

Report to Council from the Board of Examiners

2003 PART III EXAMINATIONS REPORT (STUDENT VERSION)



Institute of Actuaries of Australia

Publisher

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SUMMARY

The 2003 Part III examinations of the Institute of Actuaries of Australia were held between 30 September and 14 October 2003 with candidates in Australia (Sydney, Melbourne, Brisbane, Canberra, Perth) and overseas (New Zealand, Hong Kong, Singapore, Malaysia, Korea, Japan, India, England, Ireland, Belgium, Mauritius, Switzerland, USA, Canada).

Table 1: Candidate Numbers by Part III Specialist Subject

	Subject	1998	1999	2000	2001	2002	2003
1	Investment Management	99	109	102	92	80	110
2	Life Insurance	66	71	82	79	86	111
3	General Insurance	54	43	55	59	73	89
4	Superannuation & P.S.	21	21	25	23	26	26
5	Finance	34	42	45	47	68	74
	Total	274	286	309	300	333	410

The process followed in setting the exams and determining the recommended pass list was similar to the process followed in previous years.

The number of candidates, recommended passes and resulting pass rates are as follows:

Table 2: Recommended Number of Passes by Part III Specialist Subject

	Subject	2003			2002	2001
		Sat	Passed	Pass %		
1	Investment Management	110	44	40%	36%	33%
2	Life Insurance	111	31	28%	38%	38%
3	General Insurance	89	33	37%	36%	34%
4	Superannuation & P.S.	26	6	23%	31%	35%
5	Finance	74	31	42%	31%	38%
	Total 2003	410	145	35%	35%	35%
	2002	333	117	35%		
	2001	300	106	35%		

The Chief Examiners aim to produce a consistent standard of passing candidates rather than a consistent pass rate from year to year. This year the overall pass rate of 35% is the same as in the two previous years. However, the pass rates have fluctuated over the past three years for each specialist subject, except General Insurance. The range of pass rates by specialist subject this year was 23% to 42% - the biggest range since 1999. The range for the two previous years was a narrower 31% to 38% and 33% to 38%.



If the recommended passes are adopted by the Council, the number of members that will be made Fellows (subject to attendance at a Professionalism Course, satisfying the Practical Experience Requirement and paying any relevant exemptions) is 52. This compares with 58 in 2002.



CHAIRMAN'S REPORT

Examination Administration

The Board

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

For 2003 the Chair and his Assistants were:

Chair	Mr Trevor McMahon
Assistant Chair	Ms Bozena Hinton
Assistant Chair	Mr David Wong

The Chief Examiners for 2003 were:

Investment Management	Mr Paul Carrett
Life Insurance	Mr Andrew Mead
General Insurance	Mr Philip Chappell
Superannuation & Planned Savings	Mr David Shade
Finance	Mr Tim Kyng

I would like to take this opportunity to thank all of the members of the Board of Examiners and their assistants for their efforts in preparing and marking the examination papers. The management of the examination process is an extremely important function of the IAAust and it is currently being run by a small group of committed volunteers.

I would also like to thank my assistants Ms Bozena Hinton and Mr David Wong for their support and untiring efforts in ensuring the overview process of the Chair worked smoothly, and that the quality of the examinations and results was maintained.

Meetings of the Board

The Board met on four occasions during the year.

- The first meeting was held on 12 February and was attended by all Chief Examiners. The purposes of this meeting were to:
 - outline the responsibilities of Chief Examiners and the timetable for the year
 - discuss the examination process in detail
 - discuss the recommendations from the 2002 Board of Examiners' Report.
- The second meeting was held on 25 June and was attended by all Chief Examiners. The purposes of this meeting were to:
 - discuss the status of examination papers, model solutions and marking guides
 - discuss the new prize criteria
 - discuss the course splits into Modules 2 and 3 for Life Insurance, General Insurance, and Superannuation and Planned Savings and the impact on the level of difficulty of questions.



- The third meeting was held on 27 August and was attended by at least one representative from each subject, except for Finance. The purposes of this meeting were:
 - discuss status of examination papers, model solutions and marking guides
 - discuss the marking process, marking days, security of papers and timetable.
- The final meeting was held on 19 November and was attended by all Chief Examiners. The purposes of this meeting were to:
 - review the process adopted by each Chief Examiner in finalising results
 - review the recommendations on pass lists
 - discuss the prize winners.

In addition, a workshop was run by Lois Meyer on 3 March, covering Exam Writing Tips and the key aspects of a good exam question. The workshop was attended by most of the Chief Examiners and gave the subject teams an opportunity to start developing their 2003 exam questions.

It is envisaged that four meetings will be held next year using similar dates to 2003.

Administration and Exam Supervision

The Board of Examiners were ably assisted by a number of IAAust staff, in particular Ms Carolyn MacLulich and Ms Michelle Aspery. Carolyn and Michelle were responsible for administering the entire process and ensuring key deadlines were met, compiling and formatting the examination papers, distributing material to candidates and to exam centres, processing results and collecting historical information for the production of this report. They did a fantastic job in 2003 and the Board of Examiners team is indebted to them both.

The 2003 Part III examinations in Sydney and Melbourne were again run by an external consultancy – Language and Testing Consultancy (LTC). All examinations ran smoothly and were completed without any problems. No complaints were raised by candidates in any of the other exam centres (in Australia or overseas).



The Examination Process

The examination process began officially in February 2003 with an initial meeting of Chief Examiners and some of their assistants. The Chief Examiners' assistants are listed in the individual Chief Examiners' reports.

Each subject adopts a slightly different approach to setting examination papers, marking papers and determining grades and passes. These processes have been established over time and seem to suit each subject area.

The basic framework followed by each subject is the same and all subjects contain a rigorous review processes. The general framework used to set examination papers is described as follows:

- The Chief Examiners and their assistants set draft examinations.
- Draft exams and solutions were reviewed by scrutineers for coverage and fairness. The scrutineers were a mix of newly qualified actuaries and experienced actuaries.
- At least one scrutineer 'sat' the paper under exam conditions to assess the length of the paper.
- Exams were redrafted after feedback from the scrutineers.
- Draft exams, solutions and marking guides were then submitted to the Chair for review. The draft exams and solutions were reviewed by the Chair and by one Assistant Chair.
- Exams, solutions and marking guides were finalised by the Chief Examiners and their assistants.
- The Chief Examiners signed off the final examination papers and solutions.
- The Chair provided final sign off on the examination papers and solutions.

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

- Two markers mark each question. For some subjects, inconsistencies were discussed by the markers before the results were forwarded to the Chief Examiner. For other subjects the Chief Examiner and his assistants resolved inconsistencies.
- Marks were scaled to allow for the fact that some questions were more difficult than others.
- Each candidate was awarded a grade for each question of A, B, C, D or E, where A was regarded as a strong pass and B an ordinary pass.
- Candidates' overall performance was determined using several metrics including total raw mark, total scaled mark, weighted average grade, weighted average rank and number of pass grades. The key determinant however was total scaled mark.
- Candidates were ranked based on these metrics, particularly total scaled mark.
- Candidates were divided into clear passes, clear failures and a middle group that required further consideration.
- The middle group was reviewed individually by the Chief Examiner. The pass / fail decision was made after assessing the candidate's whole exam paper, their performance in the judgement questions and how badly they performed in the questions they failed.



- The recommended passes were examined by the Chair in light of a reasonable mix of grades, average grades and total scaled mark. Overall results were then reviewed by the full Board of Examiners.
- The recommended pass mark was finalised for the subject and candidates were graded as A, B, C, D or E.

The year 2003 Part III examinations of the Institute of Actuaries of Australia were held on the following dates:

Investment Management	Tuesday, 30 September
Life Insurance	Thursday, 2 October
General Insurance	Tuesday, 7 October
Finance	Thursday, 9 October
Superannuation & Planned Savings	Tuesday, 14 October

Candidates sat the exams in 31 centres both in Australia and overseas (multiple centres in some countries).

Table 3: Candidates by Exam Centre

Australia	No. of Candidates
Sydney	224
Melbourne	68
Canberra	9
Brisbane	4
Perth	1
Overseas	
Hong Kong	37
Singapore	23
United Kingdom	19
Malaysia	8
New Zealand	5
USA	3
Korea	2
Ireland	1
Canada	1
India	1
Belgium	1
Switzerland	1
Japan	1
Mauritius	1
Total	410

The 2003 Part III examinations were run on an open book basis.

Exam Sitzings

The number of candidates sitting the Part III exams increased by 23% over the number sitting in 2002, from 333 to 410 (439 candidates enrolled, however 29 did not present for the examination). The numbers sitting this year were the highest that they have been in each subject, for the 1998-2003 period.

Table 4: Candidate Numbers by Part III Specialist Subject

	Subject	1998	1999	2000	2001	2002	2003
1	Investment Management	99	109	102	92	80	110
2	Life Insurance	66	71	82	79	86	111
3	General Insurance	54	43	55	59	73	89
4	Superannuation & P.S.	21	21	25	23	26	26
5	Finance	34	42	45	47	68	74
	Total	274	286	309	300	333	410

The mix of specialist subjects sat by candidates in 2003 followed the broad pattern of the last few years. Compared with 2002, a slightly higher percentage of total candidates sat the Investment Management subject at the expense of the Finance subject, a slightly lower percentage sat the Superannuation and Planned Savings subject and similar percentages sat the Life Insurance subject and the General Insurance subject.

The number of candidates that enrolled for a subject but did not sit the examination was high for Finance (15 from 89 enrolled did not present for the exam). As noted in 2002, the high number of drop outs for Finance is assumed to be associated with the relatively low cost of the IAAust part of the course and the fact that the SIA exam is sat well before the IAAust exam (candidates performing poorly in the SIA exam may feel they are not ready for the IAAust exam). The absentee rates were lower for the other subjects: Investment Management (5 from 115), Life Insurance (4 from 115), General Insurance (5 from 94) and Superannuation & Planned Savings (0 from 26).

Table 5: Candidate Mix by Part III Specialist Subject

	Subject	1998	1999	2000	2001	2002	2003
1	Investment Management	36%	38%	33%	31%	24%	27%
2	Life Insurance	24%	25%	27%	26%	26%	27%
3	General Insurance	20%	15%	18%	20%	22%	22%
4	Superannuation & P.S.	8%	7%	8%	8%	8%	6%
5	Finance	12%	15%	15%	16%	20%	18%

Examination Papers

The structure of the examinations in 2003 was identical to that in 2002.

Investment Management	2 x 3 hours
Life Insurance	2 x 3 hours
General Insurance	2 x 3 hours
Superannuation & Planned Savings	2 x 3 hours
Finance	2 x 3 hours

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

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

The questions aimed to cover the whole syllabus. In the case of Finance, candidates should be aware of the fact that the whole syllabus is examinable even when part of that syllabus is also taught and examined by the Securities Institute.

The standards to be achieved by candidates sitting each subject, the principles on which papers are to be set and the marking procedures are set out in the Guidelines to Examiners (an abridged copy of which can be found on the IAAust website). To ensure the examination papers had proper balance, guidance as to the proportion of marks given to each category needed to be established.

The standards of difficulty as determined by the Chief Examiners at the time they set the papers are set out below, with a comparison to prior years.

