GI FREU Model Solutions
Spring 2024

1. **Learning Objectives:**

2. The candidate will understand the analysis of a general insurer's financial health through prescribed formulas, ratios and other solvency regulation methods.

Learning Outcomes:

(2d) Understand the development and principles of solvency regulation

(2e) Demonstrate knowledge of the E.U. Solvency II standard formula solvency capital requirement.

Sources:

General Insurance Financial Reporting Topics, 5th Ed. (2021), Society of Actuaries

- Chapter 12 (Solvency Monitoring)

Commentary on Question:

This question tested a candidate's understanding of Solvency II, capital requirements and the use of internal capital models.

Solution:

(a) Describe the purpose of each of the three pillars of Solvency II.

Pillar 1: To provide the quantitative measurement of capital requirements.

Pillar 2: To provide the governance and risk-management requirements of insurers, and the standards for effective supervision.

Pillar 3: To provide the supervisory reporting, transparency and public disclosure reporting requirements.

(b) Describe the following for each of SCR and MCR:

(i) The level of required capital

(ii) The regulatory response if actual capital falls below that level of required capital

1. Continued

(i) The level of required capital

- SCR: 99.5% VaR over a one-year time interval
- MCR: 85% VaR, subject to the constraint that it is between 25% and 45% of the SCR

(ii) The regulatory response if actual capital falls below that level of required capital

- SCR: The regulator must take corrective action to restore the insurer's capital back to the SCR.
- MCR: The regulator will instigate liquidation of the insurer.

(c) Describe the two other IAIS recommended tests.

- Statistical quality test in which insurers must demonstrate that the model assumptions are justified and that the model parameters are correctly estimated.
- Operational use test in which insurers are required to demonstrate that the model is embedded in its risk strategy and operations.

2. Learning Objectives:

1. The candidate will understand the elements of financial reporting for general insurance companies.

Learning Outcomes:

(1a) Understand and apply the concepts of insurance accounting.

(1b) Understand and compare different financial reporting standards for general insurers.

Sources:

NAIC, Accounting Practices and Procedures Manual, Preamble

NAIC Statement of Statutory Accounting Principles,

- No. 62R, “Property and Casualty Reinsurance”

Commentary on Question:

This question tested a candidate’s understanding of U.S. Statutory accounting.

Solution:

(a) Compare U.S. GAAP to U.S. Statutory Accounting with respect to the following:

(i) Primary purpose of the accounting system

(ii) Basis for the assumptions used in the accounting system

Commentary on Question:

There are several different ways to compare the basis for assumptions. The model solution is an example of a full credit solution.

(i) *Purpose of the accounting system*

GAAP is used to measure financial performance and profitability.
U.S. Statutory Accounting is for regulators, and it should reflect the solvency position of an insurer.

(ii) *Basis for the assumptions used in the accounting system*

GAAP: It generally reflects best estimate assumptions.
U.S. Statutory Accounting: Assumptions are generally conservative resulting in lower asset values and higher liability estimates.

2. **Continued**

(b) Provide one example of how each of the following concepts is applied under U.S. Statutory Accounting:

(i) Conservatism

(ii) Consistency

(iii) Recognition

Commentary on Question:
There are many valid examples that could be provided. The model solution is an example of a full credit solution.

(i) *Conservatism*
Not permitting discounting of most loss reserves

(ii) *Consistency*
Statutory formula to estimate uncollectible reinsurance.

(iii) *Recognition*
Liabilities are recognized when they occur.

(c) Compare a reinsurer's liability for loss under these two termination provisions based on U.S. statutory accounting.

- A cut-off provision stipulates that the reinsurer shall not be liable for loss as a result of occurrences taking place after the date of termination.
- A run-off provision stipulates that the reinsurer shall remain liable for loss under reinsured policies in force at the date of termination as a result of occurrences taking place after the date of termination (*until such time as the policies expire or are canceled*).

(d) Identify the party that is ultimately responsible for deciding if it is reasonably possible for a significant loss under a reinsurance risk transfer test.

Auditor

3. Learning Objectives:

4. The candidate will be able to describe the current and historical regulatory environment.

Learning Outcomes:

(4a) Describe the functions of key regulatory bodies in the U.S.

Sources:

Insurance Regulation, The Institutes

- Chapter 4 (Roles of State Regulators and the NAIC in Insurance Regulation)

Commentary on Question:

This question tested a candidate's knowledge of some of the services offered by the NAIC.

Solution:

(a) Describe two types of information regarding marketplace behavior that is included in these databases.

Commentary on Question:

There are more than two types of information. The model solution is an example of a full credit solution.

- People against whom regulatory and disciplinary action was taken.
- Complaints against insurers.

(b) The SSO also provides a range of training and education services.

Describe two of these types of services.

