# GI FREU Model Solutions
# Spring 2025

**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.

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

**Learning Outcomes:**

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

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

**Sources:**

The U.S. National State-Based System of Insurance Regulation and the Solvency Modernization Initiative, NAIC White Paper

The Economic Crisis and Lessons from (and for) U.S. Insurance Regulation, NAIC Journal of Insurance Regulation, T. Vaughan

Understanding the New Financial Reform Legislation: The Dodd-Frank Wall Street Reform and Consumer Protection Act, Mayer Brown

**Commentary on Question:**

*This question tested a candidate's knowledge of solvency regulation and the regulatory functions of the FIO.*

**Solution:**

(a) Explain how facilitating the financial stability and reliability of insurance institutions can protect the interests of policyholders.

**Commentary on Question**:

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

Financial stability results in more competitors remaining in the insurance market. Policyholders benefit through increased competition in the market and greater confidence that insurers will be able to meet their contract obligations.

## 1. Continued

(b) Insurance regulators in the United States commonly intervene when an insurer is deemed to be in hazardous financial condition. An adverse finding in the insurer's financial results is one situation under which an insurance regulator may deem an insurer to be in hazardous financial condition.

Identify two other situations.

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

- Insolvencies of an insurer's reinsurer(s).
- Insolvencies within an insurer's holding company system.

(c) Provide two potential advantages of state regulation despite the duplicative costs.

**Commentary on Question**:
*There are several potential advantages. The model solution is an example of a full credit solution.*

Regulators are fallible. Duplication reduces the chances of a regulatory mistake. Any efficiency in regulatory costs from a federal system is likely overwhelmed by the costs of regulatory errors.

(d) The Dodd-Frank Wall Street Reform and Consumer Protection Act established the Federal Insurance Office (FIO) and specified the conditions under which the FIO may preempt state insurance regulation.

Describe these conditions.

FIO may preempt state measures that

- Are inconsistent with bilateral agreements between the United States and foreign nations that enable foreign insurers to operate in the United States, or
- Result in less favorable treatment of insurers domiciled in foreign jurisdictions subject to covered agreements than the treatment of admitted U.S. insurers.

## 2. Learning Objectives:

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

**Learning Outcomes:**

(1e) Understand and apply the concepts of reinsurance accounting.

**Sources:**

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

- Chapter 4 (Accounting for Reinsurance Contracts)

NAIC Statement of Statutory Accounting Principles,

- No. 62R, "Property and Casualty Reinsurance"

**Commentary on Question:**

*This question tested a candidate's understanding of reinsurance accounting.*

**Solution:**

(a) There are two types of tests to determine whether sufficient underwriting risk is transferred in a reinsurance agreement. One type is a positive and quantitative test, the other type is a negative and qualitative test.

Describe each of these types.

- Positive-quantitative: The reinsurance contract must transfer a material amount of underwriting risk.
- Negative-qualitative: The reinsurance contract must not restrict the transfer of underwriting risk except for valid underwriting reasons.

(b) Describe each of the following:

(i) The 10%-10% rule

(ii) Shortcoming of the rule

(iii) The framework for addressing risk transfer which replaced the rule

**Commentary on Question**:

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

(i) *Reasonably possible* was interpreted as the probability of a loss being 10% or more, and *significant loss* was interpreted as 10% or more of the expected losses.

## 2. Continued

(ii) Low frequency, very high severity reinsurance contracts (e.g. catastrophe excess) clearly transfer risk but fails the test.

(iii) Contracts that clearly transfer risk do not need to be tested. If testing is to be done, it is to consider the present value of the cash flows between the primary insurer and the reinsurer.

(c) Describe how insurers account for reinsurance when risk transfer is not sufficient under U.S. statutory accounting.

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

Deposit accounting is to be used. Direct amounts are not reduced for reinsurance.

## 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.

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

**Sources:**

*Insurance Regulation*, The Institutes

- Chapter 2 (Development of Insurance Regulation)

**Commentary on Question:**

*This question assessed the candidate's understanding of the SEUA Supreme Court decision and the subsequent enactment of the MFA, which set the scope of state regulation over the U.S. insurance industry.*

**Solution:**

(a) Describe the following regarding the MFA:

(i) The U.S. Supreme Court ruling that prompted enactment of the MFA

(ii) After MFA, the requirement for insurers to be exempt from the consequences of the Supreme Court ruling in part (i)

(iii) After MFA, the condition under which cooperative acts of insurers for setting rates is permitted

**Commentary on Question**:

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

(i) In the US v SEUA case, the Supreme Court ruled that SEUA's price fixing was the type of conduct antitrust laws were intended for, and the business of insurance was interstate commerce subject to Congressional regulation.

