



Report to ECC from the Board of Examiners

*SEMESTER 2 2011*

*PART III*

*BOARD OF EXAMINERS' REPORT*

Publisher  
The Institute of Actuaries of Australia  
ABN 69 000 423 656  
Level 7, 4 Martin Place  
Sydney NSW 2000  
Tel: +61 (0)2 9233 3466, Fax: +61 (0)2 9233 3446  
[www.actuaries.asn.au](http://www.actuaries.asn.au)

Copyright © December 2011



## CONTENTS

CHAIR'S REPORT .....	4
SUMMARY .....	4
EXAMINATION ADMINISTRATION .....	7
EXAMINATION PAPERS AND ASSIGNMENTS .....	14
RESULTS .....	17
BoE MEMBERS FOR SEMESTER 1 2012 .....	19
COURSE C1 INVESTMENTS EXAMINATION REPORT .....	20
COURSE 2A LIFE INSURANCE EXAMINATION REPORT .....	32
COURSE 2B LIFE INSURANCE EXAMINATION REPORT .....	42
COURSE 3A GENERAL INSURANCE EXAMINATION REPORT .....	58
COURSE 3B GENERAL INSURANCE EXAMINATION REPORT .....	70
COURSE 5A INVESTMENT MANAGEMENT AND FINANCE EXAMINATION REPORT .....	81
COURSE 6B GLOBAL RETIREMENT INCOME SYSTEMS EXAMINATION REPORT .....	92
COURSE 10 COMMERCIAL ACTUARIAL PRACTICE EXAMINATION REPORT .....	102

# CHAIR'S REPORT

## SUMMARY

---

### Examination Administration

The Semester 2 2011 Part III examinations of the Actuaries Institute ("Institute") were held from the 17<sup>th</sup> to 21<sup>st</sup> October 2011.

### Pass Rates

The number of candidates presenting for the Semester 2 2011 Part III Exams, the recommended passes and the resulting pass rates are shown in the table below, together with the corresponding numbers for the previous three exam periods:

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

	2011 (2)			2011 (1)			2010 (2)			2010 (1)		
	Sat	Pass	%	Sat	Pass	%	Sat	Pass	%	Sat	Pass	%
<b>1 Investments</b>	67	21	31%	80	26	33%	88	27	31%	93	33	35%
<b>2A Life Insurance</b>	49	10	20%	60	18	30%	55	17	31%	39	11	28%
<b>2B Life Insurance</b>	41	6	15%	41	16	39%	39	16	41%	63	28	44%
<b>3A General Insurance</b>	78	18	23%	72	24	33%	66	24	36%	76	28	37%
<b>3B General Insurance</b>	65	20	31%	58	20	34%	53	21	40%	63	22	35%
<b>5A Invest. Man. &amp; Fin.</b>	26	16	62%	n/a	n/a	n/a	38	20	53%	n/a	n/a	n/a
<b>5B Invest. Man. &amp; Fin.</b>	n/a	n/a	n/a	16	6	38%	n/a	n/a	n/a	34	19	56%
<b>6A GRIS</b>	n/a	n/a	n/a	18	9	50%	n/a	n/a	n/a	16	4	25%
<b>6B GRIS</b>	8	5	63%	n/a	n/a	n/a	13	7	54%	n/a	n/a	n/a
<b>7A ERM</b>	TBC	TBC	TBC <sup>1</sup>	82	17	21% <sup>2</sup>	63	22	34% <sup>3</sup>	57	11	19% <sup>4</sup>
<b>CAP</b>	87	48	55%	79	47	59%	102	56	55%	97	57	59%
<b>Total</b>	<b>421</b>	<b>144</b>	<b>33%</b>	<b>424</b>	<b>166</b>	<b>39%</b> <sup>5</sup>	<b>517</b>	<b>210</b>	<b>41%</b> <sup>6</sup>	<b>538</b>	<b>223</b>	<b>40%</b> <sup>7</sup>

The Chief Examiners aim to produce consistent standard of passing candidates, rather than a consistent pass rate from year to year. This semester, the recommended overall pass rate of 33% is lower than the previous semester. The number of candidates sitting the Part III exams in the latest period shows a slight decrease over the previous semester.

<sup>1</sup> Results not yet known

<sup>2</sup> Figure represents pass rate in respect of non-Fellows only. The pass rate for fellows was 0%.

<sup>3</sup> Figure represents pass rate in respect of non-Fellows only. The pass rate for fellows was 80%.

<sup>4</sup> Figure represents pass rate in respect of non-Fellows only. The pass rate for fellows was 60%.

<sup>5</sup> Figure represents pass rate in respect of all 79 CAP candidates but not the 93 C7A candidates as results are yet to be notified.

<sup>6</sup> Figure represents pass rate in respect of all 102 CAP candidates and 63 C7A candidates.

<sup>7</sup> Figure represents pass rate in respect of all 97 CAP candidates and 57 C7A candidates.

## Poor Exam Results for 2B and 2A

Of particular concern this semester are the low pass rates for 2B (12%) and 2A (16%), the lowest pass rates recorded for any subject for several years.

The Institute undertook for the first time an investigation into the performance of these students in these two subjects, focusing on the number of repeating students in these subjects and their performance in other part III subjects.

The following table sets out some statistics from these investigations:

	2B	2A
Pass rate	15%	20%
Number sitting the exam	41	49
Number of 1 <sup>st</sup> attempts	16 (39% of total)	16 (33% of total)
Number of repeating students	25 (61% of total)	33 (67% of total)
Number of students repeating 3 or more times	12 (29% of total)	14 (29% of total)
Pass rate of 1 <sup>st</sup> attempts	25% (4/16)	25% (4/16)
Pass rate of 1 <sup>st</sup> attempts on other Part III subjects	46% (19 passes out of 41 attempts)	25% (6 passes out of 24 attempts)
Pass rate of 1 <sup>st</sup> attempts on all Part III subjects	40% (23 passes out of 57 attempts)	25% (10 passes out of 40 attempts)
Number of times repeating students have sat this subject	74 (average 3 sittings)	86 (average 2.6 sittings)
Pass rate of repeating students attempts on other Part III subjects	31% (26 passes out of 84 attempts)	15% (9 passes out of 60 attempts)
Pass rate of repeating students on all Part III subjects	16% (26 passes out of 158 attempts)	6% (9 passes out of 146 attempts)
Number of repeating students receiving a D	17	11
Number of students who have not passed from 5 or more exam sittings (includes more than one subject)	3 ( 5, 6 and 11 attempts)	7 ( 5, 5, 6, 6, 7, 9 and 10 attempts)

The main conclusion is the poor quality of the candidates sitting the exams this semester, highlighted by:

- The significant number of repeating candidates (61% for 2B and 67% for 2A).
- The poor pass rates of 1<sup>st</sup> attempts, (25% for both 2A and 2B).
- The poor performance of repeating students, in terms of how many times they have sat these subjects as well the poor pass rates on other Part iii subjects (particularly for 2A).
- The number of students receiving a D on the 2<sup>nd</sup> or later attempt (17 for 2B and 11 for 2A). You would hope that students on their 2<sup>nd</sup> or later attempts would be getting closer to a pass with a C rather than D.
- Some students have never passed an exam from 5 or more attempts.

## Fellows

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

**Table B: Recommended Number of Fellows**

Category	2011 (2)	2011 (1)	2010(2)	2010(1)
New Fellows	36	40 <sup>8</sup>	40	51

**Prizes**

The following subject prizes were awarded for the 2011 calendar year:

Subject	Comments and Recommendation
<b>C1: Investments</b>	Recommendation: 111211 be awarded the prize for Investments for 2011.
<b>C7A: Enterprise Risk Management</b>	No subject prize is awarded for this subject.
<b>C2A and C2B: Life Insurance</b>	Recommendation: 111108 be awarded the prize for Life Insurance for 2011.
<b>C3A and C3B: General Insurance</b>	Recommendation: 112017 be awarded the prize for General Insurance for 2011.
<b>C5A and C5B: Investment Management and Finance</b>	Recommendation: 112143 to be awarded the prize for Investment Management and Finance for 2011.
<b>6A and 6B Global Retirement Income Systems</b>	Recommendation: 111010 be awarded the prize for Global Retirement Income Systems in 2011
<b>10: Commercial Actuarial Practice</b>	Recommendation: 112024 be awarded the prize for Commercial Actuarial Practice in 2011.

**Major Prize**

Recommendation: 112103 be awarded the Major Prize 2011.

---

<sup>8</sup> 43 candidates completed all of the Part III Exams in semester one 2011, 2 of which are required to complete the Investments Bridging Course to become Fellows. Of these two, 1 has a pending result for 7A. 1 candidate has a pending result for CT7. Of the 40 eligible candidates, 10 have already completed the Professionalism Course.

# **Examination Administration**

---

## **1. The Board**

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

### **1.1. Chair and Assistants**

Chair	Gary Musgrave
Assistant Chair	Alistair Barker
Assistant Chair	Andrea McDonnell
Assistant Chair	Matthew Wood
Assistant Chair	Steve Miles
Assistant Chair	Adam Payne
Assistant Chair	Johnson Wong
Assistant Chair	Andy Siu
Assistant Chair	Jonathan Perkins
Assistant Chair	Adam Butt

### **1.2. Chief Examiners**

Course 1:	Investments	David Pitt
Course 2A:	Life Insurance	Warwick Young
Course 2B:	Life Insurance	Gary Musgrave
Course 3A:	General Insurance	David Gifford
Course 3B:	General Insurance	Jim Qin
Course 5B:	Investment Management & Finance	David Pitt
Course 6B:	Global Retirement Income Systems	Stephen Woods
Course 10:	Commercial Actuarial Practice	Bruce Thomson

### **1.3. External Examiners**

Course 1:	Investments	Bruce Graham
Course 5B:	Investment Management & Finance	Jack Ng

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, Alistair, Andrea, Matthew, Steve, Adam, Johnson, Andy, Jonathan and Adam 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.

### **1.4. Meetings of the Board**

The Board met on three occasions this semester as part of the exam process as follows:

**Table 1: Meetings of the Board**

Meeting	Purpose
14/07/2011	<ul style="list-style-type: none"> <li>• Update on enrolment numbers and course offerings for this semester.</li> <li>• Identify Chief &amp; Assistant Examiners and Course Leaders for each course for this semester.</li> <li>• Outline the responsibilities of Chief Examiners and this semester's schedule.</li> <li>• Review progress on the drafting of the exams to date</li> </ul>
14/09/2011	<ul style="list-style-type: none"> <li>• Discuss the status of this semester's examination papers, model solutions and sign-off process.</li> <li>• Discuss the marking spreadsheets and review the recruitment of markers.</li> </ul>
30/11/2011	<ul style="list-style-type: none"> <li>• Review the recommended pass lists and treatment of borderline candidates.</li> <li>• Review the recruitment of Chief Examiners and Assistant Chairs for next semester.</li> </ul>

## 2. Administration and Exam Supervision

The Board of Examiners was ably assisted by a number of Institute staff, in particular 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 and the Board of Examiners team is indebted to them both.

The Part III Sydney and Melbourne examinations delivered by the Institute were once again run by an external consultancy – Language and Testing Consultancy (LTC). The Part III examinations delivered by Access Macquarie were arranged with the Macquarie City Campus and the Centre for Adult Education in Melbourne as venues. Other examinations were administered by Fellows or other approved supervisors.

## 3. Course Leaders

Since October 2004, Course Leaders have been appointed by the Institute to undertake a variety of tasks relating to modules 1-3 of the Part III education program. One of the roles of the Course Leaders is to draft examination questions in consultation with the Chief Examiners. The following is a list of the Course Leaders for this semester:

**Table 2: Course Leaders**

Course	Roles
1	Access Macquarie
2A	Steve Miles (exam), Aaron Bruhn (assignment) and Bruce Thomson (tutorials and discussion forums).
2B	Michael Lau, Ashley Wilson and Alana Paterson (exam), Steve Miles (assignment, discussion forums and tutorials).
3A	Natasha De Souza, Nadeem Korim, Darren Robb, Julianna Shing, Johnson Wong and Ashish Ahluwalia (exam), Rick Shaw (assignment), discussion forums (Felix Tang) and Andrew Huszczo (tutorials).
3B	Rick Shaw (exam, assignment, tutorials and discussion forums).
5A	Access Macquarie
6B	David McNeice (exam, assignment, tutorials and discussion forums).
7A	This course is run completely external to the Institute.
CAP	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.

## **4. The Examination Process**

This semester's examination process began with an initial meeting of the Board of Examiners. Once the Chief Examiners were appointed in all internally run subjects they met with Course Leaders (where applicable) to discuss the draft exam questions.

### **4.1. Question setting**

The basic framework followed by each subject, excluding Course 7A, to setting exam papers is the same. This semester's Part III examinations were run on an open book basis. Each subject includes a rigorous review process. 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 for coverage and fairness.
- A recently qualified Fellow scrutineer 'sits' the paper under exam conditions to assess the length of the paper.
- For the CAP Course a new Fellow scrutineer is appointed to check calculations in the case study exam questions.
- Exams are redrafted after feedback from the scrutineer.
- 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 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.

### **4.2. Exam marking**

The general framework used to mark examination papers, grade candidates and determine passes, except for Course 7A, is described as follows:

- Except for CAP two markers marked each question, with CAP only those candidates with a mark above 40% or below 60% were marked a second time. 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, in the CAP course the exam is only one question so no scaling was applied.
- 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. For CAP the post course assessment counts for 20% and the exam 80% of the mark.
- 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.

## **5. The Assignment Process (Subject 1 and Modules 2-3)**

### **5.1. 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.

### **5.2. 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.

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.

From next semester (Semester 1 2012), assignments will be replaced with an assessment of a student's 3 questions and 3 responses on the online forum.

## 6. Module 4 CAP - The Case Study Process

The CAP course was developed and originally delivered for the Institute by the ANU but is now run directly by the Institute. The CAP team included David Service, Ken McLeod, Bruce Edwards, Richard Madden, Peter Martin, Colin Priest, Elayne Grace, Adam Butt and Aaron Bruhn. The team also developed the assessment materials for the course and did the marking.

The assessment method changed in Semester 2 2010 due to the restructure of the CAP course. There are still two assessment tasks, but they are now:

1. A post-course report assignment on one of the three non-traditional topics, distributed after the residential course. This semester one third of the students were randomly allocated to each non-traditional topic. It is worth 20% of the final mark.
2. An 8-hour case study report chosen by each student from among the 5 traditional topic areas, to be prepared under exam conditions but with use of a computer. This is worth 80% of the final mark.

The pass mark is 50%. Candidates who had passed part of the previous course were allowed to submit only the other equivalent part this semester.

It is not mandatory for failing candidates to re-attend the residential course.

The development and delivery of the course was overseen by a Faculty, consisting of Bridget Browne, (Chair), David Service (Course Leader), Bruce Thomson (Chief Examiner), Matthew Ralph (Assistant Examiner) and other members of the Faculty.

The case study exam assessment questions were reviewed by Actuaries from the different areas of practice, specifically:

Life Insurance:	Chris Scheuber
General Insurance:	Zeming Yu
Global Retirement Income Systems:	Vivian Dang
Investments:	Yinghua Yu
Banking:	Andrew Fisher
Environment:	Bhavesh Haria
Health:	Nicholas Stolk
Enterprise Risk Management:	Samuel Chui

## 7. Examination Dates

This semester's Part III examinations were held on the following dates:

**Table 3: Examination Dates**

Course	Subject	Exam Date
1	Investments	17th October 2011
2A	Life Insurance	18th October 2011
2B	Life Insurance	18th October 2011
3A	General Insurance	19th October 2011
3B	General Insurance	19th October 2011
5A	Investment Management & Finance	20th October 2011
6B	Global Retirement Income Systems	20th October 2011
7A	Enterprise Risk Management	6th October 2011
CAP	Commercial Actuarial Practice	21st October 2011

## 8. Assignment Dates

This semester's Part III assignments were due on the following dates:

**Table 4: Assignment Dates**

Courses	Due Date
C1, 2A, 3A	17th August 2011
2B, 3B, 5A, 6B	31st August 2011
CAP - Post Course Assignment	15th September 2011

## 9. Examination Centres

Candidates, not including those sitting Course 7A, sat the exams in 6 centres in Australia and 10 centres overseas.

**Table 5: Candidates by Exam Centre**

Location	Number of Candidates
Australia	359
Brisbane	5
Canberra	5
Melbourne	73
Sydney	271
Adelaide	3
Perth	2
Overseas	62
Netherlands	1
China	4
Hong Kong	9
Indonesia	1
Jordan	1
Malaysia	6
New Zealand	7
Singapore	15
Thailand	1
United Kingdom	17
Total	

## 10. Exam Candidature

### Candidate Mix

The mix of courses sat by candidates is broadly similar to that in previous years. The proportion for Investments continued to abate this semester. The new Part III structure being introduced from next year will allow candidates to choose a variety of different options to obtain Module One. This change is expected to directly affect the enrolment numbers for Investments into 2012.

The enrolments for Life Insurance have steadied over the semesters. The General Insurance enrolments have increased to 34%. The Global Retirement Income Systems course decreased to 2% in line with semester 2 2010. The Investment Management and Finance enrolments doubled to 6% from last semester of 3% but in line with previous

semesters. The CAP (Commercial Actuarial Practice) course has increased enrolment numbers by 5%.

**Table 6: Candidate Mix by Part III Course**

	Subject	2011(2)	2011(1)	2010(2)	2010(1)
1	Investments	16%	16%	17%	17%
2	Life Insurance	21%	20%	18%	19%
3	General Insurance	34%	26%	23%	26%
5	Investment Management & Finance	6%	3%	7%	6%
6	Global Retirement Income Systems	2%	4%	2%	3%
7	Enterprise Risk Management	<sup>9</sup>	16%	14%	11%
10	Commercial Actuarial Practice	21% <sup>10</sup>	16% <sup>11</sup>	19% <sup>12</sup>	18% <sup>13</sup>
	<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

<sup>9</sup> Results not yet known

<sup>10</sup> Includes all CAP candidates enrolled including exam only – 87

<sup>11</sup> Includes all CAP candidates enrolled including exam only – 79

<sup>12</sup> Includes all CAP candidates enrolled including case study exam and post course report only – 102

<sup>13</sup> Includes all CAP candidates enrolled including case study exam and post course report only – 97

# **Examination Papers and Assignments**

---

## **1. Examination Structure**

The structure of the examinations was a single three-hour exam paper for Course 1 and Modules 2 & 3. The exams for Course 1, and Modules 2 & 3 were worth 85% of the final assessment.

For Modules 2-3, 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, candidates sat an eight-hour case study exam paper on five traditional areas of actuarial practice, answering 1 out of 5 questions and worth 80% of the final assessment.

## **2. Assignment / Case Study Structure**

The structure of the assignments was one assignment for Course 1, and Modules 2 & 3, with the assignment worth 15% of the final assessment.