Table 6: Standards of Difficulty by Part III Specialist Subject

	Subject	Knowledge & Understanding			Simple Judgement			Complex Judgement		
		2001	2002	2003	2001	2002	2003	2001	2002	2003
1	Investment Management	15%	22%	21.5%	48%	38%	37%	37%	40%	41.5%
2	Life Insurance	18%	25%	21%	49%	39%	41.5%	33%	37%	37.5%
3	General Insurance	15%	17.5%	19.5%	40%	44%	42.5%	45%	38.5%	38%
4	Superannuation	24%	17.5%	21%	35%	45%	41.5%	41%	37.5%	37.5%
5	Finance	22%	16%	18.5%	32%	45%	40.5%	46%	38%	41%
	Targets	15% - 25%			35% - 45%			35% - 45%		

Copies of the papers have not been included within this report in the interests of space. They are available from the IAAust if required.

Detailed comments on the quality of candidates' answers to the exam questions are contained in each Chief Examiner's report.



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

Investment Management

This year's exam proved to be a difficult assignment for the majority of candidates, although this is not dissimilar to the experience of previous years. The coverage of the breadth of the course and questions relating to possibly unfamiliar territory for candidates was obviously challenging. However, the results suggest that good candidates accorded themselves tolerably well and a good spread of marks was achieved.

The poorly answered questions were P1Q3 on portfolio risk for equities; P1Q5 on elements in a valuation formula; P1Q6 on fees for equity derivatives; P2Q2 on selecting investment managers in alternate investment classes; P2Q3 on different styles of investment management processes; P2Q5 on quantitative investment techniques.

Life Insurance

Despite this year's paper not being overly difficult, as evidenced by the breakdown of question difficulty, student performance has deteriorated. This is evidenced by the gap between the top five to ten candidates and the rest of the cohort.

Whilst the paper was not assessed as being any more difficult than those from recent years, the proportion of candidates passing was significantly lower than has occurred in the past three years.

The poorly answered questions were P1Q3 on group life pricing; P1Q5 on merger of two life companies; P1Q6 on investment policy, capital and duties of actuary and directors; P2Q1 on policy liability of disability claims in payment.

General Insurance

This year's paper was designed to assess candidates' ability to apply what they had learned from the readings to practical situations. As was the case last year, there was a focus on judgement rather than knowledge, the former being the thrust of open book examinations. Four of the thirteen questions required calculations of some kind, which were designed to elicit whether candidates actually understood how to turn theory into a practical quantitative result.

From reviewing the marks, the examiners found that candidates found this examination more difficult than last year's exam. Feedback from scrutineers, markers and candidates confirms that the exam was very practical, and that candidates without practical experience in the industry would find it difficult to pass. The examiners make no apology for this; the exams are designed to test whether candidates are ready to practice in the general insurance industry.

The distribution of marks overall was lower than for last year's exam; the shape of the distribution at the top end was also different. Unlike last year, the top three candidates this year were well separated from the other candidate.

Superannuation and Planned Savings

Overall, 46% of candidates received a grading of C for the exam. This indicated that candidates were generally able to correctly answer the knowledge and straightforward judgement questions but not the questions on complex judgement. Also, there were many answers that were considered to be a border-line pass / fail.

Some areas of concern for the examiners were:

- an 'open book' mentality has not been adopted by all candidates – they continue to focus on lists of points rather than understanding and applying concepts.
- candidates do not answer the question asked.
- many candidates showed weak knowledge in some parts of the course.

Finance

The standard of this year's exam was similar to last year's exam, in terms of the scope of coverage and quality of questions. The quality of this year's candidates was better than that for last year, as evidenced by the sharp increase in pass rate.

Some of the questions were very poorly answered and this is of concern to the examiners. In particular P2Q4 on interest rate derivatives was very poorly answered; and P1Q6 on the Heston Stochastic volatility model was also poorly answered by most candidates.



Results

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

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

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

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

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

Table 7: Recommended Candidate Passes by Part III Specialist Subject

	Subject	1998	1999	2000	2001	2002	2003
1	Investment Management	39	51	28	30	29	44
2	Life Insurance	23	29	37	30	33	31
3	General Insurance	13	17	17	20	26	33
4	Superannuation & P.S.	10	12	11	8	8	6
5	Finance	15	16	14	18	21	31
	Total	100	125	107	106	117	145



Table 8: Recommended Pass Rates by Part III Specialist Subject

	Subject	1998	1999	2000	2001	2002	2003
1	Investment Management	39%	47%	27%	33%	36%	40%
2	Life Insurance	35%	41%	45%	38%	38%	28%
3	General Insurance	24%	40%	31%	34%	36%	37%
4	Superannuation & P. S.	48%	57%	44%	35%	31%	23%
5	Finance	44%	38%	31%	38%	31%	42%
	Total	36%	44%	35%	35%	35%	35%

The overall recommended pass rate for 2003 of 35% is the same as the overall pass rate for 2000, 2001 and 2002.

The Board of Examiners discussed in detail the comparability in assessment standard between 2002 and 2003 and the general consensus was that the standard applied was the same and that differences in pass rates between 2002 and 2003 for individual subjects represented a real difference in the quality of the candidates' responses.

Further detail on the deliberations of each Chief Examiner is contained in their individual reports. I am satisfied that the processes adopted in the marking of papers and grading of papers have been fair and robust, and that every effort has been made to ensure consistency between years and between subjects.

Pass Rates by Centre

The pass rates by exam centre were:

Table 9: Comparison of Pass Rates by Centre

	2001	2002	2003
Australian	37%	37%	39%
Overseas	30%	30%	24%
Total	35%	35%	35%

Pass Marks and Scaling

The scaled pass marks since 1998 have been as follows (out of 400 marks):

Table 10: Scaled Pass Marks by Part III Specialist Subject

	Subject	1998	1999	2000	2001	2002	2003
1	Investment Management	220	230	222	224	215	216
2	Life Insurance	205	219	240	224	225	231
3	General Insurance	203	220	224	231	229	230
4	Superannuation & P.S.	210	206	221	203	250	250
5	Finance	230	239	225	230	239	251

The relationship between scaled and raw marks for 2003 was:



Table 11: Raw and Scaled Pass Marks by Part III Specialist Subject

	Subject	Raw	Scaled
1	Investment Management	192	216
2	Life Insurance	198	231
3	General Insurance	188	230
4	Superannuation & P.S.	215	250
5	Finance	203	251

The comparability of standards of assessment was discussed by the Board of Examiners and all Board members were comfortable that the standard applied for each specialist subject was broadly similar.

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

Fellows

If the recommended passes are adopted by Council, the number of members that will be made Fellows (subject to attendance at a Professionalism Course, satisfying the Practical Experience Requirement and paying any relevant exemptions) is 52. This compares with 58 in 2002.

Recommendations for 2004

Board of Examiners

The recommended constitution for the Board of Examiners for 2004 is:

Chairman and Assistants

Chairman	Mr Trevor McMahon
Assistant Chairman	Ms Bozena Hinton
Assistant Chairman	to be confirmed

Chief Examiners

Investment Management	Mr Philip Pepe
Life Insurance	Mr David Ticehurst
General Insurance	Mr Philip Chappell
Superannuation & Planned Savings	Mr Phillip Everett
Finance	Mr Tim Kyng

Examination Dates

The dates for the examinations in 2004 are as follows:

2004

Investment Management - Tuesday, 5 October
Life Insurance - Friday, 8 October
General Insurance - Monday, 11 October
Finance - Wednesday, 13 October
Superannuation & Planned Savings - Friday, 15 October

Exam Solutions

The Board of Examiners agreed to release the 2003 examination papers along with the examination specimen solutions and marking guides. The 2003 examination papers have already been published on the IAAust website and it is recommended that the exam solutions and marking guides be released immediately after the release of results on 17 December 2003 or as close to this time as possible.



CHIEF EXAMINERS' REPORTS

Subject 1: Investment Management

Results Summary

115 candidates enrolled for the 2003 Investment Management examination. Of these, 5 did not present at the exam.

It is proposed that 44 candidates be awarded a pass, which implies a pass rate of 40%. This compares with a pass rate of 36% for the 2002 exam (2001: 33%).

In summary

	Number of Candidates
Originally enrolled	115
Absent from exam	5
Presented at exam	110
Passed	44
Failed	66

The analysis by examination centre is as follows:

Centre	Presented	Passed	Pass Rate
Australian	85	36	42%
Overseas	25	8	32%
Total	110	44	40%

Examiners

The Chief Examiner for this year was Paul Carrett. Paul was assisted by Philip Pepe.



Degree of Difficulty and Course Coverage

The degree of difficulty of questions on each paper and course coverage is summarised in the tables below:

Paper 1

Question	Syllabus Aims	Unit	Knowledge & Understanding	Straightforward Judgement	Complex Judgement	Total
1	3	1	8			8
2	6, 9, 17	2, 3, 8		14	7	21
3	10	4	4	7	4	15
4	1, 10	1, 4	6	6	10	22
5	4, 10, 16	1, 4, 8	4	4	10	18
6	5, 8, 10, 13	2, 3, 4, 6		6	10	16
Total			22	37	41	100

Paper 2

Question	Syllabus Aims	Unit	Knowledge & Understanding	Straightforward Judgement	Complex Judgement	Total
1	14	7	2	5	10	17
2	12, 13	5, 6	9			9
3	2, 13, 14	1, 6, 7		4	6	10
4	12, 17	5, 8		10	10	20
5	3, 4, 11, 15, 17	1, 5, 7, 8	4	6	10	20
6	9, 11, 15, 17	3, 5, 6, 8	6	12	6	24
Total			21	37	42	100

Question by Question Analysis

Paper 1, Question 1 (8 Marks)

This question referred to the following aims in the syllabus:

- Aim 2a: Describe the main features of Australian capital markets such as types of securities, issuers, investors, intermediaries, indices and costs.
- Aim 10: Demonstrate an understanding of the principles and techniques for managing an Australian equity portfolio.

The aim of this question is to test whether candidates understand the fundamental drivers of equity values.

This question was moderately handled, with an average raw mark of 45%. Many candidates demonstrated a poor understanding of the equity risk premium. This question was a poor discriminator between candidates, and a poor indicator of overall candidate strength.



While most candidates demonstrated some understanding of the principal influences on equity markets over the last few years, few appeared to have a deep understanding of the relationship between the equity risk premium and valuations.

Paper 1, Question 2 (21 Marks)

This question referred to the following aims in the syllabus:

- Aim 6: Formulate an asset allocation strategy for institutional investors
- Aim 9: Demonstrate an understanding of the principles and techniques in investing in fixed interest securities.
- Aim 17: Review the liabilities and asset/ liability models.

The aim of this question is to test whether candidates could determine the appropriate investment strategy for a given set of liabilities.

This question was very well answered, with an average mark of 65% (the highest of all the questions). Most candidates were able to discuss the key advantages of the three asset strategies proposed. Of some concern, however, were the relatively poor responses to additional testing that might be performed in support of the student's recommendation.

Overall, this question was a good discriminator, and a good indicator of overall candidate strength.

Paper 1, Question 3 (15 Marks)

This question referred to the following aim in the syllabus:

- Aim 10: Demonstrate an understanding of the principles and techniques for managing an Australian equity portfolio.

The aim of this question is to test candidates' understanding of managing portfolio risk for equity investments.

This question was the equal-worst answered question, with an average raw mark of 33%. It was a relatively poor discriminator but a good indicator of overall candidate strength.

The results on this question were especially disappointing in light of the fact that the material covered is seemingly straight forward (predominantly this was a question requiring an understanding of dividend imputation).

