



Report to ECC from the Board of Examiners

*SEMESTER 2 2019*

*PART III*

*BOARD OF EXAMINERS' REPORT*

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# CHAIR'S REPORT SUMMARY

## 1. Examinations

The Semester 2 2019 Fellowship examinations of the Actuaries Institute ("Institute") were held from the 8<sup>th</sup> to the 16<sup>th</sup> of October 2019.

## 2. Pass Rates

Shown in the table below are the number of candidates presenting for the Semester 2 2019 Fellowship Exams, the number of passes and the resulting pass rates, together with the corresponding information from the previous two exam periods.

**Table A: Pass Rates by Part III and New Fellowship Program Courses**

	2019 – Sem 2			2019 - Sem 1			2018 – Sem 2		
	Sat	Pass	%	Sat	Pass	%	Sat	Pass	%
2A Life Insurance	27	13	48	44	14	32	71	18	25
2B Life Insurance	40	17	43	55	20	36	63	18	29
LIRV Life Insurance and Retirement Valuation	n/a	n/a	n/a	68	19	28			
LIRPD Life Insurance and Retirement Product Development	69	39	56	n/a	n/a	n/a			
3A General Insurance	123	23	19	132	10	8	104	23	22
3B General Insurance	66	16	23	60	14	23	60	22	37
5A Invest. Man. & Fin.	28	10	36	n/a	n/a	n/a	22	4	18
5B Invest. Man. & Fin.	n/a	n/a	n/a	27	5	19	n/a	n/a	n/a
6A GRIS	n/a	n/a	n/a	8	5	63	n/a	n/a	n/a
6B GRIS	8	6	75	n/a	n/a	n/a	15	6	40
SP9 ERM	74	15	20	96	56	58	88	42	48
SP1 Health & Care	19	11	58	15	6	40	15	6	40
C10 CAP	101	56	55	88	42	48	88	47	53
<b>Total</b>	<b>555</b>	<b>206</b>	<b>37%</b>	<b>593</b>	<b>191</b>	<b>32%</b>	<b>526</b>	<b>186</b>	<b>35%</b>

The assessment for this semester comprised 10% assignment and 90% for the exam which is comprised of three long answer exam questions. The newly introduced Fellowship subject's assessment comprised 20% assignment and 80% for the exam which is comprised of three long answer exam questions.

The Chief Examiners aim to produce a consistent standard of passing candidates, rather than a consistent pass rate from year to year.

The overall pass rate for this semester is 37%, which is higher than the pass rates for the prior 2 semesters.

The 3A General Insurance subject continued to show a low pass rate with a very high number of students attending. It was a challenging semester to follow agreed process with this subject, but the exam team did a fantastic job to ensure comfort with the process and the result.

## Assignment

Assignments cover those parts of the syllabus which are either difficult to assess in an exam or historically have been areas of the course where candidates have performed poorly and where an in-depth exploration of the subject matter is warranted. Assignments focus on the higher levels of critical thinking such as analysis, evaluation and creating. The assignment involved spreadsheet calculations to test a candidate's knowledge, understanding and application of a technical area of the course. A component of the assignment also tests the candidate's written communication skills.

The following table provides a distribution of the assignment grades received by students:

#### Frequency Distribution for Semester 2 2019

Assignment Grade	Subject						
	2A	2B	LIRPD	3A	3B	5A	6B
A	21%	2%	50%	9.8%	16%	18%	0
B	36%	29%	44%	39.0%	36%	71%	87.5%
C	18%	34%	0%	25.2%	36%	0%	12.5%
D	4%	22%	1%	15.5%	10%	4%	0
E	11%	10%	3%	8.1%	1%	4%	0
F	11%	2%	0	1.6%	0	4%	0

#### Observations:

- The vast majority of students completed the assignment although we note that as the assignment was more challenging than the forum, this resulted in an overall reduction in marks for students.
- Although there was some increase in the forum usage in the second semester, this is now heavily underutilised. It was felt by many that students were not doing themselves any favours by not making use of all available learning options.

# EXAM ADMINISTRATION

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## 1. The Board of Examiners

The Board of Examiners oversee the Fellowship examination process of the Actuaries Institute. The Board of Examiners consist of the Chair and the Chief Examiners for each subject, supported by Institute staff.

The constitution for the Board of Examiners for this semester was as follows:

### *BoE Chair*

Chair                James Pettifer

### *Chief Examiners*

Course 2A:	Life Insurance	Anthony Brien
Course 2B:	Life Insurance	William Zheng
Course 3A:	General Insurance	Daniel Lavender
Course 3B:	General Insurance	James Fitzpatrick
Course 5B:	Investment Management & Finance	Charles Qin & Claymore Marshall
Course 6A:	Global Retirement Income Systems	Stephen Woods
Course 10:	Commercial Actuarial Practice	Bruce Thomson

### *Assistant Examiners*

The Assistant Examiners for this semester were:

Course 2A:	Life Insurance	Jun Song & Julian Braganza
Course 2B:	Life Insurance	David Ticehurst & Robert Herlinger
Course 3A:	General Insurance	Ryan Anderson & Andrew Teh
Course 3B:	General Insurance	Elaine Pang & Chao Qiao
Course 5B:	Investment Management & Finance	N/A
Course 6A :	Global Retirement Income Systems	Jim Repanis
Course 10:	Commercial Actuarial Practice	Matthew Ralph

I would like to take this opportunity to thank all 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.

### *Meetings of the Board*

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

**Table 2: Meetings of the Board**

Meeting	Purpose
18 July 2019	<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>

19 September 2019	<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>
22 November 2019	<ul style="list-style-type: none"> <li>• Review the recommended pass lists and treatment of borderline candidates.</li> </ul>

## 2. Course Leaders

Course Leaders are appointed by the Institute to undertake a variety of tasks relating to modules 1-3 of the Fellowship education program. Course Leaders draft examination questions, conduct tutorials, monitor forums and assess the online participation mark. The following is a list of the Course Leaders for this semester:

**Table 1: Course Leaders**

Course	Roles
2A	Exam: Stephen Edwards Tutorials, Forum Participation: Bruce Thomson
2B	Exam: Peter Corbett, Lawrence Ng Tutorials: Richard Land Forum Participation: Han Gan
LIRPD	Course Delivery and Assessment: Mike Callan and Georgina Hemmings
3A	Exam: Daniel Lavender Tutorials: Jeff Thorpe Forum Participation: Jacqui Reid
3B	Exam and Forum Participation: Jacqui Reid Tutorials: Ben Qin
5B	Exam: Charles Qin, Claymore Marshall Tutorials, Forum Participation: Marlon Chan
6A	Exam, Tutorials and Forum Participation: Vivian Dang
CAP	Exam: David Service, Vivian Dang, Young Tan, Colin Priest, Tim Gorst, Gaurav Khemka Post-Course Assignment: Sharanjit Paddam, Andrew Gale, Colin Priest, David Service
SP9	This course is run completely external to the Institute.
SP1	This course is run completely external to the Institute.

## Scrutineers

The Scrutineers for Semester 2 2019 were:

**Table 3: Scrutineers**

Course	Longer Answer Questions, Case Study Assignment and Exam
Course 2A	Amy McDonald, Joyce Wang, Clayton Roderick
Course 2B	Leon Guo, Anita Gan, Lawrence Uy
LIRPD	Joyce Wang, Clayton Roderick, Dorothy Cheng
Course 3A	Timothy Lee, Danielle Casamento, Yu Sun
Course 3B	Ben Qin, Timothy Lee, Edwin Zhang
Course 5A	Mengyi Xu, Bindusri De Silva, Dan Zhu
Course 6B	Henry Yan, David McNeice, Su Li Sin
Course 10	Justeen Wong (GRIS) Janice Cheng (Life) Timothy Lee (GI) Roman Kashkarov (ERM) Lawrence Uy (Investments) Zachary Tirrell (Health) David Chan (ESG) Kevin Pun (Banking) Wan Wah Wong (Data Analytics)

### 3. Exam Administration and Supervision

The Board of Examiners was ably assisted by Institute staff in the Education Team, Tony Burke, Karenn Chhoeung, Krystel Rowe, Eleanor Mazando and AUSA Chanthaphone. They 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 to produce this report. They did a great job and the Board of Examiners team is indebted to them all.

The Fellowship examinations are sat through an external consultancy – Cliftons, a computer training venue.

Other examinations in temporary exam centres were administered by Fellows or other approved supervisors.

#### 4. Exam Candidature

##### *Candidate Mix*

The mix of courses sat by candidates is broadly similar to that in previous years

**Table 4: Candidate Mix by Part III Course**

<b>Subject</b>	<b>2019 (2)</b>	<b>2019 (1)</b>	<b>2018(2)</b>	<b>2018 (1)</b>	<b>2017 (2)</b>	<b>2017 (1)</b>
Life Insurance	29%	35%	22%	32%	29%	27%
General Insurance	41%	38%	39%	38%	37%	39%
Investment Management & Finance	6%	6%	5%	6%	5%	8%
Global Retirement Income Systems	2%	2%	4%	5%	5%	5%
Commercial Actuarial Practice	22%	18%	20%	19%	24%	21%
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>



# BoE Members for Semester 1 2020

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## 1. Board of Examiners

The composition of the Board of Examiners for next semester, Semester 1 2020, is as follows:

### 1.1. Board of Examiners Chair

Bruce Thomson

### 1.2. Chief Examiners

Course 3A: General Insurance	Daniel Lavender
Course 3B: General Insurance	Chao Qiao
Course 5A: Investment Management & Finance	Charles Qin & Claymore Marshall
Course 6B: GRIS	Stephen Woods
Course 10: Commercial Actuarial Practice	Bruce Thomson

### 1.3. Assistant Examiners

Course 3A: General Insurance	Ryan Anderson, Yu Sun
Course 3B: General Insurance	Andrew Teh, Yuenan Li
Course 5A: Investment Management & Finance	N/A
Course 6B: GRIS	Jim Repanis
Course 10: Commercial Actuarial Practice	Matthew Ralph

### 1.4. Actuarial Education Team

LIRV: Life Insurance and Retirement Valuation	Michael Callan and Georgina Hemmings
Life Insurance Applications	Georgina Hemmings
Superannuation and Retirement Applications	Janice Jones

## 2. Examination Dates

The dates for the examinations in Semester 1 2020 are as follows:

Subject	Exam Date
C3A General Insurance	20 April 2020
C3B General Insurance	21 April 2020
Life Insurance and Retirement Valuation	22 April 2020
SP1 Health & Care (IFoA)	23 April 2020
Life Insurance Applications	23 April 2020
Superannuation and Retirement Applications	23 April 2020
SP9 Enterprise Risk Management (IFoA)	24 April 2020
C5B Investment Management & Finance	28 April 2020
C6A Global Retirement Income Systems	29 April 2020
C10 Commercial Actuarial Practice	20 April 2020

## 3. Examination Papers

The Board of Examiners have agreed to release this semesters examinations questions and marking guides soon after the results release date to facilitate students being able to refer to them as a learning resources prior to the post exam information sessions.

James Pettifer, Chair of the BOE 9/12/2019

# EXAMINERS REPORTS SEMESTER 2 2019

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## COURSE 2A LIFE INSURANCE

### 1. Summary

#### 1.1. Course Overview

The aim of the 2A Life Insurance Course is to provide market, legislative and product knowledge, along with the skills and judgment, necessary for an actuary to tackle a range of management related problems in life insurance relating to underwriting and risk management, experience analysis, assumption setting and pricing.

#### 1.2. Assessment

The assessment model is broken down into two parts:

Assignment	10%
Long Answer Question Exam	90%

#### 1.3. Pass Rates

29 candidates enrolled this semester. Of these, 1 withdrew and 1 did not present, leaving 27 sitting the exam.

It is proposed that 13 candidates be awarded a pass, which implies a pass rate of 48.1%. Table 1 shows the historical pass rates for this subject:

**Table 1 – Course Experience**

SEMESTER	SAT	PASSED	PASS RATE
<b>Semester 2 2019</b>	<b>27</b>	<b>13</b>	<b>48.1%</b>
Semester 1 2019	44	14	31.8%
Semester 2 2018	71	18	25%
Semester 1 2018	78	22	28%
Semester 2 2017	62	23	37%
Semester 1 2017	65	13	20%
Semester 2 2016	66	14	21%
Semester 1 2016	82	16	20%
Semester 2 2015	57	18	32%
Semester 1 2015	65	20	31%

The 48.1% pass rate for this exam is the highest rate for C2A in recent history. The significantly fewer candidates who sat this final semester appear to have applied themselves and demonstrated a good understanding of the course. As only repeat candidates were permitted to enroll these last two semesters, the increasing pass rate may give credence to the view that candidates struggle to adequately learn and assimilate the course in a single semester. The extent to which the proportion of repeat versus first time candidates correlates with the pass rate would be worthy of further investigation.