Module 4 (Course 10 – Commercial Actuarial Practice) included a post course report on one of the 3 non-traditional topics (Banking, Health, Environment), distributed after the residential course for completion within 2 weeks. This semester one third of the students were randomly allocated to each topic which was worth 20% of the final assessment.

## **3. Examination Standards**

In Course 1, and Modules 2 & 3, 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 Course 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.

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.

#### **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.

#### **5. Security of Examination Papers**

With the use of modern technology the security of Examination papers has significantly improved. All scripts are scanned into an internal installation of the Institute's Learning Management System and made available to markers and examiners. Overseas supervisors were required to photocopy papers before sending them by courier to the Institute office and secure couriers were used to transport papers. The only challenge this presents is the time it takes to scan all the scripts following the examinations.

#### **6. Security of Assignments**

The markers accessed and loaded comments via the on-line learning management system (LMS). This enabled students to receive feedback in a timelier manner than previous semesters.

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

#### **7. Comments on Candidates' Assignment Performance**

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

#### **8. Feedback on Assignments in Part III Courses**

The assignments in Course 1 and Modules 2 & 3 are not compulsory but count for 15% of the assessment. Overall, the Chief Examiners have been disappointed with the assignments since they were introduced in Semester 1 2005 and the following comments remain relevant:

- 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.
- Assignment marks do sometimes impact 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.

# Results

---

## 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.

For Course 7A, passes are approved by the Board of Examiners for the Institute and Faculty of Actuaries in the UK.

## 2. Pass Rates by Centre

The pass rates by exam centre, excluding course 7A, were as follows:

**Table 7: Comparison of Pass Rates by Centre**

	2011 (2)	2011 (1)	2010 (2)	2010 (1)	2009 (2)
Sydney	37%	37%	43%	39%	39%
Melbourne	38%	43%	43%	57%	45%
Other Australian	20%	61%	28%	40%	67%
Overseas	23%	36%	35%	37%	37%
Other Australian & Overseas	22%	42%	33%	38%	41%
<b>Total</b>	<b>34%</b>	<b>39%<sup>14</sup></b>	<b>41%<sup>15</sup></b>	<b>42%<sup>16</sup></b>	<b>40%<sup>17</sup></b>

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 the Melbourne examination centres is the lowest this semester comparing with the previous four semesters.
- The pass rate in Sydney, the largest centre with 63% of all candidates, was 36% this semester.
- In Hong Kong only 1 candidate from 9 attempts passed (11%).

### 3. Pass Marks

**Table 8: Raw Pass Marks by Part III Subject**

	Subject	2011 (2)	2011 (1)	2010 (2)	2010 (1)
1	Investments	93.7	86.0	100.0	117.0
2A	Life Insurance	93.0	89.0	117.0	99
2B	Life Insurance	105.0	109.0	84.0	93
3A	General Insurance	105.0	109.8 <sup>18</sup>	98.0	115
3B	General Insurance	100.1	101.7	113.0	107
5A	Investment Management and Finance	111.9	n/a	105.0	n/a
5B	Investment Management and Finance	n/a	99.6	n/a	106.9
6A	Global Retirement Income Systems	n/a	106.5	n/a	105.4
6B	Global Retirement Income Systems	106.6	n/a	105.2	n/a

<sup>14</sup> Number incorporates 79 CAP students sitting the exam

<sup>15</sup> Number incorporates 101 CAP students sitting the exam

<sup>16</sup> Number incorporates 97 CAP students sitting the exam

<sup>17</sup> Number incorporates 90 CAP students sitting the exam and 2 sitting the post course report out of a total 92 candidates

<sup>18</sup> Due to special consideration, the raw marks for Sydney students was 100.6

# BoE Members for Semester 1 2012

---

**1. Board of Examiners** The recommended constitution for the Board of Examiners for next semester (semester 1 2012 is as follows:

**Chair** Gary Musgrave

## Chief Examiners

Course 1: Investments	Bruce Graham (external examiner)
Course 2A: Life Insurance	Warwick Young
Course 2B: Life Insurance	Gary Musgrave
Course 3A: General Insurance	David Gifford
Course 3B: General Insurance	Jim Qin
Course 5A: Investment Management & Finance	TBC (external examiner)
Course 6B: GRIS	Stephen Woods
Course 10: Commercial Actuarial Practice	Bruce Thomson

## Assistant Examiners

Course 2A: Life Insurance	TBC
Course 2B: Life Insurance	TBC
Course 3A: General Insurance	TBC
Course 3B: General Insurance	TBC
Course 6B: GRIS	TBC
Course 10: Commercial Actuarial Practice	TBC

## 2. Examination Dates

The dates for the examinations in Semester 1 2012 are as follows:

**Table 9: Examination Dates**

Module	Subject	Exam Date
1	Enterprise Risk Management	27 <sup>th</sup> April 2012
1	Investments	23 <sup>rd</sup> April 2012
2 (2A)	Life Insurance	24 <sup>th</sup> April 2012
3 (3B)	General Insurance	24 <sup>th</sup> April 2012
2 (3A)	General Insurance	26 <sup>th</sup> April 2012
3 (2B)	Life Insurance	26 <sup>th</sup> April 2012
2 (6A)	Global Retirement Income Systems	27 <sup>th</sup> April 2012
3 (5B)	Investment Management & Finance	27 <sup>th</sup> April 2012
4 (10)	Commercial Actuarial Practice	30 <sup>th</sup> April 2012

## 3. Exam Solutions

The Board of Examiners has agreed to release this semester's examination papers along with the examination specimen solutions and marking guides. It is recommended that the 2011 Semester 2 examination papers and exam solutions and marking guides be released on 15<sup>th</sup> December or as close to this time as possible.

Gary Musgrave  
Chair, Board of Examiners - 15 December 2011

# Course C1 Investments Examination Report

---

## 1. Summary

### 1.1. Course Overview

The aim of the C1 Investment Management Course is to provide the knowledge, skills and judgement necessary for an actuary to tackle a range of investment management related problems. These skills are developed through a study of the investment process, asset modelling and issues related to the management of assets in practice.

### 1.2. Pass Rates

70 Candidates enrolled for the Semester 2 2011, Investment Management Course C1 exam. Of these, 3 did not present at the exam. The assessment comprised one assignment worth 15% and an exam worth the remaining 85%.

It is proposed that 21 Candidates be awarded a pass, which implies a pass rate of 31%. This compares with the following historical pass rates for this subject:

**Table 1 – Course Experience**

Semester	Sat	Passed	Pass Rate
Semester 1 2011	80	26	33%
Semester 2 2010	88	27	31%
Semester 1 2010	93	33	35%
Semester 2 2009	145	43	30%
Semester 1 2009	177	86	49%
Semester 2 2008	120	61	51%

The 31% pass rate for this course offering is broadly in line with the pass rates from recent offerings of this course.

### 1.3. Candidate Numbers

The Candidate numbers can be summarised as follows:

**Table 2 – Candidate Numbers**

	Number of candidates
Originally enrolled	73
Withdrawn prior to exam	3
Absent from exam	3
Presented at exam	67
Passed	21
Failed	46

The analysis by examination centre is as follows:

**Table 3 – Analysis by Examination Centre**

<b>Centre</b>	<b>Presented</b>	<b>Passed</b>	<b>Pass Rate</b>
Sydney	45	18	40%
Melbourne	11	3	27%
Canberra	1	0	0.00%
<b>Subtotal Australia</b>	<b>57</b>	<b>21</b>	<b>37%</b>
London	2	0	0%
Hong Kong	1	0	0%
Kuala Lumpur	3	0	0%
Singapore	2	0	0%
Auckland	2	0	0%
<b>Subtotal International</b>	<b>10</b>	<b>0</b>	<b>0%</b>
<b>Total</b>	<b>67</b>	<b>21</b>	<b>31%</b>

The International candidates did not perform well this time with nobody passing out of 10 who attempted the course. A review of their exam scripts indicated in some cases poor expression but in other cases simply a lack of preparation. With only 10 candidates and reasonable performance by this group in the past, not too much should be read into this result.

## **2. Examination Administration**

### **2.1. Examiners**

The examiners for this semester were:

Course Examiner: David Pitt  
External Examiner: Bruce Graham.

### **2.2. Course Leader**

The Course Leader for this semester was Tim Kyng. Tim co-ordinated the teaching staff on this course and the weekend intensive workshops. He also produced a first draft of the exam and solutions as discussed in Section 1.4.

### **2.3. Exam Marking Process**

The examination was held on Monday 17<sup>th</sup> October. 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 with those followed for modules 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 3.8: Exam 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 agreed 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 only one of the five questions – Question 4. The adjustment reduced the cutoffs for grades A to D from what was recommended by the markers. It was generally found that the CE agreed with the cut-off marks suggested by the markers.

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 (raw mark) are shown in Appendix 2. The raw marks by question and for the assignment are shown in Appendix 3. The candidates were ranked by an aggregate formed from the scaled exam total and raw assignment total. A preliminary total pass mark was determined based on the scaled score of 60% for a pass and a score of 75% on the assignment.

### 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 5 – Degree of Difficulty of Exam**

Question	Syllabus Performance Outcome	Units	Knowledge & Understanding	Straight-forward Judgement	Complex Judgement	Total Marks
1 (a)	1	1.1	3	1	1	5
1 (b)	1	1.1	2	2	2	6
1 (c)	1	1.1	2	2	2	6
1 (d)	1	1.1	5	3		8
2(a)	5	5.1,5.2	2	2		4
2(b)	5	5.3	2	2	3	7
2(c)	5	5.4,5.5			7	7
3(a)	4	4.3,4.4		3		3
3(b)	2	2.1			5	5
3(c)	2	2.1		4		4
3(d)	2	2.1	1	2		3
3(e)	2	2.1		2		2
3(f)	2	2.1			3	3
4(a)	5	5.3	2	2	3	7
4(b)	4	4.6			2	2
4(c)	5	5.4		2		2
4(d)	5	5.4		4		4
4(e)	5	5.4			5	5
5(a)	1	1.1			2	2
5(b)	4	4.3		3		3
5(c)	3	3.1			3	3
5(d)	5	5.5		5		5
5(e)	5	5.5			4	4
<b>Total</b>			<b>19</b>	<b>39</b>	<b>42</b>	<b>100</b>

**Table 6 – Course Coverage by Question**

Question	Units	Knowledge & Understanding	Straight-Forward Judgement	Complex Judgement	Total Marks
1	1	12	8	5	25
2	5	4	4	10	18
3	2,4	1	11	8	20
4	4,5	2	8	10	20
5	1,3,4,5	0	8	9	17
<b>Total</b>		<b>19</b>	<b>39</b>	<b>42</b>	<b>100</b>

The marks were spread across all performance outcomes with an appropriate number of marks covering each outcome. The distribution of marks across knowledge and understanding, simple judgement and complex judgement was very close to the 20:40:40 mix recommended.

### 3.2. Overall Performance

The exam was set with close to the standard distribution of KU, SJ and CJ questions. Performance of candidates was, as is standard, stronger on the KU and SJ questions. The difference was typical to what has been observed in the past in this subject. Question 4 proved the most challenging for the candidates with only 13% of candidates passing. This had a negative effect on the overall pass mark for the subject. Details regarding the performance on particular parts of Question 4 are given in Section 3.8.

### 3.3. Exam Question by Question Analysis

Question 1	Total Marks: 25	12 KU	8 SJ	5 CJ
	Marks Required	% of Total Marks	Number of Candidates	Proportion of Candidates
<b>Strong Pass (A)</b>	12	48	10	15%
<b>Pass (B)</b>	10.5	42	15	22%
<b>Slightly Below Standard (C)</b>	8	32	35	52%
<b>Weak (D)</b>	5	20	6	9%
<b>Showed Little Knowledge (E)</b>	0.5	2	1	1%
<b>Did Not Attempt (X)</b>	0	0	0	0%
		<b>% of KU</b>	<b>% SJ</b>	<b>% CJ</b>
<b>Maximum Mark</b>	14	69%	81%	50%
<b>Average Mark</b>	9.8	41%	47%	23%
<b>Standard Deviation</b>	3.9			
<b>Coefficient of Variation</b>	0.39			

Candidates performed reasonably on this question with a pass rate of 37% and very few D or E grades awarded.

The question concerned the issues connected to advising a defined contribution superannuation fund on investment in property vs equity. General issues relating to property investment in addition to a specific property fund as a possible investment are explored in the question.

Part a

Candidates were required to list the types of investment property the fund may contemplate. In addition, a recommendation as to the most suitable property fund was required.

Most candidates listed the different types of usage of property, but not many identified that it could be either land, building or a combination of both and other related property holding rights.

Similarly on the suitability comments, we found most did not pick up the passive vs development issue. More candidates picked up on liquidity, although still not many in relation to the total number of candidates.

#### Part b

Candidates were required to discuss the general characteristics of directly held property that make it attractive for this superannuation fund.

When the candidate mentioned diversification as a benefit of direct property, marks were awarded. Very few candidates mentioned the efficiency argument and financial crisis and member withdrawal point.

#### Part c

Candidates were required to comment on a risk management proposition cited in the preamble to the question.

Very few candidates elaborated on the weakness of standard deviation. In regard to risks, marks were awarded for saying liquidity as a risk, so is concentration as a risk. Other risks that were adequately justified through discussion were also considered valid.

#### Part d

Candidates were required to assess residential property development as a holding for the fund in addition to discussing issues with discounted cash flow valuation of a company.

Discussion was not adequate or in enough depth to attract marks. Candidates might rush through as this was the last part of the question.

<b>Question 2</b>	<b>Total Marks 18</b>	<b>4 KU</b>	<b>4 SJ</b>	<b>10 CJ</b>
	<b>Marks Required</b>	<b>% of Total Marks</b>	<b>Number of Candidates</b>	<b>Proportion of Candidates</b>
<b>Strong Pass (A)</b>	12	67	2	3%
<b>Pass (B)</b>	10	56	23	34%
<b>Slightly Below Standard (C)</b>	8	44	28	42%
<b>Weak (D)</b>	6	33	11	16%
<b>Showed Little Knowledge (E)</b>	0.5	3	3	4%
<b>Did Not Attempt (X)</b>	0	0	0	0%
		<b>% of KU</b>	<b>% SJ</b>	<b>% CJ</b>
<b>Maximum Mark</b>	12	100%	100%	63%
<b>Average Mark</b>	9.06	68%	67%	37%
<b>Standard Deviation</b>	3.52			
<b>Coefficient of Variation</b>	0.39			

Candidates performed reasonably on this question, with a pass rate of 37%.

This question included three parts which covered various aspects of the design and monitoring of investment arrangements as part of implementing an investment strategy.

Part a

Candidates were required to define relative and absolute risk investors and to give a related risk measure for each type of investor.

Good responses overall. The majority of candidates obtained 3 marks or above.

Part b

Candidates were required to present arguments for and against performance-based fees in funds management and to discuss the important elements in designing performance-based fees.

The majority of candidates could provide a pro and a con for performance fees. However, few were able to identify the impact of performance fees on investment research (as a con).

This question distinguished between strong and weaker candidates. The good candidates were able to identify the issues behind the design of a performance management fee whilst the poorer candidates repeated irrelevant book work.

Part c

Candidates were required to answer questions relating to an equities-themed hedge fund based on fundamental analysis.

This part was not well answered. Students tended to give generic answers rather than address the specific context. For example most were able to identify a reason for borrowing and short selling but very few could identify the risks involved with borrowing and short selling. Instead most listed the risks behind investment management.

<b>Question 3</b>	<b>Total Marks 20</b>	<b>1 KU</b>	<b>11SJ</b>	<b>8 CJ</b>
	<b>Marks Required</b>	<b>% of Total Marks</b>	<b>Number of Candidates</b>	<b>Proportion of Candidates</b>
<b>Strong Pass (A)</b>	12	60	8	12%
<b>Pass (B)</b>	9	45	19	28%
<b>Slightly Below Standard (C)</b>	7.5	38	18	27%
<b>Weak (D)</b>	5	25	16	24%
<b>Showed Little Knowledge (E)</b>	0.5	3	6	9%
<b>Did Not Attempt (X)</b>	0	0	0	0%
		<b>% of KU</b>	<b>% SJ</b>	<b>% CJ</b>
<b>Maximum Mark</b>	14.25	100%	86%	78%
<b>Average Mark</b>	8.46	44%	42%	42%
<b>Standard Deviation</b>	5.03			
<b>Coefficient of Variation</b>	0.59			

Candidates performed reasonably on this question, with a pass rate of 40%.

The question concerned the major economic and financial theories relating to investment. Candidates were also tested on their understanding of asset models and their evaluation.

Part a

Candidates were required to comment on stochastic volatility of a major stock index.

This part was well answered with most candidates able to identify the issues.

Part b

Candidates were required to answer questions relating to a continuous stochastic process for equities.

This part proved to be a very good discriminator. Leptokurtic distributions and their properties provided the greatest challenge to the candidates.

Part c

Candidates were required to display an understanding of the single index model.

This part proved very difficult for the candidates. Many showed misunderstandings relating to the single index model and its properties.

Part d

Candidates were required to answer questions relating to the security market line in the CAPM.

This part proved to be a very good discriminator. Links between the Treynor ratio and Jensen's alpha were only occasionally well explained.

Part e

Candidates were required to understand volatility as it relates to the CAPM.

This part also produced answers of very mixed quality. About half the candidates understood the issues.

Part f

Candidates were required to prove a result relating to the efficient frontier.

Most candidates could not produce a convincing derivation of the required result.

<b>Question 4</b>	<b>Total Marks 20</b>	<b>2 KU</b>	<b>8 SJ</b>	<b>10 CJ)</b>
	<b>Marks Required</b>	<b>% of Total Marks</b>	<b>Number of Candidates</b>	<b>Proportion of Candidates</b>
<b>Strong Pass (A)</b>	11	55	2	3%
<b>Pass (B)</b>	8	40	7	10%
<b>Slightly Below Standard (C)</b>	6.5	33	4	6%
<b>Weak (D)</b>	4	20	21	31%
<b>Showed Little Knowledge (E)</b>	0.5	3	27	49%
<b>Did Not Attempt (X)</b>	0	0	6	0%
		<b>% of KU</b>	<b>% SJ</b>	<b>% CJ</b>
<b>Maximum Mark</b>	13.6	95%	100%	56%
<b>Average Mark</b>	4.29	40%	36%	20%
<b>Standard Deviation</b>	5.83			
<b>Coefficient of Variation</b>	1.36			

Candidates performed poorly on this question with a pass rate of 13%. This question proved very challenging for candidates and as detailed below in the commentary by part uncovered some misunderstanding of concepts.

The question concerned the fee and active management structure of a large equity fund.

Part a

Candidates were required to derive a number of results relating to the information ratio.