Paper 1, Question 4 (22 Marks)

This question referred to the following aims in the syllabus:

- Aim 1: Identify the Investment Management Cycle and explain the purpose of each component within it.
- Aim 10: Demonstrate an understanding of the principles and techniques for managing an Australian equity portfolio.

The aim of this question is to test candidates' understanding of fundamental equity investment, and the risks involved in it.

This question required candidates to analyse and assess the relative merits of two companies, using information taken from their P&L and Balance Sheets.

This question was reasonably well answered, with an average raw mark of 44%. It was a good discriminator but a poor indicator of overall candidate strength.



Unfortunately many candidates still wrote a great deal on matters trivial to the core issues. For instance, many candidates wrote about issues at the asset allocation level, when the question was focusing on stock specific issues. Some candidates were also found wanting in terms of organising their answers.

Paper 1, Question 5 (18 Marks)

This question referred to the following aims in the syllabus:

- Aim 4: Critically review the framework of modern financial economics.
- Aim 10: Demonstrate an understanding of the principles and techniques for managing an Australian equity portfolio.
- Aim 16: Review investment assumptions and selected processes.

The aim of this question is to test candidates' understanding of the factors that drive equity valuations.

This question required candidates to discuss the elements of a proposed valuation formula and suggest an improvement.

This question was the equal-worst answered question, with an average raw mark of 33%. It was a moderate discriminator but a good indicator of overall candidate strength.

The poor performance on this question perhaps highlights a need to place more emphasis on this part of the course in future years. In particular, candidates did not seem to be entirely comfortable with core accounting concepts such as EBIT and what they represent – and how they might be applied to shorthand valuation techniques.

Paper 1, Question 6 (16 Marks)

This question referred to the following aims in the syllabus:

- Aim 5: Determine investment objectives for institutional investors.
- Aim 8: Demonstrate knowledge of the various derivatives used in Australian markets.
- Aim 10: Demonstrate an understanding of the principles and techniques for managing an Australian equity portfolio.
- Aim 13: Selecting and appointing investment managers.

The aim of this question is to test candidates' understanding of equity derivatives, and the risks involved with various fee arrangements for investment managers.

Surprisingly, this question was poorly answered, with an average raw mark of 36%. It was a poor discriminator but a good indicator of overall candidate strength.

Part (a) was answered moderately well by most candidates. Part (b) was less well answered, and markers felt that candidates could have applied better planning and thought to their answers. Most candidates scored marks in part (b) where they made reasonable assumptions and had written down the option formulae. Part (c) was answered moderately well by most candidates.

Paper 2, Question 1 (17 Marks)

This question referred to the following aim in the syllabus:

- Aim 14: Monitor investment performance.



This question seeks to test the candidates' understanding of analysing fund manager performance, and the tools used to perform such analysis.

This question was answered very well, with an average raw mark of 64%. It was a poor discriminator but a good indicator of overall candidate strength.

Candidates who achieved the highest marks made several points in each of the areas of qualitative, quantitative and questions they would ask the manager. Candidates who achieved few marks either failed to make enough points in each section or did not understand the difference between qualitative and quantitative queries.

Paper 2, Question 2 (9 Marks)

This question referred to the following aims in the syllabus:

- Aim 12: Demonstrate an understanding of the principles for managing property and 'alternative' asset classes.
- Aim 13: Selecting and appointing investment managers.

This question analyses the issues involved in selecting investment managers in 'alternative' asset classes.

This question was handled quite poorly, with an average raw mark of 34%. It was a good discriminator but a poor indicator of overall candidate strength.

The poor performance overall in respect of this question was surprising given that it was a relatively simple question about manager selection, albeit in the less familiar context of alternative managers.

There were some relatively easy marks available for candidates that mentioned matters pertaining to Investment **process**, and the experience and capabilities of the firm's investment professionals. Few candidates mentioned potential conflicts of interest as an issue when selecting a manager.

Paper 2, Question 3 (10 Marks)

This question referred to the following aims in the syllabus:

- Aim 2: Explain the main features within the general investment environment in Australia as they affect asset consulting, investment management and financial planning.
- Aim 13: Selecting and appointing investment managers.
- Aim 14: Monitor investment performance.

The aim of this question is to test candidates' understanding of different styles of investment management processes.

Somewhat surprisingly, this question was handled relatively poorly, with an average raw mark of 39%. It was a poor discriminator but a very good indicator of overall candidate strength.

Many candidates lost some easy marks for not being able to define value, growth and style drift in the context of the question. Further, most candidates misinterpreted part (b) thinking the 'why is she right or wrong' component of the question related to whether the person was right or wrong in identifying style drift as opposed to being right or wrong to downgrade the manager, the latter being the intent of the question. This misinterpretation made it difficult for many candidates to get high marks for the question overall.



Paper 2, Question 4 (20 Marks)

This question referred to the following aims in the syllabus:

- Aim 12: Demonstrate an understanding of the principles for managing property and ‘alternative’ asset classes.
- Aim 17: Review the liabilities and asset/ liability models.

This question is largely a property question, but also deals with the issues relating to using leverage when investing.

This question was handled reasonably well, with an average raw mark 51%. It was a moderate discriminator and a moderate indicator of overall candidate strength.

In respect of this question, candidates tended to do well in terms of understanding the key issues of fixed interest securities, their consideration of matching, and their understanding of direct property. Those areas that tended to be covered poorly included the differentiation between listed and direct property investments. Many candidates also had trouble interpreting the question, and had difficulty understanding the concept of gearing as it applied to the situation being discussed.

Paper 2, Question 5 (20 Marks)

This question referred to the following aims in the syllabus:

- Aim 3: Identify the main characteristics of the major asset classes.
- Aim 4: Critically review the framework of modern financial economics.
- Aim 11: Demonstrate an understanding of the principles and techniques for managing international investment.
- Aim 15: Monitor the overall risk framework.
- Aim 17: Review the liabilities and asset/ liability models.

This is a relatively challenging question that tests the candidates’ knowledge of quantitative investing techniques and tactical asset allocation issues.

This was a challenging question on quantitative investment processes. That being said, good candidates were obviously able to pick up many marks from the core elements of the question.

This question was handled poorly with the average raw mark being 39%. It was a moderate discriminator and a moderate indicator of overall candidate strength.

As the second last question on the second paper, it was not surprising that many responses appeared rushed. Feedback from markers suggested that many candidates would have benefited from getting the ‘obvious points’ down first, before delving into consideration of the more complex issues. More specifically, candidates seemed to mix points of (a) and (b), i.e. issues for building a model (‘the theory’) and implementing the model (‘the practical’).



Paper 2, Question 6 (24 Marks)

This question referred to the following aims in the syllabus:

- Aim 9: Demonstrate an understanding of the principles and techniques in investing in fixed interest securities.
- Aim 11: Demonstrate an understanding of the principles and techniques for managing international investment.
- Aim 15: Monitor the overall risk framework.
- Aim 17: Review the liabilities and asset/ liability models.

The aim of this question is to give the student the opportunity to demonstrate their understanding of yield curves, asset liability management using bonds, and the concept of duration.

This question required candidates to demonstrate an understanding of yield curves, the use of fixed interest investments, and currency hedging.

This question was handled reasonably well, with an average raw mark of 54%. It was a moderate discriminator and indicator of overall candidate strength.

Part (a) was generally well done. In Part (b), however, quite a few candidates framed their answers in the context of a more general multisector asset model, or even asset-liability model, and did not specifically address the problem at hand.

Part (c) was moderately well handled, although many candidates failed to make sufficient convincing points.

Paul Carrett
Chief Examiner, Investment Management 2003
November 2003



Subject 2: Life Insurance

Results Summary

115 candidates enrolled for the 2003 exam. Of these, four did not present at the exam. It is proposed that 31 candidates be awarded a pass, which implies a pass rate of 28%. This compares with 33 candidates passing in 2002 (from 86 sitting the exams), representing a pass rate of 38%.

In summary:

	Number of candidates
Originally enrolled	115
Absent from exam	4
Presented at exam	111
Passed	31
Failed	80

The analysis by examination centre is as follows:

Centre	Presented	Passed	Pass Rate
Australian	71	25	35%
Overseas	40	6	15%
Total	111	31	28%

Examiners

Examiners for this year were:

Chief Examiner: Andrew Mead
Assistant Examiner: David Ticehurst
Assistant Examiner: Anthony Brien



Degree of Difficulty and Course Coverage

The analysis of the degree of difficulty of exam questions in the format specified by the IAAust is as follows:

Paper 1

Question	Syllabus Aims	Knowledge & Understanding	Straight-Forward Judgement	Complex Judgement	Total Marks
1	11,12	10	5	0	15
2	1,7,9	5	13	2	20
3	4,6,9	0	6	9	15
4	13,14	8	8	0	16
5	7,8,11	0	5	10	15
6	10,17	0	4	15	19
Total		23	41	36	100

Paper 2

Question	Syllabus Aims	Knowledge & Understanding	Straight-Forward Judgement	Complex Judgement	Total Marks
1	5,7,11,12	0	15	8	23
2	6,8	12	5	5	22
3	1,2,3,4,7	0	5	15	20
4	11,12,15	2	17	6	25
5	5,16	5	0	5	10
Total		19	42	39	100

Question by Question Analysis

Paper 1, Question 1 (15 Marks)

This question was about the various types of liabilities of a life insurance company that are calculated by the actuary, with a particular emphasis on the steps (not detailed calculations) involved in calculating the policy liability.

The overall results were as follows:

	Marks Required	% of total
Strong Pass	10.5	10%
Pass	8	53%
Slightly Below Standard	7	9%
Weak	5	22%
Serious Lack of Knowledge	<5	3%
Did Not Attempt		3%

This question was well answered as indicated by the proportion of candidates who passed. This is not surprising given the question was relatively straight forward, with



a high level of bookwork involved and only a small component of straight forward judgement required.

Parts (a) & (b) were well answered. Part (c) distinguished the better candidates.

Reasons why candidates failed to receive sufficient marks in part (c) include:

- Failing to read the question carefully despite the additional warning about what was not required.
- By providing a list of requirements, without demonstrating an understanding of what the item entailed.
- Failing to consider the audience. The candidates were asked to respond to a director yet many used technical language, which may not have been appropriate.

Paper 1, Question 2 (20 Marks)

This question was about product development and profitability of an Income Protection product.

The overall results were as follows:

	Marks Required	% of total
Strong Pass	13.1	15%
Pass	11.6	20%
Slightly Below Standard	9.1	37%
Weak	3.6	24%
Serious Lack of Knowledge	<3.6	1%
Did Not Attempt		3%

Overall, the question was not as well answered as expected. Many candidates answered the question as if it were entirely bookwork and missed out on marks as they did not apply the issues to the actual situation described.

In part (a) many candidates missed simple marks by not including basic features, including:

- definition of disability
- other forms of benefit
- CPI indexation of benefits
- CPI indexation of benefits after claim has started (almost no candidates mentioned this feature).

Given the amount of discussion of claims experience within the industry over the last few years and the use of the word 'most' in the question for part (b), candidates may have been misled as many only considered the factors that impact claim experience and therefore omitted other factors such as lapses, expenses and investment earnings as having an impact on product profitability.

In part (c) many candidates treated this question purely as bookwork and copied out the relevant section of the textbook on the product design process and failed to apply the theory to the situation being presented. Easy marks that were missed included:

- The need to set up an underwriting and claims department



- the use of reinsurance (why and how it should be used)
- the need for a new statutory fund.

