
SOCIETY OF ACTUARIES
Financial and Regulatory Environment – U.S.

Exam GIFREU

MORNING SESSION

Date: Thursday, April 27, 2017
Time: 8:30 a.m. – 11:45 a.m.

INSTRUCTIONS TO CANDIDATES

General Instructions

1. This examination has a total of 100 points. It consists of a morning session (worth 60 points) and an afternoon session (worth 40 points).
 - a) The morning session consists of 12 questions numbered 1 through 12.
 - b) The afternoon session consists of 9 questions numbered 13 through 21.

The points for each question are indicated at the beginning of the question.
2. Failure to stop writing after time is called will result in the disqualification of your answers or further disciplinary action.
3. While every attempt is made to avoid defective questions, sometimes they do occur. If you believe a question is defective, the supervisor or proctor cannot give you any guidance beyond the instructions on the exam booklet.

Written-Answer Instructions

1. Write your candidate number at the top of each sheet. Your name must not appear.
2. Write on only one side of a sheet. Start each question on a fresh sheet. On each sheet, write the number of the question that you are answering. Do not answer more than one question on a single sheet.
3. The answer should be confined to the question as set.
4. When you are asked to calculate, show all your work including any applicable formulas.
5. When you finish, insert all your written-answer sheets into the Essay Answer Envelope. Be sure to hand in all your answer sheets because they cannot be accepted later. Seal the envelope and write your candidate number in the space provided on the outside of the envelope. Check the appropriate box to indicate morning or afternoon session for Exam GIFREU.
6. Be sure your written-answer envelope is signed because if it is not, your examination will not be graded.

****BEGINNING OF EXAMINATION****
Morning Session

1. (4 points)

- (a) (2 points) Compare regulatory capital to economic risk capital with respect to:
- (i) Its purpose; and
 - (ii) The manner in which it is determined.

XYZ Insurance Company, a publicly traded general insurance company, is reviewing the adequacy of its capital.

- (b) (2 points) Rank, from high to low, the relative size of economic risk capital to be held by XYZ for the following stakeholders of XYZ. Justify your ranking.
- (i) Policyholders
 - (ii) Stockholders
 - (iii) Management
 - (iv) Regulator

2. (5 points) Under U.S. statutory accounting, investment grade (IG) bonds are reported at amortized cost while below investment grade (BIG) bonds are reported at market value.

(a) (1 point) Compare the U.S. statutory accounting treatment of the change in reported value for IG bonds versus BIG bonds.

(b) (1 point) Explain the reasoning for using amortized cost for IG bonds under U.S. statutory accounting.

Under International Financial Reporting Standards (IFRS), *IFRS 9 Financial Instruments*, fair value is used as the default valuation for all financial securities. However, IFRS 9 permits some debt securities to be held at amortized cost.

(c) (1 points) Describe the two conditions that must be met for a debt security to be valued at amortized cost under IFRS.

Under the Financial Accounting Standards Board (FASB) Accounting Standards Codification for U.S. GAAP, Accounting Standards Codification (ASC) 320 requires that bonds be classified under one of three categories.

(d) (1.5 points) Describe the three categories for bonds as specified under ASC 320.

(e) (0.5 points) Identify which of the categories described in part (d) are permitted by U.S. GAAP to be carried at amortized cost.

3. (5 points) In the U.S., the appointed actuary for a life insurance company opines on whether or not policy reserves are good and sufficient whereas the appointed actuary for a general insurance company opines whether or not reserves are reasonable.

(a) (1 point) Describe the difference between “good and sufficient” reserves and “reasonable” reserves.

Bradmar Reliable Insurance (BRI) is a general insurance company in the U.S. writing personal lines business. The appointed actuary for BRI has completed an analysis of BRI’s loss and loss adjustment expense reserves. A summary of the appointed actuary’s estimates for BRI’s reserves are as follows:

Method for reserve estimate (amounts in millions)		Central	Possible Outcome Low	Likely Outcome Low	Likely Outcome High	Possible Outcome High
A	Incurred development	55	25	45	60	80
B	Frequency – Severity	65	30	55	70	95
C	Simulation model	80	35	70	95	135

- In the context of this analysis:
 - Likely represents a 10% probability;
 - Possible represents a 1% probability;
 - For method C, the probabilities are exact; and
 - For methods A and B, the probabilities are approximate based upon actuarial judgement.
- Methods A and B, as used by the appointed actuary of BRI, are described in actuarial literature and commonly used.
- Method C was developed by the appointed actuary for BRI. The appointed actuary believes that this method uses sound actuarial techniques but it is not commonly used and has not been peer reviewed. This method is extremely sensitive to parameter uncertainty and alternative assumptions.
- The appointed actuary estimates an explicit risk margin for adverse deviation in the amount of 10 million. This explicit risk margin for adverse deviation is not included in the table of estimates.