Part a was generally poorly done. In the marker's opinion this was not a particularly difficult question, and it was disappointing to see how many candidates were unable to demonstrate basic knowledge of the course material. Close to half the candidates began with the information ratio inverted; i.e.  $\text{Information Ratio} = \text{Active Risk} / \text{Active Returns}$ . Further it was disappointing to see many candidates were unable to properly apply a management fee, when it is as simple as  $\text{Net Return} = \text{Gross Return} - \text{Fees}$ . These are very basic points that should not have troubled candidates. For the second part, only one candidate properly answered the question, and in doing so demonstrated to the rest of the field that the question is not difficult. The third part was also poorly answered, again with many candidates unable to calculate post fee returns; of those that did many forgot to take into account the fees for the passive component of the portfolio

#### Part b

Candidates were required to answer questions relating to the optimal proportion of risk for two active risk managers.

Part b was generally not done well, with many candidates providing complicated answers involving factor models and orthogonalising manager bets. The actual answer was much simpler, using a Markowitz mean variance optimisation, which could be done in a simple spreadsheet with simple assumptions.

#### Part c

Candidates were required to propose a statistical test for assessing active fund manager returns.

Part c was troubling as it revealed that many candidates did not understand how a t-test should be properly applied, similarly there was a fair bit of confusion as to what hypothesis is being tested. Given the statistical focus of actuarial studies, it is important candidates are able to articulate themselves in explaining how the test should be applied and interpreted.

#### Part d

Candidates were required to demonstrate a portfolio performance calculation method citing reasons for their chosen approach.

While most candidates were able to recognise the use of a Time Weighted Rate of Return, very few were able to identify an appropriate formula for the monthly return based on daily unit prices. Many candidates were also confused by the straightforward step to convert the one month return to an annualised monthly return.

#### Part e

Candidates were required to analyse the performance of a two-sector investment fund.

In general this part was poorly done, considering that a straightforward attribution was required. Many candidates were able to identify the required formula, but were unable to apply to the situation described in the question. A good number of candidates neglected to describe the sector allocation/stock selection performance.

<b>Question 5</b>	<b>Total Marks 17</b>	<b>0 KU</b>	<b>8 SJ</b>	<b>9 CJ</b>
	<b>Marks Required</b>	<b>% of Total Marks</b>	<b>Number of Candidates</b>	<b>Proportion of Candidates</b>
<b>Strong Pass (A)</b>	8	47	4	6%
<b>Pass (B)</b>	5.5	32	21	31%
<b>Slightly Below Standard (C)</b>	4	24	13	34%
<b>Weak (D)</b>	2.5	15	15	22%
<b>Showed Little Knowledge (E)</b>	0.5	3	4	6%
<b>Did Not Attempt (X)</b>	0	0	0	0%
		<b>% of KU</b>	<b>% SJ</b>	<b>% CJ</b>
<b>Maximum Mark</b>	9	-	67%	67%
<b>Average Mark</b>	4.93	-	34%	25%
<b>Standard Deviation</b>	3.59			
<b>Coefficient of Variation</b>	0.73			

Candidates performed reasonably on this question, with a pass rate of 37%.

The question concerned the investment issues arising from development of a new retirement income policy.

Part a

Candidates were required to relate a proposed retirement incomes policy to economic growth.

Most candidates were able to pick up 1 mark for recognising that an organised pool of funds would be increasingly available to fund economic growth and create investment opportunities. Few were able to obtain the extra mark from noting that there is effectively an increase in government spending via tax concessions.

Part b

Candidates were required to describe an asset model relevant to the situation given.

Few candidates mentioned the long term consideration as being the most important aspect and fewer still mentioned the long term but some interest also being in the short term while others did pick up a mark for simply mentioning the need for 'serial correlation' in asset returns. Candidates were clearly a bit confused by which path to take and too many simply rattled off the sorts of items that are normally included in an ALM - notwithstanding that the question clearly stated an "asset model". Even so, the answers provided were not sufficiently well thought out to warrant giving marks. In general only a listing of typical model parameters was all most candidates could provide.

Part c

Candidates were required to comment on methods for assessing the financial objectives of the policy.

Little more than one mark was generally awarded where candidates demonstrated that projections of the 'give up' versus the 'savings' was the main thing to assess even though the specific impact on GDP was often overlooked. No great challenge in that respect. The borrowing rate to consider was mentioned by no candidate and I am unsure whether this was a fair requirement. Marks were awarded where the assessing of scenarios was mentioned directly or otherwise but again, few discussed the constraints and the relationship to budgetary impact.

#### Part d

Candidates were required to describe government controls relevant to the given problem.

This part was one where candidates could have passed the entire question by simply stating the obvious. The system presented in the question is similar to what Australia has had in place for a long time now and certainly most candidates were able to pick up marks for covering off the key points. Few were way off with the points listed.

#### Part e

Candidates were required to identify risks inherent in the given policy.

Few showed enough experience to see the impact such a volume of funds could have on a developing economy. This was probably the key risk.

Many did note that, broadly, the risks were that the objectives were not met and with varying reasons. Many specific reasons were given some worthy of marks and others not. Only a few marks were given where points were given which matched the answer guide but the answer guide did require some complex judgement to be made and most made simple judgement only.

## 4. Results

### 4.1. Pass List Recommendations

The recommended pass list is as follows.

**Table 13 – Pass List sorted by Candidate Number**

112022	112081	112167	112315	112387
112026	112100	112182	112319	
112037	112112	112253	112326	
112041	112146	112258	112366	
112074	112166	112295	112371	

# Course 2A Life Insurance Examination Report

---

## 1. Summary

### 1.1. Course Overview

The aim of the 2A Life Insurance Course is to provide the knowledge, skills and judgement necessary for an actuary to tackle a range of management related problems in life insurance relating to pricing, general environment and risk management practices of life offices and associated funds management companies.

### 1.2. Pass Rates

54 candidates enrolled for the Semester 2 2011 Course 2A Life Insurance exam. There were 5 withdrawals from the course prior to the exam, leaving 49 candidates present at the exam.

The assessment comprised one assignment worth 15% and an exam worth the remaining 85%.

It is proposed that 10 candidates be awarded a pass, which implies a pass rate of 20%. This compares with the following historical pass rates for this subject:

**Table 1 – Course Experience**

Semester	Presented	Passed	Pass Rate
2011 Semester 1	60	18	30%
2010 Semester 2	55	17	31%
2010 Semester 1	39	11	28%
2009 Semester 2	52	31	60%
2009 Semester 1	58	23	40%
2008 Semester 2	66	32	48%
2008 Semester 1	61	21	34%

The 20% pass rate for this exam is much lower than the 30% pass rate for the previous exam (Semester 1 2011).

### 1.3. Candidate Numbers

The Candidate numbers can be summarised as follows:

**Table 2 – Candidate Numbers**

	Number of candidates
Originally enrolled	54
Withdrawn prior to exam	5
Absent from exam	0
Presented at exam	49
Passed	10
Failed	39

The analysis by examination centre is as follows:

**Table 3 – Analysis by Examination Centre**

<b>Centre</b>	<b>Presented</b>	<b>Passed</b>	<b>Pass Rate</b>
Sydney	35	7	20%
Melbourne	8	2	25%
<b>Subtotal Australia</b>	<b>43</b>	<b>9</b>	<b>21%</b>
China	2	0	0%
London	2	0	0%
Singapore	2	1	50%
<b>Subtotal International</b>	<b>6</b>	<b>1</b>	<b>17%</b>
Total	49	10	20%

The Australian pass rate of 21% is in line with the overall pass rate but much lower than the previous 30% for Semester 1 2011.

## **2. Examination Administration**

### **2.1. Examiners**

The examiners for this semester were:

Chief Examiner: Warwick Young

Assistant Examiners: Yee Lin Yang

Alana Patterson

### **2.2. Course Leader**

The role of the Course Leader for this semester was shared as follows:

Exam setting: Steve Miles

Assignment setting: Aaron Bruhn

Forums and tutorials: Bruce Thomson

The assistance of Steve Miles was greatly appreciated. I wish to express my thanks for his valuable contribution and dedication in the exam preparation.

### **2.3. Overall Performance**

There was no individual question that caused problems for all candidates. There was a deliberate shift in the marks allocated between complex judgement and course knowledge with this semester having a lower allocation to complex judgement. Candidates achieved a higher proportion of their marks from straight forward judgement 43% of the average marks, 33% from complex judgement and a disappointing 29% from knowledge and understanding indicating the lack of understanding of the course material which was very disappointing. The examiners are satisfied that the pass mark is set at the appropriate standard.

This is despite the fact that the exam contained less CJ than last year and deliberately included more bookwork. There is some evidence that students do not download the extra reading requirements listed in the LMS (the online Learning Management System)

and do not read the full course of reading, concentrating instead on the textbook and course notes. Students should be advised that:

“The examinable course is everything that is listed on the LMS and it is assumed that each of these documents have been fully studied by the student. The other links given in the notes are not directly examinable although the concepts they discuss may appear in exam questions. However those questions should be able to be answered from the LMS course of reading plus judgement.”

#### 2.4. Exam Question by Question Analysis

Question 1	Total Marks:	36	(0 KU 36 SJ 0 CJ)	
	Raw Marks Required	% of Total Marks	Number of Candidates	Proportion of Candidates
Strong Pass	24.0	66.7%	0	0%
Pass	20.0	55.6%	18	37%
Below Standard	15.0	41.7%	21	43%
Weak	10.0	27.8%	8	16%
Showed Little Knowledge	1.0	2.8%	2	4%
Did Not Attempt	0.0	0.0%	0	0%
		% KU	% SJ	% CJ
Maximum Mark	23.3	0%	65%	0%
Average Mark	17.5	0%	49%	0%
Standard Deviation	3.9			
Co-efficient of Variation	0.22			

Candidates were asked to describe how they would allocate expenses to key expense functions, given limited information and short time frame, in the context of a recently purchased small life company with no historical expense analysis.

Part a):

- Candidates were asked to allocate the salary expenses for various departments into expense functions.
- This was the best answered part of the question. The allocation question in the prior semester was very poorly answered so it is pleasing that the candidates answered this question better than the prior semester.

Part b):

- Candidates were asked to allocate other expense categories in the company accounts into expense functions. Marks were awarded for each allocation basis with

a reasonable justification.

- In general candidates struggled with the allocation of depreciation and many did not give any justification for their allocation basis.

Part c):

- Candidates had to draft a memo to the client discussing the 4 options listed in the question for dealing with unprofitable small policies, and providing a recommendation.
- Candidates did not put down enough points for the marks allocated to get good marks in this section. The students struggled with marginal pricing option with many not documenting what marginal pricing means. Most candidates gave a recommendation with justification.

**Question 2**                      **Total**  
**Marks:**                      **30**                      **(0 KU 6 SJ 24 CJ)**

	Raw Marks Required	% of Total Marks	Number of Candidates	Proportion of Candidates
Strong Pass	18.5	61.7%	5	10%
Pass	14.5	48.3%	12	24%
Below Standard	10.5	35.0%	15	31%
Weak	6.5	21.7%	14	29%
Showed Little Knowledge	1.0	3.3%	3	6%
Did Not Attempt	0.0	0.0%	0	0%
		% KU	% SJ	% CJ
Maximum Mark	21.5	0%	92%	71%
Average Mark	12.5	0%	49%	40%
Standard Deviation	4.0			
Co-efficient of Variation	0.32			

The question covered considerations by a Chief Actuary of a large, well established, Australian financial services group, in analysing experiences and setting assumptions.

Part a):

- Candidates were asked to list the experience assumptions needed to project the asset fee income for a closed block of business and explain how each assumption affects fee income.
- The question guided candidates but unfortunately some candidates were not guided by the question. Candidates failed to appreciate that the investment mix would impact the fee income. Many candidates did not really understand what an

experience assumption was.

Part b):

- Candidates were asked to list 2 possible causes of lower fee income when sales and investment returns were above target. They also had to provide 2 recommendations to restore profitability without increasing fees.
- Generally this was answered better than part a) although some candidates proposed commission based solutions which will be difficult to implement in the context of FOFA reforms.

Part c):

- Candidates were asked to explain asymmetric returns and discuss alternative methods to reflect asymmetry in investment return assumptions.
- This was answered poorly and perhaps not aware of the IAA note on Asymmetric Risks.

**Question 3** **Total Marks: 34 (16 KU 18 SJ 0 CJ)**

	Raw Marks Required	% of Total Marks	Number of Candidates	Proportion of Candidates
Strong Pass	18.5	54.4%	4	8%
Pass	13.5	39.7%	13	27%
Below Standard	10.0	29.4%	11	22%
Weak	6.0	17.6%	18	37%
Showed Little Knowledge	1.0	2.9%	3	6%
Did Not Attempt	0.0	0.0%	0	0%
		% KU	% SJ	% CJ
Maximum Mark	20.3	81%	69%	0%
Average Mark	11.2	25%	40%	0%
Standard Deviation	3.9			
Co-efficient of Variation	0.35			

This question covered issues and considerations for adding a new trauma condition to a trauma insurance product. Candidates were expected to refer to the Gratton and Fabrizio reading in answering this question.

Part a):

- Candidates were asked to list 4 qualitative factors to consider and apply these to the context of the question.

- The question asked for qualitative factors before adding the new benefit but a lot of candidates' answers were about issues to consider after deciding to add the new benefit.

Part b):

- Candidates were asked to list 4 issues to consider when determining the appropriate evidence required for assessing claims, and relate these to the context of the question.
- Many candidates answered this part poorly and failed to relate this back to the context of the question. The answers focused on issues to be considered during claim assessment instead of issues to consider when establishing evidence required for assessing claims.

Part c):

- Candidates were asked to list 4 non actuarial resources to consult and provide reasons for consulting them.
- Candidates were able to identify the resources they would consult but the reasons given were too brief to understand why they wanted to consult the resource.

Part d):

- Candidates were asked to describe the process for deriving the final claim rate assumption.
- This part was disappointingly answered with many candidates unable to express the process in a clear and logical manner. Many candidates did not recognise trends, selection, gender and smoking status as factors to adjust for when converting population rates.

**Question 4**                      **Total Marks: 34**      **(22 KU 0 SJ 12 CJ)**

	Raw Marks Required	% of Total Marks	Number of Candidates	Proportion of Candidates
Strong Pass	16.0	47.1%	3	6%
Pass	13.0	38.2%	12	24%
Below Standard	10.0	29.4%	13	27%
Weak	7.0	20.6%	13	27%
Showed Little Knowledge	1.0	2.9%	7	14%
Did Not Attempt	0.0	0.0%	1	2%
		% KU	% SJ	% CJ
Maximum Mark	19.0	68%	0%	46%
Average Mark	10.2	36%	0%	19%
Standard Deviation	3.9			
Co-efficient of Variation	0.38			

Candidates were required to demonstrate a good understanding of various wealth management products distributed by a bank. In particular, candidates had to discuss differences in legal structure, capital requirements, tax on unit pricing and tax paid by customers for these products.

Part a):

- Candidates were asked to evaluate the difference in legal structure and capital requirements, between life insurance companies and unit trusts.
- This was the better answered component of question 4. This was a relatively straight forward knowledge and understanding part of the question.

Part b):

- Candidates were asked to describe how tax impacts the final benefit received by the customer for various products.
- Candidates did not go into the detail required by the marking guide and most candidates appeared to just exhibit knowledge of tax at the high level.

Part c):

- Candidates were asked to discuss the advantages and disadvantages for managing a 10 year investment value guarantee using fixed asset mix vs. variable asset mix.
- This part was poorly answered with most candidates giving a theoretical answer

without reference to the specifics in the question.

**Question 5**                      **Total Marks: 36 (20 KU 16 SJ 0 CJ)**

	Raw Marks Required	% of Total Marks	Number of Candidates	Proportion of Candidates
Strong Pass	20.0	55.6%	2	4%
Pass	16.0	44.4%	9	18%
Below Standard	10.0	27.8%	11	22%
Weak	6.0	16.7%	15	31%
Showed Little Knowledge	1.0	2.8%	10	20%
Did Not Attempt	0.0	0.0%	2	4%
		% KU	% SJ	% CJ
Maximum Mark	23.0	65%	81%	0%
Average Mark	9.8	24%	31%	0%
Standard Deviation	5.7			
Co-efficient of Variation	0.59			

This question covered how outsourcing is governed by the various APRA standards and the impact of outsourcing the actuarial functions during product development.

Part a):

- Candidates were asked to list the requirements under LPS231, LPS510 and LPS520, and identify the implications for outsourcing the actuarial functions. These standards are part of the course of reading listed on the LMS but they need to be downloaded from the APRA site. The student should have them in their notes which may be accessed in an open book exam. Each standard includes a summary of the main requirements
- Candidates performed poorly in general when compared to other questions. Some candidates did not answer the question and gave considerations in outsourcing the actuarial function.

Part b):

- Candidates were asked to evaluate the likely impact outsourcing will have on each step of the product development process.
- Candidates performed better in part b compared to part a. The vast majority of candidates were able to identify the steps in a product development process. A lot of candidates gave a text book answer on the step and did not consider the impact of outsourcing on the product development process.

**Question 6**                      **Total Marks: 30**      **(0 KU 12 SJ 18 CJ)**

	Raw Marks Required	% of Total Marks	Number of Candidates	Proportion of Candidates
Strong Pass	18.0	60.0%	1	2%
Pass	14.0	46.7%	10	20%
Below Standard	11.0	36.7%	17	35%
Weak	6.0	20.0%	15	31%
Showed Little Knowledge	1.0	3.3%	4	8%
Did Not Attempt	0.0	0.0%	2	4%
		% KU	% SJ	% CJ
Maximum Mark	18.0	0%	75%	69%
Average Mark	10.7	0%	38%	34%
Standard Deviation	4.0			
Co-efficient of Variation	0.37			

This question tested the candidates' understanding of profit measures for different life insurance products.

Part a):

- Candidates were asked to advise the CEO on the minimum profitability requirements for risk business vs. unit linked business based on actual profit results presented.
- Candidates answered this part adequately but some merely stated that risk business had a higher level of risk and stated several additional factors without referencing the risk level to the shareholders capital invested.

Part b):

- Candidates were asked to critically evaluate the profit results presented and comment on the profitability impact of new business and in force business if premiums are reduced by 5% on average.
- This part was poorly answered with candidates failing to present their answer in a clear and logical manner. Many candidates just listed information without commenting on it in a scatter gun approach presenting any idea that they thought might be remotely relevant. Many candidates also emphasized an increase in the capital strain without identifying from the question that the increase in the capital strain was actually quite mild.

### 3. Results

#### 3.1. *Pass List Recommendations (not included in public version)*

The recommended pass list is as follows.

**Table 13 – Pass List**

112056  
112113  
112169  
112270  
112278  
112280  
112289  
112323  
112355  
112395

# Course 2B Life Insurance Examination Report

---

## 1. Summary

### 1.1. Course Overview

The aim of the 2B Life Insurance Course is to provide the knowledge, skills and judgement necessary for an actuary to tackle a range of management related problems in life insurance relating to valuation techniques, capital management, profit analysis, valuation of a company, reporting of results and professionalism.