Paper 1, Question 3 (15 Marks)

This question examined group life product pricing, and was testing candidates' ability to use judgement in relation to the data that they could access, and the limitations on the potential usefulness of it.

The overall results were as follows:

	Marks Required	% of total
Strong Pass	8.5	5%
Pass	6.5	23%
Slightly Below Standard	5	27%
Weak	2.75	32%
Serious Lack of Knowledge	<2.75	10%
Did Not Attempt		3%

This question was extremely poorly answered. Last year, a question on Group Life was also poorly answered.

The question was concerning experience rating and required judgement to interpret what would be done in those circumstances and what the criteria were to watch out for. Many candidates failed to answer the question, and instead wanted to answer a question about either pricing or group life in general but not experience rating.

Paper 1, Question 4 (16 Marks)

This was a relatively straight-forward question comparing Appraisal Value and Margin on Services reporting.

The overall results were as follows:

	Marks Required	% of total
Strong Pass	12	6%
Pass	9.75	37%
Slightly Below Standard	7	44%
Weak	4	9%
Serious Lack of Knowledge	<4	1%
Did Not Attempt		3%

The question was generally well answered as indicated by the marks required to pass, and the low number of candidates (only 10%) being assessed as weak on this question.

Parts (a) and (b) were straight forward requiring only a demonstration of knowledge and understanding. Part (c) required a demonstration of straight forward judgement and many candidates failed to go into sufficient depth. This allowed the markers to differentiate the candidates between pass and slightly below standard.



Paper 1, Question 5 (15 Marks)

This question asked about the investigations that the actuary should make before recommending a basis to merge two life insurance companies.

The overall results were as follows:

	Marks Required	% of total
Strong Pass	9	5%
Pass	7	17%
Slightly Below Standard	4.5	41%
Weak	3	21%
Serious Lack of Knowledge	<3	12%
Did Not Attempt		3%

This question was not well answered by the candidates. This may be partly attributed to the omission of the word “old” in relation to the second company. This may have led to some candidates failing to consider the issue of merging two blocks of participating business, which was a detailed part of the solution. The markers took this into consideration when marking and gave additional marks for other relevant general business issues.

Nonetheless, the candidates appeared to struggle with a question that centred on basic life insurance principles of security of benefits and meeting policyholder expectations, and required candidates to pull together issues from across the entire course into a single answer as opposed to questions covering only one or two parts of the course.

Paper 1, Question 6 (19 Marks)

This was a question about the duties of the Appointed Actuary and Directors of a Life Insurer under the Life Insurance Act. It related to investment policy, investigations to be conducted, and the practical implementation of the solvency and capital adequacy standards.

The overall results were as follows:

	Marks Required	% of total
Strong Pass	10.75	3%
Pass	8	28%
Slightly Below Standard	6.25	26%
Weak	4	33%
Serious Lack of Knowledge	<4	6%
Did Not Attempt		3%

The quality of the responses from the candidates was quite mixed. Again, the common problem was that candidates would fail to relate the basic points to the situation being presented. For example in part (a) candidates stated what the actuary did but not what they were responsible for in this scenario. Similar comments apply for part (b) in relation to directors. Candidates again failed to pick up another basic principle of life insurance, namely of equity between policyholders in part (c).



In part (a) less than half the candidates picked up the mark for commenting on the responsibility to report on MoS/Solvency/Cap Ad.

In part (b) few candidates picked up the responsibility to comply with actuarial standards.

In part (c) common errors included:

- failing to address the issue of equity between policyholders (about one third of candidates)
- failing to address the issue of future sales/redemptions
- stating that there would be an increase in the inadmissible assets reserve due to asset concentration risk – yet there was no indication in the question that the equity investment would be in single securities
- stating the need to investigate the need for liquidity and making comments that equities and bonds would be illiquid

In part (d) many candidates failed to read the question properly and discussed the discretions available to the actuary in the calculations of solvency and capital adequacy but did not draw the relevance to the discretions ‘after the proposal is implemented’ as required by the question.

Paper 2, Question 1 (23 Marks)

This question was about the calculation of a best estimate liability in relation to Income Protection claims in payment, and the key risks to the adequacy of the calculated reserve.

The overall results were as follows:

	Marks Required	% of total
Strong Pass	14.5	3%
Pass	11	18%
Slightly Below Standard	7.5	35%
Weak	5	31%
Serious Lack of Knowledge	<5	9%
Did Not Attempt		3%

This question was not well answered with few candidates able to exhibit an understanding of claim in course of payment valuations. Most candidates did poorly on part (a), with part (b) being better answered.

Again, the markers commented upon the impact of open book exams with many candidates copying the same/similar points relating to an active lives reserve (discussing checks on premiums, commissions, profit margins and analysis of surplus) and did not try or made poor attempts to relating it to claims in course of payment reserve. Too many candidates copied something that was sort of relevant but did not make any attempt to show any understanding beyond this by relating it to the question being asked.

In part (b) candidates were asked to outline risk mitigation strategies. Many candidates offered product design suggestions implying that they failed to understand that they were looking at a block of policies that had already been sold with terms/features fixed at the point of sale.



Paper 2, Question 2 (22 Marks)

This question was about the product design of an investment-linked product.

The overall results were as follows:

	Marks Required	% of total
Strong Pass	15.5	9%
Pass	12.5	37%
Slightly Below Standard	10.5	32%
Weak	7.75	14%
Serious Lack of Knowledge	<7.75	4%
Did Not Attempt		3%

This question was generally well answered with few candidates being assessed as weak.

The question covered the development of a new investment linked product, with a focus on the types of expenses likely to be incurred, how to determine the expense assumptions and what charging structures could be adopted to recover these expenses.

Part (a) was generally well answered with some candidates confusing expenses with fees and charges. Again, a large number of candidates worked off their standard list and hence, included irrelevant points such as the cost of underwriting as an initial expense despite this being a unit-linked product with no mention of a risk rider.

In part (b) many candidates answered this question by copying sections out of the textbook with an almost exclusive emphasis on how to recover acquisition costs. This meant that they also covered methods that have been used in the past but did not state that these are no longer used in the current marketplace. This also meant that many candidates did not discuss how to recover ongoing expenses.

In part (c) there was a wide range of marks allowing a good discrimination process amongst candidates. Many candidates provided the generic steps on how to conduct an expense analysis, but missed the point of the question which was to describe how this applies to a unit linked product, especially in light of the company not having written this type of business before.

In part (d) there was again a wide range of marks. Whilst many candidates identified valid differences between super and ordinary business they missed out on marks because they did not provide enough detail of the impact.

Part (e) was generally well answered with most candidates picking up the implication for reserving levels and the need to price the guarantee in.

Paper 2, Question 3 (20 Marks)

This question was about the underwriting and business implications of introducing a 'preferred lives' life insurance product. The concept of 'preferred lives' was explained in the question.



The overall results were as follows:

	Marks Required	% of total
Strong Pass	12.25	5%
Pass	9	34%
Slightly Below Standard	7.5	17%
Weak	5.5	30%
Serious Lack of Knowledge	<5.5	10%
Did Not Attempt		3%

Part (a) required an understanding of, and familiarity with, the underwriting process for risk business. Most candidates failed to demonstrate these.

Collecting information on which to base an underwriting decision is a trade-off between the cost of obtaining the information, and the expected reduction in claims cost through having the information. Neither of these is directly affected by a change in premium rates to a preferred life scale. Yet most candidates suggested more medical tests and/or lower non-medical limits, and many suggested lowering financial underwriting levels. Fewer candidates suggested how they could apply stricter selection criteria to existing information, which is where most of the marks were awarded for this question.

Some candidates interpreted ‘underwriting guidelines’ as procedures and made general comments on the need for tighter underwriting and checks and controls. Generally marks were not awarded for this.

Part (b) was designed to test a candidate’s ability to apply judgement to complex situations. In general candidates interpreted the question correctly. A few responses related to ‘implications to the market’ rather than ‘to the company’ and marks were not awarded.

With the amount of marks available it was reasonable to expect candidates to consider a wide range of implications and this was reflected in the marking guide. There were plenty of areas where candidates could score points and there were a number of well written responses. In general, many candidates could identify the implications to the existing products and discuss issues around prices and expenses. Fewer candidates covered the consumer and distribution issues.

A few candidates were overwhelmingly negative about the proposal, and failed to obtain easy marks about possible beneficial impacts. Candidates may by all means come to a conclusion that a proposal should be rejected, but all aspects of the matter should be considered first.



Paper 2, Question 4 (25 Marks)

This question was about the policy liability valuation of an investment linked product.

The overall results were as follows:

	Marks Required	% of total
Strong Pass	12	10%
Pass	9	30%
Slightly Below Standard	6	29%
Weak	3	21%
Serious Lack of Knowledge	<3	6%
Did Not Attempt		3%

This question was not well answered given the bookwork nature of parts (a) to (c) which was worth a total of 6 marks. Candidates with a mark of 12 or more were assessed to have shown a good understanding of:

- the difference between projection and accumulation method
- the concept of how to calculate the policy liability, deferred acquisition cost and profit
- an analysis between actual and expected is useful in checking the reasonableness of profit results

and hence, it was considered that such candidates should receive a pass.

In part (b) candidates again supplied a textbook answer with little practical application to the situation.

In part (d) the concept of the policy liability was well understood but many failed to calculate the DAC correctly. Common errors included missing entry fees and tax in calculating the DAC. Almost all candidates failed to recognise the impact of loss recognition and present value of profit on DAC. This is more of a concern giving that loss recognition is a key concept for both the projection and accumulation method.

In part (e) many candidates included incorrect items in the profit calculation. Again, this was a concern that candidates did not know how to calculate profit. Whilst the calculation of the profit is being viewed more as an accounting job with the actuary merely supplying the policy liability it is essential that candidates know how to calculate the profit so that they can actually analyse the profit. Similarly, in part (f) few candidates used an analysis of fees less expenses as a check on the profit.

The accumulation approach is clearly outlined in course material (which includes the valuation standard), and was required in Assignment 5, but candidates failed to come to grips with its application. This was disappointing, as it indicated a strong reliance on lists and bookwork rather than an understanding of how concepts are used in a practical sense.

Paper 2, Question 5 (10 Marks)

This question examined methods of distributing surplus, and the implications of asset/liability mismatching.

The overall results were as follows:



	Marks Required	% of total
Strong Pass	8.25	19%
Pass	6.75	41%
Slightly Below Standard	5	29%
Weak	2.5	6%
Serious Lack of Knowledge	<2.5	2%
Did Not Attempt		3%

This question was fairly straightforward and not surprisingly was well answered. However, the question did not have a lot of discriminating power until part (c). Part (c) examined asset liability mismatching, relating to traditional business.

Andrew Mead
Chief Examiner – Life Insurance, 2003
November, 2003



Subject 3: General Insurance

Results Summary

94 candidates enrolled for the 2003 exam. Of these, five did not present at the exam.

It is proposed that 33 candidates be awarded a pass, a pass rate of 37%. This compares with a pass rate of 36% for the 2002 exam.