The course was reviewed and minor updates made but it was noted that any response covering LPS 320/CPS320 would not be penalized for not covering the new approach to an actuarial advice framework.

## 2. Assessment

### 2.1. Overall Performance

It was pleasing to see a much higher standard of answer this semester, whether this was due to candidates heeding the advice on exam technique, the fact that they had all done the course before, or that this was the last opportunity for candidates to pass is unclear. There was also less variability in most candidates' performance from question to question indicating a better overall understanding of the course without knowledge gaps. Unfortunately, there was still examples of candidates not taking the time to read and consider the question and wrongly interpreting some of the data provided. It is important that candidates check and confirm the inputs to their working and the methodology they apply to ensure they are handling data correctly. In most instances the results should have flagged that there was a problem as the amounts were way out of the reasonable range.

It was also interesting to see a strong correlation between assignment mark and overall performance. There were a few candidates who showed a significant improvement from assignment to exam and only one candidate whose exam performance was significantly worse than their assignment. Several candidates were either lifted into Borderline consideration or pulled below the fail mark by their assignment performance. Those candidates who don't make a good effort on the assignment certainly did themselves a disservice.

Most disappointing is the number of candidates with E's and F's indicating an inability to take a question and apply their knowledge of the course to it. It is these candidates that I think the Institute should be considering in terms of requiring the candidate to have an exam performance interview that considers all their past papers, to attempt to identify what factors are preventing them from passing and for them to undertake some additional training / development before being permitted to sit the course again.

### 2.2. Exam Question by Question Analysis

#### Question 1

	Marks Required	Weighted Marks Required	% of Total Marks	Number of Candidates	Proportion of Candidates
<b>Total Marks Available</b>	<b>60.0</b>	<b>60.0</b>			
Strong Pass (A)	42.0	42.0	70.0%	2	7%
Pass (B)	34.5	34.5	57.5%	8	29%
Slightly Below Standard (C)	31.1	31.1	51.8%	6	21%
Below Standard (D)	26.0	26.0	43.3%	8	29%
Weak (E)	15.0	15.0	25.0%	3	11%
Showed Little Knowledge (F)	1.0	1.0	1.7%	0	0%
Did Not Attempt (X)	0.0	0.0	0.0%	1	4%
Maximum Mark	44.8	44.8			
Average Mark	31.3	31.3			
Standard Deviation	8.4	8.4			
Coefficient of Variation	0.27	0.27			

**Question 1** focused on non-intermediated distribution methods such as came into question during the royal commission. Candidates were first asked to identify the different ways direct marketed business can be sold and then asked candidates to identify four significant risks faced by direct marketers and how the identified risk could be managed.

Candidates were then asked to suggest differences they would expect to see in experience between cold calling and online distribution and what the impact of closing the cold-call sales channel would have on different expense categories.

Candidates performed reasonably well on this question, with a pass rate of 36%.

Part a):

Most candidates were able to identify a sufficient number of marketing approaches.

Part b):

Identifying the risks and how to manage them proved to be problematic for some candidates and were frequently too generic rather than specific to the nature of business covered in the question.

Part c):

Candidates also struggled with identifying the expected differences between the two sales approaches and few adequately explained why the difference would exist.

Part d):

Many candidates failed to consider the servicing of in-force business or the impact of reducing volumes in terms of average per policy costs where total cost does not vary greatly by volume (fewer policies over which to spread the IT cost).

Part e):

Few candidates presented an appropriate response to an inexperienced Head of Sales, as to the requests from the Appointed Actuary (AA) and the legislative and prudential basis governing the AA involvement in the business.

## Question 2

	Marks Required	Weighted Marks Required	% of Total Marks	Number of Candidates	Proportion of Candidates
<b>Total Marks Available</b>	<b>60.0</b>	<b>60.0</b>			
Strong Pass (A)	48.0	48.0	80.0%	6	21%
Pass (B)	39.5	39.5	65.8%	9	32%
Slightly Below Standard (C)	35.6	35.6	59.3%	5	18%
Below Standard (D)	32.0	32.0	53.3%	2	7%
Weak (E)	28.0	28.0	46.7%	1	4%
Showed Little Knowledge (F)	1.0	1.0	1.7%	4	14%
Did Not Attempt (X)	0.0	0.0	0.0%	1	4%
Maximum Mark	52.5	52.5			
Average Mark	38.3	38.3			
Standard Deviation	10.9	10.9			
Coefficient of Variation	0.29	0.29			

**Question 2** covers employer funded corporate group risk business, outside of the superannuation system.

Candidates were asked to identify advantages and disadvantages from the member perspective and how you might obtain the data usually collected about an individual when assessing critical illness cover, from existing sources related to the group, and where information isn't available, what other information could be used or product terms modified so that the data was not needed.

Candidates were then asked to draft a memo to their pricing team covering how an

appropriate pricing basis may be derived from retail business, with whom should they consult and what other assumptions will be needed to generate indicative premiums.

Candidates performed reasonably well on this straightforward bookwork style question. The pass mark was set quite high relative to previous years at 19.5/20 out of 30 reflecting this but still resulted in a pass rate of 53%.

Part (a):

Straightforward bookwork group v retail pros/cons and so answered well with an average of 3.5/4

Part b(i):

Straightforward bookwork as just needed to list risk factors for trauma. Hence answered well with average 4.7/6

Part b(ii):

Straightforward to list factors that could come from the company (most mentioned HR for the full 2). Average 1.6/2

Part b(iii):

This was one of the tougher parts as required students to list alternative sources etc. Average only 1.7/4

Part c(i):

Most students were able to reference existing experience although not all got that IP would be the best source e.g. a few focused on terminal illness which is relevant but quite limited e.g. mainly cancer. Average 1.5/2

Part c(ii):

Students struggled a little with this part as couldn't really determine the differences between retail and group pricing factors. Average 1.9/4

Part c(iii):

Straightforward so answered well. Average 1.7/3

Part c(iv):

Most students were able to cover expenses a reasonable degree and one or two of the other points. Average 2.4/4.

### Question 3

	Marks Required	Weighted Marks Required	% of Total Marks	Number of Candidates	Proportion of Candidates
<b>Total Marks Available</b>	<b>60.0</b>	<b>60.0</b>			
Strong Pass (A)	47.0	47.0	78.3%	3	11%
Pass (B)	41.0	41.0	68.3%	9	32%
Slightly Below Standard (C)	36.9	36.9	61.5%	7	25%
Below Standard (D)	32.0	32.0	53.3%	3	11%
Weak (E)	24.0	24.0	40.0%	1	4%
Showed Little Knowledge (F)	1.0	1.0	1.7%	4	14%
Did Not Attempt (X)	0.0	0.0	0.0%	1	4%
Maximum Mark	54.0	54.0			
Average Mark	36.6	36.6			
Standard Deviation	11.5	11.5			
Coefficient of Variation	0.31	0.31			

This question had an accompanying spreadsheet and examined the impact of a Investment

Guarantee and Maturity for an investment account style product. The question went into detail as to how the guarantee applied and limits and rules covering the product which were then shown in 30 simulations.

Candidates were required to calculate the starting and finishing balances for each simulation and whether the guarantee would apply, allowing for partial withdrawals.

Candidates were then asked to derive the expected present value of profit as a percentage of the upfront fee and to explain whether this is a good measure for coverage of cost of guarantee and suggest alternative measures.

It is then noted that the withdrawal assumption does not reflect experience as withdrawals are correlated with higher crediting rates and asks candidates to suggest reasons why and how the assumption might be adjusted.

Finally, candidates are asked to suggest two changes that would reduce the upfront cost of the guarantee or make the guarantee more appealing.

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

Most students did well in this question, especially the calculation part. Part (a) to (c) were generally well attempted, while part (d) to (e) provided a differentiator between candidates. The low marks for (e) indicate a lack of understanding of investment guarantee; only a handful of candidates recognising the trade-off between the value of guarantee to the client and the cost to the company."

END

# COURSE 2B LIFE INSURANCE

## 1. Summary

### 1.1. Course Overview

The aim of the 2B Life Insurance Course is to provide the knowledge, skills and judgment 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. Assessment

The assessment model is broken down into two parts:

Assignment 10%

Long Answer Question Exam 90%

### 1.3. Pass Rates

41 candidates enrolled this semester. Of these, 1 candidate did not attend the exam, leaving 40 candidates sitting the exam.

It is proposed that 17 candidates be awarded a pass, which implies a pass rate of 43%. Table 1 shows the historical pass rates for this subject:

Table 1 – Course Experience

SEMESTER	SAT	PASSED	PASS RATE
<b>Semester 2 2019</b>	<b>40</b>	<b>17</b>	<b>43%</b>
Semester 1 2019	55	20	36%
Semester 2 2018	63	18	29%
Semester 1 2018	57	19	33%
Semester 2 2017	49	15	31%
Semester 1 2017	52	18	35%
Semester 2 2016	46	15	33%
Semester 1 2016	50	11	22%
Semester 2 2015	50	17	34%
Semester 1 2015	53	21	40%

The 43% pass rate for this exam is higher than the 36% pass rate for the previous exam (Semester 1 2019) and higher than the historical average of 33%.

## 2. Assessment

### 2.1. Overall Performance

On average, the marks for the Assignment were similar to last semester. Overall the distribution of the marks was consistent with the distribution of marks for the Long Answer Questions for the current and previous semesters.

The performance in the Long Answer Questions was broadly consistent with the previous semester overall and continues to be variable. As with past semesters, this component covered a range of topics and contained a mix of:

- Spreadsheet work and written responses.
- Sections requiring simple and complex judgment.
- Components that were prescriptive and others that were open (inviting candidates to raise and discuss points in relation to the topic at hand).

This made the questions good discriminators when assessing the borderline candidates.

Consistent with previous semesters, some candidates performed very well on one or two of the Long Answer Questions but performed poorly (in some cases very poorly) on the other(s). Only a handful of candidates appeared strong across all areas of assessment.

Most candidates appeared to complete the exam. However, some candidates were let down by:

- Devoting too much time to certain parts of the exam, leaving them little ability to demonstrate the required knowledge, understanding and judgment in other parts.
- Not reading and/or answering the question correctly – e.g. not answering for the impacts on **both** the current and future capital position as a result of potential regular actions in part c) of Question 2.
- Not addressing the circumstances described in the question, and instead giving a generic textbook answer (which may not have relevance).
- Not assessing the reasonableness of the numbers coming out of their calculations – for example in the level of VIF calculated in part a) of Question 1.

Many candidates failed to demonstrate an understanding of:

- That at commencement, there are no profits under the MoS basis (unless in loss recognition).
- How the appropriateness of the prescribed minimum event stress test in LPS 115 would be challenged.
- The limitations on the distribution of dividends, such as that Australian capital requirements would still apply even for an Australian company that adopts an alternative (overseas) profit metric for performance measurement.

The presentation of reasonable arguments to back up conclusions and apply complex judgment was missing in many cases, with the quality of explanations often weak for such candidates.



## 2.2. Exam Question by Question Analysis

### Question 1

	Marks Required	Weighted Marks Required	% of Total Marks	Number of Candidates	Proportion of Candidates
<b>Total Marks Available</b>	<b>70.0</b>	<b>70.0</b>			
Strong Pass	53.5	53.5	76.4%	18	44%
Pass	47.0	47.0	67.1%	11	27%
Slightly Below Standard	42.3	42.3	60.4%	3	7%
Below Standard	33.0	33.0	47.1%	4	10%
Weak	27.5	27.5	39.3%	4	10%
Showed Little Knowledge	1.0	1.0	1.4%	0	0%
Did Not Attempt	0.0	0.0	0.0%	1	2%
Maximum Mark	68.3	68.3			
Average Mark	50.1	50.1			
Standard Deviation	13.0	13.0			
Co-efficient of Variation	0.26	0.26			

**Question 1** focused on a life insurer that only sells allocated pensions. The underlying focus on the question related to Embedded Value and Appraisal calculations including comparing methods of calculating the value of new business and performing projections to calculate the Embedded Value.

