all business functions was missed by many candidates. While most candidates picked up half or more marks in the complex judgement part, the pros and cons were not drawn out well. A one-sided view was presented too often.

#### Part (c)

This part was not answered well. Comments on the sales idea were patchy. More than half of the candidates missed the minimum surrender value requirement, although equity and fairness was covered fairly well. The proposal's more critical elements were not covered by many candidates.

### QUESTION 4

	Marks Required	% of Total Marks	Number of Candidates	Proportion of Candidates
Strong Pass	28.0	63.6%	3	5%
Pass	23.0	52.3%	22	38%
Slightly Below Standard	18.0	40.9%	20	34%
Weak	13.0	29.5%	6	10%
Showed Little Knowledge	0.1	0.2%	6	10%
Did Not Attempt	0.0	0.0%	2	2%
Maximum Mark	31.5			
Average Mark	20.0			
Standard Deviation	6.5			

This question was not a good discriminator with the majority of marks tightly grouped between 20 and 26 out of a possible 44. There were about nine easy marks but after that most candidates struggled.

#### Part (a)(i)

Most candidates were able to calculate the actual to expected ratios and obtain the majority of marks. Inconsistency of rounding was an issue and at this level candidates should understand that if their calculations and sub-steps are accurate to say 3 decimal points then the result should not be stated to more than 3 decimal points, though few and only small penalties were applied.

#### Part (a)(ii)

Also answered reasonably well by a majority of candidates. Most identified the key points that experience was worse than expected for policies with duration greater than 3 years and that experience was particularly poor when considering sums insured for ages 56 and over. However, overall, little judgement was applied in analysing the results. For example few candidates recognised that in the duration 3 years or less aged 16-35 category 3 actual deaths was in line with an expected number of deaths of 2.75.

#### Part (b)

This part was poorly answered with an average mark of 2.4 out of 6. Many candidates were not able to identify that an obvious next step in analysing mortality was to break down the experience by gender and smoking status. Despite the question requesting further analysis regarding the "history of underwriting standards" few candidates showed deeper understanding of underwriting than a "compare the old and new underwriting standards" response, for example to identify the elements that may have changed.

#### Part (c)

This was seen as a difficult question with an average mark of 2 out of 14. Few if any candidates addressed the final sentence of the question "In your answer briefly describe the

investigation, what you would be looking for and why you think it should be undertaken." Most simply took a shot-gun approach of listing all of the investigations they could think of that may have been relevant, without describing what the investigation involves and what you would be looking for in the context of a portfolio of term policies. Investigations that tended to be identified and adequately described more often than others included lapse, reinsurance and investments.

### QUESTION 5

	Marks Required	% of Total Marks	Number of Candidates	Proportion of Candidates
Strong Pass	20.0	58.8%	21	36%
Pass	15.0	44.1%	17	29%
Slightly Below Standard	12.0	35.3%	14	24%
Weak	8.0	23.5%	5	9%
Showed Little Knowledge	0.1	0.3%	0	0%
Did Not Attempt	0.0	0.0%	2	2%
Maximum Mark	24.5			
Average Mark	16.4			
Standard Deviation	5.1			

Overall this question was not answered overly well (with a pass mark of 15 out of 34 and there were quite a large amount of KU points on offer).

Many candidates missed easy marks by not stating obvious facts such as "holding extra cash would reduce credit risk, however other considerations are ..." or "investing in overseas equities does assist diversification, however ...". It was concerning that a number of candidates did not seem to realise that a "guaranteed minimum bonus rate" had to be paid.

Frequently candidates missed marks for not connecting the assets with the liabilities e.g. inflation is an issue for annuities because they are CPI linked and hence inflation will increase payments and the liability that needs to be held, or exchange rate is a risk because the assets are in \$A, or cash is not a good assets for annuities because you need growth to match payments increasing with CPI. The best responses were often brief, giving the point and then the reason for it.

Candidates need to be specific in their response to directors, not using words such as "could", "may", "need to consider", or asking questions. The directors are looking for guidance from the actuary and definitely not unanswered questions or alarming statements.

Common reasons for getting a C rather than a B were;

- Missing easy marks (e.g. 0.5% guarantee) or lack of explanation; and
- Trouble with parts (a) and (d) in particular.



# 2B Life Insurance Chief Examiner's Report

## Semester 1 2009

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### 1. Summary

#### 1.1. Pass Rates

59 Candidates enrolled for the Semester 1 2009, Life Insurance 2B exam. Of these, 7 did not present at the exam. The assessment comprised one assignment worth 15% and an exam worth the remaining 85%.

It is proposed that 20 Candidates be awarded a pass, which implies a pass rate of 38%. This compares with a pass rate of 42% for the Semester 2 2008 exam.

#### 1.2. Candidate Numbers

The Candidate numbers can be summarised as follows:

**Table 1 – Candidate Numbers**

	Number of candidates
Originally enrolled	59
Withdrawn prior to exam	5
Absent from exam	2
Presented at exam	52
Passed	20
Failed	32

The analysis by examination centre is as follows:

**Table 2 – Analysis by Examination Centre**

Centre	Enrolled (for exam)	Presented	Passed	Pass Rate
Sydney	33	32	15	47%
Melbourne	9	9	4	44%
Subtotal: Australia	42	41	19	46%
Fiji	1	1	0	0%
Hong Kong	1	1	0	0%
Japan	1	1	0	0%
Malaysia	1	1	0	0%
New Zealand	3	3	0	0%
Singapore	2	1	0	0%
United Kingdom	3	3	1	33%
Subtotal: International	12	11	1	9%
<b>Total</b>	<b>54</b>	<b>52</b>	<b>20</b>	<b>38%</b>

## **2. Examination Administration**

### **2.1. Examiners**

The examiners for this semester were:

Examiner:	Chris Johns
Chief Reviewer (CR):	Andrew Gill
Assistant Reviewer (AR):	Damian Thornley

The Staff Actuary (SA) performed the role of examiner for the first time this semester as part of the Staff Actuary pilot.

From a continuity perspective, Andrew Gill and Damian Thornley were the continuing members of the examination team from last semester.

### **2.5. Exam Marking Process**

For the purposes of marking the exam, two markers were assigned to each question. The Staff Actuary performed the role of first marker for all questions. Each marker was provided with a marking package consisting of:

1. The exam question;
2. A marking guide and set of solutions, including a description of the level of difficulty and aims being tested (by part for each question);
3. An Excel spreadsheet to enter final results for uploading by the examiners including a detailed marking template; and
4. Marking instructions.

Markers were asked to perform several tasks:

5. Compare their results and resolve any differences.
6. Recommend, with commentary, appropriate pass, slightly below standard and weak marks for the question. These were used as a basis (for review) by the examiners.
7. To provide comments on the marking guides and solutions, and any adjustments or changes made during the marking process.
8. To comment on how candidates actually answered the question.

All markers fulfilled these requirements this semester. This practice also needs to be encouraged to avoid delays in the process. Three markers were able to attend this semester's marking day. Each met with the Staff Actuary to discuss the model solutions, and compare marking for a selection of candidates. This proved very helpful in ensuring consistency in marking. The Staff Actuary met with the other three markers during the week following the marking day.

The Staff Actuary met with each marker to discuss significant differences in marks. After the markers returned their results, the Staff Actuary reviewed the recommended cut-off points for the A, B, C and D grades to ensure consistency among the questions. Particular attention was given to the proposed B / C and C / D cut-off grades (given the potential for students to pass or fail based on these cut-off grades). Based on this review, B / C and C / D cut-off grades were refined.

The marking and assessment timetable continues to prove to be tight. Despite this, markers did manage to return their marking spreadsheets by the set deadline.

## **2.6. Staff Actuary**

The role of Course Leader was replaced by the Staff Actuary, who was responsible for the setting of the assignment and exam paper, conducting the initial workshop and tutorials and to respond to students' questions on the on-line forums.

Chris Johns in his role as Staff Actuary prepared the draft exam which was reviewed by Damian Thornley before being passed onto the scrutineers for review. The exam was then further reviewed by Wesley Caine and Martyn Gilling as representatives of the Board of Examiners.

### 3. Examination Papers and Assignments

#### 3.1. Degree of Difficulty and Course Coverage

The following tables show the distribution of questions and marks by level of difficulty and course coverage:

**Table 3 – Degree of Difficulty of Exam**

Question	Syllabus Aims	Units	Knowledge & Understanding	Straight-forward Judgement	Complex Judgement	Total Marks
1 (a)	1,2	1	3			3
1 (b)	1,2	1		4		4
1 (c)	5,10	3,5		5		5
1 (d)	1,5	1,3		2		2
1 (e)	1,5	1,3			5	5
2 (a)	4,5,12,13	3,6	4	4		8
2 (b)	5,13	1,6		3		3
2 (c)	3,4,5,12,13	2,3,6			8	8
3 (a)	4,9	2,5	3			3
3 (b)	4,7	2,4		3		3
3 (c)	4,7,9	2,4,5			4	4
3 (d)	4,7,9	2,4,5			6	6
4 (a)	4	2	6			6
4 (b)	4	2		6		6
4 (c)	4,10	2,5			4	4
5 (a)	2,4,7	1,2,4		8		8
5 (b)	4,9	2,5			4	4
6 (a)	8	4	5			5
6 (b)	2,4,10,11,13	1,2,5,6		5		5
6 (c)	2,5,8,9,13	1,3,4,5,6			8	8
<b>TOTAL</b>			<b>21</b>	<b>40</b>	<b>39</b>	<b>100</b>

Based on the distribution of the marks by level of difficulty, questions 2, 3, 6 should have been the most difficult (with each of these questions having 40% or more of the total marks available being allocated to complex judgement questions).

However, the performance of the students (in terms of pass rates) indicated that questions 4,5 and 6 were the most difficult in the exam.

**Table 6 – Pass Rates**

	Assign.	Q1	Q2	Q3	Q4	Q5	Q6
Pass	60%	51%	52%	43%	39%	39%	32%
Fail	40%	49%	48%	57%	61%	61%	68%

#### 3.5. Overall Performance

Overall, the performance on this exam was slightly worse than last semester, indicated by the slightly lower raw marks. No overall A's were awarded. As detailed in the following sections, there were some questions that were answered reasonably, and others that were not answered well.

As usual, many candidates clearly did not allow sufficient time to complete each question. Consequently, many marks were lost due to poor, rushed responses to the last two questions of the exam. Marks were also lost in several questions where candidates did not answer the question asked.

It was clear from the marking that there were several examples of candidates who spent significant amounts of time trying to attain A grade answers to some questions at the expense of time allocated to other questions.

### **3.6. Question by Question Analysis**

#### **Question 1 (19 marks)**

This question relates to an insurer which has recently launched a new preferred lives product. Candidates were asked to focus on sources of information required to set valuation assumptions, and key issues requiring consideration when determining policy liabilities. In addition candidates were asked to calculate a simplified analysis of profit, focussing on the unexplained amount and further investigations required when setting new valuation assumptions.

#### **Results**

The overall results for this question were as follows:

	Raw Marks Required	% of Total Marks	Number of Candidates	Proportion of Candidates
Strong Pass	25.0	66%	3	6%
Pass	18.5	49%	23	43%
Slightly Below Standard	14.5	38%	16	30%
Weak	9.1	24%	8	15%
Serious Lack of Knowledge	0.1	0%	1	2%
Did Not Attempt	0.0	0%	3	6%
			<u>54</u>	
Maximum Mark	27.0			
Average Mark	16.7			
Standard Deviation	5.7			

Note: the raw marks in this table represent the sum of the marks of the two markers (i.e. under this presentation, the total available marks for this question are 38).

#### **Markers' Comments.**

#### **Part (a) – 3 Marks**

A surprising number of students missed the point that the new product had recently been priced and therefore the pricing actuary/pricing report would be a key source for assumptions;

#### **Part (b) – 4 Marks**

Many students simply listed general points relating to the valuation of policy liabilities rather than detailing the key issues specific to the situation in the question;

#### **Part (c) – 5 Marks**

Overall candidates performed well in this numerical analysis of surplus question with slightly less than half achieving 4 marks or more in this. A surprisingly high number were unable to

perform a relatively straightforward analysis of surplus. Many candidates included the change in reserves with the claims profit, making it difficult to gain marks in part (c)

#### Part (d) – 2 Marks

The majority of students failed to recognise issues surrounding lapses. Additional credit was given if mortality or claims were mentioned as causes of the change in reserves amount.