In summary

Number of candidates	
Originally enrolled	94
Absent from exam	5
Presented at exam	89
Passed	33
Failed	56

The analysis by examination centre is as follows:

Centre	Presented	Passed	Pass Rate
Australian	70	28	40%
Overseas	19	5	26%
Total	89	33	37%

Examiners

Examiners for this year were:

Chief Examiner:	Philip Chappell
Assistant Examiner:	Stephen Wilson
Assistant Examiner:	Noeline Woof



Degree of Difficulty and Course Coverage

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

Paper 1

Question	Syllabus Aims	Units	Knowledge & Understanding	Straight-forward Judgement	Complex Judgement	Total Marks
Q 1a	3	1	6			6
Q 1b	3	1		3		3
Q 1c-e	15	6			4	4
Q 2a,b	1	1	6			6
Q 2c-e	9	4		8		8
Q 3a	1	1		3		3
Q 3b,c	5	2		6		6
Q 3d	7	3			4	4
Q 4a	5	2	7			7
Q 4b	5	2			9	9
Q 4c	7	3			2	2
Q 5a-c	14	5		7		7
Q 5d	14	5			3	3
Q 6a	2	1	3			3
Q 6b	6	3		10		10
Q 6c	7	3			4	4
Q 7a	10	4		4		4
Q 7b	10	4			3	3
Q 7c-e	7	3			8	8
TOTAL			22	41	37	100

Paper 2

Question	Syllabus Aims	Units	Knowledge & Understanding	Straight-forward Judgement	Complex Judgement	Total Marks
Q 1	1, 14	1, 5	14			14
Q 2a,b	12	5		11		11
Q 2c,d	12	5			6	6
Q 3a,b	10	4	3			3
Q 3c	10	4		8		8
Q 3d	10	4			6	6
Q 4a	6	3		12		12
Q 4b	10	4		7		7
Q 5a	5	2			10	10
Q 5b	13	5			6	6
Q 6a	15	6		6		6
Q 6b	15	6			3	3
Q 6c	17	6			5	5
Q 6d	15	6			3	3
TOTAL			17	44	39	100



Question By Question Analysis

Paper 1, Question 1 (13 Marks)

Course coverage: Unit 1, Syllabus Aim 3
Unit 6, Syllabus Aim 15

Mark allocation: Knowledge and Understanding – 6 marks
Straightforward Judgement – 3 marks
Complex Judgement – 4 marks

Question 1 was a relatively straightforward question involving the interpretation of the accounts of a general insurer.

Many candidates missed easy marks in part (a) by not giving the formula. Likewise, in part (b) many candidates simply commented on the relativities between actual and budgeted dollars rather than using the ratios they calculated in part (a).

Parts (c) to (e) required the candidates to give explanations of various features of the accounts. These features centred around the role of discounting in the establishment of outstanding claims. The better candidates did not have trouble with these parts of the question, but few realised that AASB 1023 was the ultimate reason for the budgeted deterioration from prior years being zero. Many candidates were unfamiliar with the term ‘unwind of discount’. Many thought (erroneously) that it referred to a change in discount rates, but the meaning should have been clear from the context, and the better candidates had no trouble understanding or explaining it.

Paper 1, Question 2 (14 Marks)

Course coverage: Unit 1, Syllabus Aim 1
Unit 4, Syllabus Aim 9

Mark allocation: Knowledge and Understanding – 6 marks
Straightforward Judgement – 8 marks

Question 2 was a relatively straightforward question involving an understanding of the application of Generalised Linear Modelling to a home portfolio. Part (a) sought an understanding of the nature of a home insurance policy. The examiners checked carefully to ensure that the terminology in the question (‘policy types’ and ‘covers’) matched that in the text. However, many candidates were unclear about precisely what was being asked, and missed what should have been easy marks for this part of the question.

The other parts of the question sought understanding of data analysis. Most candidates made a reasonable attempt at these parts, although few identified all of the issues.

Paper 1, Question 3 (13 Marks)

Course coverage: Unit 1, Syllabus Aim 1
Unit 2, Syllabus Aim 5
Unit 3, Syllabus Aim 7

Mark allocation: Straightforward Judgement – 9 marks
Complex Judgement – 4 marks

Question 3 was a question dealing with consumer credit insurance. The question required the candidate to demonstrate a basic knowledge of outstanding claim techniques and apply reasoning to the situation outlined.



This question was poorly handled. Part (a) asked why an insurer would offer shorter benefit periods for involuntary unemployment than for accident and sickness. Most candidates did not read the question or understand the benefit structure, and answered the question as if the product was providing an income replacement benefit, rather than merely the payment of loan repayments; very few identified the potentially significant impact of an economic downturn on the unemployment benefit.

In part (b) many candidates did not identify the obvious issue of the benefits changing and could not explain the problem associated with the use of the PPCI method, although most of the better candidates identified this issue. In part (c) most candidates were able to identify more appropriate valuation methods, although the quality of the justification varied significantly. Many candidates clearly did not understand the reasons for certain valuation methods being appropriate. Again, the better candidates appeared to provide reasonable explanation and hence this part appeared to be a good discriminator.

Part (d) required candidates to compare two valuation approaches and relate them to Australian professional and prudential standards. Unfortunately many candidates did not mention GPS210 or PS300. Although most candidates were able to gain some easy marks for this question, few provided strong answers covering the range of points required for strong marks. Many candidates missed the point about the 4x and 8x provisioning, namely its inflexibility and lack of connection to the experience.

Paper 1, Question 4 (18 Marks)

Course coverage: Unit 2, Syllabus Aim 5
 Unit 3, Syllabus Aim 7

Mark allocation: Knowledge and Understanding – 7 marks
 Complex Judgement – 11 marks

Question 4 was the main outstanding claims question. It required candidates to specify the data required and perform calculations based on data presented in a slightly different way to a 'standard' valuation. The question was generally handled reasonably well.

Part (a) required candidates to specify what data they would ask for to value the outstanding claims liability for an unfamiliar CTP portfolio. This part was answered disappointingly, with most candidates not going beyond a standard data request as stated in the text. Few candidates mentioned the broader requirements such as details of the legislation, policy coverage, court rulings and reinsurance. One candidate signed his name on this part.

Part (b) of the question asked candidates to calculate an undiscounted estimate of reported outstanding claims. Most, but not all, candidates recognised that IBNR was not necessary. However, a number of candidates were unable to complete this part of the question. A few candidates did not read the question correctly and tried to allow for IBNR or discounting. The most common error was a lack of understanding of the settlement year effect.

Part (c) of the question asked what additional factors would be taken into account before recommending a central estimate of outstanding claims. Hardly anyone mentioned IBNR here, and many candidates missed the whole point of expenses, discounting, and recoveries as finishing touches to a valuation, instead discussing



potential legislation changes, getting more data on lodgement patterns etc. Only four candidates obtained the full (relatively easy) two marks on this part of the question.

Paper 1, Question 5 (10 Marks)

Course coverage: Unit 4, Syllabus Aim 14

Mark allocation: Straightforward Judgement – 7 marks
Complex Judgement – 3 marks

Question 5 was designed to test candidates' understanding of how one would estimate cost savings in a bodily injury compensation scheme due to legislative change. This question was poorly handled.

For parts (a) to (c) it was clear that very few candidates had an appreciation of the data issues. Most answers were too general and did not provide enough detail. For example, in part (a), many candidates said 'calculate PV at 5% and 3%, difference is the cost saving'.

A large number of candidates did not interpret part (d) correctly. The question asked for the 'immediate to short term' impact and mentioned 'claim reporting patterns', but many candidates simply described the changes in parts (a) to (c) and their expected effects. There were at least two easy marks for anyone who actually read what the question asked and answered it.

Paper 1, Question 6 (17 Marks)

Course coverage: Unit 1, Syllabus Aim 2
Unit 3, Syllabus Aim 4
Unit 3, Syllabus Aim 7

Mark allocation: Knowledge and Understanding – 3 marks
Straightforward Judgement – 10 marks
Complex Judgement – 4 marks

This question addressed the preparation of a risk margins report for an insurance pool underwriting workers' compensation risks. This question was very poorly handled. Despite getting a lot of help from the question, candidates missed many relatively easy marks.

Part (a) required candidates to outline the regulations with which an insurance pool must comply. The average mark on this part of the question was less than one out of three. Some candidates even stated that GPS210 applied, after Mr Flintstone had claimed that it did not. Most candidates failed to make a recommendation as asked.

Part (b) required candidates to provide a report on the level of risk margins. This too was poorly handled. Most candidates only addressed the points mentioned in the question, without addressing the purpose of the report, to recommend risk margins. Only a few candidates mentioned the 75% sufficiency level in GPS210. Very few mentioned the link between past and future variability, and many candidates did not discuss the conversion of the modelled CoV into an adopted risk margin.

Part (c) required candidates to give reasons for disagreeing with Mr Flintstones' proposal to add a 12% loading to premiums. Most candidates simply quoted back the words of the question about the proposal being inconsistent with the guiding principles of the insurance pool. Few candidates mentioned anything else.



Paper 1, Question 7 (15 Marks)

Course coverage: Unit 4, Syllabus Aim 10
Unit 3, Syllabus Aim 7

Mark allocation: Straightforward Judgement – 4 marks
Complex Judgement – 11 marks

Question 7 was a moderately difficult question involving the development of a new insurance product, covering issues such as policy design and restrictions, premium determination and estimation of outstanding liabilities.

Overall this question was not answered particularly well. Many candidates resorted to formulaic approaches i.e. listing all the standard points hoping some were relevant eg. in part (e) many people mentioned reinsurance. Given the nature of the risk, the need for reinsurance is minimal yet only a few candidates actually said this.

Many candidates identified the obvious limits and exclusions in part (a), but few identified the implied liability cover in the ‘damage caused by the instrument’. Nearly all candidates thought that the instruments should never leave the school in order to reduce the risk. When and where did they expect the school students to practice? The markers were surprised at the lack of general knowledge of the situation described in the question.

Many candidates got the point in part (c) about overlapping with other insurances eg. home contents, and that professional musicians’ instruments would be a lot more expensive.

Most candidates handled part (d) poorly. Many talked about different sorts of runoff techniques (PPCI etc), but did not talk about the extreme short tail and hence the value of the case estimates. A large number talked about dividing the data up into different sorts of claims and valuing each separately, and so on. Few of these candidates commented on the feasibility of doing this with the small amount of data they were likely to get.

For the unearned premium calculation most candidates assumed an annual premium, whereas the premium was intended to be for each instrument covering many years of exposure. The markers showed some lenience on this part as the question was somewhat ambiguous on this point.

Part (e) was generally done well with good thoughts about distribution methods, consistency with other products, computer systems etc.

Paper 2, Question 1 (14 Marks)

Course coverage: Unit 1, Syllabus Aim 1
Unit 5, Syllabus Aim 14

Mark allocation: Knowledge and Understanding – 14 marks

This question was intended as a straightforward question dealing with compensation scheme design. However, the question was poorly handled. Many candidates gave advice ‘The government should ...’ rather than discussing the issues.

There was some confusion concerning the distinction between catastrophic injuries and injuries caused by catastrophes such as a hailstorm, earthquake etc. Some candidates did not draw a clear distinction between the catastrophic injury scheme and



existing compensation schemes. Most candidates did not specify that the definition of a catastrophic injury was critical to the establishment of such a scheme.

Many candidates treated the funding question as between full funding and pay as you go, whereas the intention of the question was to draw the distinction between government and private (through a levy) funding. These candidates were given some credit for their answers.

The social benefit section was poorly answered. Very few candidates identified any more than one of the five points in the solutions.

In assessing the effect of the scheme on insurance premiums, very few candidates touched on the impact of reduced claim volatility on premiums.