Candidates were initially asked to perform an embedded value calculation using the spreadsheet provided and then perform an analysis of movement, following the events outlined in the question. They were then asked to outline the potential EV impacts of scenarios impacting the life insurer. The remainder of the question focused on the value of new business and how this could be calculated, allowing for circumstances of the business.

This question was generally answered well by candidates, with a pass rate of 71%.

Part a) most candidates did reasonably well with the projection of investment return, management fees, FUM, policy liability and capital requirement in the calculation of the Embedded Value. Most candidates made some errors, with better candidates only making one or two. The most common errors across part a) were:

- Not realising the policy liability is equal to the FUM.
- Including management expenses in the calculation of the FUM.
- The calculation of the reported profit.
- Where their calculation indicated that there would be an unreasonable VIF (e.g. negative), not specifically highlighting that this is likely to be indicative of an error.

For part b), candidates had mixed performance. Most students were able to identify the changes that would be required to be made to the worksheet used in part a) for each of the events. Less well done was the expected movement calculations in the analysis of movement, with many students not allowing for the impact of imputation credits / taxation in the calculation of the investment return on the ANW. Also poorly done was the transfer between the ANW, VIF and Value of imputation Credits.

For part c) i) the responses were generally well done. Most candidates recognised that having lower returns than competitors would result in higher rates of lapses, as policyholders moved to

seek higher returns. Stronger candidates were able to provide reasoned arguments as to how this higher lapse rate would affect the Embedded Value (e.g. through reduced fee income and release of capital requirement) For part c) ii), weaker students did not recognise the information present in the question that the majority of policyholders withdraw above minimum rates, when considering the impact of the legislative change in minimum withdrawal rates.

Part d i) was performed reasonably well by most candidates, with many being able to provide two valid points on the reasons for switching the VNB methodology. There were several candidates who provided two reasons that were essentially the same reason reworded.

Part d ii) had mixed responses. Most students were able to provide some valid points on why the CFO's suggestion was incorrect, however few were able to provide points that were all valid and supported by reasonable arguments to obtain maximum marks for this question. Most candidates had appropriate language and formatting that was suited for the audience (CFO).

## Question 2

	Marks Required	Weighted Marks Required	% of Total Marks	Number of Candidates	Proportion of Candidates
<b>Total Marks Available</b>	<b>58.0</b>	<b>58.0</b>			
Strong Pass	36.0	36.0	62.1%	4	10%
Pass	31.0	31.0	53.4%	14	34%
Slightly Below Standard	27.9	27.9	48.1%	9	22%
Below Standard	23.0	23.0	39.7%	8	20%
Weak	18.0	18.0	31.0%	4	10%
Showed Little Knowledge	1.0	1.0	1.7%	1	2%
Did Not Attempt	0.0	0.0	0.0%	1	2%
Maximum Mark	42.0	42.0			
Average Mark	28.7	28.7			
Standard Deviation	8.0	8.0			
Co-efficient of Variation	0.28	0.28			

**Question 2** focused on a growing Australian life company that launched five years ago. The company has had a significant deterioration in claims experience on its IP products, which is the company's flagship product offering. This question focused on regulatory capital and target surplus.

Candidates were initially asked to explain how changing the claims assumptions in light of the deterioration would impact the PCA and actions that could be taken to improve the capital position. Candidates were then tested on their understanding of their knowledge of the Insurance Risk Charge module, specifically relating to stress margins, event stress and the assumed repricing horizon. The remainder of the question then focused on interactions with the regulator and metrics that could provide a lead indicator of profit and capital deterioration.

This question was answered reasonably well by many candidates, with a pass rate of 44%.

Part a) i) was mostly answered well, with most candidates being able to outline some valid points. Many candidates were able to identify the different impacts that strengthening the incidence, termination and claim delay assumptions would have on the liability components

(e.g. IBNR and DLR). Weaker candidates did not do this and lost marks as a result. Few candidates raised the point that the assumption changes would reduce profits to absorb the stresses which would cause an increase to the IRC and PCA.

Part a) ii) had mixed responses. Many students provided actions that would not affect the capital position for a number of months (e.g. sale of book) as current capital position actions. Otherwise overall, the suggestions provided by students on the actions that would improve the capital position were mostly reasonable and supported by reasonable arguments on how they would help.

Part b) i) was reasonably well answered, with most students being able to provide some valid points on the reasons for the differences in risk margins between ABC Life and the industry. Part b) ii) responses were mixed. Many students were not able to clearly articulate the process in which the adequacy of the prescribed minimum event stress would be tested, based on the risks faced by the company.

Part b) iii) had mixed responses. Many candidates were able to identify the restrictions in practice of being able to reprice within 12 months of adverse experience, however less students were able to provide valid points in relation to the constraints of re-pricing.

Part c) i) was reasonably well answered. Many candidates identified that the current Target Surplus methodology was not linked to the risk appetite or a risk-based amount. Fewer candidates were able to provide a valid second reason for concern about the TS methodology (e.g. low relative to industry). Most candidates were able to provide a valid alternative (e.g. Target Surplus set at amount such that there is only a 1 in x year chance of breaching the PCA at the end of 12 months).

Part c) ii) was generally well answered. A number of students provided actions that would not typically be within the regulator's power to do so (e.g. force the sale of the book to a third party). Better students were able to provide valid action points, as well as step through the logic of how these action items would impact the capital position of ABC in both the short term (current capital position) and medium to longer term (future capital position).

Part c) iii) had mixed responses. Some candidates provided lead indicators that involved the IRC or PCA, despite the question asking for metrics signal that the capital position was deteriorating without the need to recalculate the capital position.

### Question 3

	Marks Required	Weighted Marks Required	% of Total Marks	Number of Candidates	Proportion of Candidates
<b>Total Marks Available</b>	<b>52.0</b>	<b>52.0</b>			
Strong Pass	32.0	32.0	61.5%	2	5%
Pass	24.0	24.0	46.2%	11	27%
Slightly Below Standard	21.6	21.6	41.5%	3	7%
Below Standard	19.0	19.0	36.5%	7	17%
Weak	12.0	12.0	23.1%	12	29%
Showed Little Knowledge	1.0	1.0	1.9%	5	12%
Did Not Attempt	0.0	0.0	0.0%	1	2%
Maximum Mark	36.0	36.0			
Average Mark	19.3	19.3			
Standard Deviation	7.6	7.6			
Co-efficient of Variation	0.39	0.39			

**Question 3** focused on an Australian life insurance that has been recently acquired by an overseas insurer group. This question focused on aspects of reporting such as assumption changes and profit patterns.

As a result of the acquisition, the life company is required to report its policy liability under the overseas basis, in addition to reporting under the existing Australian MoS basis. The overseas basis has a number of differences with the Australian basis and was intended to test the understanding of policy liability principles.

Candidates were initially asked to compare the risk margin under the overseas basis to the margins present in LAGIC capital calculations. Candidates were then asked to calculate and compare the profit under the Australian and overseas basis. In the other parts of the question, candidates were asked to compare individual points of differences between the two methods and the operational challenges as well as quantitative impact that this may have on the resulting policy liability. In the final part of the question, candidates were asked about operational impacts that the overseas basis might have on dividend policy and claims management / underwriting.

This question was generally not answered well, with a pass rate of 32%.

Part a) i) was answered well by most candidates. However, it was still disappointing to see that some candidates were not able to provide valid responses on this question, which was relatively straightforward.

Part a) ii) had mixed responses. Most candidates were able to correctly calculate the BEL and Risk Margins based on the PVs provided. It was therefore surprising and disappointing to see so many candidates making basic errors in their profit calculation, such as showing profits at commencement under the MoS basis and / or errors in the overseas basis when the liability items were calculated correctly.

Part b) i) also had mixed responses. Many candidates had difficulty in providing a valid rationale for the overseas basis to group policies by calendar year cohorts. Part b) ii) was poorly answered. Most candidates were able to identify that there was a need to have their projection system and reporting processes changed. Very few candidates identified the difficulty in deriving assumptions by cohorts with the attaching credibility problems for small

cohorts or having the historical data available to determine the current profit margins of the cohorts.

Part c) i) was poorly done. While most candidates were able to identify that the overseas basis would have a higher discount rate and therefore the BEL should be lower, few candidates brought up the impact that being a level premium product would have on the duration. Part c) ii) was poorly answered by most candidates, with very few candidates being able to present structured arguments that were also valid and relevant to the question at hand.

Part d) i) was poorly done, with many students providing points that were not valid changes to the claims management and underwriting departments. Stronger students were able to provide changes that were applicable in practice, rather than generic points.

Part d) ii) had mixed responses. It was disappointing that some candidates did not realise that Australian capital regulations would still apply in respect of dividends, even if the internal performance metric was based on the overseas basis.

END

# LIFE INSURANCE AND RETIREMENT PRODUCT DEVELOPMENT

## 1. Summary

### 1.1. Course Overview

This subject aims to promote the concept of the actuary as an expert advisor in the product development process. As well as describing how to complete the technical aspects of the product development process, another aim is for students to understand the various conflicts that arise across different groups of stakeholders. Meeting reasonable customer needs and helping customers understand whether these needs are met form core concepts in the subject. The implications of serving the public good will also be discussed.

The subject has considerable focus on the external environment for a life insurer or retirement fund and how, for example, government policies have a significant impact on product design.

Technical aspects of setting the price via profit testing, setting pricing and funding assumptions and reviewing assumptions through emerging experience are described. Students will be expected to identify financial risks and how to manage these risks.

The broader issue of the management required to achieve the products' objectives is introduced by explaining actuarial roles in the product development process. The intention is to show students that actuaries are not just technical experts but are also strategic advisors in this process. In particular, while actuaries typically do not make decisions on various factors (e.g. administration systems, marketing material) they play an important specialist advisory role in these decisions.

After successfully completing this subject, students will be able to:

- consider whether reasonable customer expectations have been, or will be, met;
- critically evaluate the need for actuarial advice in the product development process;
- construct a profit test and explain the results;
- conduct experience reviews; and
- contribute to the management of financial risks.

Students should note that both this subject and the Valuation subject are principle based and were not seeking Australian specific knowledge. Both subjects are designed to build a strong core knowledge to enable students to undertake the Applications subjects.

Students who were successful at this exam will have demonstrated the following knowledge and/or skills:

- an understanding of level and stepped premium term insurance;
- an understanding of the reasons why premiums can increase for level premium term insurance and the distinction between guaranteed and non-guaranteed rates;
- be able to apply the screening component of the product development process to introducing a new stepped premium product;
- an understanding of differences in assumptions between level and stepped premium insurance and the impact of lapses on profitability;
- be able to describe the steps involved in developing a cashflow projection including preparing a decrement table, projecting cashflows, explaining assumptions, timing of cashflows, setting up reserves, and calculating transfer values;
- an ability to describe the steps of cashflow modelling in sufficient detail that someone could produce a simple model;

- be able to apply considerations when assessing the adequacy and suitability of premium rates;
- an understanding of the difference between modelling for model points versus a portfolio;
- an understanding of what needs to be considered when launching a new product in the market;
- an awareness of the checks that should be completed to assess accuracy and completeness of data before reviewing results;
- an ability to review experience data and identify trends without performing the calculations;
- be able to assess the impact of changes in the operating environment on morbidity experience and ability to consider what can be done about this;
- be able to apply and assess the appropriateness of different types of reinsurance to address trends in experience; and
- identification of risk and mitigation strategies relating to providing insurance cover for mental health conditions.

## 1.2. Assessment

The assessment model is broken down into two parts:

Assignment	20%
Long Answer Question Exam	80%

## 1.3. Pass Rates

72 candidates enrolled this semester. Of these, 2 withdrew and 1 did not present, leaving 69 sitting the exam.

It is proposed that 39 candidates be awarded a pass, which implies a pass rate of 51%.

SEMESTER	SAT	PASSED	PASS RATE
Semester 2 2019	69	39	55.7%

12 candidates were awarded a grade 'C'. These candidates performed well in both the assignment and in question three but scored an 'E' or below in at least one other question.

This is the first time the subject has been offered to students and hence there is no direct comparatives but the experience of the Life Insurance and Retirement Valuation subject from Semester 1, 2019, impacted on the teaching and assessment setting for this subject.