#### Part (e) – 5 Marks

Candidates performed very poorly in this part, with a maximum mark of 5 achieved by a handful of students. Most candidates scored a mark for mentioning the need for a claims investigation, but surprisingly few mentioned the need for a lapse investigation, and the possibility of a lapse and re-entry problem.

In general markers thought the question was a fair one. But the decision to denote the change in reserve component as the unexplained item caused some confusion and perhaps made it slightly more difficult to answer parts (d) and (e).

#### Question 2 (19 marks)

This question covers an Asian insurer with a large traditional block of business, which has seen a significant decline in investment returns over the last 2 years. Candidates were given the historical returns and recent declared reversionary bonus rates, and asked to outline key considerations in the setting of reversionary and terminal bonus rates. Alternative scenarios such as a one-off bonus rate and adopting a more conservative investment approach were presented with candidates expected to discuss the implications of such approaches.

#### Results

The overall results for this question were as follows:

	Raw Marks Required	% of Total Marks	Number of Candidates	Proportion of Candidates
Strong Pass	27.0	71%	3	6%
Pass	23.0	61%	24	44%
Slightly Below Standard	19.5	51%	17	31%
Weak	12.5	33%	8	15%
Serious Lack of Knowledge	0.1	0%	0	0%
Did Not Attempt	0.0	0%	2	4%
			<u>54</u>	
Maximum Mark	29.5			
Average Mark	21.3			
Standard Deviation	5.2			

Note: the raw marks in this table represent the sum of the marks of the two markers (i.e. under this presentation, the total available marks for this question are 38).

#### Markers' Comments

#### Part (a) – 8 Marks

While most candidates did well, many failed to relate their answer to the specifics of the question. Very few candidates picked up the fact that interest rates had dropped and thus increased the cost of the guaranteed benefits.

#### Part (b) – 3 Marks

Part b) required candidates to think outside the box more and most candidates scored well. Many of the advantages if argued further could also be seen as disadvantages (e.g. equity

point) and many candidates picked this up.

### Part (c) – 8 Marks

Part (c) was the most interesting part of the question and was actually the part with the highest average mark. Many good additional points were made that were not on the sample solution, some of which were not given credit by both markers - for example reduction of currency risk by eliminating international equities (I note that the returns given in the question suggest they were not hedged) and comments about more stable returns. The sample solution implied that the resilience reserve would reduce, but this is not clear due to the mismatching of the fixed interest assets, a point many candidates raised and were rewarded credit by both markers. A common additional strategy was an alternative investment strategy - perhaps with the fixed interest more closely matched, or less risky assets. Only one candidate talked about the change in RB/TB split as a result of the new investment strategy (the first point in the sample solution). The alternative strategies scored well and most candidates received the drafting mark.

Overall this was an easy question, with most candidates scoring well. The discriminating value of this question was fairly poor.

### Question 3 (16 marks)

This question presented a company reviewing its reinsurance retention in light of a recent purchase of a competitor. Students were asked to consider how an increased retention may impact profitability and capital requirements, and to consider the various other factors to take into account when setting the retention. A proposal to dramatically increase the retention based on summary embedded value information was presented for review. In addition, candidates were asked to outline an appropriate approach to determine the optimal reinsurance retention.

### Results

The overall results for this question were as follows:

	Raw Marks Required	% of Total Marks	Number of Candidates	Proportion of Candidates
Strong Pass	23.0	72%	2	4%
Pass	18.0	56%	20	37%
Slightly Below Standard	13.0	41%	20	37%
Weak	8.0	25%	9	17%
Serious Lack of Knowledge	0.1	0%	0	0%
Did Not Attempt	0.0	0%	3	6%
			<u>54</u>	
Maximum Mark	25.0			
Average Mark	15.7			
Standard Deviation	5.3			

Note: the raw marks in this table represent the sum of the marks of the two markers (i.e. under this presentation, the total available marks for this question are 32).

### Markers' Comments

#### Part (a) – 3 Marks

Part (a) was generally well answered. Profit & volatility comments generally well done but easy marks missed due to brevity of answers.

Many candidates missed points in the model solutions such as new business capital strain (often a major reason for reinsurance) and increased margins (although not necessarily obvious to a new actuary without practical experience).

#### **Part (b) – 3 Marks**

Part (b) was overall poorly answered, with a lack of breath of issues touched on by most students. Many received credit for the current level of capital as consideration whereas few mentioned reinsurance ancillary services. A mark was given for general comment on past claim experience but would like to see more emphasis on statements on forward looking basis (past is no guide to the future). Few saw the dilemma with DI - QS or surplus, but some did mention the importance of the reinsurer rating – noting that a downgrade could force the insurer to increase the inadmissible asset reserve.

#### **Part (c) – 4 Marks**

Easy marks were missed with very few students referring to reinsurance rates (treaty and facultative). This part was found to be difficult by many candidates.

This question may have been clearer if the 90% calculation was given in the question (so candidates didn't waste time performing calculations thinking that they would receive marks). Very disappointing that recapture fee was not mentioned by vast majority as it is stated in the question. A small number mentioned the possibility of the reinsurer paying the insurer to assume the risk. The marking guide was perhaps too generous offering 2 full marks for reinsurance rates & facultative rates, but no candidate received both marks.

#### **Part (d) – 6 Marks**

Overall most key points were touched on, but answers were poorly structured. Many students were unable to structure their answer sequentially in steps as requested. Key general points such as review reinsurance contract terms and business issues were missed. Key criteria (profit/capital/economic value) generally not well explained. The better candidates had a clear process. A fair few assumed that a stochastic model would have to be constructed. Not many received all 3 of the considerations on profit/capital/EV, disappointing considering those 3 terms were mentioned in the question.

Business issues in parts (b) and (d) had low response rates, but should be high on candidates' minds especially after a merger.

#### **Question 4 (16 marks)**

This question relates to an Australian life insurer strong in YRT and DII, with a significant par portfolio. Basically candidates were required to comment upon the existing approach for target surplus, which was linked to capital adequacy requirements, outline alternative approaches to setting target surplus and comment on the appropriateness of distributing capital above target surplus as a special dividend and provide suggestions to alternative uses of the excess capital instead of the dividend

#### **Results**

The overall results for this question were as follows:

	Raw Marks Required	% of Total Marks	Number of Candidates	Proportion of Candidates
Strong Pass	22.5	70%	4	7%
Pass	17.0	53%	16	30%
Slightly Below Standard	13.0	41%	20	37%
Weak	8.0	25%	8	15%



Serious Lack of Knowledge	0.1	0%	3	6%
Did Not Attempt	0.0	0%	3	6%
			<u>54</u>	
Maximum Mark	24.5			
Average Mark	14.4			
Standard Deviation	5.8			

Note: the raw marks in this table represent the sum of the marks of the two markers (i.e. under this presentation, the total available marks for this question are 32).

#### Part (a) – 6 Marks

Part (a) was more poorly attempted than the other parts of the questions. Most candidates did not cover the full range of issues relating to the “asset risk”. No candidates commented upon the doubling of identical margins being held, nor the appropriateness of holding an equivalent inadmissible assets reserve for target surplus. Several students misunderstood this part and did not refer to CAR specific treatment of risks and application of margins.

#### Part (b) – 6 Marks

Most candidates were able to identify alternates in part b), although most candidates scored 4 marks or less out of 6. Several students missed the essence of the question and focussed on refining margins rather than enhancing the TS policy to be consistent with market practice (additional course readings cover this area in detail). Given the breath of question, many students gained additional marks for points not mentioned in the marking guide.

#### Part (c) – 4 Marks

Part (c) should have been the easiest but candidates’ performance was surprising. Few candidates had trouble suggesting alternative uses but some forgot to format and structure their answer. Around half the candidates failed to mention that distributing excess assets down to target surplus mean that any adverse movement would result in the company being below target surplus and then the company would need to restore this position. Overall, markers would have expected candidates to have performed better on this question – perhaps the pressure and time constraints from the exam hindered performance.

Overall the question seemed fair and straight forward on the topic. As always in hindsight it seems easy to structure an answer.

There was no evidence that candidates misinterpreted what was required in each section. However, very few candidates presented a complete solution doing well in all 3 parts of the question.

#### Question 5 (12 marks)

This question relates to an insurer considering the purchase of a block of Unit Linked business from a competitor, covering the factors to take into account when valuing the block of business. In addition, candidates were asked to describe how problems with the policy administration system could affect the company’s profitability and capital requirements.

#### Results

The overall results for this question were as follows:

	Raw Marks Required	% of Total Marks	Number of Candidates	Proportion of Candidates
Strong Pass	17.0	71%	6	11%
Pass	15.0	63%	14	26%
Slightly Below Standard	13.0	54%	9	17%

Weak	7.0	29%	21	39%
Serious Lack of Knowledge	0.1	0%	1	2%
Did Not Attempt	0.0	0%	3	6%
			<u>54</u>	
Maximum Mark	20.5			
Average Mark	12.3			
Standard Deviation	4.2			

Note: the raw marks in this table represent the sum of the marks of the two markers (i.e. under this presentation, the total available marks for this question are 24).

#### Part (a) – 8 Marks

In part (a) it was pleasing that most students commented on potential synergies and expense savings, but disappointing that more did not comment on one-off expenses of enacting the purchase or integrating the business, product design issues and fees. Given that part (b) indicated that there were administration problems, it was surprising that only a few students commented on unit pricing issues in part (a).

Some students missed the point of the question, making no attempt to consider factors which come into play when calculating the price of the block of business (rather making generic comments about the size of the portfolio, the need for a cost/benefit analysis etc).

#### Part (b) – 4 Marks

Part (b) was generally answered better. It was relatively easy to pick up 2-2.5 marks out of 4 in part (b) so getting 5-5.5 out of 8 in part (a) to pass shouldn't have been so difficult (in fact the average in part (a) was only around 4).

The answers were overall a little disappointing. It would have been of some advantage if the student had experience in the life industry and in particular in an area involving unit-linked business or unit pricing. Nevertheless the question was short and clear and was interpreted correctly and left plenty of room for the student to put down anything that could influence the purchase price.

#### Question 6 (18 marks)

This question covers a subsidiary of a European Life Office in the fictitious country of Ocealia. Basically candidates were required to describe the key components of the change in embedded value (termed "shareholder value" in the question), identify key issues impacting distributable profit over the year given a specified economic environment; and identify key impacts on shareholder value over the year, set out by statutory fund.

#### Results

The overall results for this question were as follows:

	Raw Marks Required	% of Total Marks	Number of Candidates	Proportion of Candidates
Strong Pass	23.8	66%	1	2%
Pass	16.5	46%	15	28%
Slightly Below Standard	12.6	35%	19	35%
Weak	5.7	16%	13	24%
Serious Lack of Knowledge	0.1	0%	2	4%
Did Not Attempt	0.0	0%	4	7%
			<u>54</u>	

Maximum Mark	24.0
Average Mark	13.4
Standard Deviation	5.4

Note: the raw marks in this table represent the sum of the marks of the two markers (i.e. under this presentation, the total available marks for this question are 36).

#### **Part (a) – 5 Marks**

Candidates generally answered part (a) well, which was expected given it was primarily book work. Most candidates provided generic responses (e.g. assumption changes), with only a few candidates setting out what the actual assumptions may be (e.g. expenses, persistency etc.). Some students missed the point of the question and simply talked about shareholder value.

#### **Part (b) – 5 Marks**

Part (b) was poorly answered, which was surprising given that there were a number of issues raised in (a) that could be easily transferred (e.g. assumption changes, new business). Most candidates missed points regarding conventional business. Some candidates raised issues that may be valid in a theoretical sense, although in the specified situation it wouldn't be appropriate to raise with a senior executive in the company before investigating further (e.g. errors in accounts). Most candidates scored less than 2.5 out of 5 for the part. Several students misread the question and concentrated on change in shareholder value, not distributable profits. Many students also wasted time giving reasons why the distributable profit would go down!

#### **Part (c) – 8 Marks**

Similarly, part (c) was poorly answered, with most candidates scoring less than 4 out of 8. Given it was the last numbered question in the exam it is possible that this was the final question answered for a number of candidates, so a number of simple points expected under normal scenarios may not be identified under a more pressured scenario.