### 1.2. Pass Rates

44 Candidates enrolled for the Semester 2 2011, 2B Course. There was 1 withdrawal from the course and 2 candidates were absent from the exam, leaving 41 candidates sitting the exam.

The assessment comprised one assignment worth 15% and an exam worth the remaining 85%.

It is proposed that 6 candidates be awarded a pass, which implies a pass rate of 15%. This compares with the historical pass rates for this subject shown in the following table:

**Table 1 – Course Experience**

Semester	Sat	Passed	Pass Rate
2011 Semester 1	41	16	39%
2010 Semester 2	39	16	41%
2010 Semester 1	63	28	44%
2009 Semester 2	62	24	39%
2009 Semester 1	52	17	33%
2008 Semester 2	50	21	42%
2008 Semester 1	36	14	39%

The 15% pass rate for this exam is significantly lower than the pass rates for recent exams.

### 1.3. Candidate Numbers

The Candidate numbers can be summarised as follows:

**Table 2 – Candidate Numbers**

	Number of candidates
Originally enrolled	44
Withdrawn prior to exam	1
Absent from exam	2
Presented at exam	41
Passed	6
Failed	35

The analysis by examination centre is as follows:

**Table 3 – Analysis by Examination Centre**

<b>Centre</b>	<b>Presented</b>	<b>Passed</b>	<b>Pass Rate</b>
Sydney	17	2	12%
Melbourne	9	1	11%
Brisbane	1	0	0%
<b>Australia</b>	<b>27</b>	<b>3</b>	<b>11%</b>
Auckland	3	2	67%
London	3	0	0%
Hong Kong	3	0	0%
Shanghai (Yu)	1	0	0%
Singapore	4	1	25%
<b>International</b>	<b>14</b>	<b>3</b>	<b>21%</b>
<b>Total</b>	<b>41</b>	<b>6</b>	<b>15%</b>

## **2. Examination Administration**

### **2.1. Examiners**

The examiners for this semester were:

Chief Examiner: Gary Musgrave

Assistant Examiners: Kirsty Hogan and Mark Barda

## 2.2. Course Leader

Thanks to the following volunteers for their assistance in taking responsibility for an area of the course this semester:

**Table 5 – Course Leaders**

Area	Responsibility
Exam setting	Michael Lau with assistance from the following volunteers who drafted one question each:  Ashley Wilson Alana Patterson
Assignment setting, Tutorials and Online forum	Steve Miles

## 2.3. Exam Marking Process

The examination was held on Wednesday, 19<sup>th</sup> October 2011. The examination scripts were delivered to the markers with a deadline for completion of Thursday 10<sup>th</sup> November 2011.

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.

Each pair of markers 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.

The markers then 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.

Many thanks to the markers for getting their marks to the Chief Examiner by the deadline date, especially to those markers who delivered their results early.  
Examination Papers and Assignments

## 2.4. Degree of Difficulty and Course Coverage

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

**Table 5 – Degree of Difficulty of Exam**

Question	Syllabus Performance Outcome	Knowledge & Understanding	Straight-forward judgement	Complex Judgement	Total Marks
1 a)	12	1			1
1 b)	12	4			4
1 c)	2,9,12			7	7
1 d)	4,12		5		5
1 e)	4,12		2		2
2 a)	5	5	2		7
2 b)	5		6		6
2 c)	5			6	6
3 a)	7		3		3
3 b)	7	2	3	1	6
3 c)	7	1			1
3 d)	7	2	2		4
3 e)	7		1	3	4
3 f)	7			4	4
4 a)	1	2	3		5
4 b)	1,2,3		8		8
4 c)	1,2,3			7	7
5 a)	4	2			2
5 b)	4		1		1
5 c)	4	1	1	2	4
5 d)	4			6	6
5 e)	4		5	2	7
<b>TOTAL</b>		<b>20</b>	<b>42</b>	<b>38</b>	<b>100</b>

**Table 6 – Course Coverage by Question**

Question	Units	Knowledge & Understanding (KU)	Straight-Forward Judgement (SJ)	Complex Judgement (CJ)	Total Marks
1	1,2,5,6	5	7	7	19
2	3	5	8	6	19
3	4	5	9	8	22
4	1,2	2	11	7	20
5	2	3	7	10	20
<b>Total</b>		<b>20</b>	<b>42</b>	<b>38</b>	<b>100</b>

Based on the units of the course each question covered, the exam covered the course material. Each question had differing degrees of difficulty, reflected in the differing spread of KU, SJ and CJ type marks.

### 2.5. Overall Performance

The aim in setting the exam was to have reasonable questions covering the basic principles of the course.

The performance of candidates was very poor with a 15% pass rate. This was disappointing as the questions were considered reasonable and not hard. This is much lower than recent exams where pass rates have been around 40%.

The 44% pass rate for question 1 was reasonable. However, the performance on the other questions was very poor, with question 2 (12%), question 3 (15%), question 4 (17%) and question 5 (17%) having very low pass rates.

Main issues contributing to the low pass rate are:

- A lack of understanding of the basic concepts covered in the course, shown by the majority of students unable:
  - To satisfactorily perform an analysis of profit by knowing they had to allocate the components of the change in policy liabilities to cashflow items in question 2.
  - To determine the link between MOS profits and Distributable profits in question 3.
  - To determine an appropriate risk discount rate for an Appraisal Value in question 3.
- Inability to apply judgement to various practical situations, reflected in students receiving on average of only 40% (47% previous exam) of total available marks for simple judgement and 30% (47% previous exam) of total available marks for complex judgement. Of concern is the best candidate on complex judgement only received 46% of the total available marks.
- Poor exam technique, particularly in not reading the question. Instances of this were more common in this exam compared to previous exams. Some examples include:
  - Not allocating components of change in policy liabilities when specifically requested to do so in question 2.



- This was a straight forward question, reflected in the average mark of 1.6/2.
- Whilst most candidates were able to provide a brief answer in 2 lines and get full marks, other candidates demonstrated poor exam technique by writing a full page but not getting full marks for a question worth 1 mark.

Part b)

- Candidates were asked to discuss how they would structure and format the FCR so that their points are effectively communicated to the Directors.
- For a relatively easy question this was poorly answered with an average mark of 3.2/8.
- Most candidates covered key points such as: FCR should be sub-divided into sections, inclusion of an Executive Summary and must comply with PS200.
- Few candidates mentioned including a Contents Page, an Appendix for technical details and including a Dictionary of terms in one of the appendices,
- Many candidates did not read the question properly, as they just listed the contents of the FCR (perhaps thinking of a past exam question).

Part c):

- Candidates were asked to discuss the issues that you would expect to encounter in preparing their first FCR and how they would plan to resolve these issues.
- This was poorly answered with an average mark of 5.7/14.
- A number of candidates failed to recognise the circumstances of the company (in its first year).
- Some candidates did not structure their answer to ensure there was a solution covering each issue raised.
- Some of the comments were generic (model risk and data risk) but did not specifically link this to the question.
- Most candidates were able to identify assumption setting and lack of knowledge as key issues and describe actions to resolve these issues.
- Few candidates were able to identify issues related to administration systems, data integrity, expense apportionment and a risk framework.
- No candidate mentioned the conflict of interest the Appointed Actuary may face.

Part d):

- Candidates were asked to provide reasons for why in the FCR they recommended no dividends be paid and for each reason provided, explain whether or not it is absolutely critical that no dividend be paid.
- Answers were reasonable for this question with an average mark of 4.6/10.
- Most candidates commented on Capital Adequacy and Target Surplus, and recognised that not paying a dividend is critical to meet Capital Adequacy, but not necessary for Target Surplus.
- Few candidates mentioned Solvency standards and its importance and a lot of the students did not think about the profitability in the first year.

- A number of candidates ignored the fact that the company was in the first year of operation and either missed the point about no profit and hence no dividend, or mentioned there was no profit but the dividend could be paid out of retained earnings.

Part e):

- Candidates were asked to describe the actions you could take if the Directors ignored your recommendation and decided to pay a dividend to shareholders.
- This was a relatively easy question, reflected in the average mark of 2.8/4.
- Most candidates were able to identify the key points of whistle blowing and the need to have a meeting with the Directors to discuss the issues.

**Question 2**

**Total Marks: 38 (10 KU 16 SJ 12 CJ)**

	Raw Marks Required	% of Total Marks	Number of Candidates	Proportion of Candidates
Strong Pass	26.0	68.4%	0	0%
Pass	17.5	46.1%	5	12%
Below Standard	14.0	36.8%	3	7%
Weak	8.0	21.1%	13	32%
Showed Little Knowledge	1.0	2.6%	19	46%
Did Not Attempt	0.0	0.0%	1	2%
		% KU	% SJ	% CJ
Maximum Mark	24.8	100%	78%	52%
Average Mark	9.6	37%	21%	21%
Standard Deviation	5.4			
Co-efficient of Variation	0.57			

Candidates performed very poorly on this question with a pass rate of 12%.

Candidates were asked to perform an analysis of profit for YRT business, comment on the analysis of profit and outline any further investigations required.

The analysis of profit was relatively straight-forward for a simple line of business with actual and expected cashflows and policy liability items clearly set out in the question. As such, the low pass rate was disappointing. We would expect candidates to have a sound grasp of how to do an analysis of profit, and thus would expect candidates to perform better on this type of question. Many candidates did not demonstrate an understanding of the fundamental principle of an analysis of profit in that components of the change in policy liabilities need to be allocated to cashflow items. Easy marks were missed because candidates did not read the question properly, indicating poor exam technique.

Part a):

- Candidates were required to complete an analysis of profit by determining the components of the change in policy liabilities and allocate them to the appropriate cashflow item.
- The performance on this question was poor with an average mark of 4/14.
- Most candidates weren't sure how to approach it at all, in contrast to the few who answered relatively well.
- Some candidates over complicated the determination of the lapse impact on policy liabilities.
- Several candidates did not show their workings as requested by the question. As a result, candidates were only allocated half the marks available.
- Many candidates simply regurgitated the table given in the question i.e. did not group reinsurance in any way or with claims – this was not awarded any marks.
- Several candidates failed to allocate each component of change in policy liabilities to a cashflow item as requested by the question.
- Some candidates recalculated experience items with interest when this was already given in the question.
- Candidates missed easy marks by not calculating the total explained experience profit and not commenting on the unexplained profit. This is surprising as these two items were included in the solution to the previous semester's analysis of profit question.

Part b):

- Comments were required on each experience item in the analysis of profit, explaining whether or not there was a potential issue that needed further investigation.
- The performance on this question was poor with an average mark of 3/12.
- Candidates missed some easy marks, by not commenting on each experience item in the analysis of profit as requested in the question. Many only commented on the experience items which needed investigation.
- Most candidates commented on the need to investigate the adverse renewal expenses and claims experience.
- However, fewer candidates commented on the need to investigate the adverse reinsurance claims experience.
- Some candidates were able to make reasonable comments irrespective of how they answered part a).
- Some candidates went over and above what was required here by answering some of part c) in their responses.
- Only 3 candidates thought the discount rate impact was worth checking despite its size.

Part c):

- Candidates were asked to describe the investigations they would undertake in regards to the issues identified in part b).

- The performance on this question was poor with an average mark of 2.5/12.
- Most candidates failed to provide sufficient points in their answers.
- No one commented on the checks they would perform on the change in policy liability from the change in rdr assumption.

**Question 3** **Total Marks: 44 (10 KU 18 SJ 16 CJ)**

	Raw Marks Required	% of Total Marks	Number of Candidates	Proportion of Candidates
Strong Pass	30.0	68.2%	1	2%
Pass	22.0	50.0%	5	13%
Below Standard	17.0	38.6%	16	39%
Weak	10.5	23.9%	15	37%
Showed Little Knowledge	1.0	2.3%	3	7%
Did Not Attempt	0.0	0.0%	1	2%
		% KU	% SJ	% CJ
Maximum Mark	30.8	85%	64%	70%
Average Mark	16.6	54%	30%	36%
Standard Deviation	5.5			
Co-efficient of Variation	0.33			

Candidates performed very poorly on this question with a pass rate of 15%.

LONGLIFE, a life company is asked if it is interested in buying AUSMU Life.

AUSMU Life provides LONGLIFE with information to calculate the Appraisal Value based on the PV of future MOS profits for Inforce and new business as well as assumptions used in the calculation.

The poor pass rate indicates students do not have a full understanding of the Appraisal Value concepts. The majority of candidates did not understand the relationship between MOS profits and Distributable profits. Many candidates were not able to recommend an appropriate risk discount rate with reasons.

Part a):

- Candidates were required to state the standard VIF formula, derive an alternative formula using information in the question and calculate the VIF.
- The performance on this question was poor with an average mark of 1.3/6.
- More than half the candidates failed to get full marks on the straight forward question of stating the standard VIF formula. Many stated that the VIF = PV Profit Margin + Value of Capital, even though the question asks for all cashflow items to

be included.

- No candidates attempted to derive a formula for part ii) from first principles using the formula in part i) as a starting point. If this had been done, more candidates would have determined the alternative VIF formula correctly.
- Only one candidate gave the correct alternative formula. However, no steps were shown in deriving the formula.

Part b):

- Candidates were required to specify a formula for calculating the value of 2012 forecast sales that uses the information in the question, provide reasons why this is different to the VIF formula and calculate the Value of New Business.
- This was poorly answered with an average mark of 2.1/12.
- The majority of candidates specified a formula for VNB for all future years, instead of 2012.
- Very few candidates were able to correctly identify the differences between the 2012 VNB and VIF formula.
- Most candidates acknowledged the need to calculate VNB by multiplying VNB 1 yr by multiplier. However, most candidates calculated one or both components incorrectly.

Part c):

- Candidates were asked to calculate the Adjusted Net Worth and the Appraisal Value.
- This was reasonably answered with an average mark of 1.1/2.
- Most candidates were able to calculate the Appraisal Value correctly based on the calculations performed earlier in the question.
- However, less than half the candidates calculated the adjusted net worth correctly.

Part d):

- Candidates were required to set out the formula for calculating the risk discount rate using the CAPM Method (explaining all terms in the formula) and describe the factors you may need to consider in setting a risk discount rate.
- This part was well answered with an average mark of 5/8.
- Most candidates were able to state the CAPM formula, explaining all terms.
- However, fewer were able to describe adequately the factors needed to be considered in setting a risk discount rate.

Part e):

- Candidates were asked to discuss the appropriateness of the risk discount rate assumption, recommend any changes to the assumption with reasons and describe the impact on the Appraisal Value.
- This was poorly answered with an average mark of 3.1/8.
- Most candidates were able to point out that the rdr is too low, but the reasons used

to back this claim were weak.

- Some candidates calculated the equity risk premium by subtracting investment earning rate from  $r_{dr}$ . Whilst this is correct because the investment earning rate equals risk free rate for this question, few candidates explicitly stated that.
- Many candidates did not provide a recommendation of a suitable  $r_{dr}$ , although the question clearly asks for a recommendation.
- Most candidates were able to describe the impact on the Appraisal Value of a change in the  $r_{dr}$  assumption.

Part f):

- Candidates were asked to discuss the appropriateness of the sales growth rate assumption, recommend any changes to this assumption and the margin squeeze assumption with reasons, and describe the impact on the Value of New Business.
- This was reasonably answered with an average mark of 3.9/8.
- Most candidates were able to point out that the sales growth assumption is too high, but failed to recommend with reasons a more appropriate assumption.
- Many candidates appeared not to understand what margin squeeze means.
- Some recommended an increase in margin squeeze rate while reducing the sales growth assumption.

**Question 4** **Total Marks: 40 (4 KU 22 SJ 14 CJ)**

	Raw Marks Required	% of Total Marks	Number of Candidates	Proportion of Candidates
Strong Pass	28.0	70.0%	1	2%
Pass	21.5	53.8%	6	15%
Below Standard	16.0	40.0%	16	39%
Weak	10.0	25.0%	16	39%
Showed Little Knowledge	1.0	2.5%	2	5%
Did Not Attempt	0.0	0.0%	0	0%
		% KU	% SJ	% CJ
Maximum Mark	28.0	100%	70%	64%
Average Mark	16.5	75%	42%	30%
Standard Deviation	4.5			
Co-efficient of Variation	0.27			

Candidates performed poorly on this question with a pass rate of 17%.

This question looked at issues concerning disability business, covering the appropriateness of different profit carriers, possible reasons for profit volatility and actions to reduce profit volatility.

The majority of candidates were poor on the judgement parts of the question, unable to come up with sufficient points. In part c) few candidates mentioned the critical issue of changing the commission structure from high upfront commission to lower upfront commission and higher renewal commission.

Part a):

- Candidates were asked to explain why expected claim payments (adjusted for actual premium volumes) is a more appropriate profit carrier than actual claims or actual premiums.
- The question was answered well with an average mark of 6.1/10.
- Most candidates were able to describe the principle for the choice of profit carrier under LPS1.04, the service provided and why actual claims is more appropriate than actual premiums as a profit carrier.
- However, many candidates failed to explain adequately why expected claims (adjusted for actual premium volumes) is more appropriate than actual claims as a profit carrier.

Part b):

- Candidates were asked to describe the economic assumption changes, the non-economic assumption changes and experience items that may have contributed to profit volatility.
- This part was not answered well with an average mark of 6.2/16.
- Most candidates outlined the requirements of the accounting standards, for the risk discount rate to be determined as the risk free rate of a matching replicating portfolio.
- Most candidates mentioned incidence and termination experience. However only 1 candidate discussed the impact of profile changes causing adverse termination experience.
- Only a few candidates mentioned:
  - profit volatility can arise as the change in the risk discount rate for the DLR may not be the same as the change in the market yield of the assets, even though assets are matched.
  - the capitalisation impacts on profit of IBNR and RBNA assumption changes.
  - a negative liability has no matching assets, and so a small variation in lapse rates can have a significant profit impact.
  - actual investment earning rates will have a volatile impact on profit given the company's level of assets.
  - provided numerical examples to illustrate volatility impacts.

Part c):

- Candidates were asked to describe the actions that could be taken to overcome profit volatility.
- This part was answered poorly with an average mark of 4.2/14.
- Few candidates mentioned the critical issue of changing the commission structure from high upfront commission to lower upfront commission and higher renewal commission.
- Most candidates included reinsurance in their answer. However, very few received the full 2 marks for this part. Candidates usually only provided one type of reinsurance arrangement to explain how this could reduce profit volatility rather than discuss both quota share and excess of loss.
- Candidates failed to think broadly for this part of the question. Some simple and fairly general solutions applicable to this question were not mentioned, e.g. risk diversification strategies (different locations, products, distribution channel).
- Some candidates referred to reducing expenses, but this is not applicable as the company has met its budgeted expenses.
- Many candidates referred to better matching of assets and liabilities to reduce profit volatility, but this is not applicable in this case due to negative liabilities.