There were various changes implemented in Semester 2 that may have contributed to the pass rate, including:

- significant effort on ensuring the examination questions were clear although some parts were misinterpreted by some students;
- replacing an excel calculation question with a question asking students to describe how to calculate a specific model although many students did not provide an answer that demonstrated they understood the concepts;
- the assessment had a simplified design when compared with the valuation assessment as it was focused on a smaller subset of material although it shared common objectives:
  - helping students realise that writing clearly is a skill requiring practice;

- o students demonstrating a deeper understanding of modelling, questioning assumptions, testing and developing scenarios;
- there is a larger library of past questions (e.g. 2A, UK ST2) on relevant product development questions, which were categorized by topic and posted to the LMS;
- weekly practice on nominated questions, marked by a named buddy, may have helped although we have no evidence on the usefulness of the buddy system;
- weekly tutorials were altered to align with feedback received from the Valuation subject; and
- the layout of the LMS was improved to provide easier access to materials.

The online discussion forum was active throughout the semester with more than 200 interactions.

## **2. Assessment**

### **2.1. Overall Performance**

Our intention in the principle-based subjects is to present assessment material that is solvable by all candidates. The exam results and assignment showed an appropriate level of understanding across all areas by just over half of the cohort and across the majority of areas by a significant proportion of those who did not reach pass standard.

The assessment was answered adequately, given candidates knowledge at that time but we did state that the examination is of a higher standard. Our impression is that a significant proportion understood the message that effort is required to pass the exams although we want candidates to realise that significant effort must occur throughout the semester.

Whilst a detailed analysis of each question follows in the subsequent sections, two high-level comments are:

- Candidates must know the basic products - definitions, understanding the management of risk transfer and the factors affecting cashflows.
- Candidates must learn to be careful in reading the questions. Candidates that failed were generally not far away from passing the exam but either answered questions too generally without demonstrating application of the information provided or did not adequately think around a problem.



## 2.2. Exam Question by Question Analysis

### Question 1

	Marks Required	Weighted Marks Required	% of Total Marks	Number of Candidates	Proportion of Candidates
<b>Total Marks Available</b>	<b>50.0</b>	<b>50.0</b>			
Strong Pass (A)	41.5	41.5	83.0%	1	1%
Pass (B)	35.5	35.5	71.0%	14	20%
Slightly Below Standard (C)	32.0	32.0	63.9%	20	29%
Weak (D)	29.0	29.0	58.0%	10	14%
Showed Little Knowledge (E)	23.0	23.0	46.0%	16	23%
Did Not Attempt (X)	1.0	1.0	2.0%	8	11%
Maximum Mark	43.0	43.0			
Average Mark	29.8	29.8			
Standard Deviation	7.1	7.1			
Coefficient of Variation	0.24	0.24			

Candidates performed fairly on this question, with a pass rate of 21%.

Part a): Average mark: 2.4/5

Candidates were required to discuss possible reasons premium rates for level term insurance may increase.

Many candidates failed to identify that premiums may be guaranteed or non-guaranteed and the different reasons why the cost of insurance may increase for term with guaranteed premium rates. This is despite the concepts being covered in the textbook.

Part b): Average mark: 3.2/4

Candidates were required to discuss similarities and differences between level and stepped premium.

Overall candidates performed well although some did not state obvious answers for similarities, such as both pay a lump sum on death of the life insured.

Part c): Average mark: 3.5/6

Candidates were asked to discuss the impact of lapses on profitability for level and stepped premium term insurance.

Weaker candidates did not demonstrate an understanding of the impact of lapses on profitability at different durations for level and stepped. This despite the concept being discussed in the textbook.

Part d i): Average mark: 1.4/2

Candidates were required to explain how screening applies to the product development process.

This was a relatively straight forward question aimed at prompting students to define screening as a lead in to part d ii. Overall candidates performed well.

Part d ii): Average mark: 4.4/8

Candidates were required to apply the screening stage of the product development process to the idea of developing a stepped premium term insurance product.

Many students did not discuss underwriting for stepped and level or the possible impact of cannibalization of level premium business.

## Question 2

	Marks Required	Weighted Marks Required	% of Total Marks	Number of Candidates	Proportion of Candidates
<b>Total Marks Available</b>	<b>50.0</b>	<b>50.0</b>			
Strong Pass (A)	40.0	40.0	80.0%	4	6%
Pass (B)	29.5	29.5	59.0%	17	24%
Slightly Below Standard (C)	26.6	26.6	53.1%	9	13%
Weak (D)	21.5	21.5	43.0%	19	27%
Showed Little Knowledge (E)	13.0	13.0	26.0%	16	23%
Did Not Attempt (X)	1.0	1.0	2.0%	4	6%
Maximum Mark	44.0	44.0			
Average Mark	25.3	25.3			
Standard Deviation	9.2	9.2			
Coefficient of Variation	0.36	0.36			

Candidates performed fairly on this question, with a pass rate of 30%.

Question 2 required students to discuss considerations for developing and profit testing premium rates for stepped premium YRT.

Part a): Average mark: 3.5/8

Candidates were asked to discuss the assumptions they would use for pricing stepped premium YRT using level premium assumptions as a starting point.

Candidates who did not perform well in this question did not demonstrate an understanding of the drivers of assumptions and how these drivers are the same or different for level and stepped. They also did not link back to the information provided in the question.

Part b): Average mark: 6.0/12

Candidates were required to describe in detail how they would build a spreadsheet module to profit test premium rates for stepped premium YRT for a single model point. Students were not required to build a model but were prompted to describe simple formulae to demonstrate calculations.

Some candidates described the components of a "generic" profit testing framework rather than focusing on the specific steps for building a spreadsheet. The question stated that students should *"detail the steps that should be followed to produce a cashflow model..."* and *"provide sufficient detail so a model could be developed by a person inexperienced at*

*modelling without requiring further clarification from you."*

For these students a maximum of 2 marks (4 x 0.5 marks) were awarded for general comments about the framework and marks were allocated to part c and d for any relevant points.

Students who performed well on this question followed the instructions given and described in detail how they would develop a decrement table, project cashflows for premiums, claims, expenses, commission and investment income; calculate reserves based on local regulations; calculate distributable profits; and discount accordingly. They also stated their assumptions for example the relationship between lapses and mortality and the timing of cashflows.

Students who performed poorly did not provide enough detail about how to develop a decrement table or the describe the various cashflow items. Similarly, they did not state reserving requirements or discuss reasonability checks or peer review that should be performed.

Part c):                      Average mark: 0.8/2

Candidates were required to describe how they would assess whether premiums were adequate.

Many candidates discussed calculating net present value at the risk discount rate or the internal rate of return.

Multiple candidates did not demonstrate an awareness of requirements for assessing premium adequacy such as contribution to overheads and alignment with pricing policies or standards despite this being included in the textbook. It was expected that students would recognise the term "adequacy" as a prompt for what to cover in their answers.

Part d):                      Average mark: 2.4/3

Candidates were required to describe what further work would be required to product a set of premium rates to go to market.

Candidates performed well on this question with many identifying the need to develop a full set of premium rates, undertake competitor analysis, and perform sensitivity testing. Very few candidates identified that a pricing report would need to be produced and signed off.

### Question 3

	Marks Required	Weighted Marks Required	% of Total Marks	Number of Candidates	Proportion of Candidates
<b>Total Marks Available</b>	<b>60.0</b>	<b>60.0</b>			
Strong Pass	52.0	52.0	86.7%	17	24%
Pass	44.0	44.0	73.3%	31	44%
Slightly Below Standard	39.6	39.6	66.0%	6	9%
Below Standard	30.0	30.0	50.0%	11	16%
Weak	20.0	20.0	33.3%	3	4%
Showed Little Knowledge	1.0	1.0	1.7%	0	0%
Did Not Attempt	0.0	0.0	0.0%	2	3%
Maximum Mark	57.5	57.5			
Average Mark	44.6	44.6			
Standard Deviation	10.6	10.6			
Co-efficient of Variation	0.24	0.24			

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

Candidates were required to analyse experience data for total and permanent disability (TPD) and discuss how to address observations. They were also required to consider how a change in law would impact product design and pricing.

Part a): Average mark: 3.8/5

Candidates were asked to list what questions they would ask to check the quality and reliability of the analysis.

Candidates generally answered this question well. There were a few candidates that misinterpreted the question and discuss the analysis. This again reinforces the importance of reading the question.

Candidates who performed poorly did not provide a breadth of questions about the analysis instead listing similar questions about the underlying data.

Part b): Average mark: 10/13

Candidates were required to write a memo describing observations from the analysis, possible drivers for the observations, likely impact on performance and action to be taken.

Performance for this question was good. Candidates could identify distinct observations and drivers. Those who differentiated themselves also explained sensible impacts and actions.

Weaker candidates suggested increasing premium rates immediately in response to poor experience rather than identifying that a trend needs to be observed before making changes. In practice, adjusting assumptions and/or premium rates is not as reactive as suggested by some candidates' answers.

Part c): Average mark: 3.5/6

Candidates were required discuss how reinsurance could be used to address observations from the data.

Nearly all candidates were able to identify the names of different types of reinsurance arrangements. Where candidates had difficulty was in describing how the type of reinsurance would have addressed observations, for example quota share being helpful where experience has worsened for small claims.

Part c):                      Average mark: 5.4/6

Candidates were required discuss how the risks and benefits of a change in law meaning insurers were prohibited from excluding or declining cover for mental health conditions.

Overall candidates performed well in this question.

END

# COURSE 3A GENERAL INSURANCE

## 1. Summary

### 1.1. Course Overview

The aim of the 3A General Insurance Course is to provide the knowledge, skills and judgment necessary for an actuary to tackle a range of problems in general insurance relating to products, accident compensation schemes, valuation techniques, accounting and management information.

### 1.2. Assessment

The assessment model is broken down into two parts:

Assignment 10%

Long Answer Question Exam 90%

### 1.3. Pass Rates

134 candidates enrolled this semester. Of these, 9 withdrew and 2 did not present, leaving 123 sitting the exam.

It is proposed that 23 candidates be awarded a pass, which implies a pass rate of 19%. Table 1 shows the historical pass rates for this subject:

**Table 1 – Course Experience**

SEMESTER	SAT	PASSED	PASS RATE
<b>Semester 2 2019</b>	<b>123</b>	<b>23</b>	<b>19%</b>
Semester 1 2019	132	10	8%
Semester 2 2018	104	23	22%
Semester 1 2018	108	17	16%
Semester 2 2017	91	24	26%
Semester 1 2017	92	23	25%
Semester 2 2016	91	21	23%
Semester 1 2016	106	35	33%
Semester 2 2015	82	23	28%
Semester 1 2015	90	28	31%
Semester 2 2014	76	15	20%
Semester 1 2014	66	17	26%

The pass rate of 19% is an improvement over the pass rate from Semester 1 2019 of 8% but slightly lower than the historic average of 22%. Passing candidates seemed to have good course knowledge and the ability to use that knowledge in a way that was relevant to the questions.

The pass rate for 3A General Insurance is generally lower than that of other Part III subjects, primarily driven by the large number of enrolled students that attempt this subject for the first time, and that this subject tends to be one of the first Australian-based Part III subjects attempted by many candidates.

This was the second semester that the discussion forum did not form part of the overall assessment. Disappointingly, the forum continues to have low utilisation with a total of only 46 posts during the semester. While an improvement over semester 1 with only 4 posts it is still a

significant reduction from the utilisation in 2018 with 894 posts in semester 1 and 825 posts in semester 2; despite the higher numbers of enrolled candidates.

## **2. Assessment**

### **2.1. Overall Performance**

Overall the assignment was well attempted with the majority of candidates submitting attempts. Candidates generally did well on the spreadsheet calculations but struggled with the book work and narrative questions. A high volume of candidates provided responses that were extremely long and verbose. In an assignment environment, candidates should be able to articulate their responses in a clear and succinct manner.

Consistent with previous semesters, some candidates performed very well on one or two of the Long Answer Questions but performed poorly (in some cases very poorly) on the others – poor exam technique appears to be the main reason for this. Only a handful of candidates appeared strong across all areas of assessment.

Question 1 provided to be the most challenging question in this exam that resulted in it being a good discriminator when assessing borderline candidates. Many candidates did not perform well in this question as they were unable to present a sensible approach to revise the outstanding claims provision and could not display a suitable level of judgement and modelling maturity. There are still many candidates that rely too heavily on data without critically thinking about the context or sense-checking their results.