Commentary on Question:

There are more than two types of services. The model solution is an example of a full credit solution.

- Expert advice to insurance regulators on accounting, reinsurance and financial reporting.
- Publish guides for consumer protection.

(c) Describe two activities of the GRO.

Commentary on Question:

There are more than two GRO activities. The model solution is an example of a full credit solution.

3. Continued

- Monitor the financial condition of nationally significant insurers.
- Assist state insurance officials who appear as witnesses in federal government proceedings.

4. Learning Objectives:

3. The candidate will be able to apply the standards of practice regarding the responsibilities of the actuary as defined by regulators and the American Academy of Actuaries.

Learning Outcomes:

(3c) Describe and apply the concept of materiality.

Sources:

Materiality, Concepts on Professionalism, American Academy of Actuaries Task Force on Materiality

Commentary on Question:

This question tested a candidate's understanding of materiality

Solution:

(a) Describe the concept of materiality regarding actuarial work.

Commentary on Question:

There are several different reasonable descriptions. Only one is included in the model solution. The model solution is an example of a full credit solution.

An omission, understatement or overstatement in a work product is material if it is likely to affect the intended principal user's decision-making.

(b) Explain why the selection of a materiality standard for an actuarial opinion should or should not be influenced by how close an insurer is to the minimum capital requirement.

Commentary on Question:

The model solution is an example of a full credit solution. Other reasonable responses were accepted for full credit.

Selection of a materiality standard is influenced by this because going below the minimum capital requirement has consequences affecting the intended principal user's decision making.

(c) Explain why the selection of a materiality standard for an actuarial opinion should or should not be influenced by the degree of uncertainty in the provision for insurance liabilities.

Commentary on Question:

The model solution is an example of a full credit solution. Other reasonable responses were accepted for full credit.

4. **Continued**

Selection of a materiality standard should not be influenced by this. This is because uncertainty in estimates does not justify a raising or lowering of the materiality standard. The estimate is still at the appropriate amount. This should not change the amount by which an error or omission would change the user's decision making.

(d) Describe two considerations that could influence if this error is material.

Commentary on Question:
There are more than two considerations. The model solution is an example of a full credit solution.

- Whether or not correction of the error would result in a change to the pass/fail outcome of a financial ratio.
- The purpose of the estimate (e.g., reserve opinion, financial reporting, or internal forecasting).

5. Learning Objectives:

1. The candidate will understand the elements of financial reporting for general insurance companies.

2. The candidate will understand the analysis of a general insurer's financial health through prescribed formulas, ratios and other solvency regulation methods.

Learning Outcomes:

(1c) Describe the elements of the NAIC Annual Statement.

(2b) Understand and apply the elements of the NAIC RBC formula.

Sources:

General Insurance Financial Reporting Topics, 5th Ed. (2021), Society of Actuaries

- Chapter 12 (Solvency Monitoring)

NAIC Annual Statement

Commentary on Question:

This question tested a candidate's understanding of the NAIC RBC formula.

Solution:

(a) Provide two types of off-balance-sheet items included in the calculation of R_0.

Commentary on Question:

There are more than four other circumstances. The model solution is an example of a full credit solution.

- Guarantees for affiliates.
- Contingent liabilities

(b) Identify where the amounts in part (a) are found in the Annual Statement.

Commentary on Question:

The model solution is an example of a full credit solution based on the model solution for part (a).

They are both found in either the Notes to the Financial Statements or General Interrogatories.

(c) Provide the risk charge formula for the following:

(i) Amounts in part (a)

(ii) Investments in alien insurance affiliates

5. **Continued**

Commentary on Question:
The model solution is an example of a full credit solution based on the model solution for part (a).

(i) 1% of the reported amount

(ii) 50% of the company's share of the reported value of these affiliates or of the securities issued by them

(d) Explain why R_0 is included outside the square root in the RBC formula.

It more closely reflects the total RBC calculations for the group if done on a consolidated group basis.

(e) Identify where risk charges for *investments in affiliated non-insurance companies* should be included in the RBC formula.

R_1 or R_2 dependent on the type of investment with the affiliate.

6. **Learning Objectives:**

1. The candidate will understand the elements of financial reporting for general insurance companies.

Learning Outcomes:

(1b) Understand and compare different financial reporting standards for general insurers.

(1g) Demonstrate knowledge of taxation for general insurers in the U.S.

Sources:

General Insurance Financial Reporting Topics, 5^{th} Ed. (2021), Society of Actuaries

- Chapter 2 (Accounting for Insurance Contracts)
- Chapter 5 (The Annual Statement, Nonadmitted Assets and Surplus)
- Chapter 15 (Federal Income Taxes for General Insurers)

Commentary on Question:

This question tested a candidate's understanding of the difference between U.S. statutory accounting and U.S. tax accounting.