In general, fuller explanations rather than listing points would have earned higher marks.

Paper 2, Question 2 (17 Marks)

Course coverage: Unit 5, Syllabus Aim 12

Mark allocation: Straightforward Judgement – 11 marks
Complex Judgement – 6 marks

This question was a fairly complex question involving commutation of a CTP reinsurance treaty. The question was designed to test whether candidates understood how indexation works on event-based excess of loss treaties.

Most candidates understood how to calculate the indexes in part (a).

The opportunities for error in part (b) were many. Notwithstanding the calculation in part (a), a few candidates did not index the claims costs before estimating the recoveries.

Although most candidates knew how to calculate the recoveries for the two ‘easy’ claims, some failed to recognise that:

- The reinsurance treaty was on an “event” basis, and hence needed to include the incurred cost of other claims in the accident.
- In one accident, payments had already exceeded the retention.

Even where candidates recognised these points, most had trouble calculating the correct recoveries.

Most candidates either did not read the question properly, or did not understand the treaty, as they included the claim not covered by the treaty.

In part (c) most candidates pointed out that IBNR/ IBNER would need to be considered. However, many candidates also included factors that would be required for a normal outstanding claim valuation but would not be applicable in this situation. For example, discount rates and payment patterns were mentioned. Given that there are only currently three large claims covered by the treaty, these factors would be dwarfed by the other sources of uncertainty.

Many candidates misunderstood part (d), answering it more in accounting terms rather than saying how they would get a number.

On the whole, the number of marks available in the calculations gave candidates the opportunity to score some marks even if their logic was not completely correct.



Paper 2, Question 3 (17 Marks)

Course coverage: Unit 4, Syllabus Aim 10

Mark allocation: Knowledge and Understanding – 3 marks

Straightforward Judgement – 8 marks

Complex Judgement – 6 marks

This question was a practical premium rating question involving a public liability portfolio. The question tested the candidates' ability to identify issues relating to the adequacy of the data available for the required analysis, describe the analysis that should be performed in the circumstances and recommend further analysis and data required to finalise the assessment. For this question there were many marks on offer for relatively basic concepts.

Parts (a) and (b) (the source of claims and measures of exposure) were straightforward and most candidates received full marks.

Part (c) was not difficult. The major area where candidates failed to score marks was the deductible, failing to mention it in any capacity, and in particular that:

- It is impossible to allow for the deductible based purely on the data provided.
- The introduction of a deductible would have a big impact on the premium rate.
- Individual claims data would help to assess the impact of a deductible on the premium rate.

Many candidates suggested allowing for the deductible by reducing the average claim size by the amount of the deductible, which is clearly incorrect.

For the limitations of data and additional data sections of this part, candidates tended to discuss claim types - bodily injury vs. property damage, heads of damage data and shopping centre data. Neither marker awarded points for these as they considered them to be second order data requirements. Many candidates also made the comment that they could not do much because only underwriting year data was available and accident year data was really required for analysis purposes. This clearly demonstrated a lack of knowledge on their part.

In part (d) many candidates knew that multiple insurers meant potentially inconsistent claims handling approaches, but did not discuss in enough detail the specific impacts that different approaches would have on the recording of claims, the management of the claims and the estimates placed on individual claims.

The question was not particularly difficult and overall the markers were quite surprised at the lack of understanding by many candidates.

Paper 2, Question 4 (19 Marks)

Course coverage: Unit 3, Syllabus Aim 6

Unit 4, Syllabus Aim 10

Mark allocation: Straightforward Judgement – 19 marks

This question was in two parts. The first related to Key Performance Indicators for long tail claims. The second part dealt with management expenses. The question was generally not very well handled.



In part (a), a number of candidates appeared to have copied their answer to what makes a good claims KPI from a common source. This answer did not align very well with the answer sought.

Many candidates missed the obvious answer that a good claims KPI must be easy to measure. In assessing the numbers of claims finalised and claim payments, many candidates noted that exposure would be a significant issue. Given that we are dealing with long tail claims, it is unlikely that exposure will change dramatically, unless large numbers of claims are suddenly finalised. Even then, many candidates missed the main point, which is that claim finalisations and payments are under the control of claims officers, and these measures can possibly be abused through premature finalisation of claims or delays in making payments. Candidates tended to do better in identifying the element of moral hazard in the 'savings on finalisation' KPI.

Many candidates lost marks for not assessing the KPIs against their list of what makes a good KPI, and for not setting out a clear recommendation.

Part (b) was answered poorly. There were seven easy marks on offer here. Some candidates simply had no idea of what management expenses are involved in claims management. Many others listed two or three with very limited discussion.

Paper 2, Question 5 (16 Marks)

Course coverage: Unit 2, Syllabus Aim 5
Unit 5, Syllabus Aim 13

Mark allocation: Complex Judgement – 16 marks

This question was a fairly searching question on self insurance – how to assess the costs of self insurance and what other factors need to be taken into account before making a decision. Overall, the question was not answered particularly well

In part (a) very few candidate mentioned excesses, or commented on needing to cover the separate states (in fact many assumed the operations were all in one state even though the question clearly stated otherwise). Very few candidates made mention of prudential margins, and the associated cost of capital. Often only claims management expenses were considered as an additional cost.

Many candidates did not distinguish between using actuarial models to develop past data to ultimate (eg IBNR, PPCI, etc...), and the need to actually project these forward into the future (i.e. trends in average claim size, frequency, exposure).

In part (b), while many candidates identified the long term benefits of self insurance (claim prevention, OHS and RTW benefits), very few discussed variation and appetite for risk or cost of capital.

Paper 2, Question 6 (17 Marks)

Course coverage: Unit 6, Syllabus Aim 15
Unit 6, Syllabus Aim 17

Mark allocation: Straightforward Judgement – 6 marks
Complex Judgement – 11 marks

The final question examined candidates on their basic understanding of the new minimum capital requirements ('MCR') for Australian general insurers and the



implications of these requirements on the changing circumstances of the insurer described. This question should have been relatively easy for candidates and most should have been familiar with the new capital requirements for insurers, as this is the most significant change to general insurance in Australia since 1973.

Possibly because this was the last question on the paper, some candidates did not complete it and there were numerous calculation errors.

Most candidates were able to calculate the MCR in part (a), although many did not remember to net off reinsurance recoveries and some failed to deduct intangibles.

Many candidates did not score well in part (b). They recognised that the changes have a solvency impact through an increase in the MCR, but many failed to mention the impact on capital base. Many assumed that the premium liability provision would be increased without stating why.

Part (c) required the candidates to explain the requirements of the Approved Actuary and assess the impact of the new requirements on the insurer's balance sheet and solvency position. There was a good spread of marks for this part. Despite many marks being available for simple points, many candidates did not score well. Many candidates could explain the impact of the requirements on the outstanding claim provision, but many candidates simply assumed that the premium liability provision would increase without explaining why.

For part (d) most candidates recognised the impact on solvency from underwriting more liability business. However few explained how outstanding claims, reported profit and solvency would be impacted over time.

Philip Chappell
Chief Examiner – General Insurance, 2003
November 2003



Subject 4: Superannuation & Planned Savings

Results Summary

26 candidates enrolled for the 2003 exam. Of these, all candidates were present at the exam.

It is proposed that 6 candidates be awarded a pass, which implies a pass rate of 23%. This compares with a pass rate of 31% for the 2002 exam (2001: 35%).

In summary:

Number of candidates	
Originally enrolled	26
Absent from exam	0
Presented at exam	26
Passed	6
Failed	20

The analysis by examination centre is as follows:

Centre	Presented	Passed	Pass Rate
Australian	21	6	29%
Overseas	5	0	0%
Total	26	6	23%

Examiners

Examiners for this year were:

Chief Examiner:	David Shade
Deputy Examiner:	Phillip Everett
Assistant Examiner:	John Hancock



Degree of Difficulty and Course Coverage

The degree of difficulty of questions on each paper and course coverage is summarised in the tables below:

Paper 1

Question	Syllabus Aims	Units	Knowledge & Understanding	Straight-forward Judgement	Complex Judgement	Total Marks
Q 1	5a, 9a, 11a, 11b	3, 5, 6	6	2	6	14
Q 2	1a, 1b, 7a	1, 4	8	5		13
Q 3	3, 7c, 10, 11d	2, 4, 5, 6	4	6	2	12
Q 4	5a, 8a, 8b, 13a	3, 4, 7	2	8	13	23
Q 5	7b, 9a, 11	4, 5, 6	2	9	2	13
Q 6	8c	4		6	6	12
Q 7	5d, 6b, 13e	3, 7		6	7	13
Total			22	42	36	100

Paper 2

Question	Syllabus Aims	Units	Knowledge & Understanding	Straight-forward Judgement	Complex Judgement	Total Marks
Q 1	12	6		8	4	12
Q 2	5c, 7a	3 & 4		6	4	10
Q 3	7c, 9a, 11a, 11b	4, 5 & 6		7	12	19
Q 4	8a, 8b, 9b	4 & 5	5	4	7	16
Q 5	3, 4, 6a, 7b, 7c	2, 3 & 4	7	7	4	18
Q 6	5a, 10b, 13a	3, 5 & 7	4	4	2	10
Q 7	1, 8	1 & 4	4	5	6	15
Total			20	41	39	100

Question by Question Analysis

The number and percentage of candidates that passed each individual question is set out in the following table:

Question	Number of Passes (Grade of A or B)	Percentage Pass Rate
P1Q1	18	69%
P1Q2	10	38%
P1Q3	6	23%
P1Q4	4	15%
P1Q5	14	54%
P1Q6	7	27%
P1Q7	7	27%
P2Q1	9	35%
P2Q2	13	50%
P2Q3	13	50%
P2Q4	13	50%
P2Q5	15	58%
P2Q6	19	73%
P2Q7	12	46%
OVERALL	6	23%

Below is a question-by-question breakdown of the markers' comments for each individual question, highlighting how the question was handled, whether the question was a good discriminator and areas of strengths and weaknesses.

Paper 1, Question 1 (14 Marks)

This question asked candidates to consider the issues of changing from defined benefits to accumulation benefits and how this could be communicated to members. Whilst the overall pass rate was high, there was not many strong passes for a fairly straight forward question which has been addressed in many past papers and is a common area of work. It was a helpful discriminator question.

In part (a) many candidates assumed that a new fund was being set up rather than considering changing benefits within the existing fund (which was what was asked). In part (b) the bulk of the answers were superficial with most candidates only getting 1.5 to 2.5 marks. Better answers went into more detail on assumptions, timetable for changes, and explanation of risk and comparisons in today's dollar terms.



Paper 1, Question 2 (13 Marks)

Overall this question was poorly answered for a question which is essentially bookwork. The impression given is that candidates rely on software programs to calculate tax items without actually understanding the calculations and their various components. This is of concern if advice was being given to individuals on these matters. The three parts to this question are examples of basic financial planning questions that would be asked by individuals. Overall it was difficult to use this question as a good discriminator question.

In part (a) many candidates were able to show that there was an upfront tax saving by making salary sacrifice contributions. The better candidates were then able to comment on the benefit tax implications of salary sacrifice and ways in which to reduce such tax.

In part (b) many candidates did not deduct the undeducted contributions from the benefit before determining the excessive benefit component. Also, other candidates did not understand the method of taxing the various components of an eligible termination payment.

In part (c) the reason candidates failed this part was that they did not mention that superannuation pensions received a rebate which could be used to offset any income tax on the pension.