It is apparent that candidates attempting this course generally do not have strong critical thinking and practical skills to get through. Candidates attempting this course should invest significantly more in:-

- improving time management, comprehension and writing skills, in particular focussing on making sure their answers are relevant to the context of the questions being asked;
- broadening their knowledge across what is covered in the course;
- understanding the relevant accounting, prudential and professional standards;
- critical self-assessment to learn from their mistakes in their practice attempts; and
- familiarising themselves with different general insurance products, situations, functions, and stakeholder perspectives.

## 2.2 Exam Question by Question Analysis

### Question 1

	Marks Required	Weighted Marks Required	% of Total Marks	Number of Candidates	Proportion of Candidates
<b>Total Marks Available</b>	<b>68.0</b>	<b>68.0</b>			
Strong Pass (A)	44.0	44.0	64.7%	3	2%
Pass (B)	36.5	36.5	53.7%	18	15%
Slightly Below Standard (C)	32.9	32.9	48.3%	17	14%
Below Standard (D)	27.0	27.0	39.7%	28	23%
Weak (E)	17.0	17.0	25.0%	47	38%
Showed Little Knowledge (F)	1.0	1.0	1.5%	10	8%
Did Not Attempt (X)	0.0	0.0	0.0%	0	0%
Maximum Mark	52.3	52.3			
Average Mark	28.5	28.5			
Standard Deviation	8.3	8.3			
Co-efficient of Variation	0.29	0.29			

Question 1 required candidates to provide actuarial advice on a range of insurance issues faced by a large logistics company that holds provisions for the retained portion of their bodily injury public liability exposures. The question comprised of standard general insurance knowledge, performing a simple actuarial valuation, and providing advice to the Board. Stronger candidates were able to understand the context of the question and provide reasonable advice to the Board. The pass rate for this question was 17.1%.

#### Part a)

- This part examined the candidate's understanding of general insurance products including at-fault and no-fault policies. This was a relatively straightforward question with the better candidates understanding the subtle differences between Public Liability, Workers Compensation, CTP (both at-fault and no-fault) and Motor Insurance. Overall, candidates did not have a strong level of product knowledge.
- The average mark was 5.6/10.0.

#### Part b)

- This part required candidates to apply their actuarial knowledge to analyse specific issues regarding the company's public liability insurance. The majority of candidates were able to discuss the issues around selecting a higher excess, with the stronger candidates providing more cogent explanations. In contrast, the rationales for the different exposure measures were less than ideal, with many explanations being too vague.
- The average mark was 7.3/14.0.



Part c)

- This part required candidates to calculate the outstanding claims provision. Candidates generally made progress on projecting claim numbers and average claim sizes. However, the part of the question that related to documenting the approach taken and the valuation assumptions was poorly answered. The majority of candidates provided a description of calculation steps, rather than pointing out the key assumptions of the model application. Discussion on whether provisions should include an allowance for discounting and claims handling expenses was poorly answered suggesting candidates don't have a strong grasp of the relevant accounting, prudential and professional standards.
- The average mark was 12.8/28.0.

Part d)

- This part required candidates to revise their outstanding claims provision based on new information and to provide a response to the Board. The majority of candidates performed poorly, being unable to present a sensible approach to revising the outstanding claims provision and not displaying a suitable level of judgement and modelling maturity. In particular, many candidates overlooked the need to assess the revised historical claim sizes and only added the case estimate differences to the provision. Key drivers for the differences between the initial and revised provisions were not well articulated and the responses to the Board were generally poor. Commentaries around risks were generic and did not answer to the specifics of the question. Many candidates provided bookwork answers (i.e. parameter risks, internal / external risks) that were unrelated to the context of the question.
- The average mark was 2.7/16.0.

## Question 2

	Marks Required	Weighted Marks Required	% of Total Marks	Number of Candidates	Proportion of Candidates
<b>Total Marks Available</b>	<b>54.0</b>	<b>54.0</b>			
Strong Pass (A)	36.0	36.0	66.7%	9	7%
Pass (B)	28.0	28.0	51.9%	29	24%
Slightly Below Standard (C)	25.2	25.2	46.7%	20	16%
Below Standard (D)	21.0	21.0	38.9%	13	11%
Weak (E)	13.0	13.0	24.1%	26	21%
Showed Little Knowledge (F)	1.0	1.0	1.9%	26	21%
Did Not Attempt (X)	0.0	0.0	0.0%	0	0%
Maximum Mark	42.0	42.0			
Average Mark	22.5	22.5			
Standard Deviation	9.4	9.4			
Co-efficient of Variation	0.42	0.42			

Question 2 required candidates to assume the role of Appointed Actuary for a medium-sized insurer managing a team responsible for producing the outstanding claims liability valuation. The question comprised of two parts assessing the candidate's ability to understand and quantify the impact of various actuarial assumptions on the valuation result, and their understanding of the valuation process from a gross versus net perspective. Overall, performance in this question was below expected given its straightforward nature. The pass rate for this question was 30.9%.

Part a)

- This part required candidates to understand and quantify how a particular judgement-based assumption change would affect the ultimate cost and outstanding claims liability across four different valuation portfolios using a variety of valuation methods. Candidates were also asked to provide a plausible environmental or insurer change for why such a judgement might be made.
- While most candidates were able to correctly interpret the directional impact of the assumption changes on the ultimate cost and outstanding claims liability, many did not go into sufficient detail to quantify the impact on the ultimate cost by accident year, as required. Better performing candidates noted the differing impact of inflation on the outstanding claims liability compared to the ultimate cost as a result of changes to payment pattern assumptions. Despite this, many candidates that performed well struggled to provide valid reasons for assumption changes, generally being too generic or not plausible given the specific nature of the adjustments.
- The average mark was 10.6/24.0.

Part b)

- This part required candidates to demonstrate their knowledge of how reinsurance arrangements can affect the actuarial assumptions for a paid chain ladder model, noting the impacts on development factors both across development period and accident years. Candidates were also asked to provide situations where an actuary may prefer to use gross over net data as the basis for the valuation, and also where the opposite may be preferred. The final part of the question tested candidates on their ability to calculate gross and net combined ratios, and note the different information each provides in assessing portfolio performance.
- Most candidates were able to provide sensible comments on the impact that different reinsurance arrangements (quota share vs excess of loss/non-proportional covers) would have on the paid chain ladder factors across development delays and accident years. However, candidates generally struggled to provide practical situations where a gross or net data basis would be preferred for a valuation. Many candidates seemingly missed the valuation context of the question and provided generic situations where gross or net data is more useful, such as assessing reinsurance arrangements or performing pricing or capital analyses.
- Candidates also struggled with understanding the context of the final part of the question, with many applying financial year combined ratio formulae/calculations to the accident year data provided in the question. Candidates also struggled to clearly explain the drivers of the observed trends in the combined operating ratios they had calculated.
- The average mark was 11.8/30.0.

### Question 3

	Marks Required	Weighted Marks Required	% of Total Marks	Number of Candidates	Proportion of Candidates
<b>Total Marks Available</b>	<b>58.0</b>	<b>58.0</b>			
Strong Pass (A)	38.0	38.0	65.5%	1	1%
Pass (B)	30.0	30.0	51.7%	23	19%
Slightly Below Standard (C)	27.0	27.0	46.6%	14	11%
Below Standard (D)	22.5	22.5	38.8%	28	23%
Weak (E)	13.0	13.0	22.4%	41	33%
Showed Little Knowledge (F)	1.0	1.0	1.7%	15	12%
Did Not Attempt (X)	0.0	0.0	0.0%	1	1%
Maximum Mark	39.5	39.5			
Average Mark	22.7	22.7			
Standard Deviation	8.2	8.2			
Co-efficient of Variation	0.36	0.36			

Question 3 examined the paid and incurred Bornhuetter-Ferguson (BF) methods, specific valuation questions around the Liability Adequacy Test (LAT), and practical issues around the net claims expense. Stronger candidates demonstrated their understanding across the three topic areas. The pass rate for this question was 19.5%.

#### Part a)

- This part examined candidates' understanding of the different elements underlying the paid and incurred BF models including the impact on the models from data and assumptions, how these models differ to the underlying chain ladder models and reasons for why the loss ratio assumption may have increased. The latter part of the question asked candidates how they would adjust their BF models in response to a change in claims management and the impact this would have on the outstanding claims provision.
- Most candidates were able to identify one of the two features required in parts i) and ii) but most struggled to provide a second valid feature. In part iii) while candidates tended to provide three or four reasons for why the loss ratio may have increased, many of the reasons covered the same points. Parts iv) and v) served as a good discriminator with the stronger candidates able to provide detail regarding how assumptions would change e.g. development factors in the underlying paid/incurred chain ladder models and the a-priori loss ratios, and indicate the impact on the outstanding claims provision.
- The average mark was 11.4/28.0.

#### Part b)

- This part required candidates to address specific valuation questions around the LAT including unclosed premiums, the deferred reinsurance expense, and, unrelated to the LAT, provide reasons for changes in provisions to a Board member.
- Part i) and ii) assessed the candidate's understanding of unclosed premiums and the deferred reinsurance expense and their reasons for inclusion in premium liability and LAT. Stronger candidates were able to define these correctly and gave good justification for why they are included. Many candidates found this challenging where some did not recognise the reinsurance expense was capitalised as an asset and most candidates did not provide a strong rationale for its inclusion in the LAT.

- Part iii) required candidates to explain why the LAT is performed separately for short and long tail classes and why it is not performed at the APRA class level. Candidates generally struggled with this part and did not provide sufficient explanations for why the APRA class level is not required for the LAT, with many incorrectly assuming the LAT is an APRA requirement. Few candidates were able to draw the relationship of how conducting the LAT at different levels can have implications to profit.
- Part iv) required candidates to identify reasons why a provision was higher than projected despite the number of claims reported and gross payments in the year both being lower than projected. The stronger candidates were able to provide three or more reasons and had good explanations of how experience would contribute to higher provisions.
- The average for this part was 7.7/20.0.

Part c)

- This part required candidates to justify whether a portfolio is short or long tailed based on figures from a net claims expense table and to discuss whether the opening provision was conservative. The latter part of the question required candidates to provide plausible reasons for why the gross claims expense may be lower than the net claims expense.
- Part i) was well answered with most candidates correctly identifying the portfolio was long tailed and provided adequate justification. In part ii) the stronger candidates correctly identified that it is was not possible to tell if the provision was set conservatively given the information provided and gave valid reasons on why there can be a release in reserves even if the provision was set at the best estimate. Disappointingly, a high number of candidates did not understand the release of margins on provisions and incorrectly concluded that the opening provision must be conservative. Part iii) was a good differentiator of candidates with the stronger candidates able to provide 2 or more valid points.
- The average for this part was 3.6/10.0.

END

# COURSE 3B GENERAL INSURANCE

## 1. Summary

### 1.1. Course Overview

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

### 1.2. Assessment

The assessment model is broken down into two parts:

Assignment	10%
Long Answer Question Exam	90%

### 1.3. Pass Rates

70 candidates enrolled this semester. Of these, 2 withdrew and 2 did not present, leaving 66 sitting the exam.

It is proposed that 16 candidates be awarded a pass, which implies a pass rate of 23%. Table 1 shows the historical pass rates for this subject:

Table 1 – Course Experience

SEMESTER	SAT	PASSED	PASS RATE
Semester 2 2019	66	16	23%
Semester 1 2019	60	14	23%
Semester 2 2018	60	22	37%
Semester 1 2018	56	17	30%
Semester 2 2017	53	21	40%
Semester 1 2017	73	33	45%
Semester 2 2016	75	27	36%
Semester 1 2016	55	17	31%
Semester 2 2015	54	20	37%
Semester 1 2015	54	20	37%

The 23% pass rate for this exam is lower than the longer term average pass rate of around 30-40% however in line with the pass rate for the previous exam 23%. Candidates seemed to have good course knowledge but not the ability to use that knowledge in a way that is relevant to the question.

The exam was considered to have a better balance of standard judgement questions and less bookwork relative to recent exams. It is my opinion that this exam was a fair standard and the pass rate reflects the preparedness of candidates and their ability to demonstrate fitness to practice.