(ii) Insurers are exempt from Congressional acts when states regulate the conduct considered by the acts.

(iii) Cooperative acts (e.g., for setting rates) are permitted if they do not hinder competition.

## 3. Continued

(b) Describe two examples of post-MFA insurance regulation prompted by *insurer insolvencies*.

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

NAIC's Post-Assessment Property and Business Insurance Guaranty Association Model Act sets up a mechanism for the industry to help pay the insurance obligations of insolvent insurers. The goal of this was to ensure that there were funds available to the policyholders and claimants of the insolvent insurer otherwise they would have borne the brunt of the insolvency.

NAIC's Early Warning Tests program detects companies in financial trouble early enough that insurance regulators could act. The goal of this was to prevent the need for guaranty fund assessments by rehabilitating insurers in financial trouble.

(c) Describe one example of post-MFA insurance regulation prompted by *insurance unavailability or unaffordability*.

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

Fair Access to Insurance Requirements (FAIR) plans were established by state legislatures. These are insurance pools run collectively by the insurers in the market. The pools provide insurance on properties that are not being written by the insurers in the market (*unavailability*) due to the high risk of incurring significant losses.

**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:**

(3a) Describe, interpret and apply the applicable Standards of Practice.

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

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

**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)

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

**Commentary on Question:**

*This question tested a candidate's knowledge regarding the duties of the Appointed Actuary in the United States.*

**Solution:**

(a) Select a materiality standard to disclose in your Statement of Actuarial Opinion (SAO). Justify your selection.

**Commentary on Question**:

*There are many different justifiable answers for materiality. The model solution is an example of a full credit solution.*

- Materiality based upon surplus addresses the needs of regulators concerned with solvency.
- 1% to 5% of surplus (100 thousand to 500 thousand) could be selected because differences greater than this may affect decision making by the regulator.
- For conservatism, I would select the low end of the range; that is, 1% of surplus or 100 thousand as the materiality standard.

## 4. Continued

(b) Select the type of Actuarial Opinion you would render. Justify your selection.

**Commentary on Question**:
*There are several different justifiable answers for the type of opinion as it depends on the selected materiality standard. The model solution is an example of a full credit solution using the selection from part (a).*

The reserve amount makes a reasonable provision for the liabilities since the difference between the actuarial estimate and the reported reserves (70 thousand) is less than the selected materiality standard and the range of reasonability should be greater than the materiality standard such that the company's recorded reserves are in this range.

(c) Describe the actions the Company should take after being informed of this accounting error.

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

- The insurer is required to correct the accounting error and file an amended financial statement.
- The insurer must communicate with the Appointed Actuary with respect to the error and any amendment to the financial statements.
- The insurer is to forward all relevant communication (e.g., revised SAO) to the domiciliary regulator.

(d) Describe the actions you should take after being informed of this accounting error based upon U.S. statutory accounting.

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

- Determine that the error is material to SAO as it is clearly greater than 70 thousand and outside the range of reasonability as the error is one-third of the central estimate
- Re-issue the SAO. It is "Deficient" unless the Company increases their recorded liability. If Company increases their liability within AA's range, then the SAO can remain "Reasonable".
- Notify the domiciliary regulator of the steps being taken by you.

## 5. 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.

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

**Learning Outcomes:**

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

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

**Sources:**

The Economic Crisis and Lessons from (and for) U.S. Insurance Regulation, NAIC Journal of Insurance Regulation, T. Vaughan

The U.S. National State-Based System of Insurance Regulation and the Solvency Modernization Initiative, NAIC White Paper

*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 understanding of the functions of the NAIC in relation to insurance regulation.*

**Solution:**

(a) Describe another reason why some states choose not to adopt a model law.

**Commentary on Question**:

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

An individual state legislature views a particular model law as inappropriate or unnecessary because other laws in the state sufficiently address the issue.