Paper 1, Question 3 (12 Marks)

This question was one of the worst answered questions of the exam. It asked candidates to consider the information and other professionals required as well as to advise an individual on the business succession / continuation issues concerning their partnership interest.

In part (a) many candidates applied the scattergun approach of listing all the general questions which would be asked by a financial planner. Few candidates actually asked for any detailed information about the partnership.

Part (b) was poorly answered with many candidates focusing on tax structures and capital gains rather than on what happens when the individual leaves (i.e. on retirement, death or disablement) the partnership.

Part (c) was generally answered better than part (b) and the markers took into account the answers given in part (b) when awarding marks rather than strictly following the answer guide.

This question, together with P1Q7 and P2Q5, was used as a discriminator when determining if a candidate understood the financial planning issues in the course.

Paper 1, Question 4 (23 Marks)

This question was poorly answered and required the student to show judgement when advising a trustee/employer about a superannuation fund's funding level. It was a good discriminator question.

Part (a) was straight forward bookwork with the majority of candidates getting close to full marks.

Part (b) asked candidates to perform an analysis of the change in funding position between two dates. The majority of candidates showed a lack of understanding on how to set out and do such an analysis. In addition, many did not allow for



contribution tax or distinguish between defined benefit and accumulation liabilities when doing the analysis.

Part (c) was relatively straight forward with the majority of candidates able to determine a reasonable contribution rate for the next three years. However, there was a general lack of commentary on what monitoring should take place.

Parts (d) and (e) asked candidates to think about the implications if the deficit funding was to be done over a longer time frame (part (d)) or if members were allowed to transfer to a new fund (part (e)). Many candidates did not think fully through the implications and only provided superficial answers.

Part (f) was generally answered well. In addition, the markers commented that many candidates viewed the employer as the ‘bad guy’ who wanted to pay as little as possible to the members’ detriment. The examiners were concerned about this view being held when not being part of the question. In practice the employer is often very keen to secure members’ benefits. Such a view indicates that candidates may well give advice which is not as balanced as it should be.

Paper 1, Question 5 (13 Marks)

For a generally straight forward question the general quality of the answers was poor. Many responses were vague and did not provide specific answers to the questions asked.

In part (a) candidates lost marks for not presenting the solution in an acceptable letter format.

Many answers in part (b) were vague and gave potentially misleading information. A common example was to link risk/return trade off to age profiles only rather than consider a member’s total situation and consider other issues such as debt levels and lifestyle choices.

Part (c) asked candidates to consider issues and provide ways of resolving them. Many candidates could list lots of issues but failed to provide suggestions on how the issues could be resolved.

Paper 1, Question 6 (12 Marks)

Overall this question was poorly answered with many candidates showing little knowledge or understanding of the issues. Part of this may be due to candidates’ lack of practical experience with Family Law issues. However, this question was effectively asking the student to consider the question of ‘What is an appropriate transfer value’ for the various benefit designs and a detailed knowledge of Family Law legislation was not required.

In part (a) many candidates listed issues without really explaining the relevance to the question asked.

For part (b) many candidates did not attempt a very serious answer for the number of marks provided (1 or 2 lines for 3-4 marks). Also, some candidates only concentrated on the difference between resignation and retirement benefits when considering applying for different factors rather than comparing these values to the benefit determined by the legislation for Family Law purposes.



Paper 1, Question 7 (13 Marks)

The question was generally answered very poorly. Candidates missed easy marks by not answering in the format required by the question. For example, few candidates answered part (b) in a report format.

Part (a) required candidates to set out questions they would ask at an initial scoping meeting. Many candidates went into the detail of what the software should and should not include (e.g. deterministic vs stochastic) rather than assessing what the client actually needed the software for. Also, some candidates appeared to be confused who the client was which was shown by the scoping questions being more focussed on the needs of the client's customers rather than the client.

Answers for part (b) were often focused on the superannuation fund aspects without looking at the broader advice that financial planners give. Very few candidates considered insurance needs.

Paper 2, Question 1 (12 Marks)

This was a good discriminator question. The question asked candidates to prepare a report which would be a regular item on the agenda at a superannuation fund's Trustee meeting. The report was to focus on the financial status of the fund and monitor the actuarial aspects. Better candidates showed a broad understanding of the issues and the client's needs. Some candidates, rather than considering the Trustees' needs with respect to the report, just copied out the PS401 report format and focused on the funding position alone rather than considering other issues such as are contributions being paid, insurance coverage, asset mix, etc. The solution required a more broad report to be prepared. Overall candidates were able to get some marks but many did not provide enough detail to enable a pass mark to be given.

Paper 2, Question 2 (10 Marks)

This question was one of the better answered questions of the exam. Candidates were asked to propose a remuneration package design for executives. Good answers considered each part of the package separately and gave reasons for the recommended design (part (a)) and methods for valuing (part (b)). However, many candidates lost marks by only focusing on the share option component of the package and not discussing superannuation and bonus payments.

Paper 2, Question 3 (19 Marks)

This question asked candidates to consider various insurance designs and make a recommendation as well as discuss the issues of transferring insurance. It called for judgement from candidates and in general was answered poorly.

In part (a) the majority of candidates offered poor design alternatives with a surprising number not offering any form of insurance choice into a design. Candidates often failed to state whether accumulation balances were in addition to, or part of, the benefits described. Also, several candidates did not appreciate that an insurance design based on total potential service should not be added to accumulation balances. In part (a)(ii) many candidates recommended a dollar per week insurance design as the preferred option indicating a lack of reference back to the profile of membership (i.e. white collar with potentially large insurance benefit needs). Part (a)(iii) asked candidates to provide details on the transfer of insurance. Many candidates took the

member's perspective on transfer rather than also considering the trustee's/insurer's perspective or they just described an insurance tender process.

In part (b) the draft communication material was reasonably well attempted, although often on the basis of an inappropriate design and recommendation. Many candidates also failed to adequately discuss in the communication material how an individual could assess how much insurance cover they needed. Typically they just stated that they should go and see a financial adviser.

Paper 2, Question 4 (16 Marks)

This question asked candidates to consider target funding and a transfer to a mastertrust arrangement.

In part (a) candidates generally answered in a letter format. Many candidates incorrectly thought that the fund would remain a defined benefit fund or deemed defined benefit fund. For many candidates there was poor discussion on target funding issues particularly the cost and need of (possible) regular reviews of target contribution rates (and contribution variability) and potential company cash flow issues. Also, many candidates failed to realise that members were getting the 'best of' under the proposal and suggested an incentive to transfer.

In part (b) many candidates discussed the advantages and disadvantages of moving to a mastertrust rather than focusing on the issues of transfer. Many candidates failed to identify the tender process requirements. They detailed features of a mastertrust without discussion of the process and the importance of each. Further, many candidates assumed that the transfer would be to an accumulation arrangement and did not consider issues for a transfer to a defined benefit fund.

Paper 2, Question 5 (18 Marks)

This was a good discriminator question with the majority of candidates passing the question. Together with P1Q3 and P1Q7 it was used to determine whether or not a candidate understood the financial planning issues in the course.

In part (a) better candidates focused more on specific needs of each individual rather than just producing a generic list. In part (b) the majority of candidates provided reasonable answers on appropriate investment choices but failed to gain full marks by also fully considering the level of insurances required. Parts (c) and (d) were generally answered well as expected for bookwork type questions.

Paper 2, Question 6 (10 Marks)

This was the best answered question in the paper. In part (a) candidates were able to discuss the various funding methods and adopted Attained Age or Aggregate as an appropriate funding method for a closed defined benefit fund. Part (b) asked candidates to consider a statement made by a company's Finance Director and the appropriate funding target. This was generally answered well with candidates noting the potential conflict and their professional responsibilities. For part (c) most candidates received close to full marks.

Paper 2, Question 7 (15 Marks)

Generally answered well, or poorly, and was a useful discriminator. The question was quite descriptive in terms of report format required, but some candidates failed to include all parts in their answer.



In part (a) most candidates were able to state the Government's 3 pillars retirement policy and comment on legislation such as Choice of Fund which is proposed but not yet legislated. Typically, answers on regulatory controls were either good or poor.

In part (b) many candidates only focused on superannuation issues without fully considering government and individual needs also.

David Shade
Chief Examiner, Superannuation & Planned Savings
November 2003



Subject 5: Finance

Results Summary

There were 89 candidates enrolled for the 2003 exam. Of these, 15 did not present at the exam. It is proposed that 31 candidates be awarded a pass, which implies a pass rate of 42%.

This compares with a pass rate of 31% for the 2002 exam and 35% for the 2001 exam. Historically the pass rate in this subject has usually been in the range 35% to 40%. Last year's pass rate was lower than usual.

In summary:

Number of candidates	
Originally enrolled	89
Absent from exam	15
Presented at exam	74
Passed	31
Failed	43

The analysis by examination centre is as follows:

Centre	Presented	Passed	Pass Rate
Australian	57	25	44%
Overseas	17	6	35%
Total	74	31	42%

Examiners

Examiners for this year were:

Chief Examiner: Timothy Kyng

Assistant Examiner: Kevin Francis

Assistant Examiner: Nicole Raffin



Degree of Difficulty and Course Coverage

Overall, this year's exam achieved a good level of coverage of the course. Details of the course coverage and level of difficulty for this exam are set out in the tables below.

Paper 1

Question	Unit / Syllabus Aims	Knowledge & Understanding	Straight-forward Judgement	Complex Judgement	Total Marks
Q 1	5/(a)(d), 6/(b)(c)	10			10
Q 2a&b	2/(d)(e)		9		9
Q 2c&d	2/(a)(b)(c)			9	9
Q 3a	4/(b)	8			8
Q 3b	4/(b)			10	10
Q 3c	4/(a)		6		6
Q 4a&b	7/(b)(c)		7		7
Q 4c	11/(b),13/(b)		13		13
Q 5a&b	13/(a)(b)		5		5
Q 5c	8/(f)		5		5
Q 6	9/(e),10/(c), 11/(a),12/(c)			18	18
Total		18	45	37	100

Paper 2

Question	Unit / Syllabus Aims	Knowledge & Understanding	Straight-forward Judgement	Complex Judgement	Total Marks
Q 1	9/(e)(f),13/(a)	9	9		18
Q 2	14/(a)(b)			14	14
Q 3	8/(d),13/(b)		15		15
Q 4a&b	12/(b),9/(b)		12		12
Q 4c	12/(b),9/(b)			6	6
Q 5	6/(a),7/(c),2/(e)			15	15
Q 6	1/(a)(b)(c)(f)	10		10	20
Total	Paper 2 only	19	36	45	100
Total	Paper 1 and 2	18.5	40.5	41	100



Question by Question Analysis

Paper 1, Question 1 (10 Marks)

This was a straight forward question that was adequately answered by most candidates. There was a lot of inconsistency in rounding of calculations that caused some candidates to make material errors. Also, few candidates used the appropriate market practice. Numerous candidates also missed that part (c) required the price of a futures maturing in 6 months time. Part (d) is probably a little long (being numerically intensive) for three marks.

Paper 1, Question 2 (18 Marks)

On the whole, the question was answered poorly for a question that was mainly based on book work concepts. Candidates would have been expected to be able to make the jump from bookwork concepts to the actual question where required. Many candidates either missed the point of the various parts of the question or did not expand their answers beyond a couple of points (in particular parts (c) and (d)).