## 2. Assessment

### 2.1. Overall Performance

Candidates need to be encouraged to learn in a different style to develop judgement skills. Despite reinforcing this through tutorials the desire to study by wrote and utilise pre prepared answers is evident. Candidates need to be confident in their judgement and ability to develop an answer on the spot before attempting this style of exam. The consistency of prepared answers and lists remains a core frustration where no understanding is demonstrated. Unfortunately for some candidates who may have understanding, the inclusion of irrelevant prepared points is reducing their performance as we move towards a rubric approach where overall understanding is a factor in the marking guide. Candidates should be encouraged that less can be more.

### 2.2. Exam Question by Question Analysis

#### Question 1

	Marks Required	Weighted Marks Required	% of Total Marks	Number of Candidate s	Proportion of Candidates
<b>Total Marks Available</b>	<b>62.0</b>	<b>62.0</b>			
Strong Pass	40.0	40.0	64.5%	5	7%
Pass	36.0	36.0	58.1%	12	17%
Slightly Below Standard	32.4	32.4	52.3%	14	20%
Below Standard	10.0	10.0	16.1%	35	51%
Weak	0.0	0.0	0.0%	0	0%
Showed Little Knowledge	1.0	1.0	1.6%	0	0%
Did Not Attempt	0.0	0.0	0.0%	3	4%
Maximum Mark	48.5	48.5			
Average Mark	29.2	29.2			
Standard Deviation	9.5	9.5			
Co-efficient of Variation	0.32	0.32			

Candidates performed poorly on this question, with a pass rate of 24%.

a) i) Many students failed to earn their premiums despite being clearly highlighted in the question. Many students also were inconsistent between premiums and claims. Many students were grossing up their claims for the full year but didn't also apply it to premiums to keep the loss ratio consistent. Some candidates still struggle with applying a simple chain ladder model to project out ultimate claims.

ii) Some students did not mention profit targets. Most candidates also did not discuss potential issues with the reserving data, e.g. case estimates basis given in the marking guide.

iii) generally well answered

b) The question asked for three well explained reasons. Students who provided a shotgun 'cheat sheet' list were not given any more marks for more than three points

c) The best responses analysed the inflation experience based on each of the 3 benefits. Generic 'cheat sheet' like answers were not awarded points

d) The best answers also talked about the current data already available and how that can be used as rating factors.

e) Quite a few students misinterpreted the question and did not comment on how they would use the data provided in their rating algorithm. With rating algorithms, some candidates struggled with how to deal with 200+ dog breeds. This is a core application component of the course particularly with respect to short-tail pricing.

f) generally well answered

## Question 2

	Marks Required	Weighted Marks Required	% of Total Marks	Number of Candidate s	Proportion of Candidates
<b>Total Marks Available</b>	<b>54.0</b>	<b>54.0</b>			
Strong Pass	40.0	40.0	74.1%	5	7%
Pass	31.0	31.0	57.4%	23	33%
Slightly Below Standard	27.9	27.9	51.7%	14	20%
Below Standard	19.0	19.0	35.2%	19	28%
Weak	13.0	13.0	24.1%	4	6%
Showed Little Knowledge	1.0	1.0	1.9%	1	1%
Did Not Attempt	0.0	0.0	0.0%	3	4%
Maximum Mark	43.0	43.0			
Average Mark	28.3	28.3			
Standard Deviation	9.1	9.1			
Co-efficient of Variation	0.32	0.32			

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

Most questions were attempted by candidates, which suggested that time was not an issue. The overuse of dot points is noted. Candidates can be too brief and provide 5 brief dot points for a 5 mark question.

### Part a)

- Not many candidates picked up the advantage of being simple, but all candidates mentioned disadvantages.
- A few candidates misunderstood the question, for example thinking that it was about the 100% reinsurance rather than the RI premium allocation.
- Some candidates provided suggestions for other possible approaches, gave marks for valid suggestions.

### Part b)

- Some responses to this were generic when describing the cat model.
- Almost all candidates picked up the need for data and the approach of blending frequency and size, which is to be expected.
- Those with some practical experience of cat models stood out.

Part c)

- Very few candidates picked up the points on comparing true premium to current premium and adjusting premiums over a period of time rather than a one-off adjustment.
- Most candidates picked up on the unfairness and unaffordability, with better candidates being able to support their points through further discussion.
- Several misinterpreted the question and discussed allocation based on premium as for Part a).

Part d)

- Some responses were generic when answering this section.
- Better candidates were able to pick up points on stress testing and undertaking more work to improve the FCR.

Part e)

- Most candidates picked up the differences for data and assumptions. However, the quality of responses varied when explaining the differences especially on model methodology and the results.
- Better candidates picked up on having to rerun and understand differences.
- Some candidates discussed the ICRC components in detail when answering this question, which by itself was insufficient to get many marks.

Part f)

- Responses varied in quality for the first part, with few candidates picking up the issue of not reporting properly and implications on capital.
- Most candidates answered the second part of the question well, relating to the different options available, several achieving the 2.0 maximum marks for options.
- Approximately half the candidates presented their answer in a memo format.

Question 3

	Marks Required	Weighted Marks Required	% of Total Marks	Number of Candidates	Proportion of Candidates
<b>Total Marks Available</b>	<b>64.0</b>	<b>64.0</b>			
Strong Pass	31.0	31.0	48.4%	4	6%
Pass	25.0	25.0	39.1%	14	20%
Slightly Below Standard	22.5	22.5	35.2%	8	12%
Below Standard	18.0	18.0	28.1%	18	26%
Weak	14.0	14.0	21.9%	13	19%
Showed Little Knowledge	1.0	1.0	1.6%	9	13%
Did Not Attempt	0.0	0.0	0.0%	3	4%
Maximum Mark	34.5	34.5			
Average Mark	19.9	19.9			
Standard Deviation	7.5	7.5			
Co-efficient of Variation	0.38	0.38			

Candidates struggled with this question, with a pass rate of 26%.

**General**

- Some candidates re-stated the question rather than focusing on providing a relevant answer that would award them marks.



- Candidates should provide points that directly relate to the question to show they understand the question, rather than giving general answers that may be technically sound but do not apply to the context in the question.

#### Part a)

- Most candidates identified needs to adjust for inflation, IBNR and exposure.
- Several candidates also discussed to adjust for superimposed inflation.
- Candidate should make sure each materiality assessment is justified. rather than simply stating whether an adjustment is material/immaterial. E.g. inflation is material/immaterial should be backed up by a statement about recent inflationary environment.
- Some candidates sat on the fence and said, "may be material or not very material". Candidates need to be clearer about their response.

#### Part b)

- Many candidates commented on IBNER selections instead of commenting on the appropriateness of the approach.
- Many candidates only focused on discussing limitations of the approach.
- Some candidates appeared to have misunderstood how the IBNER factors are applied, commenting that "IBNER factors are less than 1 suggesting case estimates are over-reserved".

#### Part c)

- Overall poorly done by candidates.
- Weaker candidates quoted the OA PML definition, and stated the value as the different between the gross and net claim costs in a 1 in 200 year event.
- Stronger candidates identified the 'value' as an input to the ICRC and its impact on capital.

#### Part d)

- Overall well done by candidates.
- Most candidates received full 2 marks for calculating expected reinsurance recoveries. Common mistakes for this part were:
  - Average recoveries over all claims, with and without RI recoveries.
  - Only calculated historical recoveries without making selection for future policy period.
- Reinsurance premium calculation was reasonably well done by candidates. However,
  - A few candidates calculated premium as risk premium x (1+ expense %) x (1+profit margin %), suggesting lack of understanding of fundamental pricing knowledge.
  - A few candidates made unreasonable reinsurance loss ratio assumptions eg: reinsurance loss ratio of 20% or 90%.
- Candidates poorly answered the last part of the question, about difference between value and RI premium. Some candidates did not answer this question. It was not clear whether this was due to time or simply missing the question.

#### Part e)

- Weaker candidates merely listed points. Stronger candidates explained each point in relation to the question, demonstrating understanding.
- A few candidates misunderstood the scenario and thought Zyx was viewed in a negative way by the press.
- Candidates rarely recognised the fact that existing reinsurance arrangement was likely to be sufficient.

- Many candidates stated there would be increasing number of large/catastrophe claims as a result of negative press. These candidates hence made suggestions to purchase additional reinsurance cover or change existing cover to protect Zyx. Common suggestion was to reduce retention or increase limit for XOL cover.
- Only a few candidates recognised that negative press could lead to increasing number of attritional claims and recommended purchasing aggregate stop loss cover.
- Affordability for additional reinsurance cover was not widely considered by candidates.

**Part f)**

- Candidates scored well in this question.
- Some answers were technically sound, but too generic and lacked discussion that tied directly back to the question.
- Marks for candidates with generic answers were capped at 3.

**Part g)**

- Very poorly answered by candidates
- Many candidates only gave very generic answers about ICAAP, REMS and RI purchase, not relevant to the question at all. Eg: only provided definition of ICAAP.
- Some candidates wrote out a list of bullet points without clearly attributing them to each part of the question. Some points were not relevant to the question.
- Some candidates appear to have run out of time – incomplete answers.

**Part h)**

- Candidates appeared to have run out of time, with many not attempting the question at all.
- Candidates rarely calculated target capital. Hence, candidates calculated required profit as regulatory capital x ROC, suggesting weak understanding of basic capital knowledge.

END

# COURSE 5A INVESTMENT MANAGEMENT & FINANCE

## 1. Summary

### 1.1. Course Overview

The aim of the 5A Investment Management and Finance Course is to provide the knowledge, skills and judgment necessary for an actuary to tackle a range of management related problems in investment and finance relating to analysis of accounting information, valuation of debt securities, equity markets and portfolio management, company valuation and asset allocation.

### 1.2. Assessment

The assessment model is broken down into two parts:

Assignment	10%
Long Answer Question(LAQ) Exam	90%

### 1.3. Pass Rates

29 candidates enrolled this semester. Of these, 1 did not present, leaving 28 sitting the exam.

It is proposed that 10 candidates be awarded a pass, which implies a pass rate of 36%. Table 1 shows the historical pass rates for this subject:

**Table 1 – Course Experience**

SEMESTER	SAT	PASSED	PASS RATE
C5A Semester 2 2019	28	10	36%
C5B Semester 1 2019	27	5	19%
C5A Semester 2 2018	22	4	18%
C5B Semester 1 2018	26	5	19%
C5A Semester 2 2017	21	3	14%
C5B Semester 1 2017	33	7	21%
C5A Semester 2 2016	43	23	63%
C5B Semester 1 2016	34	4	12%
C5A Semester 2 2015	49	10	20%
C5B Semester 1 2015	24	15	63%

The 36% pass rate for this exam is a noticeable break of the trend from the recent C5A and C5B performances, where pass rate has consistently been at around 20% or lower. Given the style and nature of the questions in the 2019 examination is very similar to the 2017 and 2018 examinations, the significant improvement in pass improvement may be potentially attributed to candidates' enhanced understanding of examiners' expectations and the core themes of the course, which have been repeatedly examined since 2017. The Chief Examiners would like to note that, in contrast to previous years, six candidates passed the final examination on raw marks.

Similar to previous years, the Chief Examiners have been very conscious of writing a fair examination for the students that was very closely aligned to the syllabus. Feedback from the two External exam reviewers and the exam scrutineers was carefully taken into consideration. In the opinion of the Chief Examiners, the feedback on the drafted exam was generally positive.

Feedback from the various exam reviewers suggested that the questions in this examination have been closely aligned to the 5A syllabus.

## 2. Assessment

### 2.1. Overall Performance

- The final pass rate for this exam was healthy in the opinions of the Examiners. The pass rate is higher than the historical average for 5A and 5B for the past few years. The Examiners note that the better performance may be partially attributable to the following factors:
  - The course leaders, during the tutorials, covered sections of the material that was present in the exam (this practice is consistent with the exams for the past few years).
  - The style of the exam questions, and the content focus, was similar in style to the 5A Semester 2 2018 and the Semester 2 2017 examinations.
  - Close alignment of the examination contents to the 5A course syllabus.
- The Chief Examiners are of the view that this was a fair exam, with close alignment to the 5A syllabus. The paper was reviewed by the 5A external examiner, and a reviewer from the investment faculty. Any feedback from reviewers was carefully considered in the final draft of the exam.