Many students did not look at all elements of change in shareholder value, concentrating on VIF (change in assumptions), or mixing up experience items with assumptions.

Again, a number of simple issues were missed (e.g. risk discount rate, impact of asset values on IL business) - in particular, some candidates demonstrated a fundamental misunderstanding of the value/profit emergence process for IL business. Most candidates missed issues impacting the conventional fund, as well as missing issues impacting capital requirements. Candidates generally focused on the impacts on risk business (perhaps reflecting where most students perform valuations), as well as sales impacts. Some candidates discussed impacts on the adjusted net worth, although often set out what they expected the impact to be (e.g. based on a poor economic environment, most assumed it would be negative), rather than setting out what issues should be considered (e.g. if the fund was invested in government bonds, there may be a positive return).

Overall the question was well set out - part (a) was relatively straightforward and could be extracted from the book work. The outcomes from part (a) and (b) should have prompted candidates with issues to consider in the more difficult part (c). Overall, markers would have expected candidates to have performed better on this question, particularly part b). This reflects limited understanding of IL and Conventional business for some candidates. Also as noted above, this was likely the last question answered by students and they may have simply run out of time.

# 3A General Insurance Chief Examiner's Report

## Semester 1 2009

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### 1. Summary

#### 1.1. Pass Rates

72 Candidates enrolled for the Semester 1 2009, 3A General Insurance exam. Of these, 7 did not present at the exam. The assessment comprised one assignment worth 15% and an exam worth the remaining 85%.

It is proposed that 24 Candidates be awarded a pass, which implies a pass rate of 37%. This compares with a pass rate of 41% for the 2008, Semester 2 exam.

#### 1.2. Candidate Numbers

The Candidate numbers can be summarised as follows:

**Table 1 – Candidate Numbers**

	Number of candidates
Originally enrolled	72
Withdrawn prior to exam	5
Absent from exam	2
Presented at exam	65
Passed	24
Failed	41

The analysis by examination centre is as follows:

**Table 2 – Analysis by Examination Centre**

Centre	Presented	Passed	Pass Rate
Sydney	53	19	36%
Melbourne	6	3	50%
Singapore	1	0	0%
Auckland	3	1	33%
Tokyo	1	1	100%
Paris	1	0	0%
<b>Total</b>	<b>65</b>	<b>24</b>	<b>37%</b>

## **2. Examination Administration**

### **2.1. Examiners**

The examiners for this semester were:

Chief Examiner: David Gifford

Assistant Examiners: Julie Evans and Bruce Harris

### **2.5. Exam Marking Process**

The examination was held on 29 April 2009. The examination scripts were delivered to the markers with a deadline for completion of 22 May 2009.

Each marker was provided with the question, the model solution/marking guide, a marking sheet and written guidelines for marking. For each question, two markers independently marked each candidate's answer. The markers were asked to recommend cut-off marks for each of the grades: Strong Pass (A), Pass (B), Slightly Below Standard (C) and Weak (D). The remainder of the candidates were graded Showed Little Knowledge (E) or Did Not Attempt (X). Markers were also asked to comment on the questions, and in particular whether the questions were misinterpreted or ambiguous.

The candidates' marks and the markers' recommended cut-offs were entered into an Excel spreadsheet. The spreadsheet performed the following tasks:

- ranked and graded candidates on each marker's assessment;
- measured the correlation between the markers on mark, rank and grade;
- identified candidates where the markers' assessment varied by more than one grade, by more than 20% of the candidates in terms of rank or by more than one standard deviation in terms of mark (after adjustment for mean for all candidates of each marker); and
- produced scaled marks which adjusted raw marks to produce a more even distribution of marks for each question (an attempt to allow for the difficulty of the question).

As in earlier examinations, the markers for each question were asked to review the discrepancies tab on the spreadsheet and resolve any major discrepancies, with any unresolved being referred to the examiners.

The examiners reviewed several papers for each question, chosen to assess the cut-off marks between grades as well as examine any unresolved discrepancies. Particular attention was paid to papers where the aggregate result was considered marginal. This was done as a check on the markers and to help to assess the final grade cut-offs. Candidates' marks and the cut-off marks for the grades were adjusted where necessary to reflect the examiners' final assessment. Some of the adjustments made as a result of the marking verification process would have affected borderline candidates.

### **2.6. Course Leader**

The Course Leader role was shared. Tutorials were shared between David Heath, Don Johnstone and Peter Mulquiney. Discussion forums were managed by Felix Tang, while the exam writing role was shared between Daniel Keating and the examiners. Assignments marks were reviewed for consistency by Bartosz Piwcewicz.

Having the exam writing role shared between four individuals presented significant challenges, and it would be preferable for exam writing to be performed by one individual, with both the Chief Examiner and Assistant Chair of the Board of Examiners solely reviewing the paper.

### 3. Examination Papers and Assignments

#### 3.1. Degree of Difficulty and Course Coverage

The following tables show the distribution of questions and marks by level of difficulty and course coverage:

**Table 3 – Degree of Difficulty of Exam**

Question	Units	Knowledge & Understanding	Straight-forward Judgement	Complex Judgement	Total Marks
1 (a)	3	3			3
1 (b)	3	3			3
1 (c)	3			3	3
1 (d)	3		4		4
1 (e)	3			2	2
2 (a)	2		6		6
2 (b)	2	3			3
2 (c)	2,4	3			3
2 (d)	2			2	2
2 (e)	2			3	3
3 (a)	1	5			5
3 (b)	1		4		4
3 (c)	2			4	4
3 (d)	2			3	3
4 (a)	2		3		3
4 (b)	2,3			3	3
4 (c)	3			3	3
4 (d)	4		6		6
5 (a)	3		6		6
5 (b)	3		5		5
5 (c)	3		3		3
5 (d)	3			5	5
6 (a)	1	4			4
6 (b)	1	3			3
6 (c)	1,2			3	3
6 (d)	2		2		2
6 (e)	1,2			6	6
<b>TOTAL</b>		<b>24</b>	<b>39</b>	<b>37</b>	<b>100</b>

There was an even spread of marks across the six questions, with questions 4 and 5 having no knowledge and understanding. This was reflected in the pass marks for the questions which were relatively consistent.

**Table 5 – Pass Rates**

	Ass 1	Q1	Q2	Q3	Q4	Q5	Q6
Pass	59%	19%	58%	31%	34%	28%	34%
Fail	41%	81%	42%	69%	66%	72%	66%

### **3.5. Overall Performance**

In setting the paper, the intention was to have a consistent level of difficulty with previous papers. The standard was similar to semester 2 2008 (with a 41% pass rate), lower than semester 1 2008 (with a 52% pass rate), but higher than Semester 2 2007 (with only a 20% pass rate). The pass rate is well within the range of historic pass rates.

The average raw exam mark this semester was 93, relative to 90 for November 2008 and 110, 74, 104, 85, 100 and 86 for the May 2008, November 2007, May 2007, November 2006, May 2006 and November 2005 examinations.

The average raw marks in each of the six exam questions ranged from 38% to 55% of the total marks available, slightly lower than the November 2008 exam (39% to 61%), with all questions except one being in excess of 45%, compared to only three having 45% or more in November 2008. Prior exam raw marks were (36% to 57% in May 2008, 27% to 45% in November 2007, 47% to 59% in May 2007, 29% to 58% in November 2006, 43% to 55% in May 2006 and 26% to 57% in November 2005).

The standard across questions was relatively even, with Question 1 having the lowest pass mark and Question 2 the highest.

Specific common mistakes and weaknesses are discussed in the question analysis below.

### **3.6. Question by Question Analysis**

#### **QUESTION 1 (19 MARKS)**

This question tested candidates' understanding of independent and systemic risk, required them to provide examples of sources of systemic risk and calculate a risk margin for a diversified portfolio given the variance of each component of the portfolio and the correlation between components. Overall the quality of responses was relatively poor, with many candidates struggling to identify sources of systemic risk or to provide sensible suggestions in relation to how systemic risk could be estimated. The calculation component of the question was straightforward and performed well.

Part a) Required candidates to explain the difference between independent and systemic risk and to comment on how the Global Financial Crisis would impact each source of risk for a D&O portfolio. Responses were poor with a number of candidates quoting the course notes in relation to the definitions but being unable to describe the impact of the GFC.

Part b) Required candidates to identify sources of systemic risk impacting three classes of business (Motor Vehicle, Workers' Compensation and Extended Warranty). Again many students did not answer the question but instead commented on how the GFC might impact claim costs for the 3 portfolios without any mention of systemic risk.

Part c) Required candidates to provide options for estimating the impact of the GFC on systemic risk. This part was particularly poorly answered with many candidates failing to make reasonable suggestions. Average marks were low.

Part d) Required candidates to calculate a risk margin for a diversified portfolio (comprising D&O and Liability) given the variance of each component of the portfolio and the correlation between the components. This part was well answered (being straightforward given that the exam is open book) and most candidates received the majority of available marks.

Part e) Required candidates to comment on why risk margins would be expected to increase during the GFC. Responses were mixed with some candidates understanding well the impact that the GFC would have on risk margins, and some failing to understand this concept.

The strong overall performance in part d) resulted in most candidates being awarded at least a C, but the relatively poor performance in other parts resulted in relatively few candidates being awarded a passing grade.

Final grades were distributed as follows:

- i. Strong Pass (A) – 4 candidates
- ii. Pass (B) – 9 candidates
- iii. Slightly Below Standard (C) – 45 candidates
- iv. Weak (D) – 5 candidates
- v. Showed Little Knowledge (E) – 2 candidates
- vi. Did Not Attempt (X) – 0 candidates

## QUESTION 2 (17 MARKS)

This question tested candidates' ability to identify large claims in some basic analysis, and to respond appropriately to the presence of large claims when undertaking a valuation. In some respects this should have been one of the more straightforward questions on the paper, yet many candidates failed to pick up some of the easy marks.

Part a) Required candidates to identify the presence of large claims in a simple PPCI analysis and valuation result. Candidates were asked to determine adjustments, as required, to the PPCI assumptions and valuation results. This was intended to be a relatively straightforward question, but few candidates performed strongly and no-one achieved full marks. A numerical adjustment was envisaged by the solutions, but a large number of candidates discussed adjustments without quantifying the impact.

Part b) Required candidates to comment on the suitability of the PPCI method for the circumstances in Part a), and to describe two alternative preferred methods. A disappointing proportion of candidates failed to mention large claims in the answer, instead using more generic strength/weakness responses for different methods.

Part c) Required candidates to discuss additional information required – in the absence of detailed claim information - to help project a liability for a portfolio about to double in size if successful in tendering to underwrite a broker facility. This question was not answered very well, with many candidates struggling to think more broadly.

Part d) Required candidates to discuss how ways of establishing a large claim cut-off point for analysis. This was reasonably well answered, although many answers would have benefited from a discussion on why the methods were proposed.

Part e) Required candidates to suggest two methods for valuing the large claim component, together with relevant considerations in selecting the methods. This was reasonably well answered, although a non-trivial number of candidates suggested an annuity or individual case estimate approach without discussing the need for an IBNR, or incurred but not large, allowance.

Final grades were distributed as follows:

- vii. Strong Pass (A) – 8 candidates
- viii. Pass (B) – 31 candidates
- ix. Slightly Below Standard (C) – 15 candidates
- x. Weak (D) – 11 candidates
- xi. Showed Little Knowledge (E) – 0 candidates
- xii. Did Not Attempt (X) – 0 candidates

## QUESTION 3 (13 MARKS)

The first two parts of this question tested candidates' understanding of the concept of insurability, and use of product terms and conditions to manage risk. Details for a proposed product offering for a small, specific market was provided.



Part a) Required a discussion of insurability, and was well answered with half of the candidates achieving full marks. For the remaining candidates most marks were lost for failing to mention the potential for moral hazard, failing to identify the potential for excessive exposure, or by only listing 'buzz' words without relating the comment to the question

Part b) Required candidates to discuss terms or conditions to manage the risk. This was relatively poorly answered, with many candidates failing to consider a broad range of issues. For example, most candidates scored marks for recognising the importance of 'safety procedures', though many wasted time by raising multiple points about safety.

The final two parts of the question asked candidates to calculate estimates of the outstanding claims liability, the unearned premium, and the unexpired risk reserve at two different points in time. The calculations involved were simplified (eg. No inflation or discounting).