**Question 5**

**Total Marks: 40 (6 KU 12 SJ 22 CJ)**

	Raw Marks Required	% of Total Marks	Number of Candidates	Proportion of Candidates
Strong Pass	28.0	70.0%	0	0%
Pass	21.0	52.5%	7	17%
Below Standard	16.0	40.0%	18	44%
Weak	10.0	25.0%	13	32%
Showed Little Knowledge	1.0	2.5%	3	7%
Did Not Attempt	0.0	0.0%	0	0%
		% KU	% SJ	% CJ
Maximum Mark	23.8	96%	100%	43%
Average Mark	16.8	66%	62%	24%
Standard Deviation	3.9			
Co-efficient of Variation	0.23			

This question was poorly answered with a pass rate of 17%.

This question covered the capital adequacy issues facing a life company with YRT and single premium term business.

The majority of candidates were poor on the judgement parts of the question, unable to come up with sufficient points. Easy marks were missed because candidates did not read the question properly in parts d) and e), indicating poor exam technique.

Part a):

- Candidates were asked to explain what is meant by the Capital Adequacy and describe how it is calculated.
- This was straightforward, reflected in the average mark of 2.2/4.

Part b):

- Candidates were asked to explain why the New Business Reserve may be zero under the Capital Adequacy Standard.
- This was straightforward, reflected in the average mark of 1.4/2.

Part c):

- Candidates were asked to explain how a FITB arises and why a FITB may be an inadmissible asset under the Solvency Standard but an admissible asset under the Capital Adequacy Standard.
- This part was not answered well with an average mark of 3/8.
- Few candidates could explain adequately how a FITB arises.
- Most candidates were able to describe the run off situation for a company in respect of the Solvency Standard and also describe the company as an ongoing concern under the Capital Adequacy Standard.
- However, few candidates could relate this to why the FITB was inadmissible under the Solvency Standard but admissible under the Capital Adequacy Standard.

Part d):

- This covered the potential to reduce the capital adequacy margin below 40% with reasons why a 40% margin was chosen.
- This was poorly answered with an average mark of 3.6/12.
- Many candidates only included in their answers why a 40% margin may have been chosen.

Part e):

- Candidates were required to draft a memo to the CFO explaining the reasons why he may wish to ask for a capital injection in excess of \$20m and the specific risks the company faces.
- This was reasonably answered with an average mark of 6.6/14.
- Most candidates were able to identify Target Surplus as the important concept and general reasons for holding the Target Surplus.
- Few candidates discussed the specific issues the company faces.

### 3. Results

#### 3.1. *Pass List Recommendations*

The recommended pass list is as follows.

**Table 13 – Pass List**

112048
112052
112068
112153
112287
112306

# Course 3A General Insurance Examination Report

## 1. Summary

### 1.1. Course Overview

The aim of the 3A General Insurance Course is to provide the knowledge, skills and judgement necessary for an actuary to tackle a range of management related problems in general insurance relating to the general insurance industry, estimation techniques for claim cost projection, estimation of insurance liabilities, and management information for underwriting of general insurance.

### 1.2. Pass Rates

82 Candidates enrolled for the Semester 2, 2011 3A General Insurance exam. Of these, 4 withdrew. The assessment comprised one assignment worth 15% and an exam worth the remaining 85%.

It is proposed that 18 Candidates be awarded a pass, which implies a pass rate of 23%.

This compares with the following historical pass rates for this subject:

**Table 1 – Course Experience**

Semester	Sat	Passed	Pass Rate
2011 Semester 1	76	24	33%
2010 Semester 2	66	24	36%
2010 Semester 1	76	28	37%
2009 Semester 2	57	17	30%
2009 Semester 1	65	24	37%
2008 Semester 2	51	21	41%
2008 Semester 1	69	36	52%
2007 Semester 2	82	16	20%

The 23% pass rate for this exam is significantly lower than the pass rates for recent exams.

### 1.3. Candidate Numbers

The Candidate numbers can be summarised as follows:

**Table 2 – Candidate Numbers**

	Number of candidates
Originally enrolled	82
Withdrawn prior to exam	4
Absent from exam	0
Presented at exam	78
Passed	18
Failed	60

The analysis by examination centre is as follows:

**Table 3 – Analysis by Examination Centre**

<b>Centre</b>	<b>Presented</b>	<b>Passed</b>	<b>Pass Rate</b>
Sydney	60	14	23%
Melbourne	9	3	33%
Brisbane	3	1	33%
Adelaide	1	0	0%
<b>Subtotal Australia</b>	<b>73</b>	<b>18</b>	<b>25%</b>
Auckland	1	0	0%
Hong Kong	1	0	0%
London	1	0	0%
Singapore	2	0	0%
<b>Subtotal International</b>	<b>5</b>	<b>0</b>	<b>0%</b>
<b>Total</b>	<b>78</b>	<b>18</b>	<b>23%</b>

## **2. Examination Administration**

### **2.1. Examiners**

The examiners for this semester were:

Chief Examiner: David Gifford

Assistant Examiner: James Pettifer

Assistant Examiner: Yvonne Wong

### **2.2. Course Leader (Exam Writers)**

The Exam Writing for this semester was shared between several writers. These were:

Julianna Shing

Johnson Wong

Darren Robb

Nadeem Korim

Natasha De Souza

### **2.3. Exam Marking Process**

Each submitted assignment was marked by one marker. A common assignment was marked by all markers to identify any differences in marking. The Course Leader reviewed the assignments and made minor scaling adjustments to make the assessments consistent between markers.

It should be noted that the pass rate for the 3A assignment was 81%.

The examination was held on 19 October 2011. The examination scripts were delivered to the markers with a deadline for completion of 12 November 2011.

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.

The final marks were totalled to obtain a total mark for each candidate – these are shown in Appendix 1.

### 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 5 – Degree of Difficulty of Exam**

Question	Syllabus Performance Outcome	Units	Knowledge & Understanding	Straight-forward Judgement	Complex Judgement	Total Marks
1 (a)	2	2	4			4
1 (b)	2,3	2,3			5	5
1 (c)	2,3	2,3		3		3
1 (d)	2,3	2,3		5		5
1 (e)	2,3	2,3			4	4
2 (a)	1	1		7		7
2 (b)	3,4	3,4	4			4
2 (c)	1	1			4	4
2 (d)	1,4	1,4			4	4
3 (a)	2,3	2,3	3			3
3 (b)	2	2		5		5
3 (c)	2,3	2,3			4	4
3 (d)	2	2		7		7
4 (a)	1	1	3			3
4 (b)	1	1			13	13
4 (c)	1,3	1,3		5		5
5 (a)	4	4	8			8
5 (b)	4	4			4	4
5 (c)	4	4		8		8
<b>TOTAL</b>			<b>22</b>	<b>40</b>	<b>38</b>	<b>100</b>

**Table 6 – Course Coverage by Question**

Question	Units	Knowledge & Understanding	Straight-Forward Judgement	Complex Judgement	Total Marks
1	2,3	4	8	9	21
2	1,3,4	4	7	8	19
3	2,3	3	12	4	19
4	1,3	3	5	13	21
5	4	8	8	4	20
<b>Total</b>		<b>22</b>	<b>40</b>	<b>38</b>	<b>100</b>

### 3.2. Overall Performance

In setting the paper, the intention was to have a consistent level of difficulty with previous papers. However, the final standard was lower than the average of previous semesters. Pass rates over the previous seven semesters varied between 20% and 52% with an average of 35%. The pass rate for this semester is therefore at the bottom end of the range of historic pass rates.

The average raw exam mark this semester was 89, relative to 99, 89, 98, 99, 93, 90 and 110 for the June 2011, October 2010, April 2010, November 2009, May 2009, November 2008, and May 2008 examinations.

Comments in relation to this low pass rate are as follows:

- Some adjustments were made to pass marks by the examiners, relative to those originally awarded by the exam markers. This resulted in an additional four candidates being awarded automatic passes (i.e. without these adjustments the pass rate would most likely have been even lower). In particular the raw pass rate for question 4 was only 8% (6 out of 78) which was adjusted significantly based on review by the examiners.
- Examiners reviewed seven borderline candidates, with four passing and three failing, as well as the top two automatic fails. Examiners therefore reviewed in detail five failing candidates. All three examiners were comfortable with each of these candidates being awarded a fail. Each of the failing candidates demonstrated a number of examples of poor judgement and/or serious misunderstandings.
- It should be noted that this was the Chief Examiner's seventh semester as Chief Examiner (following two semesters as Assistant Examiner) and that the Chief Examiner is comfortable that the standard required for a pass has been set at a consistent level to previous semesters.
- It is noted that in the Semester 1, 2011 exam for 3A, a significant adjustment was made to the marks originally awarded as a result of noise outside the Sydney examination centre. This resulted in between 10 and 15 candidates passing who would not have been awarded a pass based on their raw marks. This adjustment was somewhat arbitrary, being designed to achieve a pass rate consistent with previous semesters. It is possible that a number of borderline candidates were passed last semester who, without the noise and subsequent, would have failed and then been candidates this semester, which may have resulted in a higher pass rate this semester.
- The exam was regarded as relatively straightforward by the examiners, with only one question (question 4, discussed above) being regarded as "left field" to any degree.

- Candidates generally displayed a lack of judgement across the paper, with students receiving on average of only 36% (46% previous exam) of total available marks for simple judgement and 33% (38% previous exam) of total available marks for complex judgement.

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

### 3.3. Exam Question by Question Analysis

**Question 1** **Total Marks: 42 (8 KU 16 SJ 18 CJ)**

	Raw Marks Required	% of Total Marks	Number of Candidates	Proportion of Candidates
Strong Pass	26.5	63.1%	9	12%
Pass	19.0	45.2%	13	17%
Below Standard	14.0	33.3%	17	22%
Weak	9.5	22.6%	15	19%
Showed Little Knowledge	1.0	2.4%	20	26%
Did Not Attempt	0.0	0.0%	4	5%
		% KU	% SJ	% CJ
Maximum Mark	34.0	100%	88%	83%
Average Mark	14.3	49%	34%	27%
Standard Deviation	8.2			
Co-efficient of Variation	0.57			

This question required candidates to calculate the IBNR for a Property/ISR insurance portfolio using chain ladder method. Candidates then needed to calculate and comment on the prior accident years' reserves release/strengthening for a liability portfolio. Overall the question was answered reasonably well.

Part (a) required candidates to comment on the appropriateness of chain ladder factors selected and recommend IBNRs by accident years. This part was generally well answered, although a number of the candidates failed to consider the qualitatively development state of the accident year e.g. for an accident year where there was zero case estimate for the past twelve months, it is appropriate to allow for no IBNR.

Part (b) required candidates to estimate the gross and net IBNR for an accident year impacted by a major natural catastrophe, with incurred cost already exceeded the catastrophe reinsurance event retention. Overall this part was generally well answered. In the cases where candidates did not score satisfactorily, it was due to poor understanding and incorrect application of reinsurance in calculation of net IBNR.

Part (c) presented students with the reserve release/strengthening of historical net outstanding claims reserve (including risk margins) as at the past valuation dates by accident year, as well as net claims paid and discounted outstanding claims provision. Candidates were required to calculate the release or strengthening in outstanding claims reserve for prior years only. This part was relatively straightforward and answered quite well with most candidates achieving full marks.

Part (d) required students to calculate the reserve release / strengthening in net outstanding claims reserve, removing the impact of risk margins and discounting. This part was challenging and this was reflected in the marks. Many candidates did not attempt.

Of those who attempted, most did not apply the 'unwinding' of discount correctly. Removing the impact of risk margins were more straightforward and was applied more consistently.

Part (e) required students to comment on the underlying experience of the liability portfolio based on observations made in part (c) and part (d). This part was not answered well. Comments made were generally vague and candidates who did not complete previous parts struggled in particular.

**Question 2** **Total Marks: 38 (8 KU 14 SJ 16 CJ)**

	Raw Marks Required	% of Total Marks	Number of Candidates	Proportion of Candidates
Strong Pass	28.0	73.7%	0	0%
Pass	20.0	52.6%	25	32%
Below Standard	16.0	42.1%	20	26%
Weak	10.0	26.3%	21	27%
Showed Little Knowledge	1.0	2.6%	9	12%
Did Not Attempt	0.0	0.0%	3	4%
		% KU	% SJ	% CJ
Maximum Mark	26.5	100%	86%	69%
Average Mark	16.3	75%	36%	33%
Standard Deviation	6.4			
Co-efficient of Variation	0.39			

This question presented candidates with a non-traditional general insurance business, which insures against satellite launch failure (Launch insurance), and Orbit insurance which covers satellites for in-orbit technical problems. Candidates were tested on various issues, including the calculation of premium liabilities, the basic criteria for insurability and the appropriateness of a proposed bonus structure. Overall the question was not answered well.

Part (a) required candidates to estimate the net premium liabilities (in accordance with GPS 310), unearned premium liabilities (in accordance with AASB 1023), deferred acquisition cost net of reinsurance commission and unexpired risk liability, for a "Launch + 1 year orbit" policy. Overall the answers to this question were unsatisfactory. Some common areas where candidates lost marks were

- a large number did not understand the overall average claim size at 75<sup>th</sup> percentile
- some did not realize the product was a launch AND orbit policy
- candidates largely did not understand the concept of ceding commission
- some approached the question as a traditional loss ratio times unearned premium question and did not acknowledge it was a frequency times severity question.

Part (b) required candidates to assess the proposed products using the basic criteria for insurability and comment on whether the products were insurable. This part was relatively straightforward and answered well with most candidates achieving the majority of marks. Some easy marks were missed by not making a conclusion that the products were insurable.

Part (c) asked candidates to comment on the advantages and disadvantages of a proposal to expand the Launch and Orbit policy as an addition to the current portfolio,

which consists of householders insurance only. Candidates were also required to include any recommendations and considerations for the planned expansion. Overall the question was answered reasonably well.

Part (d) presented candidates with a proposed bonus structure for underwriters and they were asked to comment on the appropriateness of the proposal on three types of policy (Householders, Launch + 1 year orbit and 3 year orbit). This question was poorly answered, with most candidates in general commented on the magnitude of the bonus and fairness of the approach to underwriters, rather than focusing on the suitability of the proposed structure considering the risk profile of the products in question.

**Question 3** **Total Marks: 38 (6 KU 24 SJ 8 CJ)**

	Raw Marks Required	% of Total Marks	Number of Candidates	Proportion of Candidates
Strong Pass	28.0	73.7%	7	9%
Pass	24.0	63.2%	23	29%
Below Standard	17.0	44.7%	32	41%
Weak	12.0	31.6%	7	9%
Showed Little Knowledge	1.0	2.6%	9	12%
Did Not Attempt	0.0	0.0%	0	0%
		% KU	% SJ	% CJ
Maximum Mark	29.5	100%	77%	125%
Average Mark	20.4	60%	46%	72%
Standard Deviation	6.2			
Co-efficient of Variation	0.31			

This question required candidates to work through an annual valuation of outstanding claims liabilities for a general insurer and provide various calculations and commentary. Overall, the question was considered to be very easy in having 9 marks from simple calculations and 3 marks from a standard book work question.

Part a) was a simple book work question asking for the data checks required on valuation data. The majority of students were able to get marks for this question with an average mark of 1.8 out of 3 but given the standard nature of this question, we would have expected the average mark to be higher.

Part b) had two parts and required candidates to calculate the percentage of claims completed and the number of claims remaining in each operating time band. This part was answered well with an average mark of 3.9 out of 5 but only required simple arithmetic once the candidate understood what the question was asking around operational time.

Part c) required candidates to calculate the undiscounted outstanding claims liability in current values by multiplying the answers in question b by a selected average claim size. The average mark for this question was 2.9 out of 4 but only required very simple calculations. A number of students did not read the question clearly and inflated their result rather than leaving it in current values.

Part d) was clearly the most difficult part of the overall question and was the real distinguisher for the good students. The average mark for this question was 1.6 out of 7 with many students not attempting significant parts of the question. Most students obtained marks on the first two parts of the questions with an average mark of 1.2 out of 3. Very few students were able to explain any features of the claims experience which led to the

difference between the expected central estimate and the rolled forward estimate with the average mark on this part being 0.4 out of 4.

**Question 4** **Total Marks: 42 (6 KU 10 SJ 26 CJ)**

	Raw Marks Required	% of Total Marks	Number of Candidates	Proportion of Candidates
Strong Pass	26.0	61.9%	1	1%
Pass	15.0	35.7%	18	23%
Below Standard	11.0	26.2%	13	17%
Weak	5.0	11.9%	34	44%
Showed Little Knowledge	1.0	2.4%	11	14%
Did Not Attempt	0.0	0.0%	1	1%
		% KU	% SJ	% CJ
Maximum Mark	32.5	83%	100%	67%
Average Mark	10.9	54%	19%	22%
Standard Deviation	5.8			
Co-efficient of Variation	0.54			

This question required candidates to consider the introduction of a National Injury Insurance Scheme in a state with an existing fault based CTP scheme. This question is very relevant give the proposed National Injury Insurance Scheme to be introduced in Australia by the end of 2013, although was relatively unusual relative to questions asked over previous exams.

Part (a) required candidates to list the stakeholders of the existing scheme. This part was answered reasonably well with most candidates making reasonable progress. The better candidates correctly identified medical and legal providers and the existing scheme regulator as stakeholders.

Part (b) required candidates to discuss how the introduction of the National Injury Insurance Scheme would impact on the various stakeholders, considering eligibility and coverage, changes to premiums, benefits, the various types of compensation, the process of accessing compensation, and the logistical organisation for providing and managing care and compensation. This part was generally answered fairly poorly, with an average mark of less than 3 out of 13. While in particular candidates did not fully grasp the implications of the scheme for those injured, and did not distinguish between the differing impact for those at fault and not at fault. This reflected a relatively significant lack of understanding of the basis for accident compensation.

Part (c) required candidates to describe the changes necessary in performing an outstanding claims valuation one year after the introduction of the NIIS. This was also answered fairly poorly with many candidates failing to distinguish between accident periods before and after the introduction of the NIIS.

**Question 5****Total Marks: 40 (16 KU 16 SJ 8 CJ)**

	Raw Marks Required	% of Total Marks	Number of Candidates	Proportion of Candidates
Strong Pass	27.5	68.8%	12	15%
Pass	22.3	55.6%	20	26%
Below Standard	15.0	37.5%	23	29%
Weak	7.0	17.5%	18	23%
Showed Little Knowledge	1.0	2.5%	1	1%
Did Not Attempt	0.0	0.0%	4	5%
		% KU	% SJ	% CJ
Maximum Mark	34.8	100%	88%	100%
Average Mark	19.2	66%	34%	41%
Standard Deviation	8.1			
Co-efficient of Variation	0.42			

This required candidates to examine various accounting (balance sheet and profit and loss) information for a general insurer and provide various calculations and commentary. Overall, the question was considered to be of moderate difficulty which resulted in clear differentiation between candidates performance.