### 2.2. Exam Question by Question Analysis

#### Question 1

	Marks Required	Weighted Marks Required	% of Total Marks	Number of Candidates	Proportion of Candidates
<b>Total Marks Available</b>	<b>60.0</b>	<b>60.0</b>			
Strong Pass	40.0	40.0	66.7%	2	7%
Pass	30.0	30.0	50.0%	6	21%
Slightly Below Standard	27.0	27.0	45.0%	2	7%
Below Standard	24.0	24.0	40.0%	5	18%
Weak	18.0	18.0	30.0%	7	25%
Showed Little Knowledge	1.0	1.0	1.7%	6	21%
Did Not Attempt	0.0	0.0	0.0%	0	0%
Maximum Mark	43.5	43.5			
Average Mark	24.8	24.8			
Standard Deviation	10.1	10.1			

The 28% pass rate for question 1 is a significant improvement to that of the similar questions in previous examinations. In line with tradition of recent C5A examination, the question examined candidates' understanding of debt instruments and investment strategies (Unit 2), as well as debt modelling in broad ALM context (Unit 5).

Part a):

The question assesses candidates' appreciation of potential impacts of prepayment assumptions on debt valuation. In particular, candidates are required to demonstrate the impact through projection of interest rates, cash flows, and discounted valuation in a

spreadsheet. The top candidates received close to full marks to this question, given the bookwork nature and similarity to 2018 C5A Examination Question 1; while most other candidates struggled.

Part b):

Candidates were asked to identify and explain the credit enhancement benefits of issuing debts through an SPV instead directly on the company balance sheet. The question would be simple for those with structuring experience, but deemed complex judgement for those with no such experience. Most candidates struggled in this question.

Part c):

This question requires some complex judgement and seeks candidates to assess the pros and cons of having TRE as part of the investment strategy of an annuity company. Most candidates were only able to list limited numbers of advantages and disadvantages, i.e. not enough to earn full marks. But most attempts were genuine.

Part d):

Candidates were asked to explain the linkage between PD / LDG and DSCR / LTV respectively. Most candidates were able to partially explain the connection, given the hint in the question. But only the top candidates were able to obtain full marks, by providing the details in the calculation for the linkage.

Part e):

This part of the question requires the candidates to perform a simple calculation to derive the LGD from the LTV and a pre-defined price shock. Most candidates were able to obtain full marks in this part.

Part f):

The final part of Question 1 assesses candidates' ability to describe in detail the generic ALM process to incorporate a new asset class. This was a very difficult question, as the candidates need to not only appreciate the technical details of generic ALM, but also be able to connect the dots and tie the previous components of the question into the process. Most candidates were able to provide some generic steps on the ALM modelling process, without detailing TRE loan specific considerations.

## Question 2

	Marks Required	Weighted Marks Required	% of Total Marks	Number of Candidates	Proportion of Candidates
<b>Total Marks Available</b>	<b>60.0</b>	<b>60.0</b>			
Strong Pass	28.0	28.0	46.7%	4	14%
Pass	23.0	23.0	38.3%	4	14%
Slightly Below Standard	20.7	20.7	34.5%	3	11%
Below Standard	18.0	18.0	30.0%	7	25%
Weak	14.0	14.0	23.3%	4	14%
Showed Little Knowledge	1.0	1.0	1.7%	5	18%
Did Not Attempt	0.0	0.0	0.0%	1	4%
Maximum Mark	32.5	32.5			
Average Mark	19.0	19.0			
Standard Deviation	7.6	7.6			

The 28% pass rate for question 2 is also a significant improvement to that of the similar questions in previous examinations. In line with tradition of recent C5A examination, the question examined candidates' understanding of financial statements and accounting ratios (Unit 1), as well as equity valuation using a combinations of cash flow discounting and price multiple methods (Unit 3).

Part a):

The question assesses candidates' recognition of potential seasonality issues with using quarterly financial figures instead of annual financial figures. Most candidates were able to obtain majority of the marks for this question.

Part b):

Candidates were asked to describe the steps to convert EBIT to free cash flows, by annualizing the quarterly financial figures first and then making the relevant cash flow / accounting adjustments. This is fairly straightforward book work. While nobody was able to obtain full marks for this part, most candidates were able to obtain majority of the marks for this question.

Part c):

Candidates were asked to perform the calculations for the steps to convert EBIT to free cash flows, described in Part b). This is fairly straightforward book work. While nobody was able to obtain full marks for this part, many candidates were able to obtain majority of the marks for this question.

Part d):

The question requires candidates to identify WACC as the appropriate discount rate for valuation using free cash flows. In addition, candidates were asked to describe the components and steps to calculate the WACC. While many candidates performed very well, there were also many candidates who incorrectly suggested that the cost of equity should be used.

Part e):

Candidates were asked to describe the CAPM framework and explain why potentially CAPM cannot be used to derive buyer specific cost of equity. Most candidates struggled with this

question and failed to appreciate that actual return demanded by equity investors in a particular firm may deviate from the CAPM suggested number.

Part f):

The question required candidates to identify other factors in the equity valuation process, such as minority discount, currency risk, market dominance, and illiquidity. Most candidates were only able to identify an incomplete list of such other considerations.

Part g):

This question continues from the previous part and seeks candidates to list ways to quantify some of these "other factors". Most candidates did list many valid approaches.

Part h):

The final part of Question 2 assesses candidates' understanding of practical considerations of currency risk management for equity valuation. In particular, candidates are expected to note that tax implications may differentiate corporate and investor currency hedging, despite their theoretical equivalence. Some of the better candidates were able to obtain full marks here, while most candidates struggled.

### Question 3

	Marks Required	Weighted Marks Required	% of Total Marks	Number of Candidates	Proportion of Candidates
<b>Total Marks Available</b>	<b>60.0</b>	<b>60.0</b>			
Strong Pass	40.0	40.0	66.7%	2	7%
Pass	30.0	30.0	50.0%	10	36%
Slightly Below Standard	27.0	27.0	45.0%	4	14%
Below Standard	20.0	20.0	33.3%	8	29%
Weak	10.0	10.0	16.7%	2	7%
Showed Little Knowledge	1.0	1.0	1.7%	1	4%
Did Not Attempt	0.0	0.0	0.0%	1	4%
Maximum Mark	40.0	40.0			
Average Mark	27.0	27.0			
Standard Deviation	9.2	9.2			

The pass rate for Question 3 was 43%. In terms of raw marks, it was the most well answered question in this exam.

The core focus of this question was on examining the candidates' understanding factor models (Unit 4). Candidates were asked to demonstrate how important financial ratios (Unit 1) can be used to derive factors. Questions were presented in the form of scenarios that tested understanding of how factor models assist in driving investment decisions.

Part a):

Candidates were asked to list features that should be considered in an investment mandate. This part was considered bookwork, and was well answered.

Part b):

This part tested the candidate's knowledge of the widely used "quality" factor (in factor models). The average mark was 1 out of 2, with many candidates not adequately explaining when the quality factor is expected to outperform. This part was considered to be straightforward, but the average mark suggests future candidates would benefit from understanding what the common factors are (which are widely cited in the public domain), and when they are likely to perform best (or worst) in the economic cycle (else why would they be widely used factors historically?). This part was considered bookwork.

Part c):

Students were asked to explain the advantages of a return on capital financial ratio relative to ROA (Return on Assets). This part was answered reasonably well by most candidates.

Part d):

This part was similar in nature to part c); this part asked students to explain the advantages of an adjusted earnings ratio relative to the common earnings yield (Inverse of the PE ratio). This part appears to have been more challenging than part c) as reflected by a lower average mark.

Part e) i):

This part simply tested the student's understanding of multicollinearity. It was very well answered.

Part e) ii):

Candidates were asked to describe the steps involved in constructing a custom factor that forms an input into a linear factor model. This part was generally well answered.

Part f):

This part asked candidates to consider possible reasons for adjustments to the construction of the custom factor, and to discuss how they would apply the adjustments. It was important to consider leverage of company as an issue, given the style of M1 and M2. While a variety of responses to this question could be considered correct, it seems that candidates found this part challenging, with the average mark being less than 1 (out of 3 marks).

Part g):

Candidates were required to demonstrate judgement in discussing why well-known factors for investing may still be useful for gaining a competitive investing edge. Candidates appeared to find this question part challenging.

Part h):

Students were asked to discuss the issues involved with managing the market risks of a portfolio, when rebalancing, given a set of constraints (primarily risk related constraints).

This question part was similar in style to several question parts in Question 3 of the 2018 5A exam (related to rebalancing a portfolio), so a well-prepared candidate should be familiar with the issues to consider. Overall, candidates found this part challenging, with the average mark being 1.8 (out of 5 marks).

Part i):

This part tested the candidates' understanding of what the factors in the factor model really mean when the estimation process and the underlying data inputs are different. In this part, candidates were asked to consider how using a PCA based factor model could be useful for managing risk of the portfolio.



The average mark for this question was around 1 mark (out of 3 marks). It is noted that the PCA based factor model, while not covered in great detail in the 5A course notes, was covered in detail in the 5A 2019 tutorial covering Unit 4. In other words, students were given the opportunity to understand how factor models estimated using PCA work, if they needed a refresher on this important and common statistical estimation technique.

END

# COURSE 6B GLOBAL RETIREMENT INCOME SYSTEMS

## 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 [sic]. Actuaries need the skills and knowledge to help design and manage schemes to best meet members' individual retirement income needs.

### 1.2. Assessment

Assessment comprises two parts:

Assignment	10%
Long Answer Question Exam	90%

### 1.3. Pass Rates

8 candidates enrolled this semester. All 8 candidates sat the exam.

It is proposed that 6 candidates be awarded a pass, which implies a pass rate of 75%. Table 1 shows the historical pass rates for this subject:

Table 1 – Course Experience

GRIS	Course A Semester 1			Course B Semester 2		
Year	Sat	Passed	Pass Rate	Sat	Passed	Pass Rate
2019	8	5	63%	8	6	75%
2018	19	8	42%	15	6	40%
2017	20	7	35%	20	7	35%
2016	17	7	41%	15	5	33%
2015	21	10	48%	17	7	41%
2014	15	9	60%	11	7	64%

The 75% pass rate for this exam is considerably higher than previous years but with such low enrolment numbers and the impending cancellation of the subject (all passing candidates were repeating candidates) it is impossible to draw any firm conclusion from this. It is perhaps significant the number of passing candidates has remained very stable. As the subject has been unilaterally terminated my view is candidates should be provided every reasonable opportunity to pass.

## 2. Assessment

### 2.1. Overall Performance

The assignment was a poor differentiator for assessment purposes. Given the relatively low marks across the cohort, it is also doubtful whether the assignment was a strong learning tool. In my opinion this reflects the concept and application of the assignment, rather than the assignment itself.

Candidate exam performance overall was fair but possibly should have been even better. Considering LAQ1 and LAQ2 tested standard topics for this subject, the number of passes was lower than expected on these questions. LAQ3 was more of a lateral thinking exercise (or perhaps more accurately described as a topic candidates were very unlikely to have considered before); hence the variation of responses in this LAQ was understandable.

### 2.2. Exam Question by Question Analysis

#### Question 1

	Marks	Weighted	%	Count	Proportion
<b>Total Marks Available</b>	40	60			
Strong Pass (A)	28	42		1	12.5%
Pass (B)	22	33	55%	3	37.5%
Slightly Below Standard (C)	19.8	29.7		2	25%
Weak (D)	11	16.5		2	25%
Showed Little Knowledge (E)	6	9			
Did Not Attempt (X)					
Maximum Mark		42.0			
Average Mark		33.4			
Standard Deviation		7.34			
Coefficient of Variation	<SD/AVE>	0.22			

LAQ1 was a fair differentiator.

Candidates were asked to advise a single member, the CEO, in respect of his voluntary conversion from defined benefit (DB) to defined contribution (DC).

This question should have been bread and butter for candidates sitting this subject – indeed this topic could almost be expected – so it was disappointing that only half the cohort managed to pass.

Part (a) addressed the details of conversion, including the financial implications to his benefit.

Part (b) addressed the need for the employer to make a top-up contribution.

## Question 2

	Marks	Weighted	%	Count	Proportion
<b>Total Marks Available</b>	40	60			
Strong Pass (A)	28	42			
Pass (B)	22	33	55%	2	25%
Slightly Below Standard (C)	19.8	29.7		2	25%
Weak (D)	12	18		3	37.5%
Showed Little Knowledge (E)	6	9		1	12.5%
Did Not Attempt (X)					
Maximum Mark		35.0			
Average Mark		27.1			
Standard Deviation		7.04			
Coefficient of Variation	<SD/AVE>	0.26			

LAQ2 was a good differentiator.