Solution:

(a) Compare the accounting concepts of incurred taxes and current tax liability.

(i) Incurred taxes are the taxes paid plus the change in taxes due less the change in tax refunds.

(ii) The current tax liability is the incurred taxes relating to those for the current year.

(b) Compare tax accounting to statutory accounting in the United States with respect to the following:

(i) Premium revenue

(ii) Incurred losses

Commentary on Question:

The model solution is an example of a full credit solution.

(i) Premium revenue
Under U.S. statutory accounting principles (SAP), it is earned premium (EP). This is written premium (WP) minus the change in the unearned premium reserve (UPR).

6. **Continued**

Under tax accounting, it is WP minus 80% of the change in the UPR. This is equivalent to EP plus 20% of the change in the UPR.

(ii) Incurred losses
Under SAP, it is paid losses plus the change in loss and loss adjustment expense (L&LAE) reserves from the beginning to the end of the year, in which the L&LAE reserves are generally undiscounted, and the insurer's own anticipated salvage and subrogation is used to reduce these reserves.

Under tax accounting, it is paid losses plus the change in tax-basis L&LAE reserves from the beginning to the end of the year. Tax-basis L&LAE reserves are discounted using IRS prescribed discount factors. Furthermore, tax accounting does not use the insurer's own anticipated salvage and subrogation. Tax accounting reduces L&LAE reserves with a provision for anticipated salvage and subrogation using industry-based factors.

(c) State why the proration provision was introduced for insurers.

Commentary on Question:
The model solution is an example of a full credit solution.

General insurers are the major clientele for municipal bonds and usually represents the majority of their invested assets. This ensures that they do not avoid paying tax on the largest portion of their investment income.

(d) Create a numerical example showing how the proration provision modifies the effective tax rate.

Commentary on Question:
The model solution is an example of a full credit solution. Candidates did not have to use the actual U.S. tax rate and proration rate to earn full credit. They could use any reasonable percentages as this was only asking for an example to show how a proration provision works.

- Assume that the corporate tax rate is 21% and the proration rate is 25%.
- Without proration, there is no tax on municipal bond interest income.
- With proration, the effective tax rate on municipal bond interest income is 25% × 21% =5.25%.

7. Learning Objectives:

1. The candidate will understand the elements of financial reporting for general insurance companies.

Learning Outcomes:

(1b) Understand and compare different financial reporting standards for general insurers.

Sources:

General Insurance Financial Reporting Topics, 5^{th} Ed. (2021), Society of Actuaries

- Chapter 3 (Accounting for Financial Instruments)

Commentary on Question:

This question tested a candidate's knowledge of different accounting standards for investments in bonds.

Solution:

(a) Describe how *declared status at purchase* (e.g., available for sale, hold to maturity) affects the carrying value of a bond under each of the following accounting systems:

(i) International Financial Reporting Standards (IFRS)

(ii) U.S. Statutory Accounting Principles (SAP)

(iii) U.S. Generally Accepted Accounting Principles (GAAP)

Commentary on Question:

The model solution is an example of a full credit solution.

(i) IFRS: available for sale is at fair value, hold to maturity is at amortized cost

(ii) SAP: not affected

(iii) GAAP: available for sale is at fair value, hold to maturity is at amortized cost

(b) Describe how *bond grade* (e.g., investment grade, below investment grade) affects the carrying value of a bond under each of the following accounting systems:

(i) IFRS

(ii) SAP

(iii) GAAP

7. Continued

Commentary on Question:
The model solution is an example of a full credit solution.

(i) IFRS: not affected

(ii) SAP: : investment grade at amortized cost, below investment grade at lower of amortized cost and fair value

(iii) GAAP: not affected

(c) Describe how changes in the market value of *available-for-sale investment grade bonds*, stemming from interest rate changes, are reported under each of the following accounting systems:

(i) IFRS

(ii) SAP

(iii) GAAP

Commentary on Question:
The model solution is an example of a full credit solution.

(i) IFRS: profit or loss on the income statement

(ii) SAP: not reported as it is valued at amortized cost

(iii) GAAP: unrealized capital gains and losses

(d) Describe the economic condition that causes a bond's amortized cost to be greater than its fair value.

Commentary on Question:
There are several economic conditions that can cause this. The model solution is an example of a full credit solution.

A rising interest rate environment.

(e) Describe how the following affects the income statement under SAP:

(i) Decrease in market value for an impaired bond

(ii) Subsequent recovery of decrease in market value for an impaired bond

7. Continued

(i) It affects the SAP income statement because SAP reports this decrease as a realized capital loss.

(ii) It does not affect the SAP income statement because this subsequent recovery is not recognized under SAP.

8. **Learning Objectives:**

1. The candidate will understand the elements of financial reporting for general insurance companies.

Learning Outcomes:

(1a) Understand and apply the concepts of insurance accounting.