Part a) was a calculation question asking for a number of derived measures. Some candidates struggled with some of the calculations and definitions including some who included expenses as part of calculations around claims incurred. The average mark was quite high at 5.2 out of 8.

Part b) required commentary on the factors that affected underwriting results across the four years. Overall, this question was not well answered with almost half of the marks awarded coming from the identification that there were high costs in 2008 likely from a catastrophic event. Overall, the average mark was 1.6 out of 4.

Part c) was the most difficult part of the overall question with an average mark for this question was 2.7 out of 8. The question required the calculation of the insurance result and net profit stating any assumptions made and commentary on the profitability of the portfolio. Few students made sensible comments on the assumptions made and many didn't attempt all parts of the question.

## 4. Results

### 4.1. Pass List Recommendations

The recommended pass list is as follows.

**Table 17 – Pass List**

112016	112098	112180	112223	112344
112043	112102	112189	112237	112421
112051	112149	112194	112290	
112069	112160	112199	112317	

# Course 3B General Insurance Examination Report

## 1. Summary

### 1.1. Course Overview

The aim of the 3B General Insurance Course is to provide the knowledge, skills and judgement necessary for an actuary to tackle a range of management related problems in general insurance relating to the pricing of all general insurance products, capital management and financial condition reporting.

### 1.2. Pass Rates

72 Candidates enrolled for the Semester 2, 2011 3B General Insurance course. There were 5 withdrawals from the course and 2 candidates were absent from the exam, leaving 65 candidates sitting 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 31%. This compares with the following historical pass rates for this subject:

**Table 1 – Course Experience**

Semester	Sat	Passed	Pass Rate
2011 Semester 1	58	20	35%
2010 Semester 2	53	21	40%
2010 Semester 1	53	21	40%
2009 Semester 2	63	33	35%
2009 Semester 1	50	16	32%
2008 Semester 2	62	23	37%
2008 Semester 1	40	16	40%

### 1.3. Candidate Numbers

The Candidate numbers can be summarised as follows:

**Table 2 – Candidate Numbers**

	Number of candidates
Originally enrolled	72
Withdrawn prior to exam	5
Absent from exam	2
Presented at exam	65
Passed	20
Failed	45

**Table 3 – Analysis by Examination Centre**

<b>Centre</b>	<b>Presented</b>	<b>Passed</b>	<b>Pass Rate</b>
Sydney	46	15	33%
Melbourne	7	3	43%
Canberra	2	0	0%
Perth	2	1	50%
Brisbane	1	0	0%
Adelaide	2	0	0%
<b>Australia</b>	<b>60</b>	<b>19</b>	<b>32%</b>
Hong Kong	1	0	0%
London	3	1	33%
Shanghai	1	0	0%
<b>International</b>	<b>5</b>	<b>1</b>	<b>20%</b>
<b>Total</b>	<b>65</b>	<b>20</b>	<b>31%</b>

The Australian pass rate of 31% is slightly lower compared to the pass rate for the previous exam (35% for Semester 1 2011).

International candidates performed poorly with a pass rate of 20% (1 out of 5 passed).

#### **1.4. Chief Examiner's Observations**

The exam preparation and sign off by BOE Reviewers went smoothly. The marking process also proceeded smoothly this semester.

## **2. Examination Administration**

### **2.1. Examiners**

The examiners for this semester were:

Chief Examiner:	Jim Qin
Assistant Examiner:	Frankie Chan

### **2.2. Course Leader**

The Course Leader for this semester was Rick Shaw.

### **2.3. Exam 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 reviewed the assignments. No scaling adjustment was made.

It should be noted that the pass rate for the 3B assignment is 80%.

The examination was held on 18<sup>th</sup> October 2011. The examination scripts were delivered to the markers with a deadline for completion of 10<sup>th</sup> November 2011.

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.

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. These are shown in Appendix 1.

### 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 5 – Degree of Difficulty of Exam**

Question	Syllabus Performance Outcome	Units	Knowledge & Understanding	Straight-forward Judgement	Complex Judgement	Total Marks
1 (a)	1, 2, 4	1, 2, 4	1			1
1 (b)	1, 2, 3	1, 2, 3	2			2
1 (c)	1, 2, 3	1, 2, 3		4		4
1 (d)	1, 2, 4	1, 2, 4	1			1
1 (e)	1, 2	1, 2		7		7
1 (f)	1, 2, 3	1, 2, 3			6	6
1 (g)	1, 2	1, 2	2			2
1 (h)	1, 2	1, 2	2			2
2 (a)	4	4	1			1
2 (b)	3, 4	3, 4	2			2
2 (c)	3, 4	3, 4	2			2
2 (d) (i)	3, 4	3, 4		3		3
2 (d) (ii)	3, 4	3, 4		2		2
2 (d) (iii)	3, 4	3, 4	2			2
2 (e)	3, 4	3, 4		2		2
2 (g)	1, 2, 3	1, 2, 3		5		5
3 (a)	3	3	3			3
3 (b)	3	3		2		2
3 (c)	3, 4	3, 4		2		2
3 (d)	3, 4	3, 4		3		3
3 (e)	3, 4	3, 4		4		4
3 (f)	3, 4	3, 4		2		2
4 (a) (i)	1, 2, 3	1, 2, 3			8	8
4 (a) (ii)	1, 2, 3	1, 2, 3			4	4
4 (b)	1, 2, 3	1, 2, 3			5	5
4 (c)	1, 2, 3	1, 2, 3			4	4
5 (a)	1, 2, 3	1, 2, 3			4	4
5 (b)	1, 2, 3	1, 2, 3			4	4
5 (c)	1, 2, 3	1, 2, 3		3		3
5 (d)	1, 2, 3	1, 2, 3		2		2
5 (e)	1, 2, 3	1, 2, 3		3		3
5 (f)	1, 2, 3	1, 2, 3			3	3
<b>TOTAL</b>			<b>18</b>	<b>44</b>	<b>38</b>	<b>100</b>

**Table 6 – Course Coverage by Question**

Question	Units	Knowledge & Understanding	Straight-Forward Judgement	Complex Judgement	Total Marks
1	1,2,3,4	8	11	6	25
2	1,2,3,4	7	12		19
3	3,4	3	13		16
4	1,2,3			21	21
5	1,2,3		5	14	19
<b>Total</b>		<b>18</b>	<b>44</b>	<b>38</b>	<b>100</b>

It should be noted question 4 consists of 100% complex judgement.

### 3.2. Overall Performance

The overall pass rate is slightly lower compared to historic pass rates. Significantly different pass rates were observed among questions, some of which is driven by the varying degree of difficulties of the questions.

This semester has also seen a high number of candidates being classified as borderlines which require more detailed review. This is partly driven by the variability in pass rates among questions as well as the impact of scaling applied by markers/examiners. Out of 9 borderlines candidates, with 5 passes and 4 fails.

Some candidates failed to adequately interpret some parts of the questions before writing up their response, resulting in circumstances where issues/points raised was not specific and relevant to the question itself.

A typical weak response generally contains a lot of generic information without much genuine understanding being shown.

Poor hand writing was a major problem. Markers cannot give marks for answers that cannot be read. Consideration needs to be given to getting candidates to use computers in exams.

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

### 3.3. Exam Question by Question Analysis

**Question 1**                      **Total Marks: 50 (16 KU 22 SJ 12 CJ)**

	Raw Marks Required	% of Total Marks	Number of Candidates	Proportion of Candidates
Strong Pass	30.0	60.0%	5	7%
Pass	23.5	47.0%	20	28%
Below Standard	21.0	42.0%	14	19%
Weak	15.0	30.0%	23	32%
Showed Little Knowledge	1.0	2.0%	3	4%
Did Not Attempt	0.0	0.0%	7	10%
		% KU	% SJ	% CJ
Maximum Mark	43.5	81%	86%	100%
Average Mark	20.5	51%	29%	51%
Standard Deviation	8.5			

Candidates performed reasonably on this question, with a pass rate of 35%.

The question covers the pricing considerations of a specialist automobile insurer, including capital allocation, rates adjustment as well as rating factors to consider in the pricing of the product.

Part a) this question was surprisingly answered poorly. A number of candidates answered this question with relation to the party-at-fault. The majority of candidates could not identify the second party. As a number of candidates were using the third party as the "balancing item" of the parties, the third party definition was also surprisingly poorly answered.

Part b) most candidates made relevant and correct comments on volatility of the business, but failed to mention issues of reinsurance and regulatory requirements.

Candidates confused the rate of capital and the actual dollar amount of capital required for a book of business.

Part c) Most candidates managed a good attempt at this question. A number of candidates picked investment returns that are outside what would be reasonably expected in this climate. Some candidates did not include investment earning on premium for the period held or any investment earnings at all while others did not understand the tax amount that was provided and tried to adjust for tax in the equation of value. Most candidates failed to make assumptions around premium collection and capital.

Part d) most candidates did note that the return was very high in relation to industry/average level. Very few candidates provided a reasonable explanation for why the return was high.

Part e) this question was possibly the hardest question on the paper and the results reflected it. Most candidates understood that there was a cumulative change, and that there was an exposure component to each year. The exposure calculation was generally done poorly.

Part f) this question was answered reasonably well. Most candidates did manage to calculate loss ratios and relativities.

Part g) most candidates managed to provide a couple of valid reasons.

Part h) This question was answered reasonably well.

**Question 2** **Total Marks: 38 (14 KU 24 SJ 0 CJ)**

	Raw Marks Required	% of Total Marks	Number of Candidates	Proportion of Candidates
Strong Pass	24.0	63.2%	5	7%
Pass	18.6	48.8%	17	24%
Below Standard	15.5	40.8%	18	25%
Weak	11.5	30.3%	14	19%
Showed Little Knowledge	1.0	2.6%	11	15%
Did Not Attempt	0.0	0.0%	7	10%
		% KU	% SJ	% CJ
Maximum Mark	26.5	91%	67%	0%
Average Mark	14.9	44%	36%	0%
Standard Deviation	6.6			
Co-efficient of Variation	0.45			

Candidates performed poorly on what we believed a book work question with no complex judgement involved, overall pass rate is 31%.

This question covers regulatory requirements and issues in relation to a run off portfolio transfer to a branch for a multi-national insurer. It also involved the pricing of a reinsurance contract.

Part a) this was a bookwork question where a lot of students failed to state that the reporting requirements will in fact be different. Most were able to provide a reason why that is the case though.

Part b) most of the students provided valid reasons for why the transaction needs to be on commercial basis.

Part c) most students discussed the claims liability aspects of the portfolio transfer. Better answers discussed assets supporting the liabilities and solvency implications.

Part d)

(i) Most students mentioned solvency and majority made some reference to claims handling expenses. Better answers included issue of price paid and almost none of the students mentioned tax implications.

(ii) Most students mentioned solvency again and better answers included both the guarantee and the US regulatory environment.

(iii) Surprisingly a lot of students did not mention protection of policyholder.

Overall, most students managed to provide some valid points.

Part e) many students listed the components of an FCR in a general way, instead of targeting the response to Monolith's situation. The best responses discussed FCR items that were particularly relevant for Monolith as a result of the transfer, e.g. how closely reserves were running off compared to expectation and the potential for additional reserves.

Part f) response was quite mixed for this part. Many students combined two suggested approaches into one. Better students mentioned inflation, IBNR for method 1 and only a small number made a reference to statistical claim size and frequency distributions and EVT for method 2. Overall this part was not well answered.

**Question 3** **Total Marks: 32 (6 KU 26 SJ 0 CJ)**

	Raw Marks Required	% of Total Marks	Number of Candidates	Proportion of Candidates
Strong Pass	21.0	65.6%	8	11%
Pass	17.3	53.9%	28	39%
Below Standard	14.3	44.5%	17	24%
Weak	10.0	31.3%	10	14%
Showed Little Knowledge	1.0	3.1%	2	3%
Did Not Attempt	0.0	0.0%	7	10%
		% KU	% SJ	% CJ
Maximum Mark	23.3	88%	75%	0%
Average Mark	15.3	46%	48%	0%
Standard Deviation	5.9			
Co-efficient of Variation	0.38			

Students performed well in this question with an overall pass rate of 50%. This is a relatively straightforward question with little complex judgement.

Part (a): Answered reasonably well, however it mostly related to standard observations (like treaty effective at reducing capital because it usually covers large portion of portfolio) rather than the specific and subtle observations detailed in the sample solution (treaty's "capital impact on atypical risk may not optimally allowed for" seemed too subtle an answer).

Part (b): Not answered well when compared to the solution. A large number of candidates giving general comments (eg maximise profitability) rather than the specific tests of either reducing volatility or comparing RI prem vs RI recovery. Perhaps more emphasis can be placed in future tutorials on this.

Part (c): Almost no candidate expressed the risk appetite statement in the specific way set out in the sample solution (i.e VaR as x% of capital or 1 in 250 PML as x% of capital). Most gave the standard risk appetite statement that talks about having a level of capital to ensure solvency for x% of the time. The calibration section of the question was also reasonably poorly answered, though many students indicated using an internal model (DFA or Capital).

Part (d): Well answered in general.

Part (e): Many students received close to the full marks available.

Part (f): Not especially well-answered compared to the solution.

**Question 4**                      **Total Marks: 42 (0 KU 0 SJ 42 CJ)**

	Raw Marks Required	% of Total Marks	Number of Candidates	Proportion of Candidates
Strong Pass	24.0	57.1%	2	3%
Pass	17.5	41.7%	19	26%
Below Standard	14.5	34.5%	18	25%
Weak	9.5	22.6%	19	26%
Showed Little Knowledge	1.0	2.4%	6	8%
Did Not Attempt	0.0	0.0%	8	11%
		% KU	% SJ	% CJ
Maximum Mark	24.5	0%	0%	58%
Average Mark	13.3	0%	0%	32%
Standard Deviation	6.2			
Co-efficient of Variation	0.47			

Pass rate for this question is relatively low at 29%, taking into account this being a question consistently entirely of complex judgement we felt overall performance is fair.

This question involved a reinsurance broker reviewing the reinsurance arrangements of a small multi-line reinsurer.

Part (a)

(i) it required students to describe the steps involved in determining an expected loss cost and price per layer. Some students wasted time performing detailed calculations and few students identified issues associated with gaps in the data.

(ii) it asked for reasons for the price increase in 2011. Most students correctly identified the unprecedented high number of individual property claims.

Part (b) it required students to compare two alternative structures to the expiring programme. Most students identified the differences; better students gave reasons for the differences (as required by the question).

Part (c) This question was relatively straightforward requiring students to recommend one of the three available programmes. A surprising number of students failed to rule out the expiring programme due to the 80% price increase. Students who managed to give a recommendation with reasonable justification achieved some marks.

**Question 5** **Total Marks: 38 (0 KU 10 SJ 28 CJ)**

	Raw Marks Required	% of Total Marks	Number of Candidates	Proportion of Candidates
Strong Pass	24.0	63.2%	2	3%
Pass	18.0	47.4%	24	33%
Below Standard	15.0	39.5%	14	19%
Weak	10.0	26.3%	21	29%
Showed Little Knowledge	1.0	2.6%	4	6%
Did Not Attempt	0.0	0.0%	7	10%
		% KU	% SJ	% CJ
Maximum Mark	26.5	0%	95%	68%
Average Mark	14.6	0%	50%	34%
Standard Deviation	6.2			
Co-efficient of Variation	0.42			

This question concerned issues in relation to a national flood solution as a result of the Garnaut Climate Change Review, as well as covering issues in the pricing of flood insurance.

Passing rate for this question is 36%, with most students performed poorly in the first 3 part and provided good answers in the rest of the question.

Part (a) Not many students mentioned the attractiveness of the product. Explaining the comparisons to life insurance wasn't particularly strong either. Concentration and lack of data were well recognised.

Some students attempted to answer this question by following the criteria of insurability with no comparison to life insurance.

Part (b) Coverage, funding, and management of the pool were well recognised issues.

Part (c) Students struggled with defining an alternative structure. Many students proposed a government run reinsurer or insurer, but did not recognise that this is effectively the same as a "national insurance pool". Marks were given to relevant issues even if the alternative structure was invalid.

Part (d) A common misunderstanding was that compulsory = cross subsidisation. This lacks commercial judgement as the students did not recognise that cross-subsidies could be highly detrimental to a company, ie if an insurer subsidises the high risk areas at the expense of the low risk areas, it will attract the bulk of the high risk customers and be uncompetitive to the low risk customers.

Part (e) Construction type, proximity to river, location and sum insured were well recognised by the students. Marks were also given to elevation. Some students mentioned flood definitions. We decided not to award marks for this as it was considered that the concept of making flood compulsory was surely to ensure full coverage, regardless of the cause/definition of the flood

Part (f) Reinsurance, capital, expertise, system adequacy were well recognised.

Other marks were awarded for discussion on relevant investment strategy.

## 4. Results

### 4.1. Pass List Recommendations

The recommended pass list is as follows.

**Table 13 – Pass List**

112017	112091	112144	112221	112312
112018	112102	112181	112241	112321
112057	112111	112193	112264	112325
112087	112120	112206	112300	112186

# Course 5A Investment Management and Finance Examination Report

---

## 1. Summary

### 1.1. Course Overview

The aim of the 5A Investment Management and Finance course is to give candidates an in depth knowledge and understanding of investment and finance related issues through a study of accounting information, debt securities, valuation of companies, equity portfolio management and asset allocation.

### 1.2. Pass Rates

29 Candidates enrolled for the Semester 2 2011, Course 5A Investment Management and Finance exam. Of these, 3 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 62%. This compares with the following historical pass rates for this subject.

**Table 1 – Course Experience**

Semester	Course	Sat	Passed	Pass Rate
Semester 1 2011	B	16	6	38%
Semester 2 2010	A	38	20	53%
Semester 1 2010	B	34	19	56%
Semester 2 2009	A	46	17	37%
Semester 1 2009	B	44	22	50%
Semester 2 2008	A	35	11	31%

The 62% pass rate for this exam is higher than in previous semesters. With small numbers of candidates enrolled some variability in the pass rates is to be expected.

### 1.3. Candidate Numbers

The Candidate numbers can be summarised as follows:

Table	2	–	Candidate	Numbers
	Number of candidates			
Originally enrolled	29			
Withdrawn prior to exam	0			
Absent from exam	3			
Presented at exam	26			
Passed	16			
Failed	10			

The analysis by examination centre is as follows:

**Table 3 – Analysis by Examination Centre**

<b>Centre</b>	<b>Presented</b>	<b>Passed</b>	<b>Pass Rate</b>
Sydney	15	11	73%
Melbourne	4	2	50%
Canberra	1	1	100%
<b>Subtotal Australia</b>	<b>20</b>	<b>14</b>	<b>70%</b>
Amsterdam	1	0	0%
Auckland	1	1	100%
Bangkok	1	0	0%
Hong Kong	1	0	0%
London	1	0	0%
Singapore	1	1	100%
<b>Subtotal International</b>	<b>6</b>	<b>2</b>	<b>33%</b>
<b>Total</b>	<b>26</b>	<b>16</b>	<b>62%</b>

The Australian pass rate is higher than the international pass rate but with only 6 candidates taking the exam overseas, nothing can be inferred from this.

