

# GI 201 Model Solutions

## March 2026

### 1. Learning Objectives:

1. The candidate will understand the structure and functions of a general insurance company.

### Learning Outcomes:

- (1j) Describe and compare the different types of reinsurance.

### Sources:

General Insurance Company Operations, SOA Study Note, May 2025

### Commentary on Question:

*This item tested a candidate's understanding of the different types of reinsurance.*

### Solution:

- (a) Recommend which type of reinsurance contract offered by QRS Re best addresses the reinsurance needs for each of the three insurers. Justify your recommendations.

### Commentary on Question:

*For Beta, either of per risk, or per occurrence excess of loss was appropriate. The justifications were key to earning full credit. The solution below is an example of a full credit solution.*

Alpha should select QS reinsurance. QRS is an established reinsurer that likely has access to the expertise that Alpha needs. The price for Alpha to obtain this business is to cede it through a QS in which QRS will have a direct financial interest to ensure the business is profitable and grows.

Beta should select Risk XL reinsurance. This protects against large losses to a risk during the policy period. Risk XL works best for product liability as there can be many separate liability claims against the risk from different events.

Gamma should select Agg XL reinsurance. This protects gamma against an accumulation of all losses in the aggregate. While this is typically the most expensive form of reinsurance, it can cede all losses above a selected loss ratio in a year (such as 120% for Gamma). This is the only type of reinsurance that directly addresses Gamma's reinsurance needs.

## 1. Continued

- (b) Compare facultative to treaty reinsurance.

**Commentary on Question:**

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

Both facultative and treaty reinsurance can be proportional or nonproportional reinsurance. However, treaty reinsurance applies to all policies from a line (or lines) of business as specified in the agreement while facultative reinsurance applies to a specific policy or policies that are unusual risks for the insurer (e.g., high value).

## 2. Learning Objectives:

2. The candidate will understand the regulatory environment for general insurance.

### Learning Outcomes:

- (2e) Describe the development of general insurance programs controlled by government or collective insurance industry organizations and their mechanisms of operation.

### Sources:

IAA Risk Book: Non-Life Perils and Coverages, Insurance Regulation Committee, International Actuarial Association, May 2023

Government Provision of General Insurance, SOA Study Note, May 2025

The General Insurance Regulatory Environment, SOA Study Note, May 2025

### Commentary on Question:

*This item tested a candidate's understanding of residual markets.*

### Solution:

- (a) Describe one advantage and one disadvantage of residual market coverage for personal lines automobile from the perspective of residual market policyholders.

#### Commentary on Question:

*There are many potential advantages and disadvantages. Only one of each was required for full credit. The solution below is an example of a full credit solution.*

Advantage: Coverage is available to those that cannot obtain coverage in the the voluntary market.

Disadvantage: The cost of coverage may still be unaffordable as only availability is certain.

- (b) Compare a JUA to a RF with respect to the process for providing coverage.

#### Commentary on Question:

*There are many points of comparison. The comparison was required to be for the process for providing coverage to earn full credit. The solution below is an example of a full credit solution.*

JUA involves a limited number of large companies under contract with the government to issue and service residual market policies. Residual market rates are set by the JUA and are above voluntary market rates. JUA results are pooled and allocated to voluntary market insurers based upon market share.

## 2. Continued

RF involves all voluntary market insurers. They must write all applicants at market approved rates. Business that they believe are underpriced may be ceded entirely to the RF, subject to limits on the amount of business ceded. The insurer services the policy. The results of the reinsurance pool are allocated back to the insurers much like they for a JUA.

- (c) Describe the role of regulatory bodies in the operation of a residual market.

**Commentary on Question:**

*There are many different roles for regulatory bodies in the operation of a residual market. The solution below is an example of a full credit solution.*

Regulatory bodies can set the rules for participation, pricing, and coverage terms for the residual market. They also provide oversight to ensure residual markets are serving their purpose which is to ensure availability of coverage and that residual market rates are above those in the voluntary market.

### 3. Learning Objectives:

2. The candidate will understand the regulatory environment for general insurance.

#### Learning Outcomes:

- (2c) Understand the issue of discrimination and insurance.
- (2d) Discuss the issues regarding usage-based insurance and telematics in automobile insurance.

