Exam 6 U.S.

CASUALTY ACTUARIAL SOCIETY

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Exam 6-United States

Regulation and Financial Reporting (Nation Specific)

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October 27, 2015

4 HOURS

INSTRUCTIONS TO CANDIDATES

1. This 77.5 point examination consists of 26 problem and essay questions.

2. For the problem and essay questions, the number of points for each full question and part of a question is indicated at the beginning of the question or part. Answer these questions on the lined sheets provided in your Examination Envelope. Use dark pencil or ink. Do not use multiple colors or correction fluid/tape.

   - Write your Candidate ID number and the examination number, 6US, at the top of each answer sheet. For your Candidate ID number, four boxes are provided corresponding to one box for each digit in your Candidate ID number. If your Candidate ID number is fewer than 4 digits, begin in the first box and do not include leading zeroes. Your name, or any other identifying mark, must not appear.

   - Do not answer more than one question on a single sheet of paper. Write only on the front lined side of the paper – **DO NOT WRITE ON THE BACK OF THE PAPER**. Be careful to give the number of the question you are answering on each sheet. If your response cannot be confined to one page, please use additional sheets of paper as necessary. Clearly mark the question number on each page of the response in addition to using a label such as "Page 1 of 2" on the first sheet of paper and then "Page 2 of 2" on the second sheet of paper.

   - The answer should be concise and confined to the question as posed. When a specific number of items is requested, do not offer more items than the number requested. For example, if three items are requested, only the first three responses will be graded.

   - In order to receive full credit or to maximize partial credit on mathematical and computational questions, you must clearly outline your approach in either verbal or mathematical form, showing calculations where necessary. Also, you must clearly specify any additional assumptions you have made to answer the question.

CONTINUE TO NEXT PAGE OF INSTRUCTIONS

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3. Do all problems until you reach the last page of the examination where "END OF EXAMINATION" is marked.

   All questions should be answered according to the United States statutory accounting practices and principles, unless specifically instructed otherwise. SAP refers to Statutory Accounting Principles, and GAAP refers to Generally Accepted Accounting Principles. NAIC refers to the National Association of Insurance Commissioners.

4. Prior to the start of the exam you will have a **fifteen-minute reading period** in which you can silently read the questions and check the exam booklet for missing or defective pages. A chart indicating the point value for each question is attached to the back of the examination. Writing will NOT be permitted during this time and you will not be permitted to hold pens or pencils. You will also not be allowed to use calculators. The supervisor has additional exams for those candidates who have defective exam booklets.

5. Your Examination Envelope is pre-labeled with your Candidate ID number, name, exam number and test center. Do not remove this label. Keep a record of your Candidate ID number for future inquiries regarding this exam.

6. Candidates must remain in the examination center until two hours after the start of the examination. The examination starts after the reading period is complete. You may leave the examination room to use the restroom with permission from the supervisor. To avoid excessive noise during the end of the examination, candidates may not leave the exam room during the last fifteen minutes of the examination.

7. At the end of the examination, place all answer sheets in the Examination Envelope. Please insert your answer sheets in your envelope in question number order. Insert a numbered page for each question, even if you have not attempted to answer that question. Nothing written in the examination booklet will be graded. Only the answer sheets will be graded. Also place any included reference materials in the Examination Envelope. BEFORE YOU TURN THE EXAMINATION ENVELOPE IN TO THE SUPERVISOR, BE SURE TO SIGN IT IN THE SPACE PROVIDED ABOVE THE CUT-OUT WINDOW.

8. If you have brought a self-addressed, stamped envelope, you may put the examination booklet and scrap paper inside and submit it separately to the supervisor. It will be mailed to you. Do not put the self-addressed stamped envelope inside the Examination Envelope. Interoffice mail is not acceptable.

   If you do not have a self-addressed, stamped envelope, please place the examination booklet in the Examination Envelope and seal the envelope. You may not take it with you. Do not put scrap paper in the Examination Envelope. The supervisor will collect your scrap paper.

   Candidates may obtain a copy of the examination from the CAS Web Site.

   All extra answer sheets, scrap paper, etc. must be returned to the supervisor for disposal.

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9. Candidates must not give or receive assistance of any kind during the examination. Any cheating, any attempt to cheat, assisting others to cheat, or participating therein, or other improper conduct will result in the Casualty Actuarial Society and the Canadian Institute of Actuaries disqualifying the candidate's paper, and such other disciplinary action as may be deemed appropriate within the guidelines of the CAS Policy on Examination Discipline.

10. The exam survey is available on the CAS Web Site in the "Admissions/Exams" section. Please submit your survey by November 14, 2015.

END OF INSTRUCTIONS

1. (2.25 points)

   a. (1 point)

      According to McCarty, identify the two age groups where insureds are disparately impacted by the use of credit scoring and briefly describe the reasoning.

   b. (0.5 point)

      Other than age groups, identify one group of insureds that McCarty claims is disparately impacted by the use of credit scoring and briefly describe the reasoning.

   c. (0.75 point)

      Empirical studies have shown that those with different credit scores have an observed difference in total insurance losses.

      Identify a key metric and describe how the metric could be driving these loss differences.

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2. (2.5 points)

   a. (1 point)

      Identify four reasons why a state might disapprove a rate or form filing.

   b. (0.5 point)

      Describe one argument in favor of having a no-file law in every U.S. state.

   c. (1 point)

      A personal lines insurer files rates with the state department of insurance 45 days after it begins to use them. The insurer is not in compliance with the state's rate filing requirements.

      Identify two types of rate filing laws that could exist in this state, and briefly describe how the insurer's filing activity would not comply with each.

CONTINUED ON NEXT PAGE

3. (2.5 points)

   a. (1 point)

      Briefly describe one distinct rationale for each of the following elements in a state insurance solvency regulatory system:

      - Minimum capital requirements
      - A state guaranty fund
      - Reinsurance transactions require regulatory approval
      - Insurers must submit annual financial statements

   b. (0.5 point)

      Briefly describe two reasons for the development of the Reinsurance Regulatory Modernization Framework of 2008.

   c. (1 point)

      Describe two provisions of the Nonadmitted and Reinsurance Reform Act of 2010.

CONTINUED ON NEXT PAGE

4. (2 points)

   Consider the following companies seeking insurance coverage. For each scenario, recommend the optimal way to manage the insurance risk and describe the rationale.

   a. (1 point)

      Company A is a large corporation seeking to reduce its insurance costs. It has a dedicated risk manager and can be described as a large, stable insurance risk. It has loss carry-forwards from prior tax years.

   b. (1 point)

      Company B has been in operation for two years and currently operates in several states. It is having difficulty obtaining liability insurance coverage and is interested in partnering with companies with similar operations.

CONTINUED ON NEXT PAGE

5. (3 points)

   a. (0.5 point)

      Describe an A.M. Best interactive rating.

   b. (1 point)

      Briefly describe two advantages and two disadvantages for a mid-size mutual insurance company to obtain an interactive rating from A.M. Best.

   c. (1.5 points)

      Fully describe one argument in favor of and one argument against the following statement:

      "A.M. Best is, effectively, a regulator of the insurance industry."

CONTINUED ON NEXT PAGE

6. (3.25 points)

   a. (0.75 point)

      Briefly describe three key goals of insurance regulation.

   b. (1 point)

      As part of its modernization plan, the NAIC has undertaken (or plans to undertake) several initiatives to improve state-based insurance regulation. Describe two of these initiatives.

   c. (1.5 points)

      Describe one argument in favor of and two arguments against the following statement:

      "The financial crisis of 2007-2008 demonstrated that insurance should be regulated at the federal level."

CONTINUED ON NEXT PAGE

7. (2 points)

   a. (1 point)

      Identify four major parties involved in asbestos personal injury litigation.

   b. (1 point)

      For each of the parties identified in part a. above, briefly describe one distinct concern related to litigation outcomes.

CONTINUED ON NEXT PAGE

8. (2 points)

   a. (0.5 point)

      Briefly describe two ways in which the National Flood Insurance Program (NFIP) is funded.

   b. (1 point)

      Fully describe how the Biggert-Waters Flood Insurance Reform Act of 2012 addressed premium subsidies within the NFIP.

   c. (0.5 point)

      Describe how the Biggert-Waters Flood Insurance Reform Act of 2012 addressed the participation rate in the NFIP.

CONTINUED ON NEXT PAGE

9. (2.25 points)

   a. (0.5 point)

      Describe how a guaranty fund provides services to policyholders.

   b. (0.5 point)

      Briefly describe two challenges that could arise for state guaranty funds if a national multiline insurer were to become insolvent.

   c. (0.5 point)

      Explain why insurers are prohibited from including information on guaranty funds in their marketing materials.

   d. (0.75 point)

      If a state were to eliminate its guaranty fund, briefly describe a potential consequence to each of the following stakeholders:

      - Policyholders
      - Insurers
      - Regulators

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10. (1.75 points)

a. (1 point)

Identify and briefly describe two goals of the Terrorism Risk Insurance Act (TRIA).

b. (0.5 point)

Briefly describe two justifications for homeowners insurance not being covered under TRIA.

c. (0.25 point)

Briefly describe one justification for reinsurance not being covered under TRIA.

CONTINUED ON NEXT PAGE

11. (3 points)

   a. (1.5 points)

   Discuss the motivation for creating each of the following government programs:

   - Federal Crop Insurance Program
   - Longshore and Harbor Workers' Compensation Act of 1927
   - Assigned Risk Plan

   b. (1.5 points)

   Evaluate the effectiveness of each of the programs listed above.

CONTINUED ON NEXT PAGE

12. (2 points)

a. (1 point)

Describe two rationales for the existence of state funds for workers' compensation insurance.

b. (0.5 point)

Briefly describe two reasons why state funds for workers' compensation might not be necessary.

c. (0.5 point)

Besides exclusive state funds, identify two other ways in which a state government may be involved in providing workers' compensation insurance coverage.

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13. (2.5 points)

An insurance company writes multiples lines of business, including both commercial automobile and workers' compensation. Given the following information from the company's Insurance Expense Exhibits (IEEs) and Annual Statements (all figures are in thousands of dollars):

All Lines of Business	**2013**	**2014**
Policyholders' surplus	15,200	18,500
Net loss and LAE reserves	31,200	36,700
Net unearned premium reserves	7,600	9,000
Net earned premium	16,700	20,000

Commercial Automobile	**2013**	**2014**
Net loss and LAE reserves	2,000	2,300
Net unearned premium reserves	3,400	3,700
Net earned premium	6,200	6,600

Workers' Compensation	**2013**	**2014**
Net loss and LAE reserves	3,000	3,000
Net unearned premium reserves	1,500	1,500
Net earned premium	5,000	5,000

a. (1.5 points)

Calculate the amount of policyholders' surplus that would be allocated to commercial automobile and to workers' compensation in the 2014 IEE.

b. (1 point)

Describe one argument in favor of and one argument against the method used to allocate surplus by line of business in the IEE.