Part c) Required candidates to estimate the outstanding claims liability at two points in time, one in the middle of the exposure period and one after the end of the exposure period. Many candidates lost marks through failing to appropriately allow for claim incidence and the payment pattern.

Part d) Required candidates to estimate the unearned premium and unexpired risk reserve at two points in time: once after collection but before the exposure period, and once in the middle of the exposure period. The question was relatively well answered, although many candidates failed to state their assumptions re. earning pattern etc. Note that around 20% of candidates interpreted Unearned Risk Reserve as the additional reserve required to cover inadequate unearned premium.

Final grades were distributed as follows:

- i. Strong Pass (A) – 4 candidates
- ii. Pass (B) – 17 candidates
- iii. Slightly Below Standard (C) – 25 candidates
- iv. Weak (D) – 16 candidates
- v. Showed Little Knowledge (E) – 3 candidates
- vi. Did Not Attempt (X) – 0 candidates

#### **QUESTION 4 (17 MARKS)**

The question asked candidates to consider the appropriateness of using different valuation methods in valuing workers comp weekly benefits and common law liabilities. The second part of the question asked students to calculate the unearned premium provision, DAC and unexpired risk reserve.

Overall the quality of responses was good with nearly all receiving a strong pass, pass or slightly below standard result. It appeared that the majority of candidates were at least familiar with the reserving techniques in the questions, although many did not fully appreciate the sensitivity of reserving results to the underlying parameters.

Part a) was reasonably well approached. Most candidates recognised the importance of active claims.

Part b) Most candidates understood the impact of active claims. Very few candidates actually described the additional analysis which would be carried out to test the change in the reserving basis. There was relatively low understanding of what the change in the valuation basis actually referred to.

Part c) was quite well attempted, with plenty of opportunities for candidates to gain marks.

Part (d) was generally well attempted, although a number of candidates clearly ran out of time. Relatively few candidates correctly calculated the UEP, although the markers did not penalise this in subsequent sections.

Final grades were distributed as follows:

- i. Strong Pass (A) – 6 candidates
- ii. Pass (B) – 17 candidates
- iii. Slightly Below Standard (C) – 29 candidates
- iv. Weak (D) – 11 candidates
- v. Showed Little Knowledge (E) – 1 candidate
- vi. Did Not Attempt (X) – 1 candidate

#### **QUESTION 5 (18 MARKS)**

This question required candidates to calculate earned and unearned premiums at a particular date for a portfolio, estimate a loss ratio and a premium liability, and estimate the earned premium for the following year. Information provided included past written premium and loss ratios as well as information in relation to past premium rates. The question was answered reasonably with most students making reasonable attempts.

Part a) Required candidates to calculate earned and unearned premiums as at a particular date for a public liability portfolio. This was required to be calculated for three separate components of the portfolio, each with different proportions of the written premium being earned and unearned. This part was generally answered well with most candidates making reasonable attempts.

Part b) Required candidates to estimate the loss ratio to be used in calculation of premium liabilities as at a particular date. This question was answered reasonably with some candidates allowing for the different components of the unearned premium as at the valuation date.

Unfortunately there was an issue with the exam paper which resulted in the footnotes being inadvertently omitted from one table, which would have caused some candidates confusion on this part of the question. In reviewing borderline candidates leniency was applied in this part of the question.

Part c) Required candidates to estimate a premium liability, based on the answer to b). Despite the answers to part b) this part was answered reasonably, with most candidates allowing appropriately for expenses and some allowing for discounting.

Part d) Required candidates to estimate earned premium in the year following the valuation date based. This was answered reasonably poorly with many students making little if any attempt and other candidates failing to allow properly for written business in the year following the valuation date.

Final grades were distributed as follows:

- i. Strong Pass (A) – 2 candidates
- ii. Pass (B) – 17 candidates
- iii. Slightly Below Standard (C) – 18 candidates
- iv. Weak (D) – 13 candidates
- v. Showed Little Knowledge (E) – 12 candidates
- vi. Did Not Attempt (X) – 3 candidates

#### **QUESTION 6 (16 MARKS)**

This question looked broadly at personal injury accident compensation, who was covered and whether it was appropriate to self insure these risks. The question then went on to explore the students' judgement when considering the flow on effect of changes to one payment type on another. This question required more complex judgement and was useful in separating the students.

Parts a) and b) were bookwork questions, with the vast majority of candidates doing well.

Part c) required the application of judgement which was not overly difficult. Most candidates realised that claims would increase in part (i) and that average claim size would fall in part (iii) but many did not appreciate that participation rates in part (ii) would fall with more

speculative claims the likely outcome. Marks were awarded for the direction of the movement and the markers were lenient on the explanation but were harsher when the explanation was clearly wrong.

Part (d) - was a straightforward 2 marks for those who understood how the valuation process worked. It was surprising that more candidates did not score well in this part. Either candidates had a general lack of understanding of valuation methodologies or they were very short on time.

Part e) was very poorly answered with only the better candidates understanding what was required. Typically very low marks were awarded here.

Final grades were distributed as follows:

- i. Strong Pass (A) – 6 candidates
- ii. Pass (B) – 17 candidates
- iii. Slightly Below Standard (C) – 20 candidates
- iv. Weak (D) – 19 candidates
- v. Showed Little Knowledge (E) – 2 candidates
- vi. Did Not Attempt (X) – 1 candidates

# 3B General Insurance Chief Examiner's Report

## Semester 1 2009

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### 1. Summary

#### 1.1. Pass Rates

52 candidates enrolled for the Semester 1 2009, Course 3B: General Insurance exam. Of these, two did not present at the exam. The assessment comprised one assignment worth 15% and an exam worth the remaining 85%.

It is proposed that 16 Candidates be awarded a pass, which implies a pass rate of 32% (excluding the two candidates that did not sit the exam). This compares with a pass rate of 37% for the 2008, Semester 2 exam.

#### 1.2. Candidate Numbers

The Candidate numbers can be summarised as follows:

**Table 1 – Candidate Numbers**

	Number of candidates
Originally enrolled	52
Withdrawn prior to exam	2
Absent from exam	0
Presented at exam	50
Passed	16
Failed	34

The analysis by examination centre is as follows:

**Table 2 – Analysis by Examination Centre**

Centre	Presented	Passed	Pass Rate
Sydney	38	13	34%
Melbourne	5	1	20%
Adelaide	1	1	100%
Perth	1	1	100%
Auckland	1	0	0%
Kuala Lumpur	1	0	0%
Singapore	1	0	0%
London	1	0	0%
Wellington	1	0	0%
Total	50	16	32%

## **2. Examination Administration**

### **2.1. Course Leader**

Course Leader (assignment setting, exam setting): Rachel Eagleton

### **2.2. Examiners**

The examiners for this semester were:

Chief Examiner:	Adam Payne
Assistant Examiner:	Paul Goswamy
Assistant Examiner:	Kitty Ho

### **2.6. Exam and Assignment Marking Process**

Each submitted assignment was assessed by one marker. A common assignment was marked by all markers to identify any differences in marking. The Course Leader (this role was performed by Rachel Eagleton this semester) reviewed the assignments and made appropriate adjustments to ensure consistency in grading between markers.

It should be noted that the pass rate for the 3B assignment for this semester was 65% (excluding the candidate that withdrew prior to the exam) which is considerably lower than previous semesters where pass rates have typically been in excess of 90%.

The examination was held on 28 April. The examination scripts were delivered to the markers with a deadline for completion of 22 May 2009.

Each marker was provided with a question, the model solution/marking guide, a marking sheet and written guidelines for marking. For each question, two markers independently marked each candidate's answer. The markers were asked to recommend cut-off marks for each of the grades Strong Pass (A), Pass (B), Slightly Below Standard (C), Weak (D) and Showed Little Knowledge (E). Candidates that did not attempt the question were graded X. Markers were also asked to comment on the questions, and in particular whether the questions were misinterpreted or ambiguous.

The candidates' marks and the markers' recommended cut-offs were entered into a Microsoft Excel spreadsheet. The spreadsheet performed the following tasks:

- ranked and graded candidates on each marker's assessment
- measured the correlation between the markers on mark, rank and grade
- identified candidates where the markers' assessment varied by more than one grade, by more than 20% of candidates by rank or by more than one standard deviation in terms of mark (after adjustment for mean of all candidates of each marker), and
- produced scaled marks which adjusted raw marks to produce a more even distribution of marks for each question (i.e. an attempt to allow for the difficulty of the question).

As per previous semesters, the markers for each question were asked to review the discrepancies tab on the spreadsheet and resolve any major differences. Any unresolved discrepancies were referred to the examiners for further review.

The examiners reviewed two groups of papers for each question (with several papers being reviewed in each group). The first group were selected at random as a check on the markers' consistency, as well as to help assess the final grade cut-off points for each question. The second group were selected to examine any unresolved differences between markers. Particular attention was paid to papers where the result (either in aggregate or for individual

questions) was considered marginal (i.e. the difference between the candidate passing or failing).

Candidates' marks and the cut-off marks for the grades were adjusted where necessary to reflect the examiners' final assessment. Some of the adjustments made as a result of the marking verification process would have affected borderline candidates.

The final marks were totalled to obtain a total mark for each candidate.

### 3. Examination Papers and Assignments

#### 3.1. Degree of Difficulty and Course Coverage

The following tables show the distribution of questions and marks by level of difficulty and course coverage:

**Table 3 – Degree of Difficulty of Exam**

Question	Syllabus Aims	Units	Knowledge & Understanding	Straight-forward Judgement	Complex Judgement	Total Marks
1a	3a	3	6			6
1b	3a	3	2			2
1c	4b	4		6		6
1d	4c	4			5	5
2a	2c	2		6		6
2b	3c	3			6	6
2c	4c	4			4	4
3a	2b	2			5	5
3b	4b	4			4	4
3c	3b	3	4			4
3d (i)	2b	2	1			1
3d (ii)	3b	3		4		4
4a	1c	1		4		4
4b	2b	2		4		4
4c	1f	1			3	3
5a	1a	1		4		4
5b (i)	1a	1		2		2
5b (ii)	1a	1		2		2
5c (i)	2b	2	2			2
5c (ii)	2b	2	4			4
5d	2b	2		6		6
6a	3c	1	3			3
6b	3c	1			6	6
6b	3c	1			7	7
<b>TOTAL</b>			<b>22</b>	<b>38</b>	<b>40</b>	<b>100</b>

Based on the table above, questions 2 and 6 have relatively more weight to Complex Judgement so might be expected to have a higher degree of difficulty. By way of contrast, questions 1 and 5 have relatively more marks allocated to Knowledge and Understanding so might be considered to have a lower degree of difficulty. This is generally reflected in each question's pass rate in Table 6, although the pass rate for question 1 is relatively low.

### **3.5. Overall Performance**

Overall, the exam paper and assignment (combined) acted as a reasonable discriminator, with raw marks ranging from 49 to 132 out of 200. This range was wider than the range for last semester (70 to 132 out of 200). The lower average raw mark of 105 compared to last semester (106) was mainly due to the lower average assignment marks. Overall candidate performance was similar to that in prior semesters.

The impression that the examiners had after setting the paper was that it was not a particularly difficult paper, in the sense that it did not contain one or more questions that required candidates to apply core concepts in extraordinary new areas. However, we felt that on balance it was a reasonable paper that would provide a good broad test of candidates' knowledge and understanding and ability to apply this, and their judgement, to some practical situations.

Generally the scores assigned by the markers were consistent with what might normally be expected based on the marking guide. Marker pairs had generally reconciled any differences in their marks and the extent of remarking was fairly limited. Markers adjusted the grade cut-offs according to the perceived difficulty of the question. The examiners reviewed these scales where necessary and were satisfied with the thresholds assigned and the spread of marks.

There were few candidates meeting 3 or 4 of the pass criteria (only 9). Most candidates either did well overall (13 candidates satisfied 5 or more of the criteria with 11 of those satisfying all 6 of the criteria) or did poorly overall (28 candidates satisfied 2 or fewer of the criteria). This is consistent with last semester.

The overall pass rate is broadly comparable to recent semesters for this course.

Candidates found question 4 the easiest of the exam questions (64% pass rate) and question 6 the most difficult (33% pass rate).

