INSTITUTE AND FACULTY OF ACTUARIES

EXAMINATION

27 September 2021 (am)

Subject SP7 – General Insurance Reserving and Capital Modelling Specialist Principles

Time allowed: Three hours and twenty minutes

In addition to this paper you should have available the 2002 edition of the Formulae and Tables and your own electronic calculator.

If you encounter any issues during the examination please contact the Assessment Team on T. 0044 (0) 1865 268 873.

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1 (i) Compare salvage and subrogation, using examples. [3]

(ii) Discuss how an Actuary can factor in the recoveries arising from salvage and subrogation while estimating the Incurred But Not Reported (IBNR) reserves. [3]

[Total 6]

2 Company J was set up a few years ago as an online-only insurer, selling property and liability insurance to Small-to-Medium Enterprises (SMEs) in the country it operates in.

Internet penetration in the country is low, so Company J is considering using two large brokers to sell its insurance policies to better reach its target market. It plans to start offering around 40% of its current business through these two brokers.

The Chief Distribution Officer has mentioned that the premium and claims information will be received through quarterly bordereaux.

(i) Describe two possible impacts of the change in distribution channel on the incurred claims information received by Company J's claims department. [2]

(ii) Discuss the impact of this change in distribution on Company J's IBNR estimation. [5]

[Total 7]

3 (i) Give two examples of how an Actuary may set up Incurred But Not Enough Reported (IBNER) reserves for the Professional Indemnity line of business. [2]

(ii) Outline the advantages of estimating IBNER at an individual claim level. [2]

Company T is a large travel insurer with an average annual premium income of $2 billion.

A Reserving Actuary has recently joined the team from a smaller insurance company with an average annual premium of $300 million, writing Medical Malpractice insurance for hospitals.

In their previous organisation, the Reserving Actuary was estimating the IBNER reserves at an individual claim level by analysing patterns in the settlement delay of historical claims of a similar nature, and has proposed that the same approach be used for Company T.

The Chief Actuary at Company T disagrees with the idea, saying it is 'an impractical approach'.

(iii) Discuss the arguments for and against the Chief Actuary's statement. [8]

[Total 12]

4 The following data gives the reported claim amount and reported claim count for Household insurance.

Reported claim amount							
	12	24	36	48	60	72	84
2014	12,811	20,370	26,656	37,667	44,414	48,701	48,169
2015	9,651	16,995	30,354	40,594	44,231	44,373	
2016	16,995	40,180	58,866	71,707	70,288		
2017	28,674	47,432	70,340	70,655			
2018	27,066	46,783	48,804				
2019	19,477	31,732					
2020	18,632						

Reported claim count							
	12	24	36	48	60	72	84
2014	1,342	1,514	1,548	1,557	1,549	1,552	1,554
2015	1,373	1,616	1,630	1,626	1,629	1,629	
2016	1,932	2,168	2,234	2,249	2,258		
2017	2,067	2,293	2,367	2,390			
2018	1,473	1,645	1,657				
2019	1,192	1,264					
2020	1,036						

(i) Calculate, showing workings, the IBNR reserves using the Average Cost Per Claim (ACPC) method, stating any assumptions used. [9]

(ii) Discuss the advantages and disadvantages of using the ACPC method for IBNR claims reserve estimation. [2]

[Total 11]

5 Following a recent court case, the regulator in Country M has made it mandatory for motor insurance companies to provide unlimited third-party liability coverage for all new insurance policies with effect from 1 January 2021. Before this, the coverage was limited to twice the sum insured value of the insured vehicle.

(i) Give two reasons why the Regulator may have introduced this legislation. [2]

Company F is a small motor insurance company operating in Country M.

The Reserving Actuary of Company F thinks that they should start creating separate triangles for own damage and third-party liability claims for estimating the IBNR reserves.

(ii) Discuss why the Reserving Actuary may want to calculate the IBNR reserve for motor third-party liability cover separately, following the new regulation. [6]

(iii) Outline the possible data issues that may arise when trying to do this data split. [2]

[Total 10]

6 (i) State the four principal aims of regulation of financial markets. [2]

(ii) Explain why insurance policies covering individuals may be more regulated than those covering companies. [5]

(iii) Suggest possible actions that insurance regulators may put in place to protect individual consumers. [3]

[Total 10]

7 A large established general insurance company with operations based in only one country is considering expanding into multiple countries. It will continue to hold its claims reserves in the home currency.

It has hired an actuarial consultancy to help with setting up the data system in respect of the business sold outside its home country, as well as understanding the impact of exchange rate fluctuation on its reserves.

(i) Outline the additional premium and claims information the company's data system will need when writing business in multiple currencies. [3]

(ii) Discuss the additional factors the company will need to consider in designing the reserving process for business underwritten in multiple currencies. [4]

(iii) Discuss the advantages and disadvantages of holding claims reserves in the currency of the home country versus in the currency in which the premiums are received. [3]

[Total 10]

8 Company A is a specialised reinsurance company selling per risk Excess of Loss (XoL) reinsurance to insurers requiring reinsurance coverage for their Commercial Property, Personal Accident, and General Liability Lines of Business (LoB) under a single reinsurance policy.

It offers these covers on both a facultative and treaty basis and the policy also provides coverage for clash events.

The cover must be purchased as a single policy, and a breakdown of premium by LoB is not quoted since it is priced as a single policy by Company A's pricing team. The attachment points are negotiated separately for each LoB based on the cedant's business profile.

The company records the claims information at a LoB level, and any reinstatement and adjustment premiums are assigned to the respective LoB.

(i) Describe the factors to consider when grouping the data for reserving purposes for Company A. [4]

For loss ratio performance monitoring purposes, the premiums received are allocated between the three LoBs based on the estimated direct premium income provided by the cedant for each LoB.

(ii) Discuss the factors to consider when estimating the reserves for Company A. [7]

(iii) Outline the potential issues that could arise when estimating the unearned premium reserves. [3]

[Total 14]

9 (i) Describe the possible actions a general insurance company could take to validate its capital model. [7]

(ii) Suggest possible reasons why validation of a capital model would be useful for a general insurance company. [5]

Company X, a UK-based general reinsurance company, writes both short-tailed and long-tailed LoB. Historically, the company has invested mostly in bank deposits and short duration bonds. It has recently changed its investment strategy, investing more in equities and property.

(iii) Suggest possible reasons why the company may have decided to change its investment strategy. [3]

An Actuary working in the capital modelling team has observed that the company's market risk charge has reduced despite an increased investment in more risky assets.

(iv) Explain why Company X's market risk charge may have reduced. [5]

[Total 20]

END OF PAPER