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14. (5 points)

An insurance company implemented new claims procedures at the end of 2010 to expedite its claims resolution process. The actuary has been asked to review various claims metrics to determine if these new claims procedures resulted in the expected improvement in resolution speed. Given the following excerpts from Schedule P and additional historical claims-related information:

PART 5, Section 1 Cumulative Number of Claims Closed with Loss Payment Direct and Assumed at Year-End					
Year	2010	2011	2012	2013	2014
2010	400	600	800	1,000	1,200
2011	XXX	500	700	1,000	1,400
2012	XXX	XXX	800	1,500	2,200
2013	XXX	XXX	XXX	1,100	2,000
2014	XXX	XXX	XXX	XXX	1,400

PART 5, Section 2 Number of Claims Outstanding Direct and Assumed at Year-End					
Year	2010	2011	2012	2013	2014
2010	800	900	800	600	400
2011	XXX	1,100	1,100	900	600
2012	XXX	XXX	1,000	800	300
2013	XXX	XXX	XXX	1,600	700
2014	XXX	XXX	XXX	XXX	1,700

PART 5, Section 3 Cumulative Number of Claims Reported Direct and Assumed at Year-End					
Year	2010	2011	2012	2013	2014
2010	1,400	1,800	2,000	2,100	2,100
2011	XXX	1,700	2,000	2,200	2,300
2012	XXX	XXX	2,000	2,600	2,800
2013	XXX	XXX	XXX	3,000	3,100
2014	XXX	XXX	XXX	XXX	3,400

PART 1 - Earned Premium		
Year	Direct and Assumed	Ceded
2010	5,000	1,000
2011	5,400	1,080
2012	6,100	1,220
2013	6,400	1,600
2014	6,600	1,650

Reported Claim Frequency Per $ of Direct and Assumed Earned Premium at Year-End					
Year	2010	2011	2012	2013	2014
2010	28.0%	36.0%	40.0%	42.0%	42.0%
2011	XXX	31.5%	37.0%	40.7%	42.6%
2012	XXX	XXX	32.8%	42.6%	45.9%
2013	XXX	XXX	XXX	46.9%	48.4%
2014	XXX	XXX	XXX	XXX	51.5%

Average Closed Claim Severities at Year-End					
Year	2010	2011	2012	2013	2014
2010	35.00	30.00	25.00	22.00	20.83
2011	XXX	34.00	34.29	28.00	22.14
2012	XXX	XXX	22.50	25.33	20.00
2013	XXX	XXX	XXX	19.09	22.00
2014	XXX	XXX	XXX	XXX	14.29

a. (1 point)

Briefly describe the trends in claim frequency and average closed claim severity, and identify one potential driver for each observed trend.

b. (2 points)

Construct the claims closure rate triangle, and briefly describe two observations.

<<QUESTION 14 CONTINUED ON NEXT PAGE>>

14. (continued)

c. (0.5 point)

Briefly describe two pieces of additional information that might be considered in forming a conclusive opinion regarding the effectiveness of the claims procedure changes.

d. (1.5 points)

One purpose of Schedule P is to facilitate the review of trends in claim frequency and severity. Briefly describe three other functions of Schedule P and, for each function, identify which Part(s) would provide the necessary information.

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15. (5.75 points)

Consider the following series of events:

- An insurance company began operating on January 1, 2014. The company began with cash of $200 and policyholders' surplus of $200.
- On April 1, 2014, the company wrote its first and only insurance policy — a 12-month workers' compensation policy — for $1,000 of premiums and paid $100 of commission to the agent.
- On May 1, 2014, a loss occurred, and a direct case loss reserve of $400 and direct IBNR loss reserve of $100 were posted. The ultimate loss of this claim remained unchanged throughout the year.
- Unearned premium reserves were calculated under the monthly pro rata method, and there are no income taxes.

Reinsurance information

- On January 1, 2014, the company entered into a quota share reinsurance agreement with an authorized, unaffiliated reinsurer, covering 50% of all business written during 2014, excluding LAE.
- The reinsurance contract stated that the reinsurer would pay a fixed ceding commission of 15%.
- At the middle of each month from June through December 2014, $50 was paid to the claimant to cover the May 1, 2014 loss, and the reinsurance recoverable was billed and due on that day.
- The reinsurer reimbursed the company each month's paid loss on the 120th day after the due date and did not dispute any reinsurance recoverable on paid losses.

Investment information

- On February 1, 2014, the company bought two shares of common stock of an unaffiliated company for $100 a share. Six months later, the company received cash dividends of $10 ($5 per share), and then sold one share of common stock for $95 on the same day.
- As of year-end 2014, the fair value of the common stock is $98, and no other investments were made during 2014.

Incurred expense information (from Company's 2014 IEE Part 1)	
Loss adjustment expense	$30
Taxes, licenses & fees	$21
Investment expenses	$8
General expenses	$40

<<QUESTION 15 CONTINUED ON NEXT PAGE>>

15. (continued)

a. (2.25 points)

Identify and calculate the two changes in the company's surplus that do not flow through to the Statement of Income in the company's 2014 Annual Statement.

b. (2.5 points)

Calculate the company's 2014 change in policyholders' surplus.

c. (1 point)

Discuss two major factors that contributed to the change in the company's policyholders' surplus during 2014.

CONTINUED ON NEXT PAGE

16. (4.25 points)

Given the following information for a monoline workers' compensation insurance company (all figures in following two tables are in thousands of dollars):

Calendar Year	2014	2013
Earned Premium	550,000	500,000
Other Underwriting Expenses	110,000	90,000
Investment Income	55,000	65,000
Premium Deficiency Reserve	37,000	0

Incurred Loss & LAE		
Years in Which Losses Were Incurred	As of December 31, 2014	As of December 31, 2013
Prior	2,047,000	1,890,000
2013	353,000	265,000
2014	287,000	-
Total	2,687,000	2,155,000

- A tabular discount of 3%, in conjunction with a defined set of U.S. Life tables, is used to book total permanent loss reserves.
- The company offers large deductible options. Deductible recoverables as of December 31, 2014 are $800,000 on paid losses and $1,200,000 on unpaid losses.
- A large factory explosion occurred on January 15, 2015. Initial estimates of total insured loss from that event is $50 million.
- The company does not have any assumed or ceded reinsurance agreements.
- The accounting date of the financial statements is December 31, 2014 and statements are issued on March 1.

a. (1.25 points)

Identify the names of the five Notes to Financial Statements that would specifically reference the information provided above and appear in the company's 2014 Notes to Financial Statements.

b. (1.5 points)

For three of the Notes identified in part a. above, provide any numeric values and descriptions that should be included within the Note.

c. (1.5 points)

For three of the Notes identified in part a. above, explain how each could assist a user of the financial statements in the evaluation of the company's financial health.

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17. (3 points)

Assume an insurer's investment portfolio consists of holdings from 12 issuers as shown below:

Issuer Number	Unaffiliated Bonds NAIC Class 02	Unaffiliated Common Stock	Total Assets Subject to Asset Concentration
1	5,000	2,000	7,000
2	4,500		4,500
3	4,000	250	4,250
4	4,000		4,000
5		2,000	2,000
6		1,500	1,500
7	1,000	300	1,300
8		1,250	1,250
9	500	700	1,200
10		900	900
11	550	200	750
12	600		600
Total	20,150	9,100	29,250

NAIC Bond Size Adjustment Factor Weights

	# of Bond Issuers	Weights
First 50	8	2.5
Next 50	0	1.3
Next 300	0	1
More than 400	0	0.9
Total	8	

RBC Factors by Asset Category

Asset Category	RBC Factor
Unaffiliated Bonds NAIC Class 02	0.01
Unaffiliated Common Stock	0.15

a. (1.5 points)

Calculate the NAIC's R_1 risk charge.

b. (1 point)

Calculate the NAIC's R_2 risk charge.

c. (0.5 point)

Briefly describe two ways the insurer could reduce the R_1 risk charge without reducing the size of the bond portfolio.

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18. (4.25 points)

A personal lines insurance company entered into a commutation with a reinsurer that covered all claims occurring in 2012 for a price of $2,000 effective December 31, 2014. The information below is from the preliminary financial statements for year-end 2014, prior to the commutation:

- One-Year Loss Reserve Development: $10,750
- Prior Year Policyholders' Surplus: $55,500
- Current Year Policyholders' Surplus: $50,000
- Current Year Net Premiums: $12,500
- The following payments and reserves for accident year 2012:

		at 12 Months	at 24 Months	at 36 Months
Paid Losses	Gross	$6,000	$9,000	$10,500
	Ceded	$1,500	$2,250	$2,625
	Net	$4,500	$6,750	$7,875
Reserves (case + IBNR)	Gross	$2,500	$3,750	$4,375
	Ceded	$2,000	$3,000	$3,500
	Net	$500	$750	$875
Ultimate Loss	Gross	$8,500	$12,750	$14,875
	Ceded	$3,500	$5,250	$6,125
	Net	$5,000	$7,500	$8,750

a. (0.75 point)

Restate the accident year 2012 ceded paid loss, ceded loss reserve, and ceded ultimate loss after the commutation.

b. (3 points)

Calculate IRIS ratios 2, 7, and 11 after the commutation.

c. (0.5 point)

Based on the results in part b. above, briefly describe how the examination of two of the remaining IRIS ratios may help the regulator better understand the financial health of the insurance company.

CONTINUED ON NEXT PAGE

19. (5.25 points)

The following information is available as of December 31, 2014 for a U.S.-domiciled multinational insurance company (all figures are in millions of dollars):

- IFRS Assets: $800
- Total Adjusted Capital: $335
- Minimum Capital Requirement (MCR): $200
- The following Risk Based Capital Charges:

R_0	$26
R_1	$78
R_2	$104
R_3	$78
R_4	$260
R_5	$156

- R_3 and R_4 have been adjusted for reinsurance recoverables.
- The risk free rate is 0.75%, and the illiquidity premium is 0.25%.
- The cost of capital above the risk-free rate is 6%.
- Capital is assumed to be held until the end of the period.
- The following table provides the one-year value at risk (VaR) model results:

Percentile	VaR
95.0%	$200
99.0%	$300
99.5%	$350
99.9%	$400

- The following table provides the expected liability payment schedule, with all payments occurring mid-year:

Year	Payment
2015	$200
2016	$100
2017	$50
Total	$350

a. (1.5 points)

Calculate the Authorized Control Level, and describe the resulting actions of both the regulator and the company under the RBC Model Act.

b. (2.75 points)

Determine the actions of the regulator based on the calculations underlying Solvency II quantitative capital requirements.

c. (1 point)

Describe two differences between RBC and Solvency II that could result in different levels of regulatory action.