## 5. Continued

(b) Describe three examples for each category in the table below.
*Answer in the following table.*

| Category | Law or Regulation or Rule that Incorporates IFSSM |
|---|---|
| **Solvency** | 1. |
| | 2. |
| | 3. |
| **Monitoring** | 1. |
| | 2. |
| | 3. |

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

| Category | Law or Regulation or Rule that Incorporates IFSSM |
|---|---|
| **Solvency** | 1. Annually submit a financial statement audited by a CPA, and their reserve estimates must be attested to by an actuary. |
| | 2. Insurers must adhere to state minimum capital and surplus requirements. |
| | 3. Insurers are required to report the results of their risk-based capital calculation. |
| **Monitoring** | 1. Regulators are required to examine an insurer at least once every five years or more frequently as deemed appropriate. |
| | 2. If a potential capital deficiency is signaled by the RBC result, a ladder of intervention exists under which regulators are required to undertake certain actions depending on the degree of deficiency. |
| | 3. NAIC's FAST Tools encompass a wide range of reviewing and testing procedures. These include a scoring system based on financial ratios. |

## 5. Continued

(c) Describe the following:

(i) The role of the NAIC's Financial Analysis Division (FAD), and

(ii) The role of the NAIC's Financial Analysis Working Group (FAWG), and

(iii) The manner in which the two relate to each other.

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

(i) The FAD performs ongoing financial analysis of all nationally significant insurers.

(ii) The FAWG is a forum for collaboration and/or problem-solving with respect to potentially troubled insurers.

(iii) Unusual findings from the FAD are referred to the FAWG.

## 6. 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:**

(3a) Describe, interpret and apply the applicable Standards of Practice.

**Sources:**

Actuarial Standards Board of the American Academy of Actuaries, Actuarial Standard of Practice (ASOP),

- No. 23, "Data Quality"
- No. 41, "Actuarial Communications"

**Commentary on Question:**

*This question tested a candidate's knowledge of ASOPs.*

**Solution:**

(a) Describe four disclosures specific to ASOP 41, *Actuarial Communications*, that any actuarial report should include.

**Commentary on Question**:

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

- The intended users of the actuarial report.
- The scope and intended purpose of the engagement or assignment.
- Any cautions about risk and uncertainty.
- The acknowledgement of qualification as specified in the Qualification Standards.

(b) Describe four disclosures specific to ASOP 23, *Data Quality*, that are required when relevant and material.

**Commentary on Question**:

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

- Any limitations on the use of the actuarial work product due to uncertainty about the quality of the data.
- Whether the actuary performed a review of the data and, if not, the reason for not reviewing the data and any resultant limitations for the work.
- A summarization of any unresolved concerns the actuary may have about questionable data values that could have a significant effect on the work.
- A summarization of any discussions of significant steps the actuary has taken to improve the data due to identifying questionable data values.

## 7. Learning Objectives:

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

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:**

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

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

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

**Sources:**

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

- Chapter 7 (Schedule P, Statutory Loss Accounting)
- Chapter 14 (The General Insurance Actuarial Opinion)

NAIC Annual Statement

Case Study, Spring 2025, 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 use the annual statement to test for case reserve strengthening. 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:**

(a) Test whether or not R-Dan's claims department actually strengthened reserves for accident years 2021 to 2024.

**Commentary on Question**:

*The key amounts to examine for testing this are the changes in average case reserves at the same development age. CY = calendar year, AY = accident year, DA = development age, Pt. = Part, Sec. = Section.*

## 7. Continued

The following steps are taken to test this.

- Step 1: Create a claim reserves triangle "A" using Schedule P [*Pt. 2B – Pt. 3B – Pt. 3B*]. Note that only AYs 2020 to 2024 are required.
- Step 2: Create an outstanding claim count triangle "B' using Schedule P [*Pt. 4 Sec. 2*]
- Step 3: Create an average case reserves triangle "C' *[A / B*]
- Step 4: Create a triangle "D" of change in "C" along DA. [*Columns, e.g. CY 2024 change in average case reserves for DA of 12 months is* $C_{(AY=2024,\ DA=12)}$ *divided by* $C_{(AY=2023,\ DY=12)}$]
- Step 5: Test strengthening of reserves by reviewing the changes in each column of "D". [*Note that strengthening should indicate a change higher than the expected change from inflation, 5%*]
- Step 6: Make a conclusion from the results of the test

(b) Summarize your findings and any concerns for senior management based on the results from part (a).