(b) (2 points) Select a range of reasonable reserves for BRI. Justify your selection.

BRI management books reserves in the amount of 45 million. The materiality standard selected by the appointed actuary was 10 million based on surplus considerations.

(c) (1 point) Determine the type of Statement of Actuarial Opinion (SAO) that the Appointed Actuary should issue using your selection in part (b).

(d) (1 point) Determine if there is a risk of material adverse deviation with respect to the SAO using your selection in part (b).

4. (6 points) You work for Omicron General Insurance Company and are preparing Schedule F of your company's NAIC Statutory Annual Statement. You are given the following information (in thousands of dollars) as of year-end 2016 for Omicron's three reinsurers (Alpha, Beta, and Gamma) who are all authorized reinsurers:

Claim Information				Omicron payment to Claimant		Reinsurer payment to Omicron	
Claim #	Reinsurer	Accident Date	Reinsured Claim Amount	Days to Pay from (1)	Paid Date	Days to Pay from (4)	Paid Date
		(1)	(2)	(3)	(4)	(5)	(6)
C01	Alpha	Feb. 1	1,300	304	Dec. 1	24	Dec. 25
C02	Alpha	June 11	14,200	94	Sept. 13	96	Dec. 18
C03	Alpha	March 5	9,700	196	Sept. 17	Unpaid	Unpaid
C04	Beta	June 22	2,100	49	Aug. 10	Unpaid	Unpaid
C05	Beta	July 27	2,800	Unpaid	Unpaid	Unpaid	Unpaid
C06	Beta	May 11	12,400	181	Nov. 8	34	Dec. 12
C07	Gamma	March 22	2,200	7	March 29	Unpaid	Unpaid
C08	Gamma	Sept. 11	9,900	104	Dec. 24	4	Dec. 28
C09	Gamma	Oct. 24	16,300	38	Dec. 1	Unpaid, in dispute	Unpaid, in dispute

	Alpha	Beta	Gamma
Recoverables on net unearned premium	3,500	4,800	6,100
Recoverables on loss and LAE	9,700	4,900	18,500
Recoverables on commissions	600	800	1,000
Securing funds for recoverables	3,000	0	5,000

Calculate Omicron's 2016 provision for reinsurance for each of Schedule F Parts 5 to 8.

5. (7 points)

- (a) (3 points) Describe two potential benefits from the use of telematics usage-based insurance (UBI) for automobile insurance for each of the following stakeholders:
- (i) Insurers
 - (ii) Consumers
 - (iii) Society
- (b) (1 point) Describe the issue related to data ownership regarding telematics UBI.
- (c) (1 point) Explain why young drivers have been the focus of automobile insurance companies for telematics UBI policies.

Initially, telematics UBI was strictly used as a rating tool for automobile insurance policies. Some insurers are now using data from telematics UBI for claims handling.

- (d) (1 point) Explain a concern over the use of telematics UBI for claims handling.

The NAIC Unfair Claim Settlement Practices Act includes a number of insurer claim practices that would be considered unfair.

- (e) (1 point) Describe two of these practices.

6. (4 points)

- (a) (2 points) Compare policyholder representations to warranties with respect to the ability of insurers to void policies.
- (b) (2 points) Explain why claiming a breach of warranty on an insurance application may not be an effective basis for an insurer to void a policy. You should consider the following in your explanation:
 - (i) Court interpretation of policyholder noncompliance
 - (ii) State statutes

7. (5 points) Both U.S. GAAP and U.S. statutory accounting include two risk transfer tests for reinsurance contracts. One test is positive and quantitative, the other is negative and qualitative.

(a) (2 points) Describe these two tests.

You are a consulting actuary for Small Regional Property Insurance Company (Small) and you have been asked to review a proposed quota share treaty with Big National Reinsurance Company (Big Re). You are to assess the accounting treatment for this quota share treaty.

The quota share treaty warrants that Small maintains an aggregate excess of loss treaty with another reinsurer for the benefit of both Small and Big Re.

- The aggregate excess of loss treaty has been in place for the past three years. The calendar year net loss ratio has been 55%, 45% and 65% during these years.
- The aggregate excess of loss treaty reinsures losses between a 62.5% and an 82.5% loss ratio.
- The quota share agreement requires that Small cede 25% of the net loss and earned premiums, net of other reinsurance. The ceding commission has a sliding scale that prevents Big Re from having an underwriting loss unless the gross loss ratio is above 82.5%.
- Incurred losses under the quota share agreement, from amounts in excess of a gross loss ratio of 82.5%, are carried forward for the subsequent three years.