Candidates were asked to consider the adverse outcome to a fund in respect of a decreased accrued benefits index (ABI) at valuation despite strong investment returns.

The topic of this question is straightforward for anyone familiar with defined benefit fund valuation, the staple of an Australian superannuation actuary in years past. Given that only 2 candidates passed the question (25% of the cohort), perhaps the perceived value of defined benefit knowledge is diminishing as the number of such funds declines. Again though, for the purposes of this subject, I would have expected candidates to be better prepared and better versed in a standard topic.

Part (a) required candidates to perform an analysis of surplus.

Part (b) addressed the possibility of further deterioration of the ABI and the appropriateness of this index as a measure of the ability to pay member benefits.

### Question 3

	Marks	Weighted	%	Count	Proportion
<b>Total Marks Available</b>	40	60			
Strong Pass (A)	28	42		2	25%
Pass (B)	20	30	50%	3	37.5%
Slightly Below Standard (C)	18	27		2	25%
Weak (D)	10	15			
Showed Little Knowledge (E)	6	9		1	12.5%
Did Not Attempt (X)					
Maximum Mark		39.5			
Average Mark		30.8			
Standard Deviation		7.83			
Coefficient of Variation	<SD/AVE>	0.25			

LAQ3 was a good differentiator.

Candidates were asked to formulate strategies using a managed investment vehicle to exploit a feature of a retirement product, namely that it offers lifetime reversionary pensions with no restrictions on who can be the spouse.

This question required candidates to think outside the box on a topic they were very unlikely to have considered before.

Not surprisingly the range of candidate responses was diverse and this was reflected in the marks awarded. This question was a reasonably good indicator of course outcome – better candidates managed to identify the key issues and provide a reasonable response or at least embark on the right track, whereas weaker candidates typically gave confused responses and failed to consider the key features (eg risk) that would be considered by a potential investor.

END

# COURSE 10 COMMERCIAL ACTUARIAL PRACTICE

## 1. Summary

### 1.1. Course Overview

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 “contextualising” 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 4 non-traditional topics: Banking, Health, Data Analytics or Environment-Social-Governance (ESG). It is worth 20% of the final mark. Approximately one-quarter of the students were randomly allocated to each topic, except that students were not allocated a topic they had not attended at their Residential course or a topic they had been allocated in a recent semester.
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 question from the 5 mainstream topics - Life Insurance, General Insurance, Investment, Global Retirement Income Systems (GRIS) or Enterprise Risk Management (ERM), perform all the necessary analysis and prepare a substantial written report.

An overall pass requires a total of 50%, without necessarily passing the Exam.

### 1.2. Pass Rates

101 candidates completed the course. Of these, it is proposed that 56 be awarded a pass, representing a **pass rate of 55%**.

**Table 1 – Recent Course Experience**

Semester	Sat	Passed	Pass Rate %
<b>Semester 2 of 2019</b>	<b>101</b>	<b>56</b>	<b>55</b>
Semester 1 of 2019	92	42	46
Semester 2 of 2018	88	47	53
Semester 1 of 2018	80	43	54
Semester 2 of 2017	95	58	61
Semester 1 of 2017	90	37	41
Semester 2 of 2016	64	30	47
Semester 1 of 2016	80	45	56
Semester 2 of 2015	81	51	63
Semester 1 of 2015	78	47	60

## Analysis by Topic

The analysis by chosen Exam Topic is as follows:

Exam Topic	Candidates	No. of passes	Pass rate
ERM	34	18	53%
GI	21	16	76%
GRIS	3	3	100%
Invest	10	8	80%
Life	32	11	34%
N/A	1	0	0%
Total	101	56	55%

## Analysis by Examination Centre

The results by examination centre were as follows:

Centre	Presented	Passed	Pass rate
Melbourne	22	11	50%
Sydney	69	39	57%
Sub-total Australia	91	50	55%
Auckland	1	0	0%
Hong Kong	1	1	100%
London	1	1	100%
Malaysia	1	1	100%
Seoul	1	0	0%
Singapore	5	3	60%
Sub-total Overseas	10	6	60%
Total	101	56	55%

Although the pass rates in Melbourne and Overseas have been volatile in the past and sometimes disappointingly low, that is not the case this semester.

## 2. Assessment

### 2.1. Preparation of Case Studies

Case studies were prepared by the Course Presenters in the 9 topic areas listed below. Each was designed to be completed within 8 hours under exam conditions, even though the 4 non-traditional topics (ie the first 4 below) 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.

The 5 traditional-topic questions aim to be practical within the subject area, without necessarily being entirely and strictly within each Part III syllabus. All 9 questions aim to concentrate on principles rather than Australian legislation or practice, so they are often set in the mythical country of Capland.

Topic	Course Presenter / Author	Marker 1	Marker 2
Health	Andrew Gale	Andrew Gale	David Service
Banking	David Service	David Service	Garry Khemka
ESG	Sharanjit Paddam	Alice Xu	David Service
Data Analytics	Colin Priest	Colin Priest	David Service
ERM	Tim Gorst	David Service	Alice Xu
Life Insurance	David Service	David Service	Aaron Bruhn
Investments	Garry Khemka	Garry Khemka	David Service
GRIS	Vivian Dang & Young Tan	Vivian Dang & Young Tan	David Service
General Insurance	Colin Priest	Colin Priest	David Service

David Service was Marker 1 or Marker 2 for all 9 topics, in order to provide a standardizing view them all. Alice Xu has officially joined the CAP Faculty this semester, and will gradually take over ERM in 2020.

### 3. 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.

This semester's scaled assignment marks ranged from 40% to 88% with an average of 64%. The scaling ensured that the range was deliberately similar to previous semesters. The average was a little higher than past semesters, giving hope that this was a good cohort, but the exam results do not confirm that. Candidates were only given a grade (Fail, Pass, Credit, Distinction, High Distinction) but were also given a copy of their Assignment with marked-up comments from the Marker. We believe these comments are particularly useful to candidates.

82 of the 93 assignment candidates were awarded a "pass" mark of 50% or more, with between 1 and 4 failures in each topic. Across the cohort, Assignment performance was a little better than in past semesters, and this contributed to a record 21 overall passes for candidates with borderline fails on the Exam. However, 12 of this 21 were given a pass mark by 1 of the Markers, and a further 6 were given positive Examiner adjustments, so we are not concerned about any reduction in standards.

When distributing assignment results it was suggested to candidates that a Credit or better (as achieved by 61% of candidates, a little higher than most previous semesters) was a better indication of likely overall success. Although the correlation between assignment and exam marks remains low (see section 4.4) the overall pass rate of 67% among those who scored a Credit or better on assignment, was higher than the average pass rate of 55%.

#### 3.1 Banking

The Banking case study required candidates, as the Capland government actuary, to advise the government on the advantages and disadvantages of suggestions regarding banning or regulating commissions paid to mortgage brokers. The politics and the interests of stakeholders had to be considered, but various answers could be justified from the data given.



Nearly half the raw marks were Credits or better, with 2 candidates given 90%. ON the other hand, one-third were very clear fails, most commonly due to not drawing clear conclusions from the data given.

The scaling chosen was to add 10 marks to most Banking candidates. The lowest 3 were given larger additions, while the top marks were trimmed to stop them becoming excessive. 4 still failed, but the lowest was 42%. In this way students were not penalized by being randomly allocated to this topic which (as also in several previous semesters) was apparently more difficult for students than we had expected.

### **3.2 Data Analytics**

The Data Analytics case study required candidates to advise a large company on how to determine who to interview, out of thousands of job applicants. Some political and indirect discrimination issues had to be handled. Finally the recommended model had to be illustrated by application to 10 sample candidates, with logical reasons given for the decision on each.

Candidate performance was generally good, but only 1 scored above 70% on raw scores. Although the models were reliable, treatment of the political issues was often only cursory, despite indirect discrimination having been added to the course notes this semester.

The scaling adjustment was to add 5% to most raw marks.

### **3.3 ESG**

The ESG case study required candidates to advise a government water utility on the costs, benefits and recommended priorities for 3 different projects designed to reduce pollution or improve water quality and reliability. Political issues relating to stakeholder contributions also had to be addressed.

This question was generally well answered, with a pleasingly wide range of well-justified recommendations.

ESG was used as the benchmark for scaling, with no blanket scaling and only some minor adjustments to improve the shape and reflect Marker 2 differences.

### **3.4 Health**

The Health case study required candidates to develop an age-based historical population smoking model, to predict future incidence and health costs for heart disease, stroke and lung cancer based on various scenarios of future smoking prevalence.

The question was very well answered, with a good spread of marks, no candidates failing on raw scores and 4 being awarded 90+.

The scaling chosen was to subtract 5 marks from all raw scores, and subtract a few more from the very top group to place them lower in the High Distinction range. The scaling resulted in 2 failures, which was in line with their scores given by Marker 2.

## **4. Exam Results**

### **4.1. ERM**

The ERM Exam required candidates to advise a superannuation fund trustee board on the rectification of a historic financial advice fee-for-no-service problem and management of its ongoing risk of further problems.

34 candidates chose this topic, maintaining the historically high trend of last semester. 18, or 53%, passed. There continue to be signs that candidates view ERM as a backup

question if their “native” question appears too hard. Ongoing vigilance is needed to make sure there is no justification to the notion that ERM represents an “easy” option.

There was a high number of borderline candidates, with 14 receiving at least one further review by the assistant examiner, and some a fourth. Adjustments were made to six of these, all upwards, suggesting the original markers may have over-compensated for the aim of ensuring a consistent standard with the other subjects. Two candidates passed as a result of these adjustments, making nine passes and five fails in all for the borderline candidates. Candidates who failed tended to miss critical issues that were not mentioned explicitly in the question.

## **4.2. GRIS**

The Exam for Global Retirement Income Systems required candidates to advise a large superannuation fund on providing an optional Dynamic Investment Strategy to back its Account-Based Pensions. The suggestion is to take more investment risk when either well overfunded or significantly underfunded, but the target funding also had to be defined. A particular requirement after making a recommendation was to write a 1-page briefing note to guide the marketing team.

3 candidates attempted this topic, so no-one could hide and they all contributed well on the practice forum. In the exam they all dealt quite well with the technical aspects. Although there were some large differences on justification, explanation and sensitivity testing, all 3 passed in the end, although 1 was a closely-run outcome.

## **4.3. General Insurance**

The GI exam required candidates to provide insights and recommendations to a journalist investigating possible misconduct by Workers Compensation insurers working with a new remuneration structure. Candidates had to analyse scheme experience to identify possible behaviours and provide a balanced view of the underlying issues.

21 candidates chose this topic. 16 or 76% passed. Only one candidate met the usual borderline definition, as the marks were mostly binary clear passes or fails. To ensure marking consistent with the other subjects, a total of eight papers were reviewed. Of these eight, four passed and four failed (including the true borderline). Two candidates had their marks adjusted downwards, although this did not alter any pass / fail decisions. The examiners were satisfied that the binary outcomes were a true reflection of the quality of the candidates. Candidates who failed typically missed key insights or did not deal well with the audience.

## **4.4. Investment**

This case required candidates to advise a government on funding a currently-unfunded defined benefit pension liability. Consideration had to be given to the period of funding vs the budget impact, and to asset allocation in order to give a very high probability of sufficiency while limiting the cost. A short summary was also required for the government to release, which had to politely deny the government’s claim that the outcome was “guaranteed”.

The question was done well, with attention to the political risks plus good technical modelling. The overall pass rate of 80% is a pleasing contrast to 23% last semester. Also unlike last semester, the Investment cohort did not have a markedly lower Assignment average.

4 candidates passed overall despite failing the exam on raw scores, but all 4 of them were given an exam pass mark by either Marker 1 or Marker 2. One candidate passed after a +1 examiner adjustment.

#### **4.5 Life Insurance**

The Life case required candidates to design a lifetime annuity with some sharing of investment returns between the client and the life company.

It was poorly done by most candidates. As in many semesters past, there was evidence that many self-nominated "life specialists" did not have much practical knowledge of the life industry. In addition, the examiners retrospectively decided that the question was actually more difficult than we had expected, which indicates why product development in practice is usually a team effort and an iterative process. For 1 person limited to 8 hours there was simply too much scope for "obvious" errors to be missed.

As a consequence we have given consistent examiner adjustments ranging from +1% to +3% to the borderline candidates. This has resulted in an additional 4 passes, but the pass rate is still a disappointing 34%.

**END**