**Commentary on Question**:
*There a several findings and concerns that could be summarized here. The model solution is an example of a full credit response. It does not include all possible findings and concerns.*

Findings:

While the number of data points is limited, all 4 points on the diagonal are more than 5%. Three of the four points on the diagonal are well in excess of 5%. Additionally, of the 6 points from CYs 2023 and prior, only 1 is in excess of 5%. It is reasonable to assume that the claims department strengthened reserves.

Concerns:

Sue Calvin must be informed of this immediately. This should have been done prior to the SAO work. Sue may have concluded this on her own. If not, this increase could have been mistaken for increasing development leading to an overstatement of reserves.

## 8. 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 2025, 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 the NAIC RBC. 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:**

(a) Calculate R-Dan's NAIC RBC reserving risk charge, before the excess growth charge, as of December 31, 2024.

**Commentary on Question**:

*Note that the net Loss & LAE reserves by LOB could have been taken from Schedule P or the Underwriting and Investment Exhibit. These amounts differ due to an error by R-Dan's accounting department. Answering using either Exhibit was acceptable. The model solution uses Schedule P.*
*avg. = average, dev. = development, LOB = line of business*

## 8. Continued

The following steps are taken to calculate this.

1. Calculate the company adjustment factor by LOB as the avg. dev. NAIC charge factor for the company divided by that for the industry.
2. Calculate the company L&LAE RBC% for reserves by LOB as Industry Loss&LAE RBC% for reserves × (company adjustment factor +1)/2
3. Calculate the Basic Reserving Charge by LOB as the Net Loss&LAE reserves × ((company Loss&LAE RBC% + 1) × Investment Income Factor – 1)
4. Calculate the sum of the Basic Reserving Charge by LOB to get the Basic Reserving Charge.
5. Calculate the Loss Concentration Factor (LCF) as 0.7 + 0.3 × percentage of net Loss&LAE reserves for $LOB_{MAX}$ to the total. $LOB_{MAX}$ is the LOB with the greatest amount for Net Loss & LAE reserves.
6. Calculate the RBC reserving risk charge before excess growth as the LCF × Basic Reserving Charge.

(b) Calculate R-Dan's NAIC RBC credit risk charge, before any conditional adjustments, as of December 31, 2024.

**Commentary on Question**:
*Note that both collateralized reinsurance recoverables ($RR_{COLL}$)and uncollateralized reinsurance recoverables ($RR_{UNCOLL}$) are stressed by 20%, but the entire 20% stressed amount is added to $RR_{UNCOLL}$.*

First calculate RR as the sum of Amounts recoverable from reinsurers (*asset page*), Unearned premiums for ceded reinsurance (*liabilities page*), and Ceded reserves (*Schedule P Part 1 Summary, sum of Losse Unpaid for Case and Bulk + IBNR, DCC Unpaid for Case and Bulk + IBNR, AO Unpaid*)

This can then be split into *$RR_{COLL}$ and $RR_{UNCOLL}$ for each reinsurer by using the percentages and amounts provided in the table preceding (b).*

This charge is calculated as the sum of the following:

- Investment income due and accrued × 1%
- Recoverable from Affiliates 5%
- Recoverable from Aggregate write-ins for other than invested assets × 5%
- RR A collateralized: $RR_{COLL}(A)$ × 4.1%
- RR B collateralized: $RR_{COLL}(B)$ × 5.0%
- RR A uncollateralized: $[RR_{UNCOLL}(A) + 0.2 \times ((RR_{UNCOLL}(A) + RR_{COLL}(A))] \times 4.1\%$

## 8. Continued

- RR A uncollateralized: $[RR_{UNCOLL}(A) + 0.2 \times ((RR_{UNCOLL}(A) + RR_{COLL}(A))] \times 14.0\%$

*Note that the RR factors are based on the financial strength rating of the reinsurer.*

(c) Calculate R-Dan's NAIC RBC Ratio.

**Commentary on Question**:
*Note that the 1.03 factor is to add in a 3% charge for operational risk.*

Check the condition to see if a credit risk adjustment is required.

- The charge for reserving risk (result from part (a) plus excess growth charge) is greater than the RR credit risk charge so the adjustment is required.

$$RBC = 1.03 \times [\ R_0 + (R_1^2 + R_2^2 + (0.5 \times R_3)^2 + (R_4 + 0.5 \times R_3)^2 + R_5^2 + R_{CAT}^2]^{0.5}$$

RBC Ratio = Policyholders Surplus / (0.5 × RBC)

**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.

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:**

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

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

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

(2a) Evaluate the financial health of a general insurer using information contained in the Annual Statement.