## **2. Examination Administration**

### **2.1. Examiners**

The examiners for this semester were:

Course Examiner: David Pitt  
External Examiner: Jack Ng

### **2.2. Course Leader**

The Course Leader for this semester was Tim Kyng. Tim co-ordinated the teaching staff on this course and the weekend intensive workshops. He also produced a first draft of the exam and solutions as discussed in Section 1.4.

### **2.3. Exam Marking Process**

The examination was held on Thursday 20<sup>th</sup> October. 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 with those followed for modules 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 3.8: Exam 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 agreed 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 only two of the five questions – Questions 1 and 4. The adjustments increased the cutoffs for grades A to D from what was recommended by the markers. It was generally found that the CE agreed with the cut-off marks suggested by the markers.

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 (raw mark) are shown in Appendix 2. The raw marks by question and for the assignment are shown in Appendix 3. The candidates were ranked by an aggregate formed from the scaled exam total and raw assignment total. A preliminary total pass mark was determined based on the scaled score of 60% for a pass and a score of 60% on the assignment.

Additional secondary pass criteria were also considered. These are discussed in Section 3.2.

### 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 5 – Degree of Difficulty of Exam**

Question	Syllabus Performance Outcome	Units	Knowledge & Understanding	Straight-forward Judgement	Complex Judgement	Total Marks
1 (a)	1	1.1	1	5	2	8
1 (b)	1	1.3	2			2
1 (c)	1	1.2	1			1
1 (d)	1	1.1		3	6	9
2 (a)	2	2.2	2	3		5
2 (b)	2	2.4	1	3		4
2 (c)	2	2.4,2.5		3	8	11
3 (a)	4	4.4,4.6	1	3		4
3 (b)	4	4.4,4.6		7	4	11
3 (c)	4	4.4,4.6	2		3	5
4 (a)	5	5.2	3	1		4
4 (b)	5	5.3		5		5
4 (c)	5	5.3,5.4	1		9	10
5 (a)	3	3.1		2		2
5 (b)	3	3.5	6			6
5 (c)	3	3.4			5	5
5 (d)	3	3.4			2	2
5 (e)	3	3.6			2	2
5 (f)	3	3.6			2	2
5 (g)	3	3.6		2		2
<b>Total</b>			<b>20</b>	<b>37</b>	<b>43</b>	<b>100</b>

**Table 6 – Course Coverage by Question**

Question	Units	Knowledge & Understanding	Straight-Forward Judgement	Complex Judgement	Total Marks
1	1	4	8	8	20
2	2	3	9	8	20
3	4	3	10	7	20
4	5	4	6	9	19
5	3	6	4	11	21
<b>Total</b>		<b>20</b>	<b>37</b>	<b>43</b>	<b>100</b>

The marks were spread across all performance outcomes with an appropriate number of marks covering each outcome. The distribution of marks across knowledge and understanding, simple judgement and complex judgement was very close to the 20:40:40 mix recommended.

### 3.2. Overall Performance

The exam was set with close to the standard distribution of KU, SJ and CJ questions.

### 3.3. Exam Question by Question Analysis

Question 1	Total Marks 20	4 KU	8 SJ	8 CJ
	Marks Required	% of Total Marks	Number of Candidates	Proportion of Candidates
<b>Strong Pass (A)</b>	14	70	8	31%
<b>Pass (B)</b>	11	55	9	35%
<b>Slightly Below Standard (C)</b>	8.5	43	7	27%
<b>Weak (D)</b>	5	25	2	8%
<b>Showed Little Knowledge (E)</b>	0.5	3	0	0%
<b>Did Not Attempt (X)</b>	0	0	0	0%
		<b>% of KU</b>	<b>% SJ</b>	<b>% CJ</b>
<b>Maximum Mark</b>	16	94%	94%	94%
<b>Average Mark</b>	12	58%	57%	64%
<b>Standard Deviation</b>	2.67			
<b>Coefficient of Variation</b>	0.22			

Candidates performed well on this question, with a pass rate of 66%.

The question required candidates to analyse an income statement, balance sheet and cash flow statement across two years.

Part a):

This part required students to analyse the cashflow position and liquidity position of a company using ratio analysis.

Some candidates mentioned different cashflow measures than the model answer but didn't really analyse them fully. Generally well done but some candidates did not do the calculations for both years so no time trend analysis was given.

Part b):

This part required students to discuss factors relevant to a company when considering revenue growth.

This part was done very well with most but not all candidates able to mention the same 4 considerations as the model answer.

Part c):

This part required candidates to discuss how earnings can be manipulated in financial statements.

This part was well done.

Part d):

This part required candidates to understand the use of EBITDA. Calculation, analysis and providing alternate measures were all tested.

Some didn't pick up on the treatment of the interest rate hedging restructure cost being included in the calculation, some didn't do the calculations correctly, some provided information not relevant to the question and didn't get to the point re the benefits of EBITDA. Many were unable to suggest a sensible alternative to EBITDA.

<b>Question 2</b>	<b>Total Marks 20</b>	<b>3 KU</b>	<b>9 SJ</b>	<b>8 CJ)</b>
	<b>Marks Required</b>	<b>% of Total Marks</b>	<b>Number of Candidates</b>	<b>Proportion of Candidates</b>
<b>Strong Pass (A)</b>	13	65	6	23%
<b>Pass (B)</b>	10	50	13	50%
<b>Slightly Below Standard (C)</b>	8	40	6	23%
<b>Weak (D)</b>	5	25	1	4%
<b>Showed Little Knowledge (E)</b>	0.5	3	0	0%
<b>Did Not Attempt (X)</b>	0	0	0	0%
		<b>% of KU</b>	<b>% SJ</b>	<b>% CJ</b>
<b>Maximum Mark</b>	16.8	92%	92%	94%
<b>Average Mark</b>	11.46	71%	67%	94%
<b>Standard Deviation</b>	2.39			
<b>Coefficient of Variation</b>	0.21			

Candidates performed well on this question, with a pass rate of 73%.

The question concerned the issues of valuing debt in the presence of credit risk and methods used by investors to allow for creditworthiness of a company.

Part a):

This part required candidates to understand the Merton credit risk model and to explain recent movements in US sovereign debt yields using a theoretical framework.

This part was generally well answered with most candidates able to explain correctly the mechanisms that led to increased yields on US sovereign debt. A minority of candidates

had their arguments running in the direction opposite to the correct one.

Part b):

This part required candidates to understand features of the credit default swap.

Again this part was well handled with most candidates displaying the required understanding.

Part c):

This part was complex and required candidates to develop a step function for the implied hazard rate from the prices of zero coupon bonds.

A few candidates handled this part very well. Most however were too vague in their descriptions and some candidates, in their haste to write something for their answer, displayed some misunderstanding of key concepts.

<b>Question 3</b>	<b>Total Marks 20</b>	<b>3 KU</b>	<b>7 SJ</b>	<b>10 CJ</b>
	<b>Marks Required</b>	<b>% of Total Marks</b>	<b>Number of Candidates</b>	<b>Proportion of Candidates</b>
<b>Strong Pass (A)</b>	13	65	2	8%
<b>Pass (B)</b>	10	50	9	35%
<b>Slightly Below Standard (C)</b>	8	40	8	31%
<b>Weak (D)</b>	5	25	4	15%
<b>Showed Little Knowledge (E)</b>	0.5	3	3	12%
<b>Did Not Attempt (X)</b>	0	0	0	0%
		<b>% of KU</b>	<b>% SJ</b>	<b>% CJ</b>
<b>Maximum Mark</b>	13.8	100%	93%	71%
<b>Average Mark</b>	8.51	36%	45%	42%
<b>Standard Deviation</b>	3.15			
<b>Coefficient of Variation</b>	0.37			

Candidates performed reasonably on this question, with a pass rate of 43%.

This question required candidates to analyse various aspects of a multi-factor model for stock selection.

Part a):

This part required candidates to specify a factor exposure vector and to derive an expression for the marginal contribution to active risk.

This part was reasonably handled although some candidates did not display the understanding of multivariate regression analysis necessary to deal with the marginal contribution to active risk.

Part b):

This part required candidates to critically analyse multivariate regression analyses within a multi-factor model framework for two portfolios.

This part was a very good discriminator with some candidates able to confidently interpret the output while others showed misunderstandings related to the multi-factor models presented. The calculation of the information ratio in part (iv) was the most challenging part for the candidates.

Part c):

This part required candidates to further analyse the estimated alpha from part (b).

This part was reasonably answered with about half of the candidates able to identify the desirable characteristics of a factor portfolio and to be able to identify the issue with multicollinearity of factors.

<b>Question 4</b>	<b>Total Marks 19</b>	<b>4 KU</b>	<b>6 SJ</b>	<b>9 CJ</b>
	<b>Marks Required</b>	<b>% of Total Marks</b>	<b>Number of Candidates</b>	<b>Proportion of Candidates</b>
<b>Strong Pass (A)</b>	14	74	9	35%
<b>Pass (B)</b>	11	58	11	42%
<b>Slightly Below Standard (C)</b>	8.5	45	3	12%
<b>Weak (D)</b>	5	26	2	8%
<b>Showed Little Knowledge (E)</b>	0.5	3	1	4%
<b>Did Not Attempt (X)</b>	0	0	0	0%
		<b>% of KU</b>	<b>% SJ</b>	<b>% CJ</b>
<b>Maximum Mark</b>	16	67%	71%	61%
<b>Average Mark</b>	12.37	100%	100%	92%
<b>Standard Deviation</b>	3.22			
<b>Coefficient of Variation</b>	0.26			

Candidates performed well on this question, with a pass rate of 77%.

This question required candidates to provide a critical review of stochastic models for equity prices and returns.

Part a):

This part required candidates to analyse and criticise the use of a standard Brownian motion stochastic differential equation for the equity price process.

Surprisingly many candidates were unable to correctly specify the distribution of returns implied by the given stochastic differential equation. Some failed to understand the issue of higher kurtosis and its implications for using the normal model. Otherwise this part was well answered.

Part b):

This part tested the candidates' understanding of Markowitz mean variance portfolio theory.

This part was well handled.

Part c):

This part required candidates to specify a hedge for the increased pension liability arising from a 3-year anticipated increase in member longevity.

In the first part relating to immunisation, some lost points for not mentioning all three of equal duration, equal convexity and equal present value.

In the second part, some candidates didn't cover enough of the points in the model answer and tended to lose track of the question in what were at times quite long answers.

<b>Question 5</b>	<b>Total Marks 21</b>	<b>6 KU</b>	<b>4 SJ</b>	<b>11 CJ</b>
	<b>Marks Required</b>	<b>% of Total Marks</b>	<b>Number of Candidates</b>	<b>Proportion of Candidates</b>
<b>Strong Pass (A)</b>	13	62	2	8%
<b>Pass (B)</b>	11	52	8	31%
<b>Slightly Below Standard (C)</b>	9	43	10	38%
<b>Weak (D)</b>	5	24	6	23%
<b>Showed Little Knowledge (E)</b>	0.5	2	0	0%
<b>Did Not Attempt (X)</b>	0	0	0	0%
		<b>% of KU</b>	<b>% SJ</b>	<b>% CJ</b>
<b>Maximum Mark</b>	13.5	100%	75%	61%
<b>Average Mark</b>	10.12	68%	45%	39%
<b>Standard Deviation</b>	2.1			
<b>Coefficient of Variation</b>	0.21			

Candidates performed reasonably on this question, with a pass rate of 39%.

The question concerned the issues faced by a research manager assessing sectors of stocks on the ASX300.

Part a):

This part required candidates to discuss why analysts specialise in different sectors.

This was reasonably well handled with most candidates able to give sensible reasons.

Part b):

This part required candidates to analyse various different methods for asset valuation.

Again this part was well handled. Some candidates were however too vague in their responses.

Part c):

This part required candidates to discuss the allowance for debt structure in the valuation of an enterprise.

Again this part was well handled by the majority of candidates.

Part d):

This part required candidates to discuss the impact of dividend policy in equity valuation.

Again this part was well handled by the majority of candidates.

Part e):

This part required candidates to mention two features that must be given special attention when valuing stocks in the banking sector.

This part was poorly handled. Answers were far too vague and often did not relate specifically to the banking sector.

Part f):

This part required candidates to mention two features that must be given special attention when valuing stocks in the real estate industry group.

This part was poorly handled. Answers were far too vague and often did not relate specifically to the real estate industry group.

Part g):

This part required candidates to list two major implications of illiquidity and how this should be allowed for in the stock valuation process.

This part proved to be a good discriminator. Many could mention implications but fewer candidates were able to extend their answers to how these issues affect the valuation process.

## **4. Results**

### **4.1. Pass List Recommendations**

The recommended pass list is as follows.

112024  
112026  
112039  
112040  
112042  
112054  
112127  
112143  
112177  
112196  
112225  
112228  
112248  
112271  
112382  
112414

# Course 6B Global Retirement Income Systems Examination Report

---

## 1. Summary

### 1.1. Course Overview

The aim of the GRIS 6B course is to provide the knowledge, skills and judgement necessary for an actuary to effectively tackle a range of issues as retirement income systems evolve away from group-based defined benefit schemes to individual defined contribution plans. The changing context has significant implications for product design, risk management and how scheme members are communicated with. Actuaries need the skills and knowledge to help design and manage schemes to best meet members individual retirement income needs.

### 1.2. Pass Rate

9 candidates enrolled for the semester 2 2011 Global Retirement Income Systems (subject 6B) course. Of these, 1 candidate withdrew without sitting the exam.

It is proposed that 5 candidates be awarded a pass, which implies a pass rate of 63% of candidates sitting the exam. For comparison, recent pass rates are as follows:

**Table 1 – Course Experience**

Semester	Course	Sat	Passed	Pass Rate
2011 Semester 1	A	18	9	50%
2010 Semester 2	B	13	7	54%
2010 Semester 1	A	16	4	25%
2009 Semester 2	B	19	10	53%
2009 Semester 1	A	14	5	36%
2008 Semester 2	B	18	10	56%
2008 Semester 1	A	19	11	58%

### 1.3. Candidate Numbers

**Table 2 – Candidate Numbers**

	Candidates
Originally enrolled	9
Withdrawn prior to exam	1
Absent from exam	0
Presented at exam	8
Pass recommended	5
Fail recommended	3

**Table 3 – Analysis by Examination Centre**

<b>Centre</b>	<b>Sat</b>	<b>Pass Proposed</b>	<b>Pass Rate</b>
Sydney	4	3	75%
Melbourne	3	2	67%
Canberra	1	0	0%
<b>Australia</b>	<b>8</b>	<b>5</b>	<b>63%</b>
<b>Ex-Australia</b>	<b>0</b>	<b>0</b>	<b>N/A</b>
<b>Total</b>	<b>8</b>	<b>5</b>	<b>63%</b>

## **2. Exam Administration**

### **2.1. Examiners**

The chief examiner for this semester (and author of this report) was:

Stephen Woods

The assistant examiner for this semester was:

Jim Repanis

### **2.2. Course Leader**

The course leader for this semester was:

David McNeice

### **2.3. Exam Preparation**

The exam paper preparation ran very smoothly. The draft paper was presented ahead of schedule, allowing multiple iterations of review and quite significant amendment by the Examiners and BOE Reviewers.

### **2.4. Exam Marking Process**

There was no formal marking day for this subject. Nevertheless the exam marking process ran smoothly. All five marking spreadsheets were received by the required deadline and none required return to the markers, possibly due to the changes I made this semester to the instructions to markers. It is noted that the marking spreadsheets are in dire need of resuscitation. Incorrect formulas and reference errors are prevalent throughout. While it was possible to work around these issues, this should be addressed in the spreadsheet template for next semester.

### 3. Examination Papers and Assignments

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

The following table summarises the distribution of marks by level of difficulty and course coverage by question:

**Table 5 – Course Coverage by Question**

Question	K&U	SJ	CJ	Marks	Topic
1	10	10	10	30	DB vs DC
2	7		9	16	Product development
3	6	6		12	Regulation framework (DC)
4	6	2	4	12	Share-based payments
5	2	18	10	30	Valuation scenarios
<b>Total</b>	<b>31</b>	<b>36</b>	<b>33</b>	<b>100</b>	

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

**Table 6 – Degree of Difficulty of Exam**

Part	Syllabus	Units	K&U	SJ	CJ	Marks	Topic
1a	1	1	2	2		4	Employer preference for DC
1b	1	1	2	3		5	IAS 19 factors
1c	2	1	2			2	Member education and advice
1d	2, 3, 9	1,6		5		5	Financial advice framework
1e	7, 8	4, 5	4		10	14	Valuation report under IAS 19
2a	3	2	7			7	Key stages (annuity product)
2b	3, 4, 8	2, 5			6	6	Review for compulsion
2c	3, 4, 8	2, 5			3	3	Effects of no sex differentiation
3	5	3	6	6		12	
4a	13	7	4			4	Reasons for share-based pay
4b	13	7	2			2	Familiarity with capital structure
4c	13	7		2		2	Calculate expense start year 1
4d	13	7			4	4	Calculate expense end year 1
5a	13	7		5		5	Pluses, minuses, alternatives
5b	11	7	2		2	4	New entrant funding method
5c	14	8		5		5	Calculate coy contribution rate
5d	6	3		3	3	6	Issues re termination of fund
5e	11	7		5	5	10	Issues re acquisition and transfer
<b>Total</b>			<b>31</b>	<b>36</b>	<b>33</b>	<b>100</b>	

### 3.2. Overall Analysis

The number of candidates sitting this course is disappointing. Hopefully it is not a reflection of ongoing demand, as the recent changes to the GRIS courses were designed to increase interest and provide a more global perspective. It is possible that recent high pass rates have removed a 'blockage' of backlogged students attempting this course 6B. Nevertheless this aspect could benefit from further analysis.

As shown above, the recommended pass rate is again strong – the fourth consecutive session in excess of 50% for course 6B. Conversely the pass rate for course 6A has been relatively and materially lower. This cause of this discrepancy reasonably could be examined, as it would not be ideal to have divergent pass rates for the related courses.

I thought this was a very good exam paper overall. 4 of the 5 questions were good differentiators. The other question was a fair differentiator and indeed may have been better had the number of candidates sitting been larger. The coverage of the course was very good and there were some extensions to challenge better candidates. While the spread of marks between questions was a little lumpy (Q1 and Q5 being worth 30 marks each), the variation and diversity of marks within these questions mitigated any concentration. Importantly the course leader provided the draft paper ahead of schedule, which allowed significant amendments to be made, resulting in a high-quality paper. The course leader is to be commended for his efforts.