#### Sources:

Usage Based Insurance and Telematics, SOA Study Note, May 2025

The General Insurance Regulatory Environment, SOA Study Note, May 2025

IAA Risk Book: Non-Life Perils and Coverages, Insurance Regulation Committee, International Actuarial Association, May 2023

#### Commentary on Question:

*This item tested a candidate's understanding of potential issues regarding UBI and telematics for rating general insurance.*

#### Solution:

- (a) Describe two potential concerns of regulators regarding usage-based-insurance (UBI) automobile insurance pricing.

#### Commentary on Question:

*There are more than two potential concerns for regulators. Only two were required for full credit. Concerns that are strictly for insurers and not regulators were not accepted. The solution below is an example of a full credit response.*

Regulators would be concerned about the UBI collected data. This would include questions on who has access to the data, data privacy issues and potential data breaches.

Additionally, regulators would potentially be concerned that there may be inaccuracies in the data collected by the UBI system with little opportunity to correct them. This would end up in rates that are unfairly discriminatory.

- (b) Identify four policyholder benefits of the usage of UBI telematics.

#### Commentary on Question:

*There are more than four policyholder benefits. Only four were required for full credit. Benefits that are strictly for insurers and not policyholders were not accepted. The solution below is an example of a full credit response*

### 3. Continued

- Allowing policyholders to reduce premiums through safe driving habits
  - Tracking and recovery of stolen vehicles
  - Accident assistance
  - Replacement of correlational rating factors not directly related to driving (e.g., age, gender, marital status).
- (c) Assess ABC's system with respect to at least three potential policyholder concerns.

**Commentary on Question:**

*The program described has more than three potential concerns for policyholders. Only three were required for full credit. Concerns that are strictly for insurers and not policyholders were not accepted. The solution below is an example of a full credit response.*

Amount of time the driver appears to be impaired or not focused on driving is subjective. The AI used to detect this may incorrectly flag someone simply based upon their facial features and not being impaired. Policyholders would view this as unfairly discriminatory.

Use of social media information would be viewed by policyholders as an invasion of privacy as it has nothing to do with exposure to losses from driving.

Amount of time driven during the night would be a concern for those that must drive at night because of shift work. This could be considered unfairly discriminatory because policyholders that have shift work, and must drive at night, tend to be at a lower economic status.

#### 4. Learning Objectives:

2. The candidate will understand the regulatory environment for general insurance.

#### Learning Outcomes:

(2a) Describe the functions and goals of the different forms of insurance regulation.

(2b) Describe the protections provided by solvency and insolvency regulation.

#### Sources:

*Fundamentals of General Insurance Actuarial Analysis*, Friedland, 2nd Ed. (2022)

- Chapter 28: Rate Regulation

#### Commentary on Question:

*This item tested a candidate's knowledge of several of the core issues in rate regulation.*

#### Solution:

(a) Describe an "adequate rate" from a regulator's perspective.

#### Commentary on Question:

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

An adequate rate is a rate sufficient to provide for all future claims and expenses associated with the insurance protection that is offered. It should also include a reasonable provision for a profit.

(b) Describe two reasons why an insurer may choose to file inadequate rates.

#### Commentary on Question:

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

An insurer may file inadequate rates to gain market share from competitors.

An insurer may file inadequate rates if it believes the regulator will deny one large increase to achieve adequacy and instead plan to file two separate smaller increases, months apart, to achieve rate adequacy.

(c) Describe how an insurer's use of inadequate rates affects each of the following:

(i) The insurer with inadequate rates

(ii) Policyholders with this insurer

(iii) Other insurers in the market

## 4. Continued

**Commentary on Question:**

*The model solution is an example of a full credit solution. There are other valid responses that would earn full credit.*

- (i) It could deplete the insurer's required capital and threaten its financial viability.
- (ii) A policyholder may not have valid claims paid (or have payment delayed) if the insurer becomes insolvent.
- (iii) Other insurers in the market face the possibility of incurring additional expenses due to significant assessments from the guaranty fund to cover the insolvency of an insurer with inadequate pricing.