(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

NAIC Statement of Statutory Accounting Principles

- No. 55, "Unpaid Claims, Loss and Loss Adjustment Expenses"

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

- Chapter 7 (Schedule P, Statutory Loss Accounting)
- Chapter 12 (Solvency Monitoring)
- Chapter 14 (The General Insurance Actuarial Opinion)

NAIC Annual Statement

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

Case Study, Spring 2025, SOA Exam General Insurance, Financial and Regulatory Environment – U.S.

## 9. Continued

**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 adjust amounts in the Annual Statement and assessed how it would affect the responsibilities of the appointed actuary. 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:**
(a) Describe the condition for categorizing each of I and II as DCC or AO.

I. DCC if reported by accident year, AO if reported by calendar year

II. DCC if working in defense of a claim, AO if working in the capacity of an adjuster

(b) Determine the following for each of DCC and AO after correction for this error:

(i) Outstanding as of December 31, 2024

(ii) Payments during 2024

(iii) Incurred during 2024

**Commentary on Question**:
*There are several ways to determine these amounts. The model solution in Excel and in this document are an example of a full credit solution and displayed so it is easy to follow. It presents the amounts before correction and after correction.*
*Sch. P = Schedule P, UWIE = Underwriting and Investment Exhibit,*
*IEE = Insurance Expense Exhibit, COL = column*

First insert a row above the (i) row in the solution table. Label this as row *(0), Outstanding as of December 31, 2023.* Create a column "Total" after the AO column which will contain the total of DCC and AO

Then, to the right of the table create the same table [i.e., (0) to (iii) by DCC, AO, Total] that will contain the amounts before correction.

## 9. Continued

Complete the before-correction table (TABLE A) as follows (*other approaches to completing this are possible*)

- Total COL for all ROWs are in UWIE Parts 2A and 3
- ROW(i) and ROW(iii), COLs DCC and AO, are in IEE Part II
- ROW(ii), COL DCC is derived from Sch. P Part 3 and UWIE Part 2
- ROW(ii) COL AO is the difference between COLs Total and DCC
- ROW(0) for all COLs is calculated using the formula for incurred

Complete the after-correction table (TABLE B) as follows (*other approaches to completing this are possible*)

- ROW(0) for all COLs is the same as TABLE A ROW(0)
- Total COL for all ROWs is the same Total COL for TABLE A
- ROW(i) COL DCC is TABLE A ROW(i) COL DCC × 1.1
- ROW(ii) COL DCC is TABLE A ROW(ii) COL DCC × 1.1
- ROWs (i) and ii for COL AO is Total COL – COL DCC
- ROW(iii), COLs DCC and AO are calculated using the formula for incurred

(c) Determine the following before and after correction for this error:

(i) Total Paid Loss and DCC during 2024

(ii) Total Incurred Loss and DCC during 2024

- The Before COL uses UWIE loss plus before-correction DCC from (b)
- The After COL uses UWIE loss plus after-correction DCC from (b)

(d) Determine the value for Schedule P - Part 2 – Summary, Column 12, Row 12, after correction for this error.

**Commentary on Question**:
*This amount in question is the 2-year development of incurred Loss & DCC for all accident years up to 2022. There are several ways to determine these amounts. The model solution in Excel and in this document are an example of a full credit solution. It is displayed so it is easy to follow. AY = accident year*

Create a before-correction table with COLs DCC unpaid, DCC paid and Loss & DCC paid and ROWs (1) all AYs up to AY 2022, (2) AY 2023, (3) AY 2024 and (4) Total all AYs.

COL DCC unpaid for ROWs (2), (3) and (4) is calculated using Sch. P Part 1 Summary. ROW(1) is ROW(4) – [ROW(2) + ROW(3)]

## 9. Continued

Loss & DCC Paid COL for ROWs (1) and (2) is calculated using Sch. P Part 1 Summary.

COL DCC paid ROW(3) is from Sch. P Part 1 Summary and ROW (4) is from the solution to part (b) [TABLE A ROW(ii) COL DCC].

COL DCC paid sum of ROW(1) and ROW(2) is COL DCC paid ROW(3) – ROW(4). Assume the amounts for COL DCC ROWs (1) and (2) are in the same proportion as COL Loss & LAE paid ROWs (1) and (2).