CONTINUED ON NEXT PAGE

20. (3.75 points)

In tax year 2014, an insurer maximized its after-tax income by holding an optimal mix of $400 million of taxable bonds with a yield of 4% and $600 million of tax-free municipal bonds with a yield of 3%. Other taxable income in 2014 was a loss of $3.4 million.

On January 1, 2015, 20% of taxable bonds and 10% of tax-free municipal bonds mature and the insurer buys new bonds with the proceeds. In 2015, bond yields on new purchases will be as follows:

- Yield on new taxable bonds = 5.5%.
- Yield on new tax-free municipal bonds = 4%.

Other taxable income is expected to remain at a loss of $3.4 million.

a. (3.25 points)

Calculate the amount the insurer should invest in taxable bonds and tax-free municipal bonds to maximize its 2015 after-tax income. The insurer must invest positive dollars (greater than $0) in both taxable and tax-free bonds.

b. (0.5 point)

Other than tax incentives, briefly describe two influences on the investment strategy of a property-casualty insurance company.

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21. (2 points)

Management of an insurance company has decided to replace its Appointed Actuary because of disagreements over substantive wording in the Statement of Actuarial Opinion (SAO).

The 2014 SAO Instructions require specific steps be taken as a result of this change in Appointed Actuary. Describe four of these steps.

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22. (2.25 points)

Given the following information for an insurance company (all figures in millions of dollars):

		Actuary's Range of Central Estimates		
	Carried	Low	Point	High
Net Loss & LAE Reserve	$590	$600	$650	$700
Materiality Standard	$100			

	2014	2013	2012	2011	2010
Year-End Surplus	$500	$450	$400	$350	$300
1-Year Development	$27	$29	$17	$19	-$15

The Appointed Actuary has prepared a Statement of Actuarial Opinion (SAO) that includes the following OPINION section:

OPINION

In my opinion, the amounts carried in Exhibit A on account of the items identified:

A. Meet the requirements of the applicable insurance laws

B. Are computed in accordance with accepted actuarial standards and principles

C. Are less than the minimum amount I consider necessary to be within a range of reasonable estimates of the unpaid loss obligations of the Company under the terms of its contracts and agreements

a. (0.75 point)

Identify three errors in the wording of the OPINION section of the SAO.

b. (0.5 point)

Based only on the information above, evaluate whether risk of material adverse deviation (RMAD) exists.

c. (1 point)

Calculate the one-year reserve development results for each year and propose language for the one-year reserve development disclosure in the Actuarial Opinion Summary.

CONTINUED ON NEXT PAGE

23. (4 points)

A new Appointed Actuary was appointed for this year's Statement of Actuarial Opinion (SAO).

Consider the following information for the insurance company (all figures in millions of dollars):

Surplus	$11.0
Carried Net Loss & LAE Reserves	$14.6
Range of Reasonable Net Loss & LAE estimate	$14.4 - $15.7
Authorized Control Level	$5.0
Surplus required to maintain current financial strength rating	$9.9

- IRIS ratios 11, 12 and 13 are within the range of usual values.
- The report of the prior Appointed Actuary was unavailable for review.

a. (2 points)

Propose and calculate four materiality standards that may be considered for purposes of preparing the SAO. Use a different metric for each standard.

b. (0.5 point)

Justify the selection of one materiality standard from part a. above to be considered when evaluating whether there is a risk of material adverse deviation.

c. (1 point)

The Appointed Actuary has selected a materiality standard of $0.9 million. Describe two reasons why the Appointed Actuary might conclude that a risk of material adverse deviation exists.

d. (0.5 point)

Describe the disclosures with respect to methods and assumptions that should be included in the RELEVANT COMMENTS section of the SAO.

CONTINUED ON NEXT PAGE

24. (2.5 points)

a. (0.5 point)

Describe the concept of materiality as it relates to an actuarial work product.

b. (0.5 point)

Briefly describe one reason why it may not be feasible to accurately determine a range of all possible outcomes when establishing a reserve range. Identify an example for the reason.

c. (1.5 points)

For each type of insurance below, describe how the two indicated risk factors could interact and influence the Appointed Actuary's conclusion of whether there are significant risks and uncertainties that could result in material adverse deviation.

Type of Insurance	Risk Factors
1) Coastal Homeowners	• Growth in a soft market • Lack of available experience
2) Mortgage	• Change in sustained unemployment rate • Change in home prices
3) Automobile	• Currency exchange rate • Availability of repair parts

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25. (2 points)

a. (1 point)

Identify four items that the Appointed Actuary should disclose in the SCOPE paragraph of the Statement of Actuarial Opinion (SAO).

b. (1 point)

A company discounts its workers' compensation reserves. Identify four items that an actuary should disclose related to the discounting of reserves in an actuarial communication.

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26. (2.5 points)

A primary insurance company is considering the following reinsurance contracts.

Contract #1
Summary of Reinsurance Terms

Date Incepted	July 1, 2013
Reinsurance Term	12 months
Cession	80% Quota Share
Reinsurance Premium	$10.4 million
Maintenance Fee	$100,000
Provisional Ceding Commission	22% provisional commission. Adjusts according to following schedule: 19%, if Loss Ratio (LR) = 71%; 28%, if LR $\leq$ 62%; 90% - LR, if 62% < LR < 71%
Profit Commission	None
Loss Ratio Cap	315%
Brokerage	5%
Underwriting Expenses	2%

Contract #2
Summary of Reinsurance Terms

Date Incepted	July 1, 2013
Reinsurance Term	12 months
Reinsurance Layers	Layer 1 - 75% of $1 million excess of $3 million Layer 2 - 56% of $5 million excess of $5 million
Maintenance Fee	$70,000
Reinsurance Premium	$2.4 million for Layers 1 & 2
Ceding Commission	15%
Profit Commission	5% Profit Commission after a reinsurer's margin of 12.5%
Brokerage	8%
Underwriting Expenses	4%

- The contracts have commutation clauses which state that they be will be commuted after seven years unless the cedent pays maintenance fees.

<<QUESTION 26 CONTINUED ON NEXT PAGE>>

26. (continued)

a. (1.5 points)

Assess whether each contract meets the "reasonably self-evident" criteria for reinsurance risk transfer.

b. (0.5 point)

Briefly describe the requirements for a contract to qualify for reinsurance accounting treatment under GAAP.

c. (0.5 point)

Briefly explain the rationale for whether each of the following should be included in risk transfer analysis:

- Maintenance fee
- Profit commission

END OF EXAMINATION

Exam 6-U.S.
Regulation and Financial Reporting (Nation Specific)

POINT VALUE OF QUESTIONS

QUESTION	VALUE OF QUESTON	SUB-PART OF QUESTION (a)	(b)	(c)	(d)	(e)	(f)	(g)
1	2.25	1.00	0.50	0.75				
2	2.50	1.00	0.50	1.00				
3	2.50	1.00	0.50	1.00				
4	2.00	1.00	1.00					
5	3.00	0.50	1.00	1.50				
6	3.25	0.75	1.00	1.50				
7	2.00	1.00	1.00					
8	2.00	0.50	1.00	0.50				
9	2.25	0.50	0.50	0.50	0.75			
10	1.75	1.00	0.50	0.25				
11	3.00	1.50	1.50					
12	2.00	1.00	0.50	0.50				
13	2.50	1.50	1.00					
14	5.00	1.00	2.00	0.50	1.50			
15	5.75	2.25	2.50	1.00				
16	4.25	1.25	1.50	1.50				
17	3.00	1.50	1.00	0.50				
18	4.25	0.75	3.00	0.50				
19	5.25	1.50	2.75	1.00				
20	3.75	3.25	0.50					
21	2.00	2.00						
22	2.25	0.75	0.50	1.00				
23	4.00	2.00	0.50	1.00	0.50			
24	2.50	0.50	0.50	1.50				
25	2.00	1.00	1.00					
26	2.50	1.50	0.50	0.50				
TOTAL	77.50							

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EXAM 6US SAMPLE ANSWERS AND EXAMINER'S REPORT

GENERAL COMMENTS:

- Candidates should note that the instructions to the exam explicitly say to show all work; graders expect to see enough support on the candidate's answer sheet to follow the calculations performed. While the graders made every attempt to follow calculations that were not well-documented, lack of documentation may result in the deduction of points where the calculations cannot be followed or are not sufficiently supported.
- Incorrect responses in one part of a question did not preclude candidates from receiving credit for correct work on subsequent parts of the question that depended upon that response.
- Candidates should try to be cognizant of the way an exam question is worded. They must look for key words such as "briefly" or "fully" within the problem. We refer candidates to the Future Fellows article from December 2009 entitled "The Importance of Adverbs" for additional information on this topic.
- Some candidates provided lengthy responses to a "briefly describe" question, which does not provide extra credit and only takes up additional time during the exam.
- On the other hand, some candidates provided "list-type" responses for "describe" or "fully describe", which do not demonstrate the candidate's knowledge.
- Generally, candidates were fairly well prepared for this exam. However, candidates should be cautious of relying solely on study manuals, as some candidates lost credit for failing to provide basic insights that were contained in the syllabus readings.

EXAM STATISTICS:

Number of Candidates	502
Available Points	77.5
Pass Score	52.0
Number of Passing Candidates	174
Effective % Passing	37.18

EXAM 6US SAMPLE ANSWERS AND EXAMINER'S REPORT

QUESTION 1	
TOTAL POINT VALUE: 2.25	**LEARNING OBJECTIVE: A1**

SAMPLE ANSWERS

Part a: 1 point

Any one of the following:

- The elderly and young adults. Young adults typically have not had the time to build a good credit score or credit history. The elderly typically use less credit, and if they are on a fixed income they may also have lower income which also correlates to a lower credit score. If credit scoring is used to determine rates, these groups will be at a disadvantage.
- Young people – have not built up enough credit history for accurate score; Old people – little credit usage
- The elderly -> they may be living off of limited fixed retirement benefits, overdue on credit card bill is likely (must wait for social security check to arrive) -> lower credit score -> disparately impacted; the youthful -> more likely to have not yet established any credit history -> lack of credit history -> lower credit score -> disparately impacted

Part b: 0.5 point

Any one of the following:

- People of lower socioeconomic class / low income / poorer people – may have lower score due to lack of available lines of credit b/c of their income, for example. This drives up premiums for something that is beyond their control.
- Certain religious faiths which don't support the use of credit / usury / interest, so they wouldn't have fair credit scores – doesn't tell about driving ability.
- Race / minorities - McCarty claims credit scores are a proxy for race and socioeconomic status. Poorer minorities are more likely to have a low credit score and insurance companies are effectively increasing their rates.
- Recently divorced – they had credit w/ their spouse that they most likely had to cancel.
- Recently divorced -> when recently divorced, setting up new life and accounts in your name and finding new place to live. All of this results in credit report hits which lowers score. Also # of accounts open recently is a field most insurance credit scores use.
- New citizen / new immigrants – those who just moved to the US have no or short credit history, therefore probably won't have high credit score. They would be disparately affected.
- Disabled / handicapped – more difficult to find jobs and keep steady income. Creditors may be less likely to provide them loans.