(1c) Describe the elements of the NAIC Annual Statement.

(1d) Complete and interpret selected pages/schedules in the NAIC Annual Statement as included in the resources.

Sources:

General Insurance Financial Reporting Topics, 5^{th} Ed. (2021), Society of Actuaries

- Chapter 2 (Accounting for Insurance Contracts)
- Chapter 7 (Schedule P, Statutory Loss Accounting)

NAIC Annual Statement

Case Study, Spring 2024, SOA Exam General Insurance, Financial and Regulatory Environment – U.S.

Commentary on Question:

This question required the candidate to respond in Excel. An example of a full credit solution is in the Excel solutions spreadsheet. The solution in this file is for explanatory purposes only.

This question tested a candidate's ability to derive amounts focusing on Schedule P along with other pages the Annual Statement. It made use of information included in the GI FREU Case Study. Data from the GI FREU Case Study was preloaded in Excel for the candidate to use.

Solution:

Determine the following amounts for R-Dan using the information included in the Annual Statement as of December 31, 2023:

(i) *Losses and Defense and Cost Containment Expenses* unpaid as of December 31, 2022, net of ceded reinsurance, for all lines of business combined, by accident year.

(ii) *Adjusting and Other Expenses* paid during calendar year 2023, net of ceded reinsurance, for all lines of business combined, total of all accident years.

(iii) *Defense and Cost Containment Expenses* paid during calendar year 2022, net of ceded reinsurance, for all lines of business combined, total of all accident years.

8. **Continued**

(iv) *Adjusting and Other Expenses* paid during calendar year 2022, net of ceded reinsurance, for all lines of business combined, total of all accident years.

(v) Average *Loss and Defense and Cost Containment Expenses* unpaid as of December 31, 2022, net of ceded reinsurance, for the Private Passenger Liability/Medical line of business, total of all accident years.

(vi) Ratio of *number of claims closed without payment* to *number of claims reported* during calendar year 2023, for the Homeowners/Farmowners line of business, accident year 2023.

(vii) *Unearned Premium* as of December 31, 2022, gross of ceded reinsurance (i.e., direct plus assumed), for all lines of business combined.

Commentary on Question:
Some of the amounts may be derived using more than one approach. The model solution shows one approach.

AY = accident year, CY = calendar year, YE =year end (i.e., as of December 31)
AO = adjusting and other expense, DCC = defense and cost containment expense
LAE = loss adjustment expenses
UPR = unearned premium, EP = earned premium, WP = written premium
UWIE = Underwriting and Investment Exhibit
Sch. P = Schedule P
PPL = Private Passenger Liability/Medical line of business
H/F = Homeowners/Farmowners line of business

(i) *Losses & DCC unpaid YE 2022, net of ceded, all lines by AY*

[(Sch. P Part 2 Summary) − (Sch. P Part 3 Summary)] col 9 rows 1 to 10

(ii) *AO paid CY 2023, net of ceded, all lines total of all AYs*

Step 1: Losses & DCC Paid CY 2023 is (Sch. P Part 3 Summary col 10 sum of rows 1 to 11) − (Sch. P Part 3 Summary col 9 sum of rows 1 to 10)

Step 2: Losses Paid CY 2023 is UWIE Part 2 col 4 row 35

Step 3: DCC Paid CY 2023 is (Losses & DCC Paid CY 2023 from Step 1) – (Losses Paid CY 2023 from Step 2)

Step 4: LAE Paid CY 2023 is UWIE Part 3 col 1 row 30

8. **Continued**

AO Paid CY 2023
= Amount from Step 4 − Amount from Step 3

(iii) *DCC Paid CY 2022, net of ceded, all lines, total of all AYs*

Step 1: Losses Paid CY 2022 is (Losses Incurred CY 2022, Page 4, col 2 row 2) + (Losses Unpaid YE 2021, Page 17, col 3 row 22) − (Losses Unpaid YE 2022, Page 3, col 2 row 1)

Step 2: Losses & DCC Paid CY 2022 is (Sch. P Part 3 Summary col 9 sum of rows 1 to 10) − (Sch. P Part 3 Summary col 8 sum of rows 1 to 9)

DCC Paid CY 2022
= Amount from Step 2 − Amount from Step 1

(iv) *AO Paid CY 2022, net of ceded, all lines, total of all AYs*

Step 1: LAE Paid CY 2022 is (LAE Incurred CY 2022, Page 4, col 2 row 3) + (LAE Unpaid YE 2021, Page 17, col 3 row 23) − (LAE Unpaid YE 2022, Page 3, col 2 row 3)

AO Paid CY 2022
= Amount from Step 1 **–** Amount from part (iii)