## 5. Learning Objectives:

3. The candidate will understand tort law and insurance law with respect to general insurance.

### Learning Outcomes:

- (3a) Describe and interpret the key elements of tort law and the underlying principles of insurance law.
- (3d) Understand mass torts/class action suits and discuss their effect on the general insurance industry.
- (3j) Describe and interpret legal cases/issues included in the syllabus resources.

### Sources:

Tort Law – Topics for General Insurance Actuaries, SOA Study Note, May 2025

Excerpts from Business Law for Insurance Professionals, 1st Edition, Developed for the SOA by The Institutes

### Commentary on Question:

*This item tested a candidate's knowledge of mass/toxic torts and their effect on general insurance.*

### Solution:

Compare these two U.S. mass torts based on the following characteristics:

- (i) Issue with the product
- (ii) Number of defendants and plaintiffs
- (iii) Total cost of compensation to plaintiffs
- (iv) Courts' interpretation of insurance coverage
- (v) Implication of (iv)

### Commentary on Question:

*There are various possible valid answers to this item. The solution below is an example of a full credit solution.*

- (i) The issue for both products was its toxicity.

## 5. Continued

- (ii) The number of defendants and the number of plaintiffs was much larger for the asbestos mass tort than for the tobacco mass tort. The asbestos mass tort had many manufacturers of asbestos materials and many manufacturers that used asbestos in their products as defendants and the workers for these manufacturers as plaintiffs. The tobacco mass tort involved several big tobacco companies as the defendants and the governments of each of the 50 states as plaintiffs.
- (iii) The total (aggregate) compensation to all plaintiffs was similar for both mass torts. They were both in the hundreds of billions of U.S. dollars.
- (iv) The asbestos mass tort was treated by the courts as Premises & Operations Liability insurance coverage. Tobacco was treated by the courts as Products Liability.
- (v) Premises & Operations Liability insurance coverage has an occurrence limit only, with no limit on number of occurrences, so insurance liability was essentially unlimited for the asbestos mass tort. Insurers were responsible for a great amount of the claims. Product Liability policies have an aggregate limit limiting any insurance coverage for the tobacco mass tort. As such, the tobacco manufacturers paid claims from their own assets.

**6. Learning Objectives:**

3. The candidate will understand tort law and insurance law with respect to general insurance.

**Learning Outcomes:**

- (3a) Describe and interpret the key elements of tort law and the underlying principles of insurance law.

**Sources:**

Excerpts from Business Law for Insurance Professionals, 1st Edition, Developed for the SOA by The Institutes

**Commentary on Question:**

*This item tested a candidate's knowledge of insurance contract law and tort law.*

**Solution:**

- (a) Describe the following with respect to an insurance contract.
- (i) Contract of *utmost good faith*
  - (ii) The insured's reliance upon *utmost good faith*
- (i) It is an obligation by both the insurer and the insured to act in complete honesty and disclose all relevant facts.
- (ii) The insured has a right to rely on the insurer to fulfil its promises (i.e., pay valid claims).
- (b) Describe the criteria courts use to make this determination for the following acts of the insured:
- (i) Concealment
  - (ii) Misrepresentation
- (i) First, the insurer (or court) must establish that an insured's failure to disclose information was intentional. Second, the insurer (or court) must establish that this information was material.
- (ii) First, the insurer (or court) must establish that an insured's statement was false. Second, the insurer (or court) must establish that this information was material and that the insurer relied on it.

## 6. Continued

- (c) Describe three of the four essential elements of negligence that must be established by the injured party to prove negligence.

**Commentary on Question:**

*Only three of the four were required for full credit. The solution below is an example of a full credit solution.*

- The defendant breached the duty of care owed to the plaintiff.
- The defendant's act was the proximate cause of the plaintiff's injury or damage.
- The plaintiff suffered actual injury or damage.

- (d) Explain how a person can be sued for the negligence of another party.

A person could be sued for the actions of another party through vicarious liability. This is when one party is held liable due to the other party's relationship to the party. This can be through various types of relationships, such as employer-employee, parent-child and contractual relationships.

- (e) *Statutes of limitations* and *statutes of repose* both limit the time period within which injured parties can file a suit.

Compare these two statutes.

**Commentary on Question:**

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

The difference is the starting point for that time period.