Part c: 0.75 point

Any one of the following:

- Frequency of claims / percent of accidents reported / willingness to file a claim / risk absorbing – people with high credit scores may pay for smaller claims out of pocket while low credit scores may file a claim with insurance company. Therefore those with high scores will have lower total losses since they are paying for some claims themselves.
- Income / wealth / affluent / socioeconomic status / more resources / wage – Individuals with higher income tend to have higher scores. Higher income individuals are more likely to retain smaller losses as opposed to lower income insureds. This translates to lower total insurance losses for higher income (higher credit scores) insureds and vice versa for lower income (lower credit scores) insureds.

- Responsible / carelessness / self risk control / managing credit score – people with lower credit scores are thought to be not very responsible in their finances. That could translate into irresponsible driving behaviors, which lead to higher expected losses. People with higher credit scores -> more responsible / careful drivers -> less expected losses.
- Conservative / risk appetite / risk averse – low credit score people may be very low in risk absorbing so they report every claim eligible for reimbursement. High credit score people may chose not to report small claims so that their insurance rates won't increase.
- Late payments / paying bills on time / pay off debt / number of days overdue / accounts overdue / balances over 90 days overdue – paying on time is a key metric to your credit score and it speaks to a person's responsibility. Someone who is more responsible is generally more aware and avoids losses thus lowering their total losses.
- Number of inquiries / attempts to open credit cards – one would seek to open new credit accounts to relieve one's financial distress temporarily. This lowers the credit score and this person is more likely to file a claim since he/she is unlikely to be able to absorb further financial damages.
- Outstanding balance to available credit – if the ratio is too high the insured maybe using too much of their available credit, which can hurt their credit score. The insured maybe using available credit due to low income and may not be able to absorb small losses. Therefore, they will file more small claims, have higher frequency, and have higher total insurance losses.
- Length of time credit lines have been open – if an 18 year old driver pulls a credit score, its likely to be low since they probably haven't had lines of credit open for too long. They also have limited driving experience due to age, which could drive up their total insurance loss.
- Age – credit score is proportional to age in certain range. Since younger (due to inexperience) / older (slower reaction time) drivers are more likely to have accidents, the credit score is a proxy of age that drives the loss difference (see part a.).
- Deductible – people with higher credit score tend to buy coverage with higher deductible. As a result their incurred losses are smaller because they are on net of deductible basis.
- Education – those with less education may not understand the use of credit and refuse to use credit. They may be more likely to default since they are not aware of the consequences. For those reasons, those with less education may have a bad credit score. On the other side, poor education may lead to poor risk control, since the technique for risk control is not common sense to everyone. Therefore, being with less education may be accompanied with higher loss and a bad credit score at the same time. That explains how education causes the differences in credit scores and loss costs.
- Ethnicity / race – certain ethnic groups are disproportionately poor and have disproportionately low credit scores. Those less well-off may not have the ability to pay for smaller losses out of pocket. This will increase their total insurance losses compared to wealthy individuals.
- Location car is most frequently parked – minority groups appear to be disparately impacted by the use of credit scoring. Over time, it is argued that socioeconomic barriers, as well as unfair lending practices against these groups, have led to worse credit situations. Urban areas, which tend to have higher populations of minorities, also have higher population density, which leads to more frequent losses.
- Change in credit score – if an insured's credit score decreases over time, that could

indicate that insured is becoming more careless or less responsible. This decrease in carelessness could result in a higher loss expectation. Conversely, an increase in credit score indicates less carelessness, which would result in lower loss expectancy.

EXAMINER'S REPORT

Generally the candidates scored very well on parts a and b. Part c asked candidates to identify a metric and tie it to loss and credit differences. Candidates had difficulties providing enough details regarding the metric or how it was tied to losses or credit score differences.

Part a

Candidates were asked for the two age groups specifically cited by McCarty and why those groups would be impacted by the use of credit. The candidate needed to name both young and elderly insureds (or similar name) and state the reason for lower credit scores among those two groups. Common errors included:

- While income is correlated to credit scores, income is not directly used to calculate credit score. So income by itself is not sufficient.
- Candidates repeated the same age group, did not give an age group cited by McCarty, or did not give a second age group.

Part b

Candidates were asked specifically for one other group mentioned by McCarty and why that group could be impacted by the use of credit. Common errors included:

- Candidates who answered "disabled" generally cited income for the reason for lower credit scores. While income is correlated to credit scores, income is not directly used to calculate credit score. So income by itself is not sufficient.
- Picked a group that was not mentioned by McCarty.

Part c

Candidates were expected to identify a metric with differences among credit scores and describe how it drives loss differences. Candidates could either cite McCarty's argument for why lower income individuals have higher reported loss frequency, or candidates could defend the use of credit's correlation to loss. Most candidates were able to provide a metric, but some had difficulties describing how it was different among low / high credit scores or how it was tied to loss differences.

ANSWERS AND EXAMINER'S REPORT Fall 2015 6US Q2

QUESTION 2	
TOTAL POINT VALUE: 2.5	LEARNING OBJECTIVE: A1
SAMPLE ANSWERS	
Part a: 1 point	

Any four of the following:

- Contrary to public interest or Rate is unaffordable to insureds
- Illegal or
  - Fraud or
  - Collusion or
  - Violates law/statute.
- Unfairly discriminatory or
  - Unfair or
  - Inequitable or
  - Disparate impact to protected group
- Excessive or Rate too high
- Rate change increase exceeds state cap
- Inadequate or
  - Rate too low or
  - Fails to meet minimum solvency standard or
  - The rate is not an accurate estimate of the expected value of future costs or
  - The rate does not provide for all costs associated with the transfer of risk or
  - The rate does not provide for the costs associated with an individual risk transfer
- Insufficient supporting documentation or
  - Errors in documentation provided in filing or
  - Did not comply with all the state's filing requirements
- The following item is not allowed/approved by regulator or specific item is required to be used:
  - Rating variable or
  - assumption or
  - methodology or
  - model
- Filing did not meet filing deadline
- Political or Appointed commissioner doesn't want to lose job and was told "no rate increases over x%" by person who made appointment
- Rate is not actuarially sound
- State mandated rates. Any deviation is denied.
- Flex Rating –prior approval not granted when rate exceeds range percentages
- The company is restricted from writing this business since they are under DOI supervision
- The homeowner policy form excludes properties with insurance value under $150K
- Form is misleading or
  - Form causes misunderstanding or
  - Form's language is ambiguous or
  - Form is not written in plain English
- Form lacks required provisions (policy cancellation provisions) or coverage
- An insurer requires the purchase of one coverage with another (tie-in). i.e. requires auto

policy when buying a homeowners policy

Part b: 0.5 point

Any one of the following:

- Market competition keeps insurance pricing fair
- Competition ensures the insurers provide actuarially sound rates
- With no-file, consumers will benefit as insurers are free to compete and competition will increase availability and affordability as companies who best match rate to risk will win the most policyholders
- Theory that free competition would regulate insurance. If a company's rates are too low, they risk insolvency via adverse selection. If rates are too high, they risk being priced out of the market.
- Will reduce the costs of filings for insurers (and these costs get passed down to policyholders). Competition will naturally ensure rates are fair.
- It would reduce costs to both insurers and regulators as insurers would not need to spend money on filings and regulators could use time/budget on other matters concerning insurance regulation (e.g. solvency)
- Competition is the best rate regulation. It can motivate the high risk people to control risk, and motivate insurers to be more creative and accurately estimate the loss
- No-file law allows free market competition to regulate insurance co rates, gives companies greater flexibility to react to changes in their loss cost or rating factors to gain competitive advantage. Can provide more innovative products quicker to market.
- Having no file laws would reduce the work of states' departments of insurance since they would not need to approve of every rate change. This would lead to lower expenses which would benefit taxpayers. Also competition is likely to keep rates reasonable.
- It would make things easier on insurers (who write in multiple states) if every state would follow the same rules. No-File would allow insurers to implement rate changes across all states simultaneously, rather than whenever each individual state got to it.
- No file law allows insurers to react to market forces quickly without waiting for approval to use new rates. This helps competition and benefits customers as well as reduces regulatory cost. No concern of excessive rate since regulator can still demand withdrawal of new rates later.
- A no-file system allows the insurer to lower rates in a competitive market without fear that it will have trouble raising them later.

Part c: 1 point

Any two of the following:

Prior-Approval

- Insurer must file rates and receive approval notice from the state DOI before using rates, can't use until approval is received.
- Rates must be approved BEFORE use

File-and-Use

- The insurer must file for rate changes but allowed to use the rates immediately or after a short waiting period. The insurer files rates 45 days after use. Hence it is not in compliance.
- Rates must be filed first with state before use

Use-and-File

- Insurer may use the rates as they want and file within a specified period after the rates are put in use. The specified period may be shorter than 45 days, say 30 days. Thus the insurer is not in compliance.

Flex Rating

- Did not comply because insurer's rates are outside of acceptable change and they used them anyway without prior approval.

State-Mandated Rates

- Insurer cannot do business legally in state if the insurer used a rate in their filing that is not the mandated rate.

EXAMINER'S REPORT

This question tested candidates' knowledge of the general requirements of insurance rate filings, rate filing laws, and how rates are regulated by state insurance regulators.

Part a

Many candidates did well listing reasons for state disapproval of a rate or form filing. Common errors included simply stating discrimination without qualifying their answer by stating 'unfairly' discriminatory or discriminate against 'protected' classes. Other candidates made the error of repeating similar answers, such as the rate is excessive and the rate is too high.

Part b

This question was open to interpretation and allowed for many different reasonable answers. A common error made by candidates was that they were able to provide an impact of the No-File law system (i.e. cost/labor reduction, time efficiency, etc.) but did not provide a specific reason for favoring the no-file law (e.g., the cost savings would be passed down to insureds or open competition would lead to fair insurance pricing).

Part c

The question required application of the specific rate filing laws chosen to the situation presented in the question, specifically the violation/lack of compliance of the rate law. Common errors included omitting or incorrectly stating a rate filing law. There were some candidates who made the error of switching a violation of the Use-and-File law with File-and-Use. Others simply stated a definition of the rate law that did not demonstrate how the insurer was not in compliance with the type of rate filing law specified.