(v) *Average Loss and DCC unpaid YE 2022, net of ceded, PPL total all AYs*

Step 1: Loss and DCC unpaid YE 2022 PPL is [(Sch. P Part 2B) − (Sch. P Part 3B)] col 9 summed over rows 1 to 10

Step 2: Number of claims open YE 2022 PPL is Sch. P Part 5B Section 2 col 9 summed over rows 1 to 10

Average Loss and DCC unpaid YE 2022 PPL
= Amount from Step 1 / Amount from Step 2

(vi) *Ratio of number of claims closed wo payment to number of claims reported CY 2023, H/F AY 2023*

Step 1: Number of claims reported CY 2023 AY 2023, H/F is Sch. P Part 5A Section 3 col 10 row 11

8. Continued

Step 2: Number of claims closed wo payment CY 2023 AY 2023; H/F is Sch. P Part 3A col 12 row 11

Ratio of number of claims closed wo payment to number of claims reported CY 2023 AY 2023
= Amount from Step 2 / Amount from Step 1

(vii) *UPR YE 2022, gross of ceded, all lines*

Step 1: Gross EP CY 2023 is Sch. P Part 1 Summary, col 1 row 11

Step 2: Gross UPR YE 2023 is Page 4 col 1 row 9 + Page 4 row 9 amount at end of text

Step 3: Gross WP CY 2023 is UWIE Part 1B col 1 row 35

UPR YE 2022, gross of ceded, all lines
= Amount from Step 1 + Amount from Step 2 – Amount from Step 3

9. Learning Objectives:

1. The candidate will understand the elements of financial reporting for general insurance companies.

2. The candidate will understand the analysis of a general insurer's financial health through prescribed formulas, ratios and other solvency regulation methods.

Learning Outcomes:

(1d) Complete and interpret selected pages/schedules in the NAIC Annual Statement as included in the resources.

(2b) Understand and apply the elements of the NAIC RBC formula.

Sources:

General Insurance Financial Reporting Topics, 5th Ed. (2021), Society of Actuaries

- Chapter 12 (Solvency Monitoring)

NAIC Annual Statement

Case Study, Spring 2024, SOA Exam General Insurance, Financial and Regulatory Environment – U.S.

Commentary on Question:

This question required the candidate to respond in Excel. An example of a full credit solution is in the Excel solutions spreadsheet. The solution in this file is for explanatory purposes only.

This question tested a candidate's ability to calculate amounts required within an NAIC RBC calculation. It made use of information included in the GI FREU Case Study. Data from the GI FREU Case Study was preloaded in Excel for the candidate to use.

Solution:

Calculate the following for R-Dan's NAIC RBC as of December 31, 2023:

(i) *Bond size adjustment factor*

(ii) *Asset concentration charge* for fixed income securities

(iii) *Asset concentration charge* for equities

(iv) R_1 risk charge

(v) R_2 risk charge

(vi) Excessive Growth Charge for Reserves

9. **Continued**

(vii) Excessive Growth Charge for Premium

Commentary on Question:
Some of the amounts may be derived using more than one approach. The model solution shows one approach.

($000 Omitted)

(i) *Bond size adjustment factor*

Using Section 5 of the Case Study:
Number of bonds subject to the factor is total number of bonds (380) less bonds guaranteed by U.S. government (5) less Class 1 bonds from U.S. government agencies (30) = 345

Using factors on the last table of Case Study page 40:
Bond size adjustment factor = 50 × 2.5 + 50 × 1.3 + 245 × 2.5 = 1.261

(ii) *Asset concentration (ACon) charge* for fixed income securities (i.e., bonds for R-Dan)

Using Section 5 of the Case Study for reported amounts and the RBC factor for bonds on the second last table of Case Study page 40, we have:

Bonds	Class 2	Class 3	Class 4	Class 5	Total
Reported	15,046	8,079	2,844	2,091	
Factor	1.0%	2.0%	4.5%	10.0%	
ACon charge	150	162	128	209	649

(iii) *Asset concentration (ACon) charge* for equities (i.e., common stock for R-Dan)

Using Section 5 of the Case Study for reported amount and the RBC factor for common stock on the first table of Case Study page 41, we have:

6,820 × 15% = 1,023

(iv) R_1 risk charge (for fixed income securities)

For bond charge:

- Reported amounts for bonds, use Section 5 of the Case Study for $ distribution of bonds by class times reported amount of bonds on Annual Statement page 2 col 3 row 1.
- RBC factor charge % for bonds by class is on the first table of Case Study page 41.

9. Continued

		Reported	Charge %	Charge
Bond	Class 1	182,880	0.3%	549
Bond	Class 2	103,632	1.0%	1,036
Bond	Class 3	36,576	2.0%	732
Bond	Class 4	24,384	4.5%	1,097
Bond	Class 5	12,192	10.0%	1,219
Bond	Class 6	6,096	30.0%	1,829
Bonds	TOTAL			6,462

For bond size adjustment charge:

- Take the reported amounts from table above, estimating an adjustment for Class 1 to remove those guaranteed by U.S. government and the factor from the answer to part (i). The result is 1,657.