In regard to part (b) only one or two candidates understood that in practice a company can choose to do an off market buy back that includes part dividend and capital. This was also not raised in the model solutions. Many candidates did not separate the question of whether or not to return cash, from the answer of regarding the method of returning the cash.

The model solutions to part (a) were adjusted / expanded to explain the clientele affect from the company's viewpoint (i.e. company adjusts dividend policy to particular groups of shareholders) as well as from the investor's viewpoint (i.e. particular groups of investors/shareholders invest in companies which follow particular dividend policies). Most candidates tended to answer the question from the company's viewpoint and not the investor's viewpoint as shown in the model solutions.

Paper 1, Question 3 (24 Marks)

Many candidates tried to use the same method to calculate the value of an acquisition by cash and by shares (by first converting shares to an equivalent cash amount or by converting cash to equivalent shares).

Many candidates thought bondholders and/or shareholders would be indifferent to a merger because they calculated expected firm value before testing whether debt could be repaid, instead of tracing each scenario through debt option value and equity option value first.

Many did not realise the symmetry between two stakeholders where total value did not change. Several commented on the implication that bondholders should have a covenant about mergers.

The explanation of the difference between types of synergy was generally poor. A few candidates thought part (b) was an extension of part (a) so they talked about the merger between LLL and CCC which always ended up in confusion.

Overall, part (a) (i) and (iii) were fairly straightforward, especially part (iii) i.e. not much to differentiate candidates in part (iii). Part (a) (ii) was the big differentiator with the key being actually undertaking the valuation analysis from the debt and equity perspective separately.



Those who just valued the combined business in total and then drew inferences from that result ended up with the wrong result but more importantly displayed their lack of knowledge in this area.

Paper 1, Question 4 (20 Marks)

This question was a relatively easy KU (applied bookwork) type question. The first two parts of the question were standard bookwork, testing candidates' ability to find answers from the textbook.

Candidates generally did quite well on the question. It was disappointing that some candidates did not even know the very basic bookwork (part (a) and part (b)). Part (c) of the question was generally well done by the candidates.

Paper 1, Question 5 (10 Marks)

Part (a) was the most correctly answered part of this question. Unfortunately though quite a number of candidates drew profit diagrams instead of payoff diagrams. The discontinuity in the payoff was understood by the majority of candidates.

The performance on part (b) was poor. Many candidates simply claimed that the value could be determined by combining a put and a call option often with incorrectly specified exercise prices. The cash or nothing call was only rarely correctly identified as necessary and when it was identified as necessary the formula for the price was very often incorrectly quoted or derived.

The performance on part (c) was poor. Candidates often demonstrated an inability to apply the Black Scholes formula either due to a lack of time or careless calculation work. The correct value of the option was only correctly calculated by a few candidates.

Paper 1, Question 6 (18 Marks)

Overall the question was very poorly handled, largely due to the fact that it was rated entirely as a Complex Judgement question.

In part (a) candidates commonly noted that V was mean reverting and that there was correlation between V and S . Some candidates acknowledged that the distribution of the process was not lognormal, but no one stated that it was non central chi-squared. Very few acknowledged that V was non-negative or specifically that it was the same structure as Cox, Ingersoll, Ross.

In part (b) more than half the candidates were able to set up discrete equations, but they were advised to do so in the 'hint'. Virtually no one acknowledged why doing a discrete approach was the best approach because of the hint thereby reducing the power of this question to assess judgement. The majority of people acknowledged correlation of random variables and a procedure to sum the results. Few people acknowledged using the risk-free rate, that V must be positive or the use of a variance check, so few marks were awarded for this. Most people by the nature of explaining the process of the simulation were awarded a mark for their algorithm.

Paper 2, Question 1 (18 Marks)

For what was supposed to be a relatively straightforward question (in fact the easiest question on the paper based on the difficulty table), the responses to this question were disappointing. Many candidates lost marks on the simple bookwork parts either through lack of knowledge or possibly just not writing down things that they knew.



Common areas where candidates tended to fall down were as follows:

- Some candidates lost marks for simply not putting their answer in the format of a report as was required by the question;
- Most candidates discussed the volatility smile for equities and foreign exchange options but failed to discuss the associated implied distributions (which are crucial for explaining the existence of the volatility smiles);
- Several candidates seemed to confuse the pure jump and jump diffusion models, even in cases where they discussed them separately for parts (e) and (f) of the question;
- Many candidates were not clear on the distinction between implied volatility and actual volatility, and some candidates even said that the volatility smile related volatility (whether actual or implied) to the price of the underlying asset rather than the strike price of the option;
- Many candidates felt that stating the implied distribution was a sufficient explanation for the volatility smile – it may be viewed as the cause of the volatility smile, but then the candidate needed to explain how the implied distribution arises;
- Several candidates went down the wrong path with their discussion of the reasonableness of the various asset price models. The point was to discuss whether the model reflects reality in terms of the volatility smile, and whilst this was not stated explicitly in the question, I think that the question was sufficiently ‘leading’ in this respect;
- Many candidates in discussing the compound option and pure jump models did not actually provide a proper description of the model. Given that this was meant to be a formal report to someone who does not necessarily understand the issues fully, I would think that an explanation of the models would be mandatory;
- Several candidates put the SDEs for the asset price under the jump diffusion model, this seemed inappropriate given that the question specifically says that the recipient of the report did not understand stochastic calculus.

As a side point, candidates need to watch the number of marks allocated to a particular part of the question and allocate time/space accordingly. Many candidates wrote very long answers to part (a) [worth 1 mark] and only produced one or two points for part (g) [worth 4 marks].

Paper 2, Question 2 (14 Marks)

This question was generally poorly answered, particularly the calculation of VaR in part (d).

In part (a) no candidate got a perfect score. Most got two marks for covering the basics of VaR, but very few went on to get extra marks for explaining how it was used, and discussing the other aspects of risk management.

In part (b) only one candidate discussed this in terms of a Historical Simulation method, which was the only method covered in the marking guide. Candidates were awarded a mark if they mentioned ‘non-linearity’, ‘convexity’, or ‘gamma’.

Part (c) was a poorly worded question. Most candidates approached it from the angle that the price had been fixed at some date prior, and there was price risk, which was



consistent with the marking guide. There were two alternate approaches that the marker deemed acceptable:

Valuing the price risk like a put option, I think this was the correct way to measure the expected exposure, rather than provide an arbitrary point on the distribution like VaR.

Using credit default swaps, either to hedge the exposure or to mark-to-market the exposure using CDS margins observed in the marketplace. Also, a useful comment that was awarded one mark was to require the client to deposit collateral/margin. (This might not be enforceable retrospectively, though.)

Many candidates used 28 days not 20 to scale the VaR from 1 day to 4 weeks.

Some candidates gave their answer in terms of forwards, which scored no marks.

In part (d) only about three candidates used Historical Simulation, and those that did still did not get it right. They used the worst case, not the 2nd worst case, and added the Gold VaR to the Silver VaR, without calculating the Portfolio VaR derived from the daily Portfolio P&L.

All other candidates who attempted this, tried to use the Delta-Normal method in vain. However, no student got it completely right and most had less than half the steps right. Common mistakes were:

- Did not attempt to calculate the correlation (all candidates); some candidates said to assume it was zero, or left the parameter in a formula.
- Did not calculate the volatilities; some said they did not have enough time.
- Did not calculate VaR.
- Left out the correlation term.
- Independently calculated and then added the Gold VaR to the Silver VaR.
- Calculated volatility of price, not volatility of daily change in price.
- In the VaR calculation, forgot to include Price in the multiplication term, i.e. $\text{Vol\%} \times \text{Price} \times \text{Position}$.

Paper 2, Question 3 (15 Marks)

The question divided itself into two halves - the first three parts (8 marks) were fairly well answered by the candidates and quite a few got full marks. The second three parts (7 marks) were poorly answered or not answered at all.

27 candidates got no marks for the second half, and most of these made no attempt. (Time was probably a consideration for many of the candidates, or maybe a lot of them thought that there were easier marks elsewhere on the paper and left the second half).

For part (d) the marking guide allocated one mark to deriving the valuation formula by inserting the derived value of B. The question did not ask for this, so both markers reallocated that mark to the first two parts. Part (d) was a good differentiator between candidates.

Part (e) was not well answered. The maximum mark allocated was one mark out of three and the vast majority gained no marks. Part (e) was dependent on a correct answer in part (d) so this probably immediately ruled out half of the candidates. A lot of the candidates did not attempt part (f), even though there were a couple of relatively easy marks here.



Paper 2, Question 4 (18 Marks)

The overall performance on this question was poor.

In the easiest section, part (a), almost half of the candidates failed to identify the basic interest rate guarantee as an implicit option. The common error among these candidates was to base their calculations around using futures, to achieve a known interest rate, failing to recognise guarantee as an implicit option. Of those that identified the need to value as a caplet, there was significant confusion about what the appropriate strike and forward rate were.

For part b), again some candidates missed the implicit optionality. Others that identified the implicit option, failed to grasp that the cost was the sum of a number of options. Most candidates that did identify the cost as the sum of multiple options, arrived at the need to value four caplets and four floorlets. Those that went on to attempt calculation, soon realised that only three caplets/floorlets were required – there were only a handful of these. Not many candidates arrived at final numerical answers for part (b), the volume of calculations required may have been too much.

For part (c), only a couple of candidates attempted any calculation (time may be an issue once again). Nearly half the candidates identified the need for a swap or a cap, but most ignored the uncertainty generated by the tender process. Only a quarter of those that identified the swap/cap realised that an option was necessary to deal with the uncertainty of the tender.

Paper 2, Question 5 (15 Marks)

This question was generally poorly answered - many candidates wrote too much on Modigliani & Miller's theory, or described what the derivatives were rather than answering the question. Candidates appeared not to have read the question properly.

Also most candidates said they would be adding value to shareholders by having risk management products (and describing the effects of these products) however they did not really explain why they were adding value from a shareholder's perspective.

Candidates needed to be aware that a lot of investors invest in companies in order to take the risk - be it commodity price risk, reserves risk etc - they are not looking to invest risk free.

Paper 2, Question 6 (20 Marks)

The question was relatively easy but required a lot of numerical calculations. A large number of candidates did not appear to read the question carefully.

Many candidates ignored the fact that the loan was Interest Only, treating it as an amortising loan instead. They also calculated Capital Gains Tax off a depreciated asset base, even though the question stated that CGT was to be calculated on the difference between the buying and selling prices without any allowance for inflation or depreciation. Many candidates also calculated rentals using annuity functions rather than as 4% of the asset value.

A few candidates were unable to calculate NPVs of cashflows correctly - showing lack of basic understanding of the time value of money.

Some candidates displayed poor analytical skills in part (g) of the question. Due to errors they made in parts (a) and (e) of the question they either had positive NPVs in



both or negative NPVs in both. In these cases some candidates suggested that it would be better to delay the decision even though there was no benefit in delaying.

Finally, a large number of candidates assumed that the 10% discount rate in part (b) was pre-tax. They calculated NPVs at a discount rate of 5%. One mark was deducted for these candidates.

The volume of numerical calculations probably meant many candidates made errors under exam conditions. Furthermore, also the following points were noted:

- There was lack of commonsense in candidates in terms of presenting what seemed ridiculous NPVs and conclusions (important in a practical situation).
- Part (d) was probably the worst answered. A large number of candidates failed to recognise the question was about applying the principles of WACC.

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