<table>
<tr><td colspan="2">QUESTION 3</td></tr>
<tr><td>TOTAL POINT VALUE: 2.5</td><td>LEARNING OBJECTIVE: A2 / A3</td></tr>
<tr><td colspan="2">SAMPLE ANSWERS</td></tr>
<tr><td colspan="2">Part a: 1 point</td></tr>
<tr><td colspan="2">Any one of the following bullets for each element:

Minimum capital requirements
• Ensure that company has enough surplus to remain solvent
• Ensure that adequate capital is on hand to fulfill policyholder obligations
• Barrier to entry into state for prospective insurance companies, keeps riskier undercapitalized carriers from entering market
• Allows regulators to take regulatory action against troubled insurers
• Helps identify troubled insurers by seeing which insurers are below or near their minimum capital levels
• Reduce insurer's incentive to engage in risky behavior
State guaranty fund
• Protect policyholders when an insurer goes insolvent by paying the claims and/or a portion of the unearned premium of the policyholder; may be subject to limitations/caps
Reinsurance transactions require regulatory approval
• Certain actions are risky and require prior approval to ensure the financial stability of the insurer is maintained
• A way of monitoring practices to make sure they are not damaging the interest of the policyholders
• Most reinsurers are outside of the U.S and they are not regulated by the U.S. regulatory system
• Review to ensure insurer is not using reinsurance to artificially inflate surplus / mask financial issues
• To verify there is risk transfer in the reinsurance contract
• Reinsurance coverage may be covering or exposed to large losses or catastrophic risks. This requires regulatory attention
• Allows regulator to review reinsurance transaction and require and/or assess the collectability of collateral
• Protects insurers and policyholders since many insurer insolvencies have resulted from reinsurers becoming insolvent
Insurers must submit annual financial statements
• These financial statements allow the regulator to continually monitor insurers
• Statements are used by regulators to assess the insurer's risk and financial condition
• Enable regulators to detect as early as possible those insurers in financial trouble
• Reports feed into offsite monitoring analysis / tools such as RBC and IRIS
• Encourage market discipline / competition since publically available
• Allows evaluation of reserve adequacy
• Standardized format allows regulators to compare companies</td></tr>
<tr><td colspan="2">Part b: 0.5 point</td></tr>
<tr><td colspan="2">Any two of the following:</td></tr>
</table>

- Needed to reduce penalties associated with unauthorized but strong reinsurers
- Better reflect the globalization of insurance by recognizing foreign reinsurers
- Allow reinsurers to receive collateral reductions when they meet certain standards
- Promote competition in the reinsurance market
- Standardize treatment/streamline regulation for domestic and alien reinsurers

Part c: 1 point

Any two of the following bullets:

Non-admitted

- Premium taxes for non-admitted insurance transactions are only paid in the home state of the insured
- States need to develop uniform rules and procedures for the payment, collection, reporting and allocation of premium taxes for non-admitted insurance transactions
- States cannot prohibit placement of an insured with a non-admitted insurer outside the US as long as insurer was on the NAIC quarterly listing
- If a commercial lines purchaser meets the definition of an "exempt commercial purchaser" and the broker has notified them that coverage may be available in the admitted market, and the purchaser has requested coverage in writing from the surplus lines insurer, the broker does not need to do a diligent search of the admitted market.
- Eliminates the diligent search requirement for commercial purchasers. If you have a risk manager and are a large company, don't have to get declined in admitted market first to obtain non-admitted coverage
- Placement of non-admitted insurance is only to be regulated by the home state of insured
- Non-admitted /Surplus line brokers only need to be licensed in home state of the insured

Reinsurance

- If the insurer's domiciled state is NAIC accredited and the domiciled state recognized the reinsurance credit, other states cannot deny credit
- Allow states to continue reinsurance collateral reform on individual basis if they are accredited by NAIC
- The reinsurer's domiciliary state has sole responsibility of the financial solvency of reinsurer

EXAMINER'S REPORT

Part a

Candidates were expected to produce one rationale for each element in a state insurance solvency system. Common errors included:

Minimum capital requirements

- Mentioning that it provides protection if premiums charged are not enough to cover losses
- Stating that it provides protection/additional funding in case an insurer becomes insolvent

State guaranty fund

- Mentioning that funds are available in case of insurer insolvency, without including the uses for the funds
- Mentioning that it provides protection against insolvency, without including what/who is protected
- Describing an assigned risk plan rather than a state guaranty fund
- Mentioning that it helps companies remain solvent during adverse scenarios by helping them pay claims

<table>
<tr><td>Reinsurance transactions require regulatory approval
Referring to assessing the reinsurer's strength without referencing the transaction or the impact on the ceding company</td></tr>
<tr><td>Part b</td></tr>
<tr><td>Candidates were asked to demonstrate knowledge of the reinsurance framework, but this proved challenging. Common errors included:
Confusing the framework with the provisions of other acts such as the Non-Admitted and Reinsurance Reform Act
Asserting the framework applied to all reinsurer types
Stating that too many reinsurer insolvencies prompted action for more stringent regulation
Mentioning that lessons learned from the recent financial crisis prompted action
Stating that it ensures that reinsurance transactions actually transfer risk</td></tr>
<tr><td>Part c</td></tr>
<tr><td>The question asked for two provisions in the Non-admitted and Reinsurance Reform Act. Since the question asked candidates to 'Describe', this means that full credit answers contained the provision as well as some other supporting/additional verbiage. Common errors included:
Omitting key elements of responses
Example: Only home state can collect tax
No reference to insured's home state
No reference to non-admitted business
No reference to premium tax
Example: If home state gives credit, then no other state can deny credit
No reference to ceding insurer's home state
No reference to reinsurance credit
No specification of home state being NAIC accredited or similar standard
Example: Elimination of the due diligence search
No reference to exempt commercial purchaser / sophisticated purchaser
No reference to actions that must be taken prior to being waived
Stating that it allowed an insurer/reinsurer to be licensed in one state and conduct business in all states
Interchanging the terms licensing & regulating
Interchanging the terms broker & insurer
Referring to 'certified' reinsurers</td></tr>
</table>

QUESTION 4

TOTAL POINT VALUE: 2	**LEARNING OBJECTIVE: A3**

SAMPLE ANSWERS

Part a: 1 point

Optimal solution:

- Company A should take on more insurance risk (or move towards self-insuring) and maintain a high retention or fronting.
- One of (or combination of) the following:
  - Company A should start a captive with relatively high retained limits/Reinsurance
  - Company A should use Surplus/Non-admitted lines at relatively high retained limits
  - Company A should use General Insurer with relatively high retained limits
  - Company A should seek large deductible plan/high excess reinsurance and insurance will protect company against catastrophic claims.

Rationale (any one of the following):

- Company A will gain tax benefits from a captive and will be able to manage the risk better and can avoid needing to pay profit load and other expenses to an insurer.
- Company A can save cost through captive's favorable tax benefits and significant reduction of insurer's profit load and expenses (commissions, brokerage, marketing costs etc.)
- Company A saves cost through effective risk management plans such as claims control/safety program and avoid paying profit loads and expenses to insurer
- Large and stable company will result in predictable losses and hence can determine where to attach the high retention limit. A dedicated risk manager can put in place effective risk controls and there will be no need to pay profit loads for retained exposure.

Part b: 1 point

Optimal solution:

- It should start or join an RRG with companies having similar operations OR heterogeneous companies are not allowed in RRGs
- Company B joins RRG and pool or spread like or liability risks with other companies

Rationale (any one of the following):

- Company B won't meet seasoning requirements, so likely won't be able to form a captive
- RRG provides liability coverage and allows Company B to be licensed in the domiciled states but operate in multiple registered states
- RRG allows affordable and available liability coverage. Pool members will obtain tailored coverage, have incentive to control cost and have adequate pricing/reserves due to lack of guaranty funds and will avoid paying profit loads and other expenses to third party insurers
- RRG was purposely established to solve liability coverage problems and eliminates contradictory and redundancy of licensing in every state while providing the ability to operate in multiple states

EXAMINER'S REPORT

Candidates were expected to identify key insurance issues within the question and suggest logical insurance solutions that were supported with reasonable rationales.

Part a

Candidates were expected to demonstrate a plan for which the company assumes significant risk

and seek insurance at a high limit. Common errors included: • Mentioning they will insure through captives/surplus lines/insurer without stating the extent of risk the company will assume and how the company will be protected from catastrophic losses • Listing the benefits of the proposed plans without explanation • Not explaining how the plan will lead to significant reductions of profit load and other expenses • Leaving out part of the plan dealing with insuring excess losses at high limit to cover catastrophic losses • Not explaining how Company A's risk manager will help with cost savings • Not mentioning how the reduced insurance cost will be attained • Not explaining where the cost savings from the plan was coming from
Part b
Most candidates provided a logical plan with reasonable support. Candidates were expected to describe a reasonable plan that is suitable for the outlined conditions (very young company, operations in multiple states, difficulty finding liability coverage). Common errors included: • Stating that the company can pool risks without explaining the type of pooling • Confusing captives and RRGs or not demonstrating knowledge of which might be the best fit for this situation • Not describing how liability coverage or availability will be improved • Failing to discuss simplified regulatory requirements

SAMPLE ANSWERS AND EXAMINER'S REPORT

<table>
<tr><td colspan="2">QUESTION 5</td></tr>
<tr><td>TOTAL POINT VALUE: 3</td><td>LEARNING OBJECTIVE: A3</td></tr>
<tr><td colspan="2">SAMPLE ANSWERS</td></tr>
<tr><td colspan="2">Part a: 0.5 point</td></tr>
<tr><td colspan="2">Any one of the following:
• This is when an insurer pays for their rating, which allows them to have more control over their rating by having discussions with the rating agency, providing helpful proprietary data, and answering inquiries from the agency.
• Insurer's senior management has an interactive meeting with rating analysts, so analysts can understand the company's business strategy, experience with adverse conditions and integrity. Insurer also submits proprietary info to rating analysts. Analysts determine rating based on findings from meeting, background research and proprietary info.
• Rating agency requires insurers to give proprietary information in a high level interactive meeting to give the right rating. Information can include: U/W, pricing, reserving and investment, etc.</td></tr>
<tr><td colspan="2">Part b: 1 point</td></tr>
<tr><td colspan="2">• Advantages (any two of the following)(:
o Insurer has some control over information reviewed
o Easier to obtain credit for the company
o Fewer chances of error
o Third parties often rely on the assessment
o It is less expensive to pay for a rating than to demonstrate financial strength individually to others
o Agents may be wary of insurers without an interactive rating
o Unrated reinsurers may not be considered as viable by primary insurers placing business
o Certain lines of business can't easily be sold by companies w/o high ratings (for example: reinsurance, surety, structured settlements, homeowners, and specialty lines)
o Individual and corporate policyholders want to be sure the insurer will be able to pay their claims
o Rating process can give management insight into areas that need improvement
o Ability to purchase reinsurance may be easier if they have an interactive rating
• Disadvantages (any two of the following):
o It has a cost
o It requires time, effort, and personnel
o It is intrusive</td></tr>
<tr><td colspan="2">Part c: 1.5 points</td></tr>
<tr><td colspan="2">• In favor: Since ratings play such an important part in the insurance industry (agents may use rating for placement, insurer may require a certain rating of their reinsurers, etc.) AM Best can bring pressure on companies to provide strong incentive for them to take corrective action, much like a regulator. Against: However, AM Best does not have regulatory authority. It can't reject filings, approve/reject rate changes, respond to consumer complaints, etc. It can't force the company to act as a regulator could, it can only exert pressure. Nor can AM Best take control of the company in case of financial</td></tr>
</table>

difficulty as a regulator could.