For cash and other short term investment charge:

- Take the reported amount from Annual Statement page 2, times the factor as shown in the second table on Case Study page 40. The result is 20.

Asset concentration charge for fixed income securities (from the answer to part (ii)) is 649.

R_1 risk charge = 6,462 + 1,657 + 20 + 649 = 8,788

(v) R_2 risk charge

Common stock charge is the reported amount of 28,400 (from Annual Statement page 2 col 3 row 2.2) times the RBC factor of 15% (from the first table on Case Study page 41). The result is 4,260.

Asset concentration charge for equities (from part (iii)) is 1,023.

R_2 risk charge = 4,260 + 1,023 = 5,283

(vi) Excessive Growth Charge for Reserves

For three-year average growth:

Use gross written premiums from 2020 to 2023 (as shown in Annual Statement page 17, columns 1 to 4 of row 6) to calculate three successive year-to-year growth rates. This results in 6.4%, 10.3% and 13.6%, with an average of 10.1%

9. Continued

The excess growth rate is the three-year average growth rate minus 10% which is 0.1%.

Net reserves are 289,500 (Schedule P Part 1 Summary, col 24 row 12)

Excessive Growth Charge for Reserves = 289,500 × 0.1% × 0.45 = 111

(vii) Excessive Growth Charge for Premium

Use the excess growth rate of 0.1% as calculated in part (vi).

Net written premiums are 607,700 (Underwriting and Investment Exhibit Part 1B, col 6 row 35).

Excessive Growth Charge for Premium = 607,700 × 0.1% × 0.225 = 117

10. **Learning Objectives:**

3. The candidate will be able to apply the standards of practice regarding the responsibilities of the actuary as defined by regulators and the American Academy of Actuaries.

Learning Outcomes:

(3b) Describe, interpret and apply the responsibilities of the actuary with respect to the Statement of Actuarial Opinion and the Actuarial Report.

Sources:

Committee on Property and Liability Financial Reporting, A Public Policy Practice Note, Statements of Actuarial Opinion on Property and Casualty Loss Reserves, American Academy of Actuaries

General Insurance Financial Reporting Topics, 5th Ed. (2021), Society of Actuaries

- Chapter 14 (The General Insurance Actuarial Opinion)

Case Study, Spring 2024, SOA Exam General Insurance, Financial and Regulatory Environment – U.S.

Commentary on Question:

This question tested a candidate's understanding of the responsibilities of the Appointed Actuary with respect to the SAO.

Solution:

(a) Sue Calvin did not include a review date in R-Dan's Statement of Actuarial Opinion (SAO). The NAIC Actuarial Opinion Working Group Regulatory Guidance states that the absence of a review date disclosure in the SAO can indicate one of two possibilities.

Identify these two possibilities.

Commentary on Question:

The model solution is a full credit solution that identifies the two possibilities as noted by the NAIC working group. However, R-Dan's SAO did include a review date. Candidates that pointed this out also received full credit.

A review date that is the same as the date the SAO is signed, or the Appointed Actuary overlooked this disclosure.

(b) Draft a disclosure for the Schedule P reconciliation that should meet regulatory standards.

Commentary on Question:

The model solution is an example of a full credit solution.

10. **Continued**

I reconciled the data to Schedule P – Part 1 of the Company's Annual Statement as of December 31, 2023. My evaluation revealed that gross and net earned premiums in the calendar year were $15.1 million higher in the actuarial database for Private Passenger Liability/Medical line and $15.0 million lower in the actuarial database for Auto Physical damage. This was likely caused by miscoding of some premium between these two lines. This miscoding of premiums did not affect my reserve opinion. All other differences in the data were immaterial.

(c) Explain what should be added to the disclosure on reinsurance in order to meet regulatory standards.

Commentary on Question:
There are many items that should be added to the disclosure. An explanation should include several of these items to earn full credit. The model solution is an example of a full credit solution.

The commentary should also include disclosure of:

- The fact that the total amount of ceded reinsurance is material as ceded carried reserves are $27.2 million.
- The fact that Schedule F was reviewed.
- Amounts due from any troubled reinsurers and any amounts that were set up to cover the risk of uncollectibility.
- Whether or not uncertainty on reinsurance collectibility contributes to RMAD.

(d) Determine which of risks I through IV should be included in the RMAD disclosure. Justify your determination.

Commentary on Question:
Some of the items can be interpreted as either general (not to be included) or company specific (to be included). It was also acceptable to say it is dependent on certain facts. As such, credit was earned by stating how the risks apply to the interpretation. The model solution is an example of a full credit solution.