For further detail of exam question parts, refer to the exam paper.

### 3.3. Question by Question Analysis

The following tables summarise the raw marks recommended to me by the markers, as adjusted for borderline candidates.

Question 1	Marks Required	% of Marks Available	Number of Candidates	Proportion of Candidates
Strong Pass	35	58%	1	12.5%
Pass	28	47%	4	50%
Slightly Below Standard	20	33%	2	25%
Weak	10	17%	1	12.5%
Showed Little Knowledge	1		0	0%
Did Not Attempt	0		0	0%
Highest Mark	35.5	59%		
Average Mark	28.2	47%		
Standard Deviation	5.6			

Question 1 was a fair differentiator. A relatively simple question, candidates overlooked simple marks that should be expected but there was a high pass rate nevertheless.

In part (a), many candidates missed out describing what the required disclosures were. Also, few picked up on the discount rate mismatching issue.

Part (b) was generally well answered.

In part (c), most candidates stated that advice was needed because members have to make important decisions but few listed what those decisions were.

In part (d), very few candidates explicitly defined general advice and personal advice and the differences between them.

In part (e), candidates provided good discussion about the derivation of the discount rate but most did not realise that the rate used to accumulate member contributions in the valuation is the discount rate and did not have a good grasp of the tax impact on the rate of return versus on the discount rate.

<b>Question 2</b>	<b>Marks Required</b>	<b>% of Marks Available</b>	<b>Number of Candidates</b>	<b>Proportion of Candidates</b>
Strong Pass	24	75%	0	0%
Pass	18.5	58%	5	62.5%
Slightly Below Standard	13	41%	2	25%
Weak	9	28%	1	12.5%
Showed Little Knowledge	1		0	0%
Did Not Attempt	0		0	0%
Highest Mark	22.5	70%		
Average Mark	17.9	56%		
Standard Deviation	3.8			

Question 2 was a good differentiator. Many candidates were able to list relevant points, resulting in good marks and a relatively high pass rate.

Part (a) was a straightforward bookwork questions and candidates should reasonably be expected to get the majority of marks. It was generally well answered.

In part (b), candidates should reasonably be expected to identify at least 2 of the aspects requiring review and explain at the reasons why. There were a couple of good responses but generally this part was not well answered; most identified mortality as the key factor, some picked up on volume and purchase price, but few identified sales method as an issue; analysis of the effect on the portfolio of the various factors was poor; a couple of candidates missed the point of the question entirely.

In part (c), candidates should reasonably be expected to identify the main issue and make a reasonable attempt at explaining the impact. Answers typically were about par; most identified the male/female split and the differences in mortality as important, with varying degrees of success in explaining the effect on the product.

<b>Question 3</b>	<b>Marks Required</b>	<b>% of Marks Available</b>	<b>Number of Candidates</b>	<b>Proportion of Candidates</b>
Strong Pass	18	75%	1	12.5%
Pass	12	50%	1	12.5%
Slightly Below Standard	8	33%	6	75%

Weak	6	25%	0	0%
Showed Little Knowledge	1		0	0%
Did Not Attempt	0		0	0%
Highest Mark	19			
Average Mark	12.0			
Standard Deviation	3.4			

Question 3 was a good differentiator, although the markers did not provide a broad range of marks. Most candidates correctly defined a 'deficit' but the explanation of 'past service liability' generally was not well handled. Very few candidates mentioned the method of valuing the assets. Most candidates did not seem to fully understand the question and missed key points. For example, many seemed to assume a trust/trustee structure rather than discussing the need to separate assets and assign responsibilities as a key feature of a regulatory system. Many candidates simply listed details that should be included in the regulatory structure rather than describing a framework. Some of these details were irrelevant given the context of the question. Very few candidates mentioned taxation, perhaps understandably given the wording of the question.

The markers highlighted serious misunderstanding by candidate 112286 and misunderstanding by candidates 112082 and 112330. As two of these were reviewed as borderlines and the last was a clear fail, no additional consideration was necessary.

<b>Question 4</b>	<b>Marks Required</b>	<b>% of Marks Available</b>	<b>Number of Candidates</b>	<b>Proportion of Candidates</b>
Strong Pass	19.5	81%	1	12.5%
Pass	14.5	60%	4	50%
Slightly Below Standard	12	50%	2	25%
Weak	9	38%	1	12.5%
Showed Little Knowledge	1		0	0%
Did Not Attempt	0		0	0%
Highest Mark	19.5	81%		
Average Mark	15.6	65%		
Standard Deviation	2.8			

Question 4 was a good differentiator.

In part (a), most candidates understood about the alignment of interest of the shareholders and the executive but very few were able to extend this into other related reasons to get the 4 marks. Candidates' answers were too brief and they should have known that they needed more information to get 4 marks, but there were few attempts.

Part (b) also generated a mark for reference to dilution from most students and a few more had a go at other reasons, sometimes beyond the scope of the marking guide, for which credit was given.

Part (c) was completed correctly by almost all candidates and most gave a good attempt at part (d). A couple of candidates expressed values on a per executive basis, rather than on the total group of executives.

<b>Question 5</b>	<b>Marks Required</b>	<b>% of Marks Available</b>	<b>Number of Candidates</b>	<b>Proportion of Candidates</b>
Strong Pass	34	57%	0	0%
Pass	28	47%	4	50%
Slightly Below Standard	22	37%	3	37.5%
Weak	16	27%	0	0%
Showed Little Knowledge	1		1	12.5%
Did Not Attempt	0		0	0%
Highest Mark	35.5	59%		
Average Mark	25.2	42%		
Standard Deviation	6.6			

Question 5 was a good differentiator.

Part (a) was best handled by most candidates. This question was not difficult. Candidates did reasonably on most parts but without managing to score big on many of them. The question did not involve much course knowledge; the biggest improvement candidates could have made was to have clearer heads and better thinking technique. And they could all have done much better, even the good ones. However, candidates rarely discussed the nature of the two options proposed, which was not surprising as the question didn't really lead them in that direction. Marks were awarded for objectives such as increasing confidence in the system (or regulator) and promoting consistency with other financial institutions that are required to hold reserves. Candidates could usually manage to come up with 2 of the 3 disadvantages listed in model solution. For alternatives, no-one highlighted the classic actuarial concept of prospective versus retrospective values, but the markers still gave 3 of the 8 candidates the two marks.

In part (b), 3 of the 8 candidates did well enough to get full marks for their definition of new entrant funding method; the others were often a little too brief. Most displayed good understanding of method, except they tended to talk about a typical new entrant (age) rather than a new entrant profile as in the model solution. And 3 of 8 did well enough to score full marks for their coverage of the appropriateness of the method. Again some candidates were a little too brief, for example by not doing the arithmetic looking at the financial position of the company, or just talking about one of the pros or cons of early payment of PS deficit. 1 candidate scored full marks for the question.

Part (c) was not well handled, though simple. Only 1 or 2 candidates scored full marks, while the average was around 3. In fact, every candidate seemed to have their own individual solution. Clearly some didn't read the details of the question properly, for example 2 candidates assumed a tax rate of 15% (when it is given as 0%), another didn't follow instruction to fund PS deficit, doing total deficit, and a couple of others added in the 1% expenses cost. For another the formula for an annuity was written down incorrectly, another got some of their arithmetic wrong and another had an extra term in the formula perhaps explainable only by exam panic.

With about 7 points available and 5 marks in total, part (d) was about covering all the bases. Clearly the method of apportionment of assets was very important and the

candidates spent due time on this, but good answers here didn't generate any extra marks. The candidates did a good job finding all the other points between themselves, but the best an individual managed was 3 out of 6 of them. Thought generation might have been helped by identifying all the stakeholders: namely trustees, employer, employees, super fund members (including what benefits they were interested in), fund administrators (including actuaries, auditors, etc), regulators and thinking of their concerns and priority. The points regarding retrenchment benefits, and death and disability cover were the most commonly missed.

In part (e), only 1 candidate scored more than 50% of marks. Most made a fair attempt at the considerations regarding transfer values but discussion of the impact on the paying and receiving funds was much too brief, possibly because they had the expectation that more marks would be awarded for the considerations and methods than was actually the case. Some candidates may also have been short of time. In particular the points regarding retrenchment benefits and death and disability cover were invariably missed. A couple of candidates looked at how each of their two methods would likely affect the paying and receiving fund, which was a good alternative approach, and a more direct approach to discussing the financial implications for the paying and receiving funds than the model solution.

The markers highlighted a difference of interpretation of part of the question by candidate 112286. As the candidate was identified and reviewed as a borderline, no further consideration was necessary.

## 4. Results

### 4.1. *Pass List Recommendation*

The recommended pass list is as follows:

#### **Table 11 – Pass List**

112082

112085

112254

112365

112402

# Course 10 Commercial Actuarial Practice Examination Report

---

## 1. Summary

### 1.1. Course Outline

The Commercial Actuarial Practice (CAP) Course is designed to teach students to apply actuarial skills across a range of traditional and non-traditional areas by “contextualizing” actuarial solutions or approaches in the wider commercial environment.

The two assessment tasks are:

1. A take-home Post-Course Assignment (“Assignment”) on one of the 3 non-traditional topics (Banking, Health, Environment). One-third of the students were randomly allocated to each topic. It is worth 20% of the final mark.
2. An 8-hour Case Study Exam (“Exam”) worth 80% of the final mark, under exam conditions with the use of a computer (open book, but no internet access). The candidates had to choose 1 from the 5 mainstream topics (Life, General, Investment, GRIS, ERM), perform all the necessary analysis and prepare a substantial written report.

### 1.2. Pass Rates

Of the 87 candidates who presented for the course, it is proposed that 48 be awarded a pass, representing a pass rate of 55%. This is lower than the long-term average pass rate of 61%.

Three candidates were sitting for the fifth time, but only 1 of them passed.

“Overseas” candidates had a lower pass rate than Australian-based candidates, with only 7 passes. The full list is:

Results by Exam Centre			
Centre	Presented	Passed	Pass rate
Melbourne	22	12	55%
Sydney	49	29	59%
Hong Kong	2	1	50%
Jakarta	1	0	0%
Jordan	1	0	0%
Kuala Lumpur	3	1	33%
London	5	3	60%
Singapore	4	2	50%
Australia	71	41	58%
Overseas	16	7	44%
<b>Total</b>	<b>87</b>	<b>48</b>	<b>55%</b>

### 1.3. Pass Rates by Topic

The following table of results by exam topic chosen shows that pass rates did vary substantially. The GRIS cohort is not large enough for an average to be meaningful, and all of them were reviewed individually. Section 5 examines performance in the Post-Course Assignment, suggesting that there is no substantial difference between the standard of candidates choosing the other 4 topics. In this light the GI pass rate is disappointingly low, while the Investment pass rate is surprisingly high.

Exam Case	Sat	Passed	Pass rate
ERM	7	4	57%
General Insurance	34	17	50%
GRIS	3	1	33%
Investment	12	9	75%
Life Insurance	31	17	55%
<b>Total</b>	<b>87</b>	<b>48</b>	<b>55%</b>

General Insurance has frequently had the highest pass rate, but the standard this time was noticeably weaker. Of our final 7 borderline candidates, we could only pass 1, and even that pass took considerable discussion for unanimity to be achieved. Details are in section 6.3.

The Investment topic was generally done well. Only 2 passes scored under 56% and they were reviewed again, but we were convinced they deserved to pass. Details are in section 6.4.

### 1.4. Candidate Numbers

A total of 90 candidates were enrolled for one or both of the assessments in Semester 2 of 2011. No repeat candidates took the option to attend the residential course, presumably due to the time commitment and the significant cost.

The candidate numbers and results can be summarized as follows:

	Post-Course Assignment only	Case Study Exam only	Both	Total
Originally enrolled	0	2	88	<b>90</b>
Withdrawals	0	0	2	<b>2</b>
Absent	0	0	1	<b>1</b>
Presented	0	2	85	<b>87</b>
Passed	0	0	48	<b>48</b>
Failed	0	2	37	<b>39</b>

## **2. Course Administration**

### **2.1. Course Outline**

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 “contextualizing” actuarial solutions or approaches in the wider commercial environment;
- Apply ethical concepts, corporate governance requirements and actuarial professional standards when writing a report; and
- 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 judgment and on the written communication skills of the students, rather than on bookwork.

The assessment structure changed slightly this year, with ERM moved into the mainstream topics. The two assessment tasks are now as follows:

1. A take-home Post-Course Assignment (“Assignment”) on one of the 3 non-traditional topics (Banking, Health, Environment), distributed after the residential course for completion within 2 weeks. One-third of the students were randomly allocated to each topic. It is worth 20% of the final mark. The result and feedback were supplied to candidates a week prior to the Exam.
2. An 8-hour Case Study Exam (“Exam”) worth 80% of the final mark, under exam conditions with the use of a computer (open book, but no internet access). The candidates had to absorb the question material, choose 1 from the 5 mainstream topics (Life, General, Investment, GRIS, ERM), perform all the necessary analysis and prepare a substantial written report.

The pass mark is 50%, which is regarded as equivalent to the 60% scaled pass mark adopted for the part III courses. Candidates who had passed part of the previous course were allowed to submit only the other equivalent part this semester. Marks are no longer awarded for quality of participation in the residential course.

### **2.2. Examiners**

The examiners for this semester were:

Chief Examiner: Bruce Thomson

Assistant Examiner: Matthew Ralph

### **2.3. Course Leader**

The assessment materials for the course were developed by a team, consisting of David Service (Course Leader), Elayne Grace (new this semester), Richard Madden, Peter Martin, Colin Priest and Bruce Edwards.

As part of his role, David Service presents 3 of the topics at the residential course, prepares 3 of the Exam case studies, and marks at least the marginal candidates for all 8 of the case studies in order to ensure consistency of standards across the topics.

### 3. Case Studies

#### 3.1. Preparation and structure

Case studies were prepared by the Course Presenters in the 8 topic areas listed below. Each was designed to be completed within 8 hours under exam conditions, even though the 3 non-traditional topics were completed as a take-home assignment. Each was fine-tuned in consultation with the Chief Examiner, formally scrutineered, and signed off by the Examiners. A delegate from the Board of Examiners also signed off the 5 mainstream topics to be completed under exam conditions.

Topic	Course Presenter / Author
Health	Richard Madden
Banking	David Service
Environment	Elayne Grace
ERM	Bruce Edwards
Life Insurance	David Service
Investments	David Service
GRIS	Peter Martin
General Insurance	Colin Priest

#### 3.2. Marking Process

In answers for any of the 5 traditional topics, candidates are expected to demonstrate detailed expertise at the level of the Actuaries Institute "B" level Module 3 courses. For the non-traditional topics, candidates are required to have a high-level 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 reports, the examiners were therefore mindful to assess candidates against the practical objectives of the course rather than test specific knowledge of the non-traditional areas.

Each report was marked firstly by the person who set the particular case. Borderline candidates, being at least those with scores between 40 and 60, were then marked independently by one of the other course team members. (The independence cannot be complete, because Marker 2 knows that a borderline mark has already been given.) David Service was either the first or second marker for every paper and in this way had the opportunity to ensure a consistent standard across the different topics.

By the nature of the questions, some very different answers could be of pass standard. Consequently, the markers did not 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 guides for each topic. Markers gave marks

of 50% or more for reports they assessed as being of pass standard. As there is only 1 question within each assessment and no scaling is undertaken, the pass mark adopted is not specifically important. The 50% is intended to be equivalent to the scaled 60% pass mark in the part III courses. Inevitably, there is considerable scope for variation in the raw marks awarded, but in practice I believe good consistency has been achieved.

The review process consisted of the Chief Examiner and/or Assistant Examiner reviewing all the Exam and Assignment papers where the overall result could be in doubt ie those with weighted average raw scores between 46% and 54% or where there was a substantial difference between the Markers or between the Exam and the Assignment. Qualitative as well as quantitative aspects of borderline answers were considered, and further feedback was sought from the Markers where changes were proposed.

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. At this final stage, the relative difficulty of each topic was also considered, described in section 5 below as "standardization", albeit no further adjustments were found to be necessary.

## **4. Post Course Assignment results**

Although marks and grades were given for the Post-Course Assignment, a pass/fail decision was not required for each candidate; this simply formed 20% of their overall mark. 79% of candidates were awarded a mark of 50% or more. (Candidates were given the mark out of 20, but in this report all are quoted as percentages.) Nevertheless, marks around 50% were reviewed carefully by each Marker. David Service marked a selection from each topic to ensure consistency. The Examiners later reviewed other marks when they had the potential to impact the overall pass decision.

### **4.1. Banking**

The Banking case study required candidates to derive a price for a residential variable mortgage product which guaranteed to adjust interest rates by the same margin as the RBA adjusts the official cash rate. Advice on the viability of the product then had to be given, presumably including consideration of profit, capital requirements, risk management and customer responses.

The question was not answered well, with 11 candidates (out of 29) given less than 50%. The average mark was 55%.

### **4.2. Environment**

The Environment case study required candidates to advise a foreign solar energy company on the viability of entering the Australian market for residential photovoltaic cells. The impact of changing government incentives had to be considered.

The question was quite well answered, with only 2 candidates (out of 28) given less than 49%. The average mark was 60%.

### **4.3. Health**

The Health case study required candidates to write a paper showing how their consultancy could add value in setting efficient prices for activity-based-funding of public hospitals.

The results were generally good, with only 6 candidates being awarded less than 50%, and only 1 of them was a poor effort. The average mark was 61%.

### **4.4. Adjustments**

The 3 topic averages of 55%, 60% and 61% suggested that Banking was a more difficult question, and/or had been marked harder, than Environment and Health.

The Chief Examiner reviewed some of the papers and decided, prior to results being published, to add a flat standardization adjustment of 5 percentage points to all Banking marks. After the weighting at 20%, this is equivalent to an addition of 1% in their overall mark. This additional 5% changed the Banking mark for 2 candidates from 45% to 50%, and I was not concerned with that outcome. All individual Banking marks quoted in this report include the adjustment.

As always, Assignment marks were reviewed for individual borderline candidates. However, no further adjustments were made. In addition, comparison of writing style in Assignment and Exam were used for several candidates where the Assignment mark was substantially higher than the Exam mark, but there was no indication of anomalies.

## 5. Overall Course Results

### 5.1. Overall Pass List Recommendation

The following 48 candidates are recommended for passes in the CAP course this semester.

112015	112103	112209	112315
112023	112104	112231	112316
112024	112107	112232	112351
112033	112115	112243	112357
112044	112141	112249	112360
112045	112152	112265	112362
112053	112157	112274	112364
112062	112158	112279	112368
112065	112181	112291	112376
112066	112188	112294	112387
112067	112191	112308	112394
112089	112195	112313	112410

Bruce Thomson  
Chief Examiner,  
Commercial Actuarial Practice

Matthew Ralph  
Assistant Examiner  
Commercial Actuarial Practice

28 November 2011

---