There is more detail in the question by question analysis below. Nonetheless, some consistent observations from the examiners were as follows:

- i. Candidates are not going beyond "stock" answers. They often ignore information given in the question in favour of "lists" of responses and standard approaches, without adapting these for the situation or considering the appropriateness in the circumstances. It is sometimes difficult to conclude whether the candidates have the requisite skills to apply their knowledge, or if this is exam technique issue.
- ii. The "list" mentality is demonstrated by very few students showing sufficient depth of knowledge to score 'A' grades on the exam questions. Notably only three students scored more than one 'A' out of six exam questions.

Specific common mistakes and weaknesses are discussed further in the question by question analysis below.

### **3.7. Question by Question Analysis**

#### **QUESTION 1 (19 MARKS)**

This question required candidates to calculate the Minimum Capital Requirement (MCR) and the MCR ratio for a hypothetical company given its balance sheet and insurance liability composition. Candidates were also required to provide a summary of how a change in investment capital charge would be reflected in the Capital Management and Capital Adequacy and Asset and Liability Management sections an FCR. In the last part of the question, candidates were asked to give advice to the Board if its reinsurer's credit rating was



downgraded.

This seemed a relatively straightforward question however few students managed to score well on this question. Many students failed to recalculate the MCR and solvency ratios of the company under different scenarios and therefore failed to realise that the company's capital was inadequate. Most students spoke generically about capital issues rather than address the specifics of the question. Of those candidates that sat the exam 37% passed the question.

Part a) asked candidates to calculate the Minimum Capital Requirement (MCR) based on APRA standards. In calculating the asset charges, some candidates classified reinsurance recoveries and State bonds incorrectly. However, most students approached this question in a good set-up and scored well. The average mark was 3.4 out of 6.

Part b) asked candidates to calculate the company's capital base and consequently the MCR ratio. Most candidates missed the adjustment for excess risk margins and nearly all candidates did not make any adjustment for the tax effects. Most candidates included the Asset Revaluation Reserve as its Tier 2 capital but did not make the 45% adjustment. The average mark was 0.5 out of 2.

Part c) required candidates to comment on the impact of investment risk charge changes to the sections on Capital Management and Capital Adequacy and Asset and Liability Management in the FCR. Generally, this question was answered quite poorly. Very few candidates calculated the impact of the change. The comments were not tailored towards the particular situation. "Completion of 3-year projections" seemed to be a rote answer without really understanding why these would be necessary. In particular, most candidates stated that potential risks should be commented on without actually realising that these were apparent from the poor solvency ratio. The candidates did not realise that the lower position was at the current balance date and considered it a future situation. The average mark was 1.8 out of 6.

Part d) required candidates to give advice to the Board on its reinsurer's credit rating downgrade from "A+" to "BB+". Generally, this question was answered quite poorly. Similar to the previous part, very few candidates calculated the impact of the change. Most candidates mentioned changing reinsurers but did not explore other methods of raising capital. The average mark was 1.4 out of 6.

Final grades were distributed as follows:

Strong Pass (A) – 2 candidates

Pass (B) – 17 candidates

Slightly Below Standard (C) – 14 candidates

Weak (D) – 7 candidates

Showed Little Knowledge (E) – 9 candidates

Not Attempted (X) – 1 candidate.

## **QUESTION 2 (16 MARKS)**

This question required candidates to have an understanding of the issues when determining a benefit structure for Accident Compensation scheme. The question also required the candidates to outline a suitable approach to calculating the scheme levy rate. In the third part of the question, the candidates had to discuss the issues regarding a levy rate reduction after four years of running the scheme at a surplus.

Part a) asked candidates to discuss the issues in determining the benefit structure, specifically but not limited to the following areas: Loss of income benefits, Permanent disability benefits and Medical and hospital treatment and rehabilitation costs. Most candidates covered the basic points such as periodic versus lump sum payments, loss of injury compensation must be a percentage of pre-injury earnings to provide incentive to return to work, caps and limits,

definition of permanent disability and use of table of maims. However, some candidates simply made lists without applying them to the specifics of the question and giving suitable discussion. The average mark was 3.1 out of 6.

Part b) asked candidates to describe their approach to calculate the levy for the scheme, including data sources, calculation approach and other issues to consider. Given this is similar to a standard pricing questions, most candidates answered the parts related to data sources and calculation approach well. Regarding further issues for consideration, most candidates highlighted industry classification and cross subsidies as potential issues. Very few candidates mentioned the scheme also covers unemployed, retired and minors so the cost of those claims will need to be included as a loading in the levy. The average mark was 3.3 out of 6.

Part c) required candidates to discuss the issues regarding a levy rate reduction after four years of running the scheme at a surplus. Most candidates raised issues such as whether the levies will be lower across the board or to particular industries. Some also raised the cross subsidisation issue. Some candidates mentioned "It has only been 4 years", but did not go to explain why that is a issue (for example, there is only 4 years of data to date, which may not be enough experience to date to justify levy rate changes). Some candidates say "check the adequacy of reserves – IBNR and IBNER", but failed to mention the need for a risk margin / contingency margin to allow for volatility. Overall, it was poorly answered and hence the low average mark. The average mark was 1.4 out of 4

Overall, this was a mainly qualitative question and the candidates need to have more discussion points in their answers.

Final grades were distributed as follows:

Strong Pass (A) – 1 candidate

Pass (B) – 17 candidates

Slightly Below Standard (C) – 22 candidates

Weak (D) – 10 candidates

Showed Little Knowledge (E) – 0 candidates.

### **QUESTION 3 (18 MARKS)**

This question tested students' knowledge of Lenders Mortgage Insurance. Students were asked to consider the risk profile characteristics of LMI so a detailed knowledge of LMI was not necessary. This was a relatively straightforward question and most candidates scored reasonable marks for this question although few students discussed the key issues with sufficient details to score high marks. 58% of candidates passed the question.

Part a) asked candidates to consider what were the key factors impacting claim frequency and why. Most candidates correctly identified that interest rates and unemployment rates were a major factor in LMI claim experience. Very few candidates linked the inflation, unemployment and property prices issues together. Many candidates also included a number of other factors. A small number of candidates showed a complete lack of knowledge about the main features of this product. The average mark was 2.6 out of 5.

Part b) required candidates to comment on the investment profile and the risk of using fixed interest securities to back LMI liabilities. It was clear that a number of candidates had very little idea of the drivers of the experience of LMI business with a number of suggestions for equities and property as appropriate assets to hold. Those that answered the question well clearly understood the issues in selecting an appropriate investment strategy. The average mark was 1.4 out of 4.

Part c) asked candidates to describe the Maximum Event Retention for an LMI portfolio. Students that recognised the specific requirements of GPS 116 for LMI business scored well. The average mark was 2.7 out of 4.

Part d) asked candidates to describe the difference between LMI and Mortgage Protection Insurance. Students were asked what rating factors were appropriate for Mortgage Protection Insurance and why. Most candidates understood and described the MPI product well, but many candidates did not adequately describe the characteristics of LMI and contrast them with the MPI product, missing the opportunity for easy marks. Most candidates could name a number of rating factors with the most commonly stated factors being age, sex and employment. The average mark here was 3.2 out of 5.

Final grades were distributed as follows:

Strong Pass (A) – 6 candidates

Pass (B) – 23 candidates

Slightly Below Standard (C) – 8 candidates

Weak (D) – 10 candidate

Showed Little Knowledge (E) – 3 candidates.

#### **QUESTION 4 (11 MARKS)**

Question 4 was about designing pet insurance cover for a small niche insurer, which provided injury and illness cover to cats and dogs. In general reasonably easy marks were available in each part, particularly (a) and (b), so many students performed well. Students did better where explanations were given rather than stating answers without reasons. In some instances it appeared that students did not read the question, or answered the question generically. 58% of candidates passed the question.

Part a) asked candidates to identify what exclusions and limits should apply to pet insurance. Most students identified the exclusions relating to pre-existing medical conditions and mistreatment by owners, and suggested including a deductible. Most students would have performed better at this part of the question by explaining why the exclusion or limit was required rather than just stating the exclusion or limit. The average mark was 2.2 out of 4.

Part b) required candidates to identify rating factors and possible data sources for this new product. Most students identified the four rating factors – age, type of pet, area and breed, but many did not explain why they should be rating factors. There needed to be more consideration of what rating factors would be practical given this was a new product with limited information available for pricing. Some students mentioned more general pricing considerations e.g. expenses and profit margin, although this was not asked for in the question. The average mark was also 2.7 out of 4.

Part c) required candidates to identify the moral hazard of including replacement costs for lost and stolen pets. This was the worst answered part of the question. Most students identified the potential moral hazard from providing lost and stolen pet cover but failed to discuss the issues in sufficient detail to score well. Some students mentioned that the replacement cost may be too high for some breeds, and they should not be insured, although these are precisely the pets that would require insurance! The average mark was 1.3 out of 3.

Final grades were distributed as follows:

Strong Pass (A) – 6 candidates

Pass (B) – 26 candidates

Slightly Below Standard (C) – 17 candidates

Weak (D) – 1 candidate

Showed Little Knowledge (E) – no candidates.

#### **QUESTION 5 (20 MARKS)**

This question was on motor pricing covering some general capital and profitability concepts to begin with before moving into a more detailed GLM approach with accompanying tables

of results to interpret. Parts (a) and (b) were generally answered well but few scored highly on the GLM and specific pricing consideration sections, parts (c) and (d). A relatively high, 47% of candidates passed this question.

Part (a) required candidates to calculate a target loss ratio based on a given set of assumptions. This part was generally well answered but some lost marks for omitting how technical provisions were invested or assuming they were invested in equities. Some students showed misunderstanding by ignoring the stated basis of the target capital. Some students did not understand how investment return was linked to required return on capital. The average mark was 2.1 out of 4.

Part (b) required candidates to comment on the suitability of a flat expense loading in the premium calculation. Candidates scored low considering the simple nature of the question. Candidates talked generically and some exhibited their lack of understanding by not differentiating between claim expenses and administration costs. Many candidates also failed to explain why the current expense allocation was inappropriate, particularly in relation to cross subsidy effects. They also mixed their answer between part (i) and (ii), rarely scoring well on both. For part (b) candidates gave reasonable answers to the functional expense apportionment. Students generally did not articulate a suggested expense loading structure. The average mark was 1.6 out of 4

Part (c) required candidates to calculate the mean, maximum and minimum average claim size and identify which vehicle group they applied. A few students exhibited dangerous misunderstanding by taking the logarithm instead of the exponential to calculate the average size which resulted in a ridiculous average size that should have been obviously wrong. A few candidates chose the wrong vehicle grouping as a basis for the calculation of average claim sizes. The average mark was 4.1 out of 6.

Part (d) required candidates to comment on the suitability of a simple one way analysis to assess loss ratio outcomes. Overall the question was poorly answered and some students lost easy marks for not stating the obvious. Very few candidates referred to the average size GLM analysis and few candidates commented on undertaking a claim frequency GLM analysis. Many candidates missed the point of maintaining the pool of premium income by increasing rates on other categories. Candidates mentioned other concerns such as the timing of the data, the earning of historical premium increase, competitor rates, exposure, seasonality, variability in results and also the fact that theft is only one component of the premium. The average mark was 2.2 out of 5.

Final grades were distributed as follows:

Strong Pass (A) – 3 candidates

Pass (B) – 21 candidates

Slightly Below Standard (C) – 14 candidates

Weak (D) – 10 candidates

Showed Little Knowledge (E) – 1 candidates

No Attempt (X) – 1 candidate.

#### **QUESTION 6 (16 MARKS)**

Question 6 was poorly attempted. Few candidates answered this in the manner expected by the examiners. Whilst some of the calculations may have been testing under exam conditions, there were some relatively easy marks available if the candidates approached the question in a clear and structured manner. The better students did score well on this question. A large proportion of candidates scored very low on parts (b) and (c) resulting in a very large number of E grades overall. This was the worst scoring question in the exam, however, there was a strong correlation between passing the exam and scoring a C grade or above on this question. In this regard, the question was an excellent differentiator.