I. This only applies to companies that are currently subject to a bad faith conduct lawsuit. As such, this risk should be included in the RMAD disclosure only if R-Dan has any open cases against it alleging bad faith conduct.

II. R-Dan's adjustment expenses are material. This risk should be included in the RMAD disclosure only if there is a reasonable possibility that the shift will change the level of expenses relative to claims.

III. This risk should not be included in the RMAD disclosure because it is a general condition affecting all insurers.

10. Continued

IV. This risk should be included in the RMAD disclosure. R-Dan's expansion into the Michigan automobile market will be affected by this more than insurers that are not writing this business. This is due to their intention to grow in this market despite lacking experience writing Michigan automobile.

(e) R-Dan's Actuarial Report includes an exhibit summarizing the change in the Appointed Actuary's estimates (on page 37 of the Case Study). For accident years 2014 to 2023, the total current amount from this exhibit differs from the total current amount from Schedule P – Part 2 – Summary.

Explain the reason for this difference.

This is because the exhibit used the Actuary's estimate whereas Schedule P used the company's booked amount. These amounts generally do not match exactly.

11. Learning Objectives:

1. The candidate will understand the elements of financial reporting for general insurance companies.

Learning Outcomes:

(1a) Understand and apply the concepts of insurance accounting.

(1b) Understand and compare different financial reporting standards for general insurers.

Sources:

NAIC Statement of Statutory Accounting Principles (SSAP)

- No. 9, "Subsequent Events"
- No. 53, "Property Casualty Contracts-Premiums"
- No. 55, "Unpaid Claims, Loss and Loss Adjustment Expenses"

Commentary on Question:

This question tested a candidate's understanding of U.S. statutory accounting principles.

Solution:

(a) Define each of Type I and Type II subsequent events.

- Type I: Recognized Subsequent Events – Events or transactions that provide additional evidence with respect to conditions that existed at the date of the balance sheet.
- Type II: Nonrecognized Subsequent Events – Events or transactions that provide evidence with respect to conditions that did not exist at the balance sheet date but arose after that date.

(b) Compare the statutory accounting treatment for Type I and Type II subsequent events.

- For material Type I subsequent events, the nature and the amount of the adjustment shall be disclosed in the notes to the financial statements only if necessary to keep the financials from being misleading.
- Material Type II subsequent events shall not be recorded in the financial statements but shall be disclosed in the notes to the financial statements, including the nature of the event and its financial effect.

(c) Define *advance premiums*.

Premium from policies where the premium was paid prior to the effective date.

11. Continued

(d) Describe the statutory accounting treatment of *advance premiums*.

They are reported as a liability in the statutory financial statement and not considered income until they are due. This is offset by an increase to the cash asset. On the policy effective date, the liability moves to the unearned premium liability on the balance sheet and written premium income on the income statement.

(e) Determine the total accrued amount for unpaid claims and claim adjustment expenses according to SSAP No. 55. Justify your determination.

Commentary on Question:
There is more than one acceptable way to determine the amount for Line B. The model solution is an example of a full credit solution.

For line A, the most likely amount should be used. For Line B, an average of the range covering a 70% probability may be used. It is a reasonable range, and we can assume that no single value in the range is more likely than any other. Therefore, the amount is $59.5 million (18 + (24+59)/2 = 59.5).

(f) Describe what SSAP No. 55 recommends in this discussion.

Commentary on Question:
There are several different points that could be considered as recommendations. Only one was required for full credit. The model solution is an example of a full credit solution.

No single projection method is inherently better than any other in all circumstances. The results of more than one method should be considered.

12. Learning Objectives:

2. The candidate will understand the analysis of a general insurer's financial health through prescribed formulas, ratios and other solvency regulation methods.

Learning Outcomes:

(2c) Calculate and interpret the results of financial health ratios.

Sources:

General Insurance Financial Reporting Topics, 5th Ed. (2021), Society of Actuaries

- Chapter 11 (Financial Ratios for Insurers)

Commentary on Question:

This question tested a candidate's understanding of NAIC IRIS ratios.

Solution:

(a) Explain why each of the following ratios should be examined when IRIS Ratio 3 exceeds the upper bound:

(i) Ratio 2 (Net Premiums Written to Policyholders' Surplus)

(ii) Ratio 5 (Two-Year Overall Operating Ratio)

(iii) Ratio 9 (Adjusted Liabilities to Liquid Assets)

(iv) Ratios 11, 12 and 13 (Reserve ratios)

Commentary on Question:

The model solution is an example of a full credit solution.

(i) Substantial changes in Ratio 3 are most problematic if the insurer is poorly capitalized which may be inferred by a high Ratio 2.

(ii) Substantial changes in Ratio 3 are most problematic if the insurer is unprofitable which may be inferred by a high Ratio 5.