- Argument for: It can have huge impact on insurers as consumers, and agents with limited information on the company rely heavily on financial strength ratings. Argument against: Realistically, all AM Best can do is adjust its ratings. It does not have the regulatory power to control or prohibit insurers to take certain actions.
- In favor: Insurers care greatly about their rating for AM Best because it can affect who is willing to do business with them and can also affect which lines they write (insurers need high rating to offer homeowners, surety, etc.) This can affect how the insurer does business, its capital structure, etc. So AM Best has a certain amount of regulatory authority over the insurance industry. Against: Ratings Agencies have no real regulatory authority over insurers. For example, they can't approve or disapprove filings. Also, there are multiple agencies that the insurer can choose to do business with. Insurers can't really choose which regulator they like to do business with. So AM Best has no real regulatory authority over the insurance industry.
- In favor: AM Best issues financial strength ratings which indicate the insurer's ability to pay claims. Without a rating the insurer will not be able to write certain kinds of business or agents may not place business with the insurer. As such AM Best is effectively phasing out financially weak insurers. Against: AM Best has no legal authority to regulate the industry and cannot require insurers to act in a certain way. Their ratings are also slow to respond to changes for fear of upsetting clients, so they don't downgrade quickly which could mask a company that is close to insolvency.
- For: Market pressure: If a company receives a poor rating, insureds may be reluctant to purchase insurance. This will encourage the company to do better. To remain competitive the company will need to improve its practices. Against: Rating agency can not intervene. If agency finds a risk of insolvency, the agency cannot require the insurance company to make changes. The agency can only publish findings to the public.
- In favor – Rating agency implicitly regulates through market pressure. By giving a negative review, the insurer will have to increase financial strength or risk losing business as agents don't place business there. Against – Rating agencies do not have power to force changes to the insurer's practices, such as prohibit entry into new lines, adjust investments, or place an insurer into receivership.

EXAMINER'S REPORT

Part a

Candidates should provide multiple facts in the answer to demonstrate knowledge of what an interactive rating entailed. General statements about BCAR or financial solvency were not sufficient to receive full credit; an interactive rating includes more than just the calculation of capital requirements.

Part b

A common mistake for disadvantages was to state that the interactive rating may result in a poor rating; these answers focused on the rating outcome and not on advantages/disadvantages of an interactive rating as requested.

Part c

Candidates had some difficulty with this part, with many candidates not fully explaining their answers. For instance in the Against section, several candidates just said that AM Best does not have real regulatory or legal power, without describing some of the regulatory powers that

regulators do have. Others in the For section mentioned that insurance companies needed a good rating to write a particular line of business, without any further information. The question asked to fully describe, which requires more explanation than a question asking for a brief description

SAMPLE ANSWERS AND EXAMINER'S REPORT

<table>
<tr><td colspan="2">QUESTION 6</td></tr>
<tr><td>TOTAL POINT VALUE: 3.25</td><td>LEARNING OBJECTIVE: A1 / A4</td></tr>
<tr><td colspan="2">SAMPLE ANSWERS</td></tr>
<tr><td colspan="2">Part a: 0.75 point</td></tr>
<tr><td colspan="2">Any three of the following:
Promote fair and equitable treatment of insurance consumers
Ensure financial stability of insurers
Ensure insurer solvency
Ensure availability of insurance in the market
Prevent unfair discrimination towards consumers
Ensure availability of coverage
Promote a competitive market
Ensure that insurance companies have enough surplus</td></tr>
<tr><td colspan="2">Part b: 1 point</td></tr>
<tr><td colspan="2">Any two of the following:
ORSA - own risk and solvency assessment. Companies self-assess their own risk and provide valuable qualitative insight to regulators
IMF FSAP – financial sector assessment programs is an international in-depth look at regulation, especially on group comparisons
Solvency maintenance – create document laying out US insurance structure, look for ways to use int'l developments in insurance regulation in US and apply lessons from global financial crisis
Review IFRS accounting standards and improve uniformity in global insurance market, while improving assessment of short and long term profitability of insurers
Improve RBC calculation – operational risk charge and improve the square root formula</td></tr>
<tr><td colspan="2">Part c: 1.5 points</td></tr>
<tr><td colspan="2">"For" federal regulation (any one of the following):
Need one national voice in dealing with global insurance topics
Since insurance is a critical element of society, federal regulation would help avoid a massive insurer failure
A single authority would allow ease of monitoring so that business transactions in all states can be monitored together, as opposed to state by state
"Against" federal regulation (any two of the following):
Insurance companies were the least hit by the crisis, which showed that current rules and regulations at the state level are effective in keeping insurance companies afloat and ongoing
Duplication, peer review, and diversity of opinions among state regulators more likely to catch failing companies
The low amount of problems in state-regulated insurers relative to federally-regulated banks shows that state regulation is an effective process</td></tr>
<tr><td colspan="2">EXAMINER'S REPORT</td></tr>
<tr><td colspan="2">Part a</td></tr>
<tr><td colspan="2">The most common mistake was to repeat the same answer. For example, stating that regulation should ensure fair and equitable treatment of policyholders, as well as stating that regulation</td></tr>
</table>

should protect consumers.
Part b
This part was more challenging. The most common mistake was to list current functions of the NAIC that are not related to current initiatives in the NAIC modernization process.
Part c
Common mistakes included stating that the federal government should regulate insurance because insurance needs federal regulation, or stating that the financial crisis proved state regulation is too expensive.

SAMPLE ANSWERS AND EXAMINER'S REPORT

QUESTION 7	
TOTAL POINT VALUE: 2	**LEARNING OBJECTIVE: A4**
SAMPLE ANSWERS	
Part a: 1 point	
Any four of the following: • Seriously injured claimant • Non-seriously injured / impaired claimant • Plaintiff's Attorney • Defendant's Attorney • Major Asbestos Defendant / Producer / Manufacturer (or similar) • Peripheral Asbestos Defendant / Secondary Producer / Manufacturers of Encapsulated Products (or similar) • Insurer / Reinsurer • Employee / Retiree of Firms with Asbestos Liability • Judge / Court / Court System	
Part b: 1 point	

• Seriously injured claimant –
  ◦ Short life expectancy, need claims resolved quickly
  ◦ High transaction costs reduce needed compensation to claimants
  ◦ Bankruptcy of responsible parties may make compensation unavailable
  ◦ Awards to those with non-malignant claims may exhaust funds needed by future seriously injured claimants
  ◦ Want to get compensated for injury
• Non-seriously injured / impaired claimant –
  ◦ Concern that if they don't file for immediate compensation, statute of limitations may prevent later recoveries if more serious conditions develop later
  ◦ Concern that if they don't file for immediate compensation, funds for compensation may not be available if more serious conditions develop later
  ◦ Uncertainty about future health generates ongoing expenses for medical monitoring
  ◦ Want to get compensated for injury
• Plaintiff's Attorney
  ◦ Concern regarding adequate compensation/reward for their work on these cases
  ◦ Same concerns as claimant (see above)
• Defendant's Attorney
  ◦ Defendant's attorney concerned about claimants venue shopping for favorable courts or judges
  ◦ Same concerns as defendant (see below)
• Major Asbestos Defendant / Producer / Manufacturer (or similar)
  ◦ Concerns that state courts do not give fair treatment
  ◦ Concerns that consolidation of claims of seriously and non-seriously injured claimants overcompensates the non-seriously injured due to juror sympathy.
  ◦ Concern that other responsible parties (e.g. tobacco manufacturers, since smoking exacerbates some asbestos linked diseases) are not being held accountable for a fair share of costs	

  - Concern that uninjured plaintiffs are obtaining compensation
  - Concern that the system in place of compensating the injured is prohibitively expensive
  - Desire to have a final outcome to the issue so that they can put past difficulties behind them
- Peripheral Asbestos Defendant / Secondary Producer / Manufacturers of Encapsulated Products (or similar)
  - Belief that they should not be held accountable if their products used encapsulated asbestos that should not have contributed to injury (being held accountable when they're not responsible)
  - Concern that they will take on ever increasing liability as major defendants declare bankruptcy
  - Unfairness of holding them responsible for health risks they had little or no knowledge of
  - Concern that cases are being heard in plaintiff-friendly jurisdictions
  - Concerns about failure to use objective evidence to evaluate the credibility of injury claims
  - Concerns that they will be held liable for injuries rightly attributable to non-U.S. companies who are difficult to sue, and who must be sued in Federal, rather than the more lenient state courts
  - Concerns over high defense costs
  - Desire to have a final outcome to the issue so that they can put past difficulties behind them
- Insurer / Reinsurer
  - Concern about the interpretation of their contracts and liabilities imputed to them that were never intended to be insured
  - Concern about settlements with claimants with no current identifiable injuries, and claimants who can't establish product identification
  - Concerns about achieving predictable financial results and a final quantification of liabilities. Volatility of results due to uncertainty of outcome of litigation.
- Employee / Retiree of Firms with Asbestos Liability
  - Bankruptcy of defendants to these lawsuits can lead to loss of jobs, periods of unemployment, possible reduced future salaries, etc.
  - Losses of 401(k) benefits for those employed by bankrupt firms (estimated to be 25% of 401(k) account value on average)
- Judge / Court / Court System
  - Trial docket pressures due to volume of asbestos lawsuits can lead to unfair or biased outcomes
  - Fairness of results due to efforts to speed up the process by grouping dissimilar cases or shortening discovery that can cause inequities.

EXAMINER'S REPORT

Part a

Most candidates knew the basic parties to litigation and asbestos exposure. Some candidates listed answers that were too general (such as government, regulators, or juries) or repeated the same answer (e.g. defendant and manufacturer).

Part b
Candidates were expected to be able to trace basic consequences of asbestos exposure on different parties. Most candidates knew the basic motivations of various parties in any sort of litigation.