Part a) required candidates to calculate the underwriting result under a number of different reinsurance scenarios given the output from a DFA model. A number of candidates appeared to have not identified that all the necessary information was provided to directly calculate the mean underwriting results. They subsequently (and incorrectly) used simple interpolation between the 25% and 75% results to estimate the 50% figure, failing to note in most instances that this was not appropriate for a typically skewed insurance claim distribution. Of the candidates that were able to derive equations for the mean underwriting results, a number did not correctly deal with exchange commission or other components when deriving the QS and XOL results. Generally, marks were awarded for a reasonable attempt at deriving formulae for the underwriting results with part marks deducted for errors within the formulae. The average mark was 2.3 out of 4.

Part b) required candidates to calculate the end of year solvency position, recognising that the MCR would be different under each reinsurance option. Most candidates were able to identify the reduced MER under the reinsurance scenarios and the subsequent reduced minimum capital requirement. While most candidates were able to calculate the MCR ratio for the gross scenario, many had difficulty in correctly working out the results for the reinsured scenarios. Part marks were awarded where the form of the calculation was correctly presented but arithmetical results were not completely correct. While many candidates derived numerically that the gross scenario did not meet the Board's objectives, a number of candidates failed to actually state this as a conclusion as required from the question. The average mark was 2.9 out of 6.

Part c) required candidates to make a recommendation to the Board based on the strengths and weaknesses of each reinsurance option and the Board's stated solvency objectives. Candidates that answered this part well were those that clearly related the strengths and weaknesses of the QS and XOL options to the actual scenarios in the question, particularly in relation to property risks. A number of candidates simply stated advantages and disadvantages of QS and XOL but did not relate these to the actual scenarios being considered. A number of candidates did not assess the 99% MCR scenario while a number that did, did so as part of their part b) answer. Marks were awarded in such cases. The average mark was 1.8 out of 7.

Final grades were distributed as follows:

Strong Pass (A) – 5 candidates

Pass (B) – 11 candidates

Slightly Below Standard (C) – 9 candidates

Weak (D) – 10 candidates

Showed Little Knowledge (E) – 14 candidates

No Attempt (X) – 1 candidate.

# **5B Investment Management and Finance**

## **Chief Examiner's Report Semester 1 2009**

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### **1. Summary**

#### **1.1. Pass Rates**

47 Candidates enrolled for the Semester 1 2009, 5B Investment Management and Finance exam. Of these, 2 withdrew prior to the exam and 1 did not present at the exam. The assessment comprised one assignment worth 15% and an exam worth the remaining 85%.

It is proposed that 22 Candidates be awarded a pass, which implies a pass rate of 50% for those sitting the exam. This compares with the following pass rates for this subject in recent semesters:

#### **Overall Pass Rates**

<b>Year / Semester</b>	
2009 / 1	50%
2008 / 2	31%
2007 / 2	34%
2006 / 2	27%

#### **1.2. Candidate Numbers**

The Candidate numbers can be summarised as follows:

**Table 1 – Candidate Numbers**

	<b>Number of candidates</b>
Originally enrolled	47
Withdrawn prior to exam	2
Absent from exam	1
Presented at exam	44
Passed	22
Failed	22

The analysis by examination centre is as follows:

**Table 2 – Analysis by Examination Centre**

Centre	Presented	Passed	Pass Rate
Sydney	27	14	52%
Melbourne	7	3	43%
Canberra	3	0	0%
<b>Subtotal: Australia</b>	<b>37</b>	<b>17</b>	<b>46%</b>
Hong Kong	2	1	50%
Singapore	2	1	50%
Netherlands	1	1	100%
London	1	1	100%
Ontario	1	1	100%
<b>Subtotal: International</b>	<b>7</b>	<b>5</b>	<b>71%</b>
<b>Total</b>	<b>44</b>	<b>22</b>	<b>50%</b>

## 2. Examination Administration

### 2.1. Examiners

The examiners for this semester were:

Chief Examiner (CE): Tim Kyng

External Examiner (EE): Jackie Ka Ki Li

### 2.6. Exam Marking Process

The examination was held on Tuesday 5<sup>th</sup> May. This year, the IAAust has subcontracted Access Macquarie Ltd to teach the course, to write the exam and the assignment and their solutions, and to organise the marking of the exam and the assignment.

The assessment procedures followed are consistent to those followed for modules one, two and three of the IAAust Part III exams. Each marker was provided with the question, the model solution/marking guide, a marking sheet and written guidelines for marking. For each question, two markers independently marked each candidate's answer.

The markers were asked to recommend cut-off marks for each of the grades: Strong Pass (A), Pass (B), Slightly Below Standard (C) and Weak (D). The remainder of the candidates, who attempted the question, were graded Showed Little Knowledge (E). Markers were also asked to comment on the questions and in particular whether the questions were misinterpreted or ambiguous. There were no ambiguities or misinterpretations reported by the markers. General feedback from the markers on the candidates' performance is included in Section 3.6: Question by Question Analysis of this report.

The candidates' marks and the markers' recommended cut-offs were entered into an Excel spreadsheet. The spreadsheet performed the following tasks:

- ranked and graded candidates on each marker's assessment;
- measured the correlation between the markers on mark, rank and grade;
- identified candidates where the markers' assessment varied by more than one grade, by more than 20% of the candidates in terms of rank or by more than one standard deviation in terms of mark (after adjustment for the mean for all candidates of each marker); and

- produced scaled marks which adjusted raw marks to produce a more even distribution of marks for each question (an attempt to moderate for the varying levels of difficulty for the questions).

As in earlier examinations, the markers for each question were asked to review the discrepancies tab on the spreadsheet and resolve any major discrepancies, with any unresolved discrepancies being referred to the examiners.

For each examination question, the markers agreed on a grading scale (A, B, C, D, E, X) that they believed reflected the standard of the candidates. The two results from the markers were then combined to provide an overall raw score.

Cut-off marks for grades were adjusted where necessary to reflect the examiners' final assessment. Such adjustments were made to two of the five questions – Question 3 and Question 4. It was generally found that the examiners agreed with the cut-off marks provided by just one of the two examiners.

The final marks were added to obtain a total mark (both raw and scaled) for each candidate. The scaled marks by question and for the assignment are shown in Appendix 2. The raw marks by question and for the assignment are shown in Appendix 3. The candidates were ranked by raw total and the preliminary total pass mark was determined by considering the following:

- the sum of the total pass marks determined for individual questions;
- the total marks for each candidate;
- the distribution of grades for each candidate;
- the number of questions actually passed by each candidate;
- the grade point average for each candidate;
- natural groupings which occurred in the distribution of total marks;
- consistency with previous year's process for determining the pass mark.

## **2.6 Course Leader**

The course leader for this examination session was Tim Kyng of Macquarie University. This was arranged as part of the IAAust's subcontracting of the teaching of the course this semester.



### 3. Examination Papers and Assignments

#### 3.2. Degree of Difficulty and Course Coverage

The following table shows the distribution of questions and marks by level of difficulty and course coverage:

**Table 3 – Degree of Difficulty of Exam**

Question	Units	Knowledge & Understanding	Straight forward Judgement	Complex Judgement	Total
1(a)	5		2		2
1(b)	5	1			1
1(c)	5	1			1
1(d)	5		2		2
1(e)	5		2		2
1(f)	5		2		2
1(g)	5		6		6
1(h)	5		2	2	4
2(a)	1	2			2
2(b)	1		4		4
2(c)	1			2	2
2(d)	3			4	4
2(e)	3	2			2
2(f)	3		3	3	6
3(a)	5		2		2
3(b)	5	2	3		5
3(c)	3			3	3
3(d)	3			2	2
3(e)	4,6			8	8
4(a)	1	3			3
4(b)	2	4	4		8
4(c)	2			8	8
4(d)	2	1			1
5(a)	6	2	2		4
5(b)	6		2	2	4
5(c)	6			4	4
5(d)	6	2	2		4
5(e)	6	2	2		4
<b>Total</b>		<b>22</b>	<b>40</b>	<b>38</b>	<b>100</b>

#### 3.5. Overall Performance

The exam paper proved to be a very good discriminator of student understanding and ability to apply judgement with raw marks (on the exam component only) ranging from 33% to 66% of available raw marks.

The following table summarises the performance in terms of raw marks:

	Question 1	Question 2	Question 3	Question 4	Question 5	exam	Asgt	overall
<b>Average</b>	40%	48%	34%	34%	62%	43%	90%	51%
<b>Coefficient of variation</b>	41%	18%	44%	40%	21%	18%	13%	14%

The coefficient of variation measures the relative variability of the mark and gives some information about the discriminating power of the question / exam. The average mark and the Grade Point Average (GPA) give some idea of how difficult the questions are relative to each other.

The examiners felt that this year's exam would provide a suitable level of challenge to the candidates. A very detailed marking guide was prepared for the markers which meant that some candidates showed understanding but did not pick up as many marks as they may have thought they would. This fact was taken into account by both the markers and examiners in determining the cut-off points for the letter grades awarded to each question.

Candidates found that Q5 was the easiest. Questions 3 and 4 were the most difficult. Question 4 was probably difficult because students are out of practice in applying calculus and other mathematical techniques.

### **3.6. Question by Question Analysis**

#### **Question 1 (20 marks)**

This question was about interest rate modelling, interest rate derivative contracts and the valuation of callable and extendible bonds. This tested candidates' knowledge and understanding of interest rate models and the pricing of standard interest rate derivative contracts, such as caps, floors and swaptions. It also tested candidates' ability to use these for pricing extendible and callable bonds.

The average raw score was 8/20, the maximum was 14.5/20 and the grade point average for the candidates overall was 3.0 (C). I expected performance on this question to be better than this. There were no really difficult or tricky parts of the question and the calculations required were relatively straightforward. Students lost marks on some of the easy calculation parts of the question. Possibly this is because they are out of practice with using a calculator for calculations as most of them use computers and spreadsheets these days in the workplace instead of a calculator.

#### **Question 2 (20 marks)**

This question covered option trading strategies and which ones you might use in several different hypothetical scenarios for the market's price movements in the future. It also covered the share ratio contract and calls and puts on the share price ratio contract and how these contracts may be used to create option trading strategies. It was about applying option trading strategies to an unfamiliar situation. It also covered parameter estimation issues for the valuation models and some applications of calculus to deriving hedge parameters for these valuation models.

The average raw mark for this question was 9.4/20 and the maximum raw mark was 12.9/20. The grade point average for the candidates overall was 2.3 (slightly below a B)

#### **Question 3 (20 marks)**

This question was a mix of straightforward and complex judgement. This question was about the Executive Share Options, their features and how to value them using Monte Carlo Simulation. The markers commented that students lost marks on this question for the usual reasons. The main reason was not answering what the question actually asked.

Part (c) asked about what checks they would do if required to audit a Monte Carlo valuation. Few of the answers indicated that the candidate had a good idea of what would be involved.

Part (d) of the question asked about whether Monte Carlo Simulation would be more transparent to the client. Most of the answers looked at it from the perspective of the person doing the valuation, not from the perspective of the client.

Part (e) of the question was about setting up a market for trading of ESOs and the practical issues involved. This part was quite well answered.

It is my view that the markers were a bit harsh in marking this question. I reviewed many of the answers and found that they could have been awarded more marks for parts (a), (b) and (c). Many of the students work in the area and some of them had answers that differed from the model answer but were still valid.

The average raw mark for this question was 6.5/20 and the maximum was 11.8 out of 20. The grade point average for the candidates overall was 3.2, a bit below a C.

#### **Question 4 (20 marks)**

This question was about the valuation of a discretely sampled, floating strike price geometric average Asian put option. It was designed to lead students through an approach to deriving a valuation formula for this exotic derivative contract. The skills required to do this involved the use of calculus, algebra and statistical theory. This material is covered in the course and examples of the techniques used were discussed during the workshops.

Subject 5B contains more mathematical content than some of the other part III courses. Part of the course is about the derivation of analytic valuation formulae for exotic options and that is what this question was about.

Parts (b) and (c) comprised 80% of the question. Very few students made any headway with part (c). Most had more success with part (b). Many of the students are out of practice in applying their knowledge of calculus, algebra and statistical theory, not having touched it since university. The students can do it if they have time and the questions on the assignment covered the same type of material. Students generally performed well on the assignment.

The average raw mark for the question was 6.7/20 and the maximum was 13.3/20. The grade point average for the students overall was 2.8, closer to a C than to a B.