- A statute of limitations bars actions after a specific period from when the cause of action accrued (i.e., injury occurrence or discovery).
- A statute of repose bars actions after a specific period from a specified event such as the date of product manufacture or sale for the product that was the reason for the injury.

## 7. Learning Objectives:

4. The candidate will understand elements of financial economics relevant to general insurance.

### Learning Outcomes:

- (4b) Demonstrate knowledge of asset liability management strategies for general insurance companies.

### Sources:

ALM Strategies for General Insurers, SOA Study Note, May 2025

### Commentary on Question:

*This item tested a candidate's understanding of ALM for general insurance companies.*

### Solution:

- (a) Describe three differences between life insurance products and general insurance products that affect ALM strategies.

#### Commentary on Question:

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

- Life insurance liabilities have a long duration while general insurance liabilities have a short duration, so a GI company matching duration will have lower investment returns (because short duration assets have lower investment risk which leads to lower returns)
  - Life insurance liabilities are expressed in nominal terms while general insurance liabilities are inflation sensitive.
  - Life insurance companies segregate funds so they can match investments to specific products. This is not done for general insurance.
- (b) Critique PQR using only financial statement information, such as reported equity, for this analysis.

#### Commentary on Question:

*The key to this item was noting that it was the issue of using reported equity. This was provided in the item. Stating issues such as "financial statements do not have enough asset detail" or "asset information is not current in financial statements" are not applicable because the PQR analysis was to select an investment portfolio, not to test the current asset portfolio. The solution below is an example of a full credit solution.*

Financial statements do not recognize the value of income for business not yet booked. General insurers companies mainly write policies of 12 months (or less). There is an expectation that they will renew a high proportion of business profitably. This is the insurer's franchise equity.

## 7. Continued

Franchise equity, with all cash flows in the future, is exposed to interest-rate risk and should be managed by ALM.

## 8. Learning Objectives:

5. The candidate will understand the elements of financial reporting for general insurance companies.
7. The candidate will understand the standards of practice and professionalism required of the actuary.

### Learning Outcomes:

- (5d) Understand key terms and considerations related to claim liabilities.
- (7c) Demonstrate knowledge of the general insurance actuarial opinion and the role of the appointed actuary.

### Sources:

- Fundamentals of General Insurance Actuarial Analysis*, Friedland, 2nd Ed. (2022)
- Chapter 24: Claim Liabilities

### Commentary on Question:

*This item tested a candidate's familiarity with the terminology of dates in an actuarial analysis of claim liabilities.*

### Solution:

Identify the following dates for G. Goode's report on HIJ's claim liabilities. Justify your identification for each of these dates.

- (i) Accounting date
- (ii) Valuation date
- (iii) Review date

### Commentary on Question:

*For (i) accounting date, both Dec. 30 and Dec. 31 were acceptable. For (ii), the valuation is not Dec. 31 because the analysis is on Nov. 30 data, which is simply rolled forward to Dec. 30. For (iii) review date, both Jan. 14 and Jan. 15 were acceptable. The solution below is an example of a full credit solution.*

- (i) The accounting date is December 31, 2025, because this is the date of the financial reporting of claim liabilities, which is intended to separate paid amounts from unpaid amounts.
- (ii) The valuation date is November 30, 2025, because G. Goode based their analysis on data as of November 30, 2025. The estimates from the valuation were rolled forward to the accounting date.

## **8. Continued**

- (iii) The review date is January 14, 2026, because this was G. Goode's cutoff date for information to be considered in their report.

## 9. Learning Objectives:

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

### Learning Outcomes:

- (5a) Demonstrate knowledge of the different types of general insurance liabilities.
- (5b) Understand and apply the concepts of insurance accounting.
- (5c) Understand the different financial reporting standards for general insurers.
- (5d) Understand key terms and considerations related to claim liabilities.

### Sources:

*Fundamentals of General Insurance Actuarial Analysis*, Friedland, 2nd Ed. (2022)

- Chapter 24: Claim Liabilities

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

- Chapter 2 (Accounting Concepts for General Insurance)
- Chapter 4 (Accounting for Reinsurance Contracts)

### Commentary on Question:

*This item tested a candidate's knowledge of the components of IBNR in financial reporting and differences between U.S. GAAP and IFRS 17 regarding insurance accounting.*

### Solution:

- (a) Describe three of these components.