(iii) A substantial increase in Ratio 3 may create an increased need for cash so liquidity of assets is particularly important. Ratio 9 is a test of liquidity.

(iv) Ratios 11 to 13 are the reserve tests. It is important to look at these when there is a large increase in Ratio 3 because a large increase in written premium will increase reserve levels shown by Ratios 11 and 12. If there is also an increase in Ratio 13, it could indicate inadequate reserves or a need to support cash-flow demands.

12. **Continued**

(b) Total liabilities in the numerator of the formula for IRIS Ratio 9 are reduced by *deferred agents' balances*.

Explain the reason for this reduction.

This is done because liquid assets in the denominator of the formula do not include the corresponding asset of agents' balances deferred and not yet due.

13. **Learning Objectives:**

4. The candidate will be able to describe the current and historical regulatory environment.

Learning Outcomes:

(4a) Describe the functions of key regulatory bodies in the U.S.

(4b) Describe and interpret the current state of general insurance regulation in the U.S. and its development.

Sources:

Insurance Regulation, The Institutes

- Chapter 3 (Development of Insurance Regulation)

Commentary on Question:

This question tested a candidate's understanding of surplus lines coverage in the United States.

Solution:

Evaluate this business proposal relative to each of the following considerations:

(i) (*0.5 points*) Risk characteristics for surplus lines coverage

(ii) (*1 point*) Market characteristics for surplus lines coverage

(iii) (*2 points*) Key features of state surplus lines regulations

(iv) (*1.5 points*) Recommended next-steps to move this proposal forward

Commentary on Question:

Each of parts (i) through (iv) has many potential correct responses. The points allotted to each part indicate the level of detail or the number points required for full credit. For parts (i) and (ii), two characteristics for each were required for full credit. For part (iii), at least three key features were required for full credit. For part (iv), at least three next steps were required for full credit. The model solution is an example of a full credit solution

(i) Risk characteristics for surplus lines coverage

- Require high capacity (limits)
- Unique characteristics

13. **Continued**

(ii) Market characteristics for surplus lines coverage

- Provide state's citizens with access to a supplemental market of nonadmitted/unauthorized insurers through specially licensed producers.
- Flexibility to adjust terms and conditions of coverage to quickly meet the insured's needs.

(iii) Key features of state surplus lines regulations

- Set forth financial and other eligibility requirements for nonadmitted / unauthorized companies.
- Domiciliary jurisdictions are to review and regulate nonadmitted / unauthorized insurers for solvency.
- Set procedures for placing business.
- Some states limit surplus lines licenses to resident producers.

(iv) Recommended next-steps to move this proposal forward

- Individual will likely need more than two million in capital. They should seek venture capital or backing from other strong financial sources.
- Individual must identify to regulators that a surplus market should exist by showing a lack of coverage in the regular market.
- Individual must identify to regulators that they have at least one nonadmitted / unauthorized insurer available that has satisfactory capital to underwrite the proposed risk.
- Individual must clearly articulate to regulators how their experience in selling and insuring automobiles relates to the insurance market for high-performance vehicles.

14. Learning Objectives:

3. The candidate will be able to apply the standards of practice regarding the responsibilities of the actuary as defined by regulators and the American Academy of Actuaries.

Learning Outcomes:

(3e) Discuss the International Actuarial Association position on the function of the actuary in prudential supervision.

Sources:

International Actuarial Association, "The Function of the Actuary in Prudential Supervision," September 2002

International Actuarial Association, "International Standard of Actuarial Practice 1, General Actuarial Practice," Revision adopted December 1, 2018

Commentary on Question:

This question tested a candidate's understanding of the IAA's standards of practice and how the actuary can be part of the prudential supervision of insurers.

Solution:

(a) Describe how the International Actuarial Association (IAA) promotes high standards of actuarial practice.

This is done by promoting common standards for examining technical competence, for professional conduct and for disciplinary procedures.

(b) Provide two other examples of actuarial participation in prudential supervision.

Commentary on Question:

There are more than two other examples. The model solution is an example of a full credit solution.

- Pricing and product design
- Reporting directly to the Board and, if required, to Regulators

(c) Describe how the actuarial profession is well-suited to support regulators in safeguarding the interests of policyholders.

The profession's standards of practice provide rules that outline responsibilities to serve the public. Violation of the standards of practice are subject to discipline.

14. Continued

(d) Describe the following:

(i) Dynamic Capital Adequacy

(ii) Strategic Capital Adequacy

Commentary on Question:
The model solution is an example of a full credit solution.

(i) Dynamic capital adequacy: Capital should be sufficient under realistically rigorous future scenarios to supplement available funds to cover the cost of policy obligations and operations.

(ii) Strategic Capital Adequacy: Total free surplus plus free asset revenues should be sufficient, according to the organization's approved medium term business plan, to finance future expected new business costs.