#### **Question 5 (20 marks)**

This question was about various current issues relating to the global financial crisis, such as the regulation of short selling, financial market innovation, herd behaviour and liquidity crises, and the risks involved in a non-financial corporation making money from its treasury operations. This question was generally well answered and had the highest average mark of all of the questions. There were no mathematical calculations or derivations involved. The average raw mark was 12/20 and the maximum was 18.5/20. The grade point average of the students for this question was 1.8, just above a B.

Comparison of the average raw marks, maximum raw marks and grade point averages (of the students overall) for each of the questions allows us to form a view as to which questions were the most difficult for the students.

# 6A Global Retirement Income Systems

## Chief Examiner's Report Semester 1 2009

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### 1. Summary

#### 1.1. Pass Rates

16 Candidates remained enrolled for the Semester 1 2009, 6A Global Retirement Income Systems (GRIS) exam. Of these, 2 did not present at the exam. The assessment comprised one assignment worth 15% and an exam worth the remaining 85%.

It is proposed that 5 Candidates be awarded a pass, which implies a pass rate of 36%. This compares with a pass rate of 56% for the 2008, Semester 2 exam (subject 6B) and 58% for the 2008, Semester 1 exam (subject 6A).

#### 1.2. Candidate Numbers

The Candidate numbers can be summarised as follows:

**Table 1 – Candidate Numbers**

	Number of candidates
Originally enrolled	17
Withdrawn prior to exam	1
Absent from exam	2
Presented at exam	14
Passed	5
Failed	9

The analysis by examination centre is as follows:

**Table 2 – Analysis by Examination Centre**

Centre	Presented	Passed	Pass Rate
Sydney	6	2	33%
Melbourne	4	2	50%
Perth	1	0	0%
<b>Total Australia</b>	11	4	36%
London	3	1	33%
<b>Overall Total</b>	14	5	36%

The overseas candidates' results were reviewed by question to ensure that there was no consistently problematic question (or sub question) which would indicate language problems or otherwise imply bias towards those familiar with the Australian environment. There was no evidence of such patterns.

## **2. Examination Administration**

### **2.1. Examiners**

The examiners for this semester were:

Chief Examiner: Debra Lewis

Assistant Examiner: Jim Repanis

### **2.5. Exam Marking Process**

The exam was held on 30 April 2009. Candidates' papers were scanned and sent to the markers by email. This facilitated the resolution of discrepancies since both markers had a copy of all the papers for their particular question. In most cases marker pairs were in the same location. All resolved results were received by the CE by 25 May 2009.

The AE checked that the individual question marks had been entered correctly into the Mark Summary workbook from the original marker worksheets.

The CE and AE made independent assessments of the borderline cases.

### **2.6. Course Leader**

The course leader was Jeffrey Chee. Jeffrey produced an excellent initial exam paper, and was very responsive in drafting subsequent materials to support markers, when one of the scrutineers suggested that the Asset Liability Model question might be answered graphically by candidates. Many thanks to Jeff.

### 3. Examination Papers and Assignments

#### 3.1. Degree of Difficulty and Course Coverage

The following tables show the distribution of questions and marks by level of difficulty and course coverage:

**Table 3 – Degree of Difficulty of Exam**

Question	Syllabus Aims	Units	Knowledge & Understanding	Straight-forward Judgement	Complex Judgement
1a	2,3,4,5	1,2		3	6
1b	1,10	1	3	5	
1c	2,3,4,5	1,2		6	
2a	6,11,12,14,15	3,7,8	2	2	4
2b	15	8	2		
2c	5,14,15	2,8		6	3
3a	13	7			8
3b	13	7	1	3	4
3c	13	7			6
4a	5,6	2,3		6	
4b	7,8	3,4	2		
4c	5,14,15	2,8		4	
4d	5,6,11	2,3,7			6
5a	9	5	6		
5b	12	7		3	3
5c	12	7	2		
5d	12	7			4
<b>Total</b>			<b>18</b>	<b>38</b>	<b>44</b>

Based on the table above, question 3 has more CJ marks and might be seen to be more difficult, question 5 has more KU marks and might be seen to be relatively easier. The remaining three questions (1,2,4) have similar spread of KU, SJ and CJ type marks, hence similar degree of difficulty.

**Table 6 – Pass Rates**

	Ass 1	Q1	Q2	Q3	Q4	Q5	Total
Pass	44%	43%	43%	29%	64%	29%	36%
Fail	56%	57%	57%	71%	36%	71%	64%

### 3.5. Overall Performance

Overall the exam provided strong differentiation between good candidates and those who still have some way to go. Only 5 passes of 14 candidates (or 36% pass rate) reflects both the quality of candidates presenting and a lack of preparation by those who were borderline.

### 3.8. Question by Question Analysis

The commentary notes provided below are exactly as provided by markers except where noted.

#### Question 1

This question covered government policy.

	Marks Required	% of Total Marks	Number of Candidates	Proportion of Candidates
Strong Pass	34.5	75%	2	13%
Pass	27.5	60%	4	25%
Slightly Below Standard	22.5	49%	3	19%
Weak	12.0	26%	5	31%
Showed Little Knowledge	0.1	0%	0	0%
Did Not Attempt	0.0	0%	2	13%
Maximum Mark	35.5	77%		
Average Mark	22.1	48%		
Standard Deviation	10.4	23%		

Good question which seemed to differentiate between students.

Part A, which asked for government “levers” on retirement incomes and advantages and disadvantages, was the most discriminating part. The question was referring to the three pillars.

Everyone got the tax lever to encourage private saving. Most got the legislative lever to introduce compulsory saving. Only a few got the government pension to provide a safety net. Quite a few got sidetracked by going into detail of particular policies within each lever without putting them under the appropriate umbrella “lever”.

Part B (i) concerning a definition of adequate retirement income, was answered reasonably well by most students. Similarly, Part B (ii) (a), concerning the effect of longevity was answered well.

In part B (ii) (b), concerning the trend from DB to DC, only a few candidates explained the relationship between DB and the adequacy of retirement income.

Part C, concerning a hypothetical retirement income policy, was generally well answered. The improvements and advantages and disadvantages appeared obvious and this part of the question proved to be easy marks.

On the whole this was a good question, reasonably easy to mark, and showed up those who had done the reading.

#### Question 2

This was a numerical question on Analysis of Surplus

	Marks Required	% of Total Marks	Number of Candidates	Proportion of Candidates
Strong Pass	23.0	61%	1	6%
Pass	18.0	47%	5	31%
Slightly Below Standard	14.5	38%	4	25%
Weak	7.0	18%	3	19%
Showed Little Knowledge	0.1	0%	1	6%
Did Not Attempt	0.0	0%	2	13%
Maximum Mark	23.5	62%		
Average Mark	14.0	37%		
Standard Deviation	6.7	18%		

Overall the quality of the responses to Q2 was poor, as evidenced, for example, by the marks obtained for the CJ sections - only two candidates scoring 2/7 or better.

#### Part (a)

Some candidates failed to cover both parts of the question - impact of each risk factor generally, then impact of 2008 experience.

The inflation risk caused the most problems, with many candidates not making the link between inflation and salary growth, and hence not understanding the impact on DBOs. Several candidates also talked about demographics generally (eg mortality) rather than commenting on the obvious redundancy risk identified later in the question.

The candidates' ability to discuss the typical fund's experience over 2008 was less strong, with many candidates waffling in this section.

Part (b) was not a differentiator - candidates generally received most if not full marks.

#### Part (c)

Was quite poorly answered. Many candidates were unable to meaningfully interpret basic IAS19 disclosures, and several students showed a lack of understanding of analysis of surplus techniques. Few candidates calculated surplus at 31/12/07 and 31/12/08. Many students worked from the very round numbers quoted by the CFO in the question, rather than calculating the surplus/deficit themselves. Only one student attempted to calculate the expected change in the funded status over the year. Therefore, many candidates didn't even have a proper starting value for attribution.

Most candidates could make some reasonable attempt at quantifying each surplus experience item, and scored at least part marks. No candidates were strong on the formulae involved, eg for asset loss perhaps only one candidate included cash flow, as well as start value of investments. There were several worse, and in some cases "howler", variations, mainly on the impact of the discount rate.

Very few students did a reconciliation against total gains/losses provided in the question. Many students grasped at numbers without any real understanding of what they were doing, e.g. using the disclosed asset loss and liability loss as "expected" figures.

### Question 3

This question covered Asset Liability Modelling



	Marks Required	% of Total Marks	Number of Candidates	Proportion of Candidates
Strong Pass	25.5	58%	1	6%
Pass	19.5	44%	3	19%
Slightly Below Standard	14.5	33%	8	50%
Weak	10.5	24%	1	6%
Showed Little Knowledge	0.1	0%	1	6%
Did Not Attempt	0.0	0%	2	13%
Maximum Mark	29.0	66%		
Average Mark	15.5	35%		
Standard Deviation	7.4	17%		

Overall the question was poorly answered as many students were unable to explain the outcomes and necessary decisions/implications in depth. A number also did not pick up a key issue in the question and looked at the results from the company's perspective and not that of the Trustee.

Part (a) - most students were able to explain an ALM.

Part (b) - many students missed the key point in explaining the Trustee's concern (rather than any company concerns) and linkage to solvency index. Most were able to explain some risk/return measures. Fewer were able to explain the interactions as the level of growth assets increase/decrease.

Part (c) - a number of students had very similar (but shallow) answers, implying simple interpretations from coursework. Very few were able to clearly explain how the results should be used.

#### Question 4

The question covered funding and solvency issues, Trustees perspective, and the implications of the current economic environment

	Marks Required	% of Total Marks	Number of Candidates	Proportion of Candidates
Strong Pass	18.0	50%	5	31%
Pass	14.0	39%	4	25%
Slightly Below Standard	10.0	28%	5	31%
Weak	6.0	17%	0	0%
Showed Little Knowledge	0.1	0%	0	0%
Did Not Attempt	0.0	0%	2	13%
Maximum Mark	20.5	57%		
Average Mark	13.6	38%		
Standard Deviation	6.0	17%		

Marker commentary was not provided for this question.

Initially this question had a higher pass rate than for other questions, which is not so surprising as this question probably covers the content that practitioners deal with most frequently. However, on review the larger proportion of "strong passes" implied that perhaps this marking pair were more lenient than others. I was also concerned that the candidates rating an A in this question were generally significantly weaker in all other questions (generally Cs & Ds). Although I did not adjust the marks, this was taken into account in assessing borderline cases.

### Question 5

This was a practical question on funding rate and accrued benefits

	Marks Required	% of Total Marks	Number of Candidates	Proportion of Candidates
Strong Pass	23.0	64%	1	6%
Pass	20.0	56%	3	19%
Slightly Below Standard	16.0	44%	4	25%
Weak	12.0	33%	6	38%
Showed Little Knowledge	0.1	0%	0	0%
Did Not Attempt	0.0	0%	2	13%
Maximum Mark	23.5	65%		
Average Mark	15.3	42%		
Standard Deviation	6.6	18%		

Generally handled well but it seemed many students didn't read the question carefully as they tended to provide data requirements at a fund level rather than focussing on individual member data.

Some students also used acronyms which were not defined and while the intent was generally clear I would discourage this. (eg. ARM & NRM for Accrued & Normal Retirement Multiples respectively. MCR was acceptable as this was defined in the question.) The checks identified were generally sensible but in many cases were not explicit enough and simply stated to 'check' it or to check it is 'reasonable', without stating what they should be checking for or what would be considered reasonable.

Not handled particularly well overall. Most responses were quite vague and it appeared that students didn't have a good understanding of the two methods of attributing benefits to past service.

Most students related only to the example at hand and didn't explore issues such as fixed dollar benefits or caps. Furthermore, despite the case at hand including an accumulation benefit, mention was rarely made of the implications of this when using either method.

The majority of students were able to calculate the total contribution rate of 11.1% but failed to make an appropriate allowance for member contributions to arrive at an employer contribution rate.

This part was handled very poorly by all students and only one student managed even half marks. The attempts (if any) were so poor that it is difficult to identify key issues other than that students appeared not to understand how or what to check. I think this may have been complicated by the fact that most students had the employer contribution rate as 11.1% in part (c) which isn't as obviously incorrect as 7.1%.

Overall

I believe this question is one of the clearest and most unambiguous exam questions I have had to mark in recent history. The question was also pretty straightforward with no real 'tricks' (other than having to think a bit in the last part) so I find it difficult to excuse the relatively poor level of performance across the board.

# ***C10 Commercial Actuarial Practice***

## ***Chief Examiner's Report Semester 1 2009***

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### **1. Summary**

The overall objectives of the Commercial Actuarial Practice (CAP) Course are to enable students to:

- Apply actuarial skills across a range of traditional and non-traditional areas by contextualising actuarial solutions or approaches in the wider commercial environment;
- Apply ethical concepts, corporate governance requirements and actuarial professional standards when contextualising actuarial solutions or approaches;
- Successfully communicate the actuarial solutions or approaches to a range of audiences.

Given these objectives, the assessment for the course is focused on the practical application of judgement and on the communication skills of the students rather than on bookwork.

There are two separate pieces of assessment. The first assessment is based on the quality of the pre-residential course report, participation in a one-week residential course and on completion of a case assessment in one of the traditional areas of actuarial practice on the last day of the residential course. The second assessment is a 2-hour examination on non-traditional areas of actuarial practice. Students are required to pass both of these assessments in order to pass the Module. Students who fail one or both of these assessments may be permitted to repeat the assessment(s) they failed without completing the whole course again.

#### **1.1. Pass Rates**

Of the 72 candidates who presented for the case assessment, it is proposed that 40 be awarded a pass, which results in a pass rate of 56%. Of the 52 candidates who presented for the examination, it is proposed that 48 be awarded a pass, which results in a pass rate of 92%.

In total, out of the 74 candidates who presented for one or both of the assessments, it is proposed that 41 be awarded a pass in the course. This is an overall pass rate of 55%. This is below the 64% average of the previous 4 semesters, but is not the lowest result.

In addition, it is proposed that 1 candidate be given a pass for the case assessment but a failure for the exam, and a further 21 candidates be given a pass for the exam but a failure for the case assessment.

Included in the above figures are the results for repeat candidates. 2 candidates repeated the exam and both passed. 22 candidates repeated the Case Study, of whom 14 passed (ie 64%, being higher than the 56% overall case study pass rate). Of the 8 failures, 4 were clear failures while the other 4 have been reviewed.

"Overseas" candidates again had a lower pass rate in the Case Study ( $4 / 13 = 31\%$ ) than did Australian-based candidates. This applied for all 4 Case Study topics, albeit the numbers are too low to make further analysis meaningful.

#### **1.2. Candidate Numbers**

A total of 74 candidates were enrolled for one or both of the assessments in Semester 1 of 2009. Of these, 72 presented for the case assessment, with most of these attending the residential course. 52 candidates presented for the examination.

The candidate numbers can be summarized as follows:

**Table 1 – Candidate Numbers**

	NUMBER OF CANDIDATES	
	Case	Exam
Originally enrolled	74	54
Withdrawals	2	2
Absent	0	0
Presented	72	52
Passed	40	48
Failed	32	4

## **2. Examination Administration**

### **2.1. Examiners**

The examiners for this semester were:

Chief Examiner: Bruce Thomson

Assistant Examiner: Barry Leung

### **2.2. Course Leader**

The assessment materials for the course were developed by a team, consisting of David Service (Course Leader), Jill Green, Richard Madden, Peter Martin, Colin Priest and Pat McConnell.

## **3. Assessment Piece 1 - Residential Course and Case Assessment**

10% of the potential marks for Assessment Piece 1 were based on the pre-course report and the candidates' participation during the first four days of the residential course. The participation was graded according to the effort demonstrated in preparing a report and discussion notes prior to the course and to the candidates' general participation in syndicate work and plenary discussions at the course.

90% of the assessment was based on a single question delivered in "case study" format at the start of the fifth day of the residential course. The candidates were given up to 8 hours (the fifth day of the course) to absorb the question material, perform all the necessary analysis and prepare their written response. The answer was required to be a substantial written report.

Candidates were required to select one case study question from one of the four defined traditional practice areas, i.e. life insurance, general insurance, global retirement income systems (GRIS) or investments & finance. The assessment was open book, and candidates were allowed to bring any written material and software programs to the session, but were not allowed any outside communication or web research.

### **3.3. Case Marking Process**

Each case study response was marked twice, first by the person who set the particular case and secondly by one of the other course team members. David Service was either the first or second marker in every case and in this way had the opportunity to ensure consistency across the different subjects. In addition, the Chief Examiner and Assistant Examiner reviewed all of the cases considered borderline.

The final marks used were based on the average of the first and second markings, after any refinements agreed in review with the Chief Examiner and Assistant Examiner.

In general, the markers did not try to allocate marks according to a pre-determined scale for each point that a candidate might make. Rather, the markers took an integrated perspective as set out in the generic marking guide. The pass mark, including the mark awarded for participation, is 50.

### **3.4. Results**

The marks awarded for participation in the residential course varied between 4.0 and 8.5 out of 10. 16 candidates (ie 22%) were given a FAIL mark (less than 5 out of 10) for participation. Participation mainly reflects preparation of a pre-course report.

There was a wide range of contribution levels to the syndicates and the plenary discussions. Most students attempted to participate in some way.

Candidates who sat the case assessment but did not attend the residential course this semester were awarded the marks gained for their previous participation in the residential course.

The proposed pass results for Assessment Piece 1 as a whole are shown by subject below:

Subject	Sat	Pass	Fail	Pass Rate
Life Insurance	21	13	8	62%
General Insurance	32	18	14	56%
GRIS	8	2	6	25%
Investments	11	7	4	64%
<b>Total</b>	<b>72</b>	<b>40</b>	<b>32</b>	<b>56%</b>

I regard 56% as a disappointingly low pass rate. The overall pass rate for Semester 2, 2008 was 68%. The reduced pass rate here can be attributed to a reversal of the unusually high pass rate for Life Insurance in semester 2 of 2008.

### 3.5. Life Insurance

The Life Insurance case required candidates to advise the CEO of a medium sized life company on a proposal to upgrade the risk insurance options it provides to customers who buy an investment product.

Candidates were required to analyse the impact of improving the current YRT death and TPD insurance options, with suggestions for a guarantee on premium rates and for sum insured compensating for investment losses.

Overall the quality of the papers was reasonable, but there was a large proportion of marginal grades.

### 3.6. General Insurance

The General Insurance case required candidates, as an internal actuary, to advise a car insurance company whether they should enter the under 25's market based on data from a trial launched last year. The trial only involved 250 policyholders, selected from referrals of existing customers.

Candidates were expected to deal with a number of issues including the profitability of the Under 25 business, its performance against the existing Over 25's market, and pricing/product design strategies that the company can use to enter the U25 market.

The standard of the papers was poor, as indicated by the low pass rate. Among other things, candidates failed to do enough one-way analysis of the Under 25's data, instead putting too much focus on the existing Over 25 market (which is not required by the question). Some candidates also fail to note the reliability of the analysis is impaired by a very small and potentially biased data set from the trial.

### **3.7. GRIS**

The GRIS case required candidates to address a new product design proposed by a superannuation fund regarding longevity risk. A longevity pool will be set up through an upfront payment of the retiree's balance at age 65. Once the retiree reaches 85, the member can receive an income stream from this pool. The member is also entitled to a death benefit as part of the scheme. The candidate is required to simulate the operation of the longevity pool using various assumptions, and comment on issues like contribution percentage and design of a death benefit.

The standard of the papers was poor, as shown by the very low pass rate.

### **3.8. Investment and Finance**

The Investments and Finance case asked candidates to advise a large fund management company on the risk of a new product. The product is index linked and margin lending provided by the client's finance subsidiary. The client requested that the report should address the risk of the product from a customer's perspective. The report is also likely to be included in the prospectus for potential customers.

The task requires candidates to perform proper quantitative analysis of the risks involved. Given its potential inclusion in the prospectus, it must be written in a way that prospective customers can understand.

## **4. Assessment Piece 2 - Non-Traditional Exam**

Assessment Piece 2 was a two-hour open-book examination at the end of the semester. One question was offered in each of 4 non-traditional practice areas, i.e. banking, environment, enterprise risk management (ERM) and health. Each candidate was required to attempt 2 out of the 4 questions. Candidates were permitted to take any materials into the examination.

### **4.3. Exam Marking Process**

The marking process was similar to that used for the case assessments. Each question was marked twice, first by the person who set the question and then by one other. David Service was either first or second marker in every case. In addition, the Chief Examiner and Assistant Examiner reviewed many of the answers, including all that might have been considered borderline.

In the non-traditional areas, candidates are required to have a high-level of general knowledge sufficient to contextualise actuarial solutions. They are not required to have the specific knowledge that would be required to pass equivalent Modules 2 or 3, were they to be offered in those areas. In marking the exams, the examiners were therefore reminded to assess candidates against the practical objectives of the course rather than test specific knowledge of the non-traditional areas. The markers were asked to take an integrated perspective and not try to allocate marks according to a pre-determined scale for each point that a candidate might make.

### **4.4. Results**

It is proposed that all those with a mark of 50 or more should pass. This means that 48 out of the 52 candidates who sat the exam should pass, or 92%. Students who did sufficiently well in one question to still achieve a mark in excess of 50 despite a fail in another question were not denied a pass if their weaker question was a marginal fail and did not contain gross errors of understanding.

The results by question are set out in the table below.

Question	Sat	Pass*	Pass Rate	Avg Mark A	Avg Mark B	Avg Mark
Banking	13	5	38%	48	47	48
Environment	34	33	97%	67	59	63
Health	17	14	82%	63	61	62
ERM	40	38	95%	71	66	69
<b>All Questions</b>	<b>104</b>	<b>90</b>	<b>87%</b>	<b>66</b>	<b>60</b>	<b>63</b>

\* This refers to the number of candidates who received a mark of 50 or more in the specific question rather than those who passed the exam as a whole.

The pass rates for Environment and Risk Management were particularly high, albeit there were four "50%" average marks for Environment that meant those candidates were judged on their other subject.

The low 38% pass rate for Banking suggests generally poor efforts by candidates. This prompted 2 further reviews, as follows :

1. Whether the Banking question was more difficult than the others, and/or was marked less generously. Qualitatively we did not see significant evidence of this, and indeed 1 marker (David Service) marked all 4 subjects in a specific effort to avoid such an issue. However, the banking candidates did score an average of 16 marks more on their other question, than on Banking. Only 1 of them scored more on Banking than on their other question. The high pass rates in the other 3 subjects (compared to prior semesters) might suggest that their marks should be reduced rather than increase the marks for Banking. In my opinion a partial adjustment to the Banking marks can be justified, but not a full adjustment. Nevertheless, in the comments below on borderline candidates I have tried to deal with this issue by also looking at marks with each question linearly standardised to an average mark of 63 (ie the overall average mark).
2. Some of the Banking marks were so low (ie 25% to 38%) that I separately considered whether each such candidate should fail overall, regardless of their other subject mark. In fact I have not recommended any such failures.

#### 4.5. Banking

The background of the question revolved around criticism that the Government received on guarantees it provided to banks to sustain the economy and the banks' current failure to promote this cause. Candidates were asked to describe a framework that the Government could use to monitor banks that receive support, and the issues surrounding such a framework.

Generally this question was poorly answered. Many answers were too general and did not specifically address the question.

#### 4.6. Environment

Candidates were asked to advise a company on becoming carbon neutral. The draft paper to management should address the scope and measurement of carbon emissions, emission reduction methods and management of an emission reduction scheme. The paper should also provide some background information on carbon emission, the concept of being "carbon neutral", plus risks and uncertainties.

This question was well answered. Although there were several borderline passes, only one candidate failed and even that one was not a bad failure.



#### **4.7. Health**

The question concerned skin cancer treatment and prevention. The Cancer Council was being approached by the Government on a funding arrangement that is different from its current form. The candidate was asked to compare the costs and benefits of the alternatives, suggest a counter proposal that the Cancer Council can provide to the Government and identify any data issues that should be addressed.

This question was generally well answered. It was also a good discriminator, with marks ranging from 45 to 90.

#### **4.8. Enterprise Risk Management**

The candidate is asked to advise the directors of a wealth management company on risk management. The answer should address the risk appetite of the company (especially on the issue of "transparency") and how to encourage fellow directors to engage in active risk management.

This question was exceptionally well answered. Marks ranged from 45 to 87, with most candidates earning a clear pass.