(b) (2 points) Assess whether or not the quota share treaty transfers risk under U.S. statutory accounting.

(c) (1 point) Describe the U.S. statutory accounting treatment of this quota share treaty based upon your assessment in part (b).

8. (6 points)

- (a) (1.5 points) Describe three legal defenses against liability that employers used in the U.S. prior to the introduction of workers compensation laws.
- (b) (1.5 points) Explain how workers compensation laws benefit both employers and employees.
- (c) (2 points) Describe four issues that have recently generated upward pressure on U.S. workers compensation rates.
- (d) (1 point) Compare the level of government involvement in the provision of workers compensation in the U.S. to that in Canada.

9. (4 points) The International Actuarial Association (IAA) position paper, *The Function of the Actuary in Prudential Supervision*, describes five key areas of actuarial involvement in prudential supervision. One of the key areas is pricing and product design.

(a) (2 points) Describe the four other key areas of actuarial involvement in prudential supervision as noted by the IAA.

The IAA notes that the responsible actuary should provide advice as to whether the premiums are expected to cover the estimated costs. The IAA identifies four elements of cost that a policy premium should be expected to cover.

(b) (1 point) Identify these four elements of cost.

(c) (0.5 points) Describe what is necessary to be demonstrated, according to the IAA position paper, if the premiums are estimated to not be capable of covering the estimated cost.

(d) (0.5 points) Explain what effect actuaries participating in product design and pricing may have on the level of rate regulation.

- 10.** (6 points) You are given the following information from the current and previous two Annual Statements of an insurance company.

Annual Statement (AS) Data	Amounts in thousands		
	Second Prior	Prior	Current
Earned Premium (page 4, line 1)	17,000	19,000	28,500
Loss & LAE Reserves (page 3, lines 1 & 3)	17,500	22,500	34,500
One-Year Development (page 34, line 12, column 11)	-	-	4,500
Two-Year Development (page 34, line 12, column 12)	-	-	6,000
Policyholders' Surplus (page 3, line 37)	-	-	18,000

- (a) (2 points) Calculate NAIC IRIS ratio 13, estimated current reserve deficiency to policyholders' surplus.

Adverse results on IRIS reserve ratio tests can be an indication of inadequate reserves. However, there are other possible reasons for adverse results.

- (b) (1 point) Identify two other possible reasons.

The NAIC has developed Financial Analysis Solvency Tools (FAST) financial ratios in addition to IRIS ratios for measuring financial condition with annual statement data.

- (c) (1 point) Compare the scoring process for IRIS ratios to the scoring process for FAST financial ratios.

Many general insurers use the rating agency A.M. Best to obtain ratings. The A.M. Best Capital Adequacy Ratio (BCAR) includes reserve risk in its capital formula.

- (d) (1 point) Explain the use of stability factors in calculating BCAR reserve risk.
- (e) (1 point) Compare the treatment of asbestos and pollution risk charges in A.M. Best's BCAR with NAIC Risk Based Capital (RBC).

11. (5 points) Cheese Head Insurance Company of Wisconsin (Cheese Head) has a managing general agent, Sunny Insurance Agency (Sunny). Sunny “has the pen” in that it collects premiums and pays small claims for Cheese Head, remitting collected premiums net of a 20% commission, quarterly on January 1, April 1, July 1, and October 1 of each year. All policies are annual and policyholders are billed in quarterly installments.

- Effective June 30, 2016, Sunny writes Policy A, an annual Cheese Head homeowners policy, for 1,200 and receives the first installment immediately.
- On September 5, 2016, a fire completely destroys Sunny’s office and computer records.
- It will not be possible for Sunny to collect outstanding receivables for Policy A within six months from the date of the fire.
- There are no claims or other expenses for Policy A.

- (a) (2 points) Determine the nonadmitted asset for the premium receivable from Policy A for Cheese Head on December 31, 2016 using U.S. statutory accounting principles (SAP).
- (b) (1.5 points) Determine the accounting income in 2016 from Policy A for Cheese Head under SAP.
- (c) (1.5 points) Determine the accounting income in 2016 from Policy A for Cheese Head under GAAP.

12. (3 points)

- (a) (2 points) Explain how the following issues in tort law contribute to a perception that the U.S. is an extremely litigious society.
- (i) Legal expense awards
 - (ii) Contingency fees
- (b) (1 point) Describe two ways that U.S. tort law may have influenced the development of tort law in other countries.

****END OF EXAMINATION****
Morning Session

USE THIS PAGE FOR YOUR SCRATCH WORK

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