A = Increase in DCC unpaid is 10% of COL DCC unpaid ROW (1).
B = Increase in DCC paid is 10% of COL DCC paid ROW (1).

The amount is A + B + Sch. P Part 2 Summary Column 12 Row 12

(e) Explain how discovery of this error might affect the following: (*Note: No calculations are required.*)

(i) Sue Calvin's actuarial opinion for R-Dan as of December 31, 2024

(ii) R-Dan's NAIC IRIS Ratios
(*Values provided in Excel for reference.*)

**Commentary on Question**:
*There are many potential correct responses to this question. The key is that there is some effect even though the error is offsetting. This is because of the different treatment of DCC and AO in the calculations. The model solution is an example of a full credit solution. It does not address all the effects from the correction.*

(i) This may affect Sue's analysis. The diagonals in the development triangles will increase, showing greater development and higher incurred Loss and DCC values upon which development factors will be applied. This twofold increase will likely be greater than the decrease in AO reserves. This may also affect the reasonability range. The actuarial report, the SAO and the AOS will need to be corrected for the error if it is material. It's possible that the opinion will be deficient because R-Dan reserves are at the lower end of the current range before correction.

(ii) The Annual Return should be corrected and refiled to include corrected amounts. Only IRIS Ratios 11, 12, and 13 are directly affected by this error which will cause them to increase because they use Loss + DCC amounts from the Annual Return. The IRIS reserve ratios will have to be recalculated and refiled. Ratios 11 and 12, close to being outside the usual range before correction, may move to being outside the usual range.

**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:**

(3d) 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,"

**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 three situations where an actuary may fail to follow the guidance in an ISAP but still be in compliance with the ISAPs.

- Complies with requirements of law that conflict with the ISAP.
- Complies with requirements of the actuarial code of professional conduct applicable to the work that conflict with the ISAP.
- Departs from the guidance in the ISAP and provides, in every report to which it is relevant, an appropriate statement with respect to the nature, rationale, and effect of any such departure if the guidance is expressed as "should".

(b) Identify four elements that should be confirmed with the principal.

**Commentary on Question**:

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

- The role of the principal.
- Any limitations or constraints on the actuary.
- Any requirements that the actuary is required to satisfy.
- Identification of the schedule and expected cost or resources needed.

## 10. Continued

(c) ISAP 1 describes four actions that an actuary should take for data validation.

Describe three of these actions.

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

- Testing the data for reasonableness against external or independent data.
- Testing the data for internal consistency and consistency with other relevant information.
- Comparing the data to that from a prior period or periods.

## 11. 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

(2g) Discuss the function of credit rating agencies and their impact on general insurers.

**Sources:**

*General Insurance Financial Reporting Topics*, Fifth Ed. (2021), Society of Actuaries

- Chapter 13 (General Insurance Financial Ratings)

**Commentary on Question:**

*This question tested a candidate's understanding of financial ratings for general insurance companies.*

**Solution:**

(a) Provide two reasons why most insurance companies want to be rated by rating agencies even though many have no debt and are not publicly traded.

**Commentary on Question**:

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

- Agents are wary of unrated insurers because they may be financially distressed.
- Third parties rely on outside assessments of insurer solvency.

(b) Describe the differences between a regulatory examination of an insurer versus an interactive rating assessment, with respect to <u>any three</u> of the following:

- Frequency
- Cost
- Data used
- Time to complete

**Commentary on Question**:

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

- **Frequency**: Regulatory examinations are conducted every three to five years whereas financial ratings are updated annually.
- **Cost**: Regulatory examinations are considerably more expensive and require more staff to work with the examiners as compared to financial rating agency valuations.

## 11. Continued

- **Time to Complete**: A regulatory examination lasts months. Financial rating agencies only spend two or three weeks analyzing the insurer.

(c) Describe the five stages of the interactive ratings process for an insurer.

1. The insurer submits public and proprietary data, and the ratings analysts review it.
2. Ratings analysts then meet with the insurer's senior management to review the data.
3. The lead ratings analyst prepares a rating proposal.
4. The ratings committee decides upon the rating after a presentation of the proposed rating by the lead ratings analyst.
5. The ratings agency publishes the rating publicly and provides the analysis to subscribers.