#### Commentary on Question:

*There are technically four components. The fourth (provision for claims in transit) is not in the readings as this is minimal with modern claim systems. The solution below is an example of a full credit solution.*

- Provision for incurred but not enough reported (IBNER)
  - Provision for incurred but not yet reported (Pure IBNR or IBNYR)
  - Provision for re-opened claims
- (b) Identify which of PDR and OCL is more likely to be reported for a general insurer preparing both U.S. GAAP and IFRS 17 financial statements. Justify your identification.

## 9. Continued

### **Commentary on Question:**

*A candidate could argue for either. Whether or not the response was acceptable for full credit depended on the justification provided. The solution below is an example of a full credit solution, which reviews two accounting differences to consider for justification based on the assumption that the PAA model under IFRS 17 was used. Note that these two differences are not the only acceptable differences to consider in justification. Only two were required for full credit. Noting that these were under the assumption of the PAA model was not required for full credit.*

*Candidates could earn credit by stating that if the GMM is used under IFRS 17 then there is no OCL as the CSM is reduced to zero and the loss from the contracts is treated as an immediate expense.*

There are two key differences to consider:

1. Under IFRS 17, the definition of qualifying acquisition costs is narrower than under U.S. GAAP. As such, more acquisition costs are expensed when they occur under IFRS 17. Because of this, the IFRS 17 OCL using the PAA model should be less likely than U.S. GAAP PDR.
2. Under IFRS 17, insurance portfolios are more narrowly defined than under GAAP. Because of this, IFRS 17 OCL using the PAA model should be more likely than U.S. GAAP PDR.

Therefore, it technically could be either PDR or OCL dependent on which of the two differences has a greater effect. It is more probable that the second difference has the greater effect, so OCL under IFRS 17 rules using the PAA model should be more likely for a company than PDR under U.S. GAAP rules.

- (c) Compare the components of insurance revenue under IFRS 17 to that for U.S. GAAP.

### **Commentary on Question:**

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

Insurance revenue under IFRS 17 includes:

- Coverage provided in the year (i.e., Earned Premium)
- Release of risk adjustment in the year
- Release of contractual service margin adjustment in the year

Insurance revenue under U.S. GAAP only includes the coverage provided in the year.

## 10. Learning Objectives:

6. The candidate will understand the analysis of a general insurer's financial health.

### Learning Outcomes:

- (6e) Demonstrate knowledge of ORSA.

### Sources:

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

- Chapter 12 (Solvency Monitoring)

IAA Risk Book: Own Risk Solvency Assessment, Insurance Regulation Committee, International Actuarial Association, May 2023

### Commentary on Question:

*This item tested knowledge of topics from ORSA.*

### Solution:

- (a) Describe the following:
- (i) An ORSA reverse stress test
  - (ii) Two reasons that reverse stress tests can be an important part of an ORSA

### Commentary on Question:

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

- (i) Reverse stress testing is a technique used in ORSA to identify scenarios or conditions that would cause the insurer's business model to fail; for example, becoming insolvent or breaching regulatory capital requirements.
  - (ii) Reverse stress testing reveals vulnerabilities that may not be detected through traditional stress/scenario analysis. It also helps management and the board understand the limits of the company's resilience and the circumstances under which solvency could be threatened.
- (b) Provide the following:
- (i) Identification of the three main elements of climate change risk
  - (ii) An example for two of the three main elements identified in (i)

### Commentary on Question:

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

## 10. Continued

- 1(i) Physical risk – 1(ii) increased hurricane or flooding frequency and severity as the world warms;
  - 2(i) Transition risk – 2(ii) potential for assets such as oil reserves to become “stranded” and unusable from government imposed restrictions in response to climate change; and
  - 3(i) Legal risk – 3(ii) the risk that a party will be held liable for contributing to items 1(i) or 2(i).
- (c) Identify two questions that should be asked by the insurer’s ORSA development team as they begin the next ORSA cycle.

**Commentary on Question:**

*There are many possible acceptable questions that could be asked in this scenario. The solution below is an example of a full credit solution.*

- Were cyber risks appropriately prioritized?
- Do cyber models and scenarios need enhancement?