SAMPLE ANSWERS AND EXAMINER'S REPORT

QUESTION 8	
TOTAL POINT VALUE: 2	**LEARNING OBJECTIVE: B2 / B3**
SAMPLE ANSWERS	
Part a: 0.5 point	
• Premiums from insureds • Loans from the treasury / government funding (or similar)	
Part b: 1 point	
• Eliminate insurance premium subsidies, especially on repetitive loss properties • Allowing rates to be more actuarially based – reflecting the true risk – in part by utilizing updated Flood Risk Maps • Allowing CAT years to be priced in with average loss years when setting rates • Created a reserve fund to offset CAT years • Authorized the study of an insurance voucher system to address affordability issues	
Part c: 0.5 point	
• Increased the amount of civil penalties against lenders that fail to enforce the flood insurance requirement (from \$350 to \$2,000) which could result in an increase in participation • The act authorized the creation and distribution of updated flood maps, which in turn would better educate consumers on the true financial risks of flooding which could result in an increase in participation	
EXAMINER'S REPORT	
Part a	
Most candidates knew how NFIP is funded. Common errors included repeating the same funding mechanism twice (i.e. borrowing from the treasury and government funding), or mentioning that NFIP is funded by assessments on insurers.	
Part b	
Most candidates were able to state that the Biggert-Waters Act eliminated premium subsidies, but fewer candidates were able to elaborate on how the subsidies were reduced. Some candidates referenced items from prior acts, rather than from the B-W Act. Others failed to mention how the B-W Act authorized use of a CAT reserve fund and allowed CAT years to be used in pricing.	
Part c	
Fewer candidates knew what the Biggert-Waters Act specifically did to address the participation rate. Many candidates simply stated that the act addressed the participation rate by requiring flood insurance for structures in a flood plain with no additional commentary. That requirement existed well before the B-W Act of 2012.	

QUESTION 9

TOTAL POINT VALUE: 2.25	**LEARNING OBJECTIVE: B2 / B3**

SAMPLE ANSWERS

Part a: 0.5 point

- Handles claims of insolvent insurer OR Pays claims and returns unearned premium of insolvent insurer
- Provides temporary coverage in case of insolvency

Part b: 0.5 point

- Difficult to distribute loss across states OR coordinating payment across multiple state guaranty funds OR each state would need to agree to the proposed settlement amounts from the guaranty fund OR Laws and processes are different between states, so it is difficult to determine the allocation to each state
- May need to assess annually for several years OR There is a limit on the assessment by written premium per year so may need to assess for more than one year

Part c: 0.5 point

- Guaranty fund has limited coverage OR policyholder may not be fully indemnified
- Moral hazard OR distorting competition OR existence of guaranty fund does not prove financial strength OR insurer grows irresponsibly OR policyholders would be less likely to seek a financially strong insurer

Part d: 0.75 point

Policyholders (any one of the following):

- Would not be paid for claims/unearned premium in the event of an insolvency
- Reduced premium because insurer would no longer be paying guaranty fund assessments
- Would have incentives to seek stronger insurers

Insurers (any one of the following):

- Would not have to pay assessments
- Would charge lower rates because they would not be paying assessments
- Would have lower costs because they are not paying assessments
- Regulators would increase capital requirements
- Weak insurers would lose business to insurers with higher financial ratings OR Strong insurers would gain business from weaker insurers

Regulators (any one of the following):

- Stronger solvency monitoring
- Stronger rate and solvency monitoring
- Lose NAIC accreditation
- Increased complaints from policyholders
- Will increase minimum capital requirements on insurers

EXAMINER'S REPORT

Part a

The candidate was expected to know that the guaranty fund continues insurance coverage until policyholders find new insurers and that the guaranty fund handles claims and refunds unearned premium for policyholders of an insolvent insurer.

Most candidates were able to state that the guaranty funds pay the claims of insolvent insurers.

Fewer candidates also knew that they provided temporary coverage.

The most common errors were restating the question as an answer and rewording the same answer in two different ways.

Part b

The candidate was expected to give two short explanations of what would be unique if a national multi-line insurer were to become insolvent. The candidate was expected to demonstrate knowledge of two of the three following statements: each state involved needs to approve the final settlement; coverages and laws are different by state making it difficult to allocate the loss among state guaranty funds; the guaranty fund may need to assess annually over several years to recover the shortfall.

Common errors included:

- Making statements that were not unique to multi-state like increasing premium to recoup assessments, assessment costs shifted to policyholders, slower claim settlements, and lines not covered
- Draining the state fund or assessment is insufficient – this is a misunderstanding of the assessment cap, the cap is a maximum per year but the guaranty fund can assess insurers annually until the insolvency is fully funded
- How to allocate among policyholders – state law determines how much policyholders are entitled to – the issue is how much each state guaranty fund agrees to contribute.
- How to assess insurers – the issue is how much each state's guaranty fund agrees to cover and then that state assesses the insurers in their state according to state guaranty fund law.

Part c

The candidate was expected to give two brief or one full explanation of why insurers are prohibited from marketing the guaranty fund. Common errors included:

- Every insurer has access to the guaranty fund (the guaranty fund is for the benefit of the policyholders, not the insurer)
- The prohibition is state law (restates the question)

Part d

The candidate was expected to give a short explanation of the effect of the elimination of the guaranty fund on policyholders, insurers, and regulators. Common errors included:

- Attributing the benefit of the guaranty fund to the insurer rather than the policyholder,
- Stating that the policyholder wouldn't be paid for their losses without also demonstrating their knowledge that this is only true in the case of insolvency
- Assuming that small insurers are weak insurers
- Insurers will strengthen their financial position without stating that this would be a reaction to increased regulation or competitive demands.

SAMPLE ANSWERS AND EXAMINER'S REPORT

QUESTION 10	
TOTAL POINT VALUE: 1.75	**LEARNING OBJECTIVE: B1**
SAMPLE ANSWERS	
Part a: 1 point	

Any two of the following goals, with a brief description:
• Achieve social purpose:
  o the intention of TRIA is to minimize or eliminate market disruption in the event of a terrorist attack
  o to minimize business interruption after a terrorist attack
  o ease the market shock after 9/11 terrorist attack
  o government provides temporary coverage to society for loss relief after 9/11 to relieve private market burden and avoid economic disruption
  o allow for large construction projects to occur, which would be at risk without terrorism coverage
• Continue state regulation of insurance:
  o TRIA keeps regulation of rates/forms regarding terrorism insurance at the state level
• Fulfill an unmet need/Promote Availability:
  o Insurers were unwilling or unable to provide terrorism coverage without the support of the government
  o Provide a federal backstop for losses resulting from terrorism. Insurers began to exclude coverage for losses from terrorism after 9/11 due to the risk being uninsurable. This necessitated the federal government to step in and provide coverage.
  o Federal backstop was intended to be temporary until the private market could develop solutions
• Affordability:
  o Create a temporary federal program of public and private funding to make coverage for terrorism available and affordable.
  o Private insurers won't insure, so the federal government acts as a reinsurer of the coverage	

Part b: 0.5 point	
• A terror attack would most likely target area of commerce instead of residential areas, so it is not needed as much for homeowners • Highly unlikely that terrorism would target individual homes so coverage isn't needed • Homeowners insurance had no shortage of coverage after 9/11 (insurers didn't pull out of market) • Federal disaster assistance available if needed • Homeowners were not seeking terrorism insurance and being unable to find it • The largest portion of terrorism loss is business interruption, which is not a concern for homeowners • TRIA was not aimed at personal lines coverage, it was aimed at businesses with commercial coverage	
Part c: 0.25 point	
• Many reinsurers are not based in the US, so regulations would be difficult to execute	

- Reinsurers have ability to diversify and set limitations on reinsured losses. Diversification allows reinsurer to stay solvent following a destructive occurrence.
- Reinsurance is not covered under TRIA because this is essentially duplication of effort. Under TRIA, the federal government is the reinsurer to the private market, which provides primary coverage.
- If reinsurer goes insolvent, primary insurer is responsible, then would be covered by TRIA
- Difficulty of determining layers/premiums because of the complexity of reinsurance contracts
- Reinsurance could be better covered with the use of CAT bonds
- Reinsurance might be too high, and so primary will buy less than necessary reinsurance
- Much reinsurance is excess business high layer losses, only a few of these losses could bankrupt an insurer

EXAMINER'S REPORT

Part a

The paper cited many goals/rationale for why TRIA was implemented and what it was intending to accomplish. Candidates were expected to identify 2 goals of TRIA and briefly describe them (e.g. provide some context or explanation). Some candidates neglected to describe the goal they listed.

Part b

Most candidates were able to list valid arguments for why homeowners risks are not covered by TRIA. This generally required knowing a few key differences between homeowners and commercial lines. Common errors included assuming that terrorist attacks on homeowners would have a more significant impact on the economy than commercial lines (but homeowners don't have business interruption needs and the number of homes across the company would help an insurer spread the risk).

Part c

Most candidates understood that the federal government was acting as the reinsurer up to a certain limit, which was deemed generally sufficient coverage for the exposure. Some candidates recognized that this is to protect US interests first and foremost, and many reinsurers are alien so protecting reinsurer interests is less of a priority when trying to stabilize the economy. A common error was to assume that taking on even higher layers of coverage was too risky for the government (if the government wanted to increase coverage, it would be possible to do so – note the large government expenditures in other areas, such as defense).

SAMPLE ANSWERS AND EXAMINER'S REPORT

QUESTION 11	
TOTAL POINT VALUE: 3	**LEARNING OBJECTIVE: B2 / B3**
SAMPLE ANSWERS	
Part a: 1.5 points	
• Crop – Protect farmers from catastrophic loss to crops since affordable coverage was unavailable. • Crop – To protect farmers when the crop fails due to natural disaster. The government had to act as a reinsurer to private companies because they were unable to provide coverage. • Longshore – Sometimes it's not clear which state's WC laws apply when employees are in navigable waters. Federal program ensures employees injured in waters compensated appropriately. • Assigned Risk – This was created to provide affordable and available coverage to insureds who were rejected by the voluntary market. The government had to ensure availability since PPA is a required purchase. • Assigned Risk – To provide insurance for auto risks that could not get coverage elsewhere, usually drivers with poor experience.	
Part b: 1.5 points	
• Crop – Program has been somewhat effective. Some claim it encourages overproduction. Some also saw the coverage as unaffordable. Recently structure was updated to have lower premiums and redistribute profit/loss between private market and government since government was mostly experiencing loss while private insurers profited. • Crop – Critics say that it has caused over production and is not effective because private insurers have made money while the government has lost money. • Crop – Even though crop insurance has been around for a long time, there have still been disaster bills to cover losses. Farmers say payouts haven't been adequate, but legislation has been passed to address this. Some say it encourages overproduction. • Crop – Not effective. It motivates overproduction; and not provide sufficient coverage after disaster. Rates are not actuarially sound. • Longshore – Effective; Filled gap in coverage. Has rules preventing insureds from collecting from multiple parties for the same injury. • Longshore – This has been effective as benefits are available to workers and are reduced if state coverage is available. • Assigned Risk – This program is effective because everyone is able to receive coverage for compulsory insurance. One downside is that program participants have the stigma of being denied in the voluntary market. • Assigned Risk – Decreases the number of uninsured drivers and increases availability and affordability, but cost is passed on to low-risk drivers through cross-subsidization. • Assigned Risk – Effective in providing coverage to high risk drivers by allocating to private insurers based on market share, but the rates charged are often too low and subsidized by safer drivers. • Assigned Risk – Somewhat effective, provides coverage to high risk drivers but rates are not actuarially sound and there is a stigma to being in plan.	
EXAMINER'S REPORT	
Part a	

Most candidates did very well on the Assigned Risk Plan and generally received less credit on the Crop and Longshore programs. Common errors on the Longshore program were stating it provided coverage for workers out at sea and that the federal government provided coverage. A common error on all parts were generic statements about filling an unmet need (also needed to know what the program was providing).
Part b
This part required more thought by asking candidates to evaluate the effectiveness of those government programs. Common errors were not providing a complete description for each act, or providing a generic statements about the effectiveness of a program that demonstrated no knowledge of the program.