## 12. 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:**

*General Insurance Financial Reporting Topics*, Fifth Ed. (2021), Society of Actuaries

- Chapter 2 (Accounting for Insurance Contracts)

**Commentary on Question:**

*This question tested a candidate's understanding of IFRS 17.*

**Solution:**

(a) Describe both FCF and CSM.

**Commentary on Question**:

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

FCF: The current estimate of amounts that the insurer expects to collect from premiums and pay out for claims and expenses. The FCF includes adjustments for the timing and risk of those cash flows.

CSM: The expected profit for providing future insurance coverage.

(b) Describe the two approaches for determining the discount rates for insurance cash flows under the GMM.

Top-down approach: One selects the yield on a reference portfolio, less any elements not reflective of the insurance contract cash flows.

Bottom-up approach: One selects a highly liquid risk-free rate and adds a premium for illiquidity.

(c) Identify two insurance situations that usually result in a higher IFRS 17 risk adjustment for nonfinancial risk.

**Commentary on Question**:

*There are several situations that could be identified. The model solution is an example of a full credit solution.*

## 12. Continued

- Insurance contracts with a longer duration.
- Insurance contracts with exposure to insured events that have a relatively wider probability distribution.

(d) Identify the three groups of contracts within each annual cohort that are to be valued using the GMM as specified by IFRS 17 for a portfolio of business.

- Contracts that are onerous at initial recognition.
- Contracts with no significant possibility of being onerous at initial recognition.
- All remaining contracts.

(e) The Premium Allocation Approach (PAA) is a simplification of the GMM. The PAA is similar to U.S. GAAP for short duration insurance contracts, but there are several differences.

Describe two of these differences.

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

U.S. GAAP shows separate unearned premium and deferred acquisition costs whereas the PAA uses a single insurance contract liability for remaining coverage.

U.S. GAAP uses generally uses nominal payments whereas the PAA may use present values.

(f) Describe a reason that will disqualify a group of primary general insurance contracts from using the PAA for the calculation of the LRC.

Contracts are greater than one year, and the PAA is not a reasonable approximation of the GMM.

## 13. 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

- No. 65, "Property and Casualty Contracts"

**Commentary on Question:**

*This question tested a candidate's knowledge of the statutory accounting requirements for asbestos and/or environmental claims.*

**Solution:**

(a) Describe three SSAP 65 disclosures that are specifically required for an entity potentially exposed to *asbestos and/or environmental* (A&E) claims.

**Commentary on Question**:

*There are more than three disclosures. The model solution is an example of a full credit solution.*

- The reserving methodology for both case and IBNR reserves.
- The amount paid and reserved for (*losses and loss adjustment expenses for*) A&E claims on a direct, assumed and net of reinsurance basis.
- A description of the lines of business written for which there is potential exposure of a liability from A&E claims *(and the nature of the exposure(s)).*

(b) Describe the contracts with A&E exposures that these disclosures are intended for and those that are specifically excluded from these disclosures.

- Includes only pre-1986 commercial general liability policies or similar policies that did not exclude A&E liabilities.
- Excludes contracts specifically for written A&E liability exposures.

(c) Describe one form of an industry aggregate model that an insurer can use to estimate their A&E liability reserves.

**Commentary on Question**:

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

## 13. Continued

The insurer applies the industry ratio of A&E reserves to A&E payments over recent years to their own A&E payments

## 14. Learning Objectives:

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

**Learning Outcomes:**

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

**Sources:**

*Insurance Regulation*, The Institutes

- Chapter 12 (Insolvency Regulation)

**Commentary on Question:**

*This question tests a candidate's knowledge of insolvency regulation.*

**Solution:**

(a) Describe three concerns regarding this cost shifting.

**Commentary on Question**:

*There are more than three concerns. The model solution is an example of a full credit solution.*

- Consumers might become less concerned about the financial strength of their insurer and will tend to go with the insurer offering the lowest premium.
- Regulators might have less pressure to shut down weak insurers because affected policyholders have protection.
- There is a question regarding fairness of how much of the cost is shifted to all policyholders and taxpayers.

(b) Explain why regulators are cautious about applying to a court to put an insurer under rehabilitation or liquidation.

**Commentary on Question**:

*There are many explanations that could be provided. The model solution is an example of a full credit solution.*

It might preempt the possibility of management correcting the problems or of another entity buying the insurer or the troubled book. Additionally, the courts may reject the regulator's liquidation/rehabilitation request, but the insurer may be harmed by the request becoming public.