## 11. Learning Objectives:

7. The candidate will understand the standards of practice and professionalism required of the actuary.

### Learning Outcomes:

- (7b) Describe, interpret and apply Standards of Practice as defined by the International Actuarial Association (IAA).

### Sources:

International Standard of Actuarial Practice 1, General Actuarial Practice, International Actuarial Association, Revision adopted Dec. 1, 2018

### Commentary on Question:

*This item tested a candidate's knowledge of the IAA's ISAP 1.*

### Solution:

- (a) Describe any two of the three assessments required by ISAP 1 regarding model validation.

#### Commentary on Question:

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

- The model reasonably fits its intended purpose.
- The model meets its specifications

- (b) Propose changes to the document, by the addition or deletion to the sections listed above, so that it will comply with ISAP 1.

#### Commentary on Question:

*There are several additions to the sections to move it to compliance. One deletion is possible without affecting compliance. A full credit solution was expected to propose three (or more) changes. The solution below is an example of a full credit solution.*

Out of Sections I to VII in the model documentation, Section III (External data sources) could be deleted as it is not specifically required by ISAP 1.

The model documentation should add sections on “Key assumptions” and the “Fitness for intended purpose” as this information is required by ISAP 1.

## 11. Continued

- (c) Identify two purposes of documentation retention under ISAP 1.

**Commentary on Question:**

*There are many purposes of documentation retention based upon ISAP 1. The solution below is an example of a full credit solution.*

- Peer review
- Regulatory review

## 12. Learning Objectives:

6. The candidate will understand the analysis of a general insurer's financial health.

### Learning Outcomes:

- (6a) Demonstrate knowledge of the various considerations for performance measurement of a general insurer.
- (6b) Understand the use of financial health ratios.
- (6c) Understand solvency monitoring for general insurance companies.

### Sources:

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

- Chapter 10 (Performance Measurement for General Insurers)
- Chapter 11 (Financial Ratios for Insurers)

### Commentary on Question:

*This item tested a candidate's understanding measuring the financial performance of a general insurer and its lines of business from financial reporting.*

### Solution:

- (a) Identify four contributing factors for these trends.

#### Commentary on Question:

*There were many compounding factors for this trend over that period. Only four were required for full credit. Note that identifying the fact that equity increased or identifying that equity increased more than premiums is not a contributing factor. This is the outcome that is already provided. The solution below is an example of a full credit solution.*

Capital levels increased beyond that indicated by inflation due to the increased risk from mass torts.

Capital levels increased beyond that indicated by inflation due to the increased risk indicated by modeling of earthquakes and windstorms.

There was increased stringency in insurance regulation that required insurers to add more capital beyond increases due to inflation.

There was a maturing of the insurance industry that created an influx of invested capital while at the same time there was greater competition limiting rate increases.

## 12. Continued

- (b) General insurance companies may allocate equity to blocks of business to estimate the ROE for that block.

Describe four reasons that make this allocation complicated.

**Commentary on Question:**

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

- Allocation of equity to line of business is somewhat arbitrary because equity protects the entire legal entity, not a block of business.
- There are different perspectives for determining the equity to allocate to a line of business: allocate the insurers reported equity, allocate the insurers market value of equity or directly determine a required risk-based capital for the line of business
- Allocation of equity affects the ROE and the return on premium in opposite ways.
- Equity serves to protect the insurer and its policyholders in adverse scenarios when premiums are not enough to pay claims, it is not actually used to produce insurance policies by blocks of business.

- (c) A financial ratio analysis of an insurer assumes that:

- I. Financial ratios should exhibit stability.
- II. Financial ratios should reveal the causes of the outcome.

Explain why each of these assumptions is required.

**Commentary on Question:**

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

- I. Financial ratios should exhibit stability so that analyses can forecast future profitability, liquidity or solvency. An unstable ratio can have random movement mistaken for actual changes.
- II. Insolvencies result from numerous causes. Low amounts of equity and decreases in equity are correlated with insolvency, but they reveal little to insurance regulators regarding the causes. A financial ratio that indicates a cause of financial weakness can be used to