QUESTION 12	
TOTAL POINT VALUE: 2	**LEARNING OBJECTIVE: B2**
SAMPLE ANSWERS	
Part a: 1 point	
Any two of the following: • Employers feared they would be forced out of business if refused coverage by insurance companies. State funds serve as the insurer of last resort – do not deny insurance coverage to employers who have difficulty purchasing it privately. • Fearful that insurance carriers might impose excessive premium rates that would be a financial burden. High premium rates could negatively affect a state's economy and ultimately limit opportunities for employment. • Due to the mandatory nature of the coverage, this reduces elasticity of demand so insurance rates might soar, enabling insurers to reap unfair profits. • State funds are specialists in workers compensation so they can be expected to offer more intensive levels of rehabilitation and other services than some private insurers whose workers compensation plan is one of several types of coverage offered. • Expense ratios of both exclusive and competitive state funds may be lower than expense factors for private carriers in part because of absence of some administration costs such as agency commissions and other marketing costs.	
Part b: 0.5 point	
Any two of the following: • States without state funds have set up residual market mechanisms to act as insurers of last resort. • There are private insurers who also specialize in providing only workers compensation coverage and may offer the same level of service and expertise as state funds. • While lower administrative costs for state funds may reduce the cost of providing workers compensation coverage, the fact that more states have not create state funds, and some state funds have been privatized recently, suggests that private insurers are also able to provide this coverage in an efficient manner. • Competition may encourage adequate and affordable rates. • Competition with the private insurers or among private insurers increase the availability of coverage options and fosters environment for more innovation in both coverages and service.	
Part c: 0.5 point	
Competitive State Funds Residual Markets/Partner	
EXAMINER'S REPORT	
Part a	
Candidate was expected to list and fully describe two separate rationales to obtain full credit. Common errors: • Identifying but not describing an advantage of having state governments provide workers compensation insurance • Providing two responses that were related or similar – for example, ensuring availability and serving as an insurer of last resort	
Part b	

Candidate was expected to list and briefly describe two separate reasons to obtain full credit. Common errors: • Describing how state governments regulate workers compensation coverage • Citing lack of exclusive state funds in most states • Stating that the private market has a larger market share than state funds • Stating that private insurers are succeeding at attracting policyholders • Citing self-insurance option for coverage
Part c
Candidate was expected to list two separate alternatives to state funds. Common errors: • Listing exclusive state funds • Identifying state government-regulated workers compensation coverage

SAMPLE ANSWERS AND EXAMINER'S REPORT

QUESTION 13	
TOTAL POINT VALUE: 2.5	**LEARNING OBJECTIVE: C1**

SAMPLE ANSWERS

Part a: 1.5 point

Option 1

Mean Policyholder Surplus = (15,200+18,500)/2 = 16,850
Total Business: (31,200+36,700)/2 + (7,600+9,000)/2 + 20,000 = 62,250
Surplus Ratio = 16,850/62,250 = 27.07%

Commercial Auto Allocation: 27.07% * [(2,000+2,300)/2 + (3,400+3,700)/2 + 6,600] = 3,329.4
Workers Compensation Allocation: 27.07% *(3,000+3,000)/2 + (1,500+1,500)/2 + 5,000 = 2,571.5

Option 2

Mean Policyholder Surplus = (15,200+18,500)/2 = 16,850

Allocation Basis
Total Business: (31,200+36,700)/2 + (7,600+9,000)/2 + 20,000 = 62,250
Commercial Auto: (2,000+2,300)/2 + (3,400+3,700)/2 + 6,600 = 12,300
Workers Compensation: (3,000+3,000)/2 + (1,500+1,500)/2 + 5,000 = 9,500

Allocated Surplus
Commercial Auto: 12,300/62,250 * 16,850 = 3,329.4
Workers Compensation: 9,500/62,250 * 16,850 = 2,571.5

Part b: 1 point

Arguments/Rationales "In Favor Of" (either two brief rationales or one more extensive rationale):

- Simple/easy to compute
- Allows for quick assessment/meets the needs of users
- Comparable/standard across companies, competitors, and lines
- Formulaic/objective/can't be manipulated
- Data readily available from Annual Statement
- Easy to explain
- Not distorted by reinsurance
- Method has been good historically
- Allocates more surplus to lines with higher reserves or larger lines
- Retrospective
- Considers investable assets
- Using two years will smooth the results
- Does not require projections
- Allows regulators/investors to see profit by line or whether rates are excessive/inadequate
- Cannot hide poor results

Arguments/Rationales "Against" (either two brief rationales or one more extensive rationale):

- Does not consider the risk characteristics/inherent risk of line
- Fails to recognize catastrophe potential

- Does not recognize cost of capital/required capital
- Does not recognize potential for adverse development
- Short-tail lines may require more surplus
- Retrospective/not prospective method
- Does not reflect future business
- Is distorted if there is a change in mix of business or rapid growth/shrinking
- Can't be used for ratemaking
- Does not consider management/actuarial opinions
- Time period is too short to reflect trends/future
- Does not reflect surplus generated by line
- Method is arbitrary/formulaic

EXAMINER'S REPORT

Part a

The candidate was expected to apply the IEE method of surplus allocation to the given data. The candidate had to demonstrate that average loss & LAE reserves, average unearned premium reserves and most recent year earned premium were used as the basis of the allocation. The candidate had to recognize that there were other lines of business besides Commercial Auto and Workers Compensation. The candidate had to allocate mean policyholder surplus.

Common errors included: calculating the allocated surplus to either Commercial Auto or Workers Compensation instead of both; not knowing the IEE surplus allocation method; not recognizing that there were lines of business other than Commercial Auto and Workers Compensation; not allocating mean policyholder surplus, using most recent year instead of two years.

Part b

The candidate was expected to understand the advantages and disadvantages of the IEE method of allocating surplus to line of business.

Common errors included: not providing two distinct points; restating the method, but not explaining how it was good or bad; mixing up the arguments for/against.

SAMPLE ANSWERS AND EXAMINER'S REPORT

QUESTION 14	
TOTAL POINT VALUE: 5	**LEARNING OBJECTIVE: C1**
SAMPLE ANSWERS	

Part a: 1 point

Claim Frequency Trend:

- Generally increasing at common evaluation points

Frequency Trend Driver (any one of the following):

- Speed up of claim setup in the claim system
- Increase in nuisance claims
- Shorten of statute of limitation
- Deteriorating book of business
- Change in type of claims included
- New business strategy e.g. entering new territory
- Change in reinsurance structure e.g. change in QS %
- Change in policy limit written
- Rate deterioration due to lack of on-leveling of premium
- Change in claim count definition

Severity Trend:

- Generally decreasing at common evaluation points

Severity Trend Driver (any one of the following):

- Improved claims process identifies simpler, lower severity claims and closes them first / at earlier maturities
- Increase in S&S recovery
- Increase in reinsurance coverage
- More closed without payment claims
- Claims closed faster, drives down ALAE
- Change in claim count definition

Part b: 2 points

Calculation of closure rate triangle accepts the following formula as correct:

Claims Closure Rate					
	=(Claims Reported-Claims Oustanding)/Claims Reported				
Year	**@12**	**@24**	**@36**	**@48**	**@60**
2010	=(1400-800)/1400=42.9%	50.00%	60.00%	71.40%	81.00%
2011	35.30%	45.00%	59.10%	73.90%	
2012	50.00%	69.20%	89.30%		
2013	46.70%	77.40%			
2014	50.00%				

SAMPLE ANSWERS AND EXAMINER'S REPORT

Claims Closure Rate					
	=Claims Closed with Payment/Claims Reported				
Year	**@12**	**@24**	**@36**	**@48**	**@60**
2010	=(400)/1400=28.6%	33.00%	40.00%	47.60%	57.10%
2011	29.40%	35.00%	45.50%	60.90%	
2012	40.00%	57.70%	78.60%		
2013	36.70%	64.50%			
2014	41.20%				

Observations:

- Closure increase faster at later maturity
- Largest jump in % closed was in Yr2013 for all AYs
- Increase in closure rates at each evaluation
- Dip in closure rate in AY 2011
- Stability at age 12

Part c: 0.5 point

Additional info:

- Closed without payment claim counts
- Talk to management regarding changes undergone
- Talk to claim management about implementation of the change
- Claim re-opened ratio
- Change in average case reserves
- Changes in reinsurance structure or intercompany pooling arrangement
- Historical rate changes in premium
- Use non-premium exposure base to avoid distortion caused by rate change
- Whether definition of claim count changed
- Review data prior to 2010
- Ultimate loss ratio by year
- Change in claim count definition
- Changes in number of re-opened claims

Part d: 1.5 points

Functions of Schedule P:

- Evaluate reserve adequacy (part 2 and part 5)
- Supports and provides necessary disclosures for SAO (part 1)
- Reconciliation of data used in SAO (part 1)
- Premium trend (part 1)
- Shows split between known claims & IBNR claims (part 4 and 5)
- Necessary info to compute loss sensitive discount (part 7)
- Discount factor for IRS tax purposes (part 1)
- Payment discount factors (part 3)
- Development of Earned Premium (part 6)
- Calculate RBC R_4 and R_5 (part 1 and parts 2 & 3)
- Calculate IRIS ratios 11 & 12 (part 2)
- Calculate IRIS ratio 13 (part 2 & 6)
- Get competitor's paid loss development for entering new line (part 3)

- Overall profitability of line or in summary (part 1)
- Identify received and /or anticipated salvage and subrogation (part 1)
- Check for existence and size of non-tabular discount (part 1)
- Derive and review Case Reserve Triangle (part 2, 3 & 4)

EXAMINER'S REPORT

Parts a, b, and c required interpretation of data or situations, but many reasonable answers were possible for each part and candidates did not struggle to identify correct responses.

Part a

The candidate was expected to identify the trend in both the frequency and severity triangles. The candidate was also expