

EXAMINATIONS

September 1997

Subject G — General Insurance

Paper Two

Time allowed: Three hours

INSTRUCTIONS TO THE CANDIDATE

1. *You have 15 minutes at the start of the examination in which to read the questions. You are strongly encouraged to use this time for reading only but notes may be made.*
2. *You must not start writing your answers in the booklet until instructed to do so by the supervisor.*
3. *Write your surname in full, the initials of your other names and your Candidate's Number on the front of the answer booklet.*
4. *Mark allocations are shown in brackets.*
5. *Attempt all 4 questions, beginning your answers to each question on a separate sheet.*

AT THE END OF THE EXAMINATION

Hand in BOTH your answer booklet and this question paper.

In addition to this paper you should have available Actuarial Tables and an electronic calculator.

- 1 You are the actuary of a United Kingdom general insurance company which writes only private motor business. You estimate ultimate losses by estimating the claims payment pattern for each accident year. However, the company's published claim reserves are calculated using an Expected Loss Ratio method.

The following data has been supplied.

All amounts are in £million.

Actual Claim Payments as a percentage of Expected Ultimate Claim Cost

<i>Accident Year</i>	<i>Development Year</i>						
	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>6</i>	<i>7</i>
1989	28.0%	25.0%	17.0%	14.0%	9.0%	5.0%	2.0%
1990	28.0%	25.0%	17.0%	14.0%	9.0%	5.0%	
1991	28.0%	25.0%	17.0%	14.0%	9.0%		
1992	28.0%	25.0%	17.0%	14.0%			
1993	23.0%	21.0%	19.0%				
1994	23.0%	21.0%					
1995	23.0%						

Expected Claim Payments as a percentage of Expected Ultimate Claim Cost

<i>Accident Year</i>	<i>Development Year</i>						
	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>6</i>	<i>7</i>
1989							
1990							2.0%
1991						5.0%	2.0%
1992					9.0%	5.0%	2.0%
1993				16.0%	11.0%	7.0%	3.0%
1994			19.0%	16.0%	11.0%	7.0%	3.0%
1995		21.0%	19.0%	16.0%	11.0%	7.0%	3.0%

<i>Accident Year</i>	<i>Gross Earned Premium</i>	<i>Cumulative Paid to 31/12/1995</i>	<i>Published Outstanding 31/12/1995</i>	<i>Published IBNR at 31/12/1995</i>	<i>Actual Payments in 1996</i>
1989	84.0	63.000	0.000	0.000	0.000
1990	88.0	64.680	1.500	0.000	1.188
1991	90.0	58.590	4.200	0.000	2.835
1992	96.0	60.480	11.600	0.000	5.832
1993	132.0	62.370	37.100	3.300	14.256
1994	140.0	49.280	59.400	7.000	19.152
1995	145.0	26.680	77.300	17.400	21.924

- (i) Discuss the differences between different accident years' overall payment patterns as at 31 December 1995. [4]
- (ii) Calculate
- (a) The expected loss ratio for each accident year implied by your estimated claims payment patterns as at 31 December 1995.
- (b) The differences between the published claim reserves and those implied by your estimated claims payment patterns as at 31 December 1995. [8]
- (iii) Calculate the observed differences between claim payments made during 1996 and those estimated at 31 December 1995, and explain why they might have arisen. [5]
- (iv) Discuss the suggestion that the Bornhuetter Ferguson method should be used as an alternative to the Expected Loss Ratio Method when estimating claim reserves at 31 December 1996, listing any further information required to carry out the Bornhuetter Ferguson method. [8]
[Total 25]
- 2**
- (i) Describe the limitations of using the ratio of free assets to the statutory minimum solvency margin as an indicator of the financial strengths of general insurance companies. [9]
- (ii) Outline the various types of protection given by a solvency margin. [7]
- (iii) State the circumstances in which the DTI may intervene in the operation of a United Kingdom general insurance company, and the actions required in such intervention. [3]
- (iv) List possible restrictions a supervisor might impose on a general insurance company's operations. [2]
- (v) A director of a United Kingdom general insurance company questions why the DTI returns show a claim figure for the latest year of origin of £250m (paid claims plus outstanding claims) and the published accounts show total incurred claims for the year as £210m.
- Explain why the two amounts might differ. [3]
[Total 24]

- 3**
- (i) Discuss the principal requirements of a method of allocating investment return to classes of business. [7]
 - (ii) Discuss the following methods of allocating investment return to classes of business with reference to the requirements from part (i):
 - (a) in proportion to premium income
 - (b) in proportion to technical reserves [4]
 - (iii) If the technical reserves are discounted, describe the implications for the allocation of investment return to classes of business. [5]
 - (iv) A director of a company which writes private motor and employers' liability business suggests that as the company's liabilities will increase in line with inflation then all the assets should be invested in equities as these will provide the best protection against inflation. Draft a reply.

[Up to 2 marks available for drafting]

[10]

[Total 26]

- 4**
- (i) List the principal rating factors for employers' liability insurance. [2]
 - (ii) A large United Kingdom industrial company with 2,000 employees is seeking quotations for the renewal of its employer's liability cover. Describe how to calculate the renewal premium using a prospective experience-rating approach. [18]
 - (iii) It has been suggested that the company should have a modified coverage with an aggregate deductible whereby the deductible is applied to the sum of all losses occurring within the policy period. Discuss the approach you would use when quoting a premium rate for a given aggregate deductible amount and any other factors to be considered. [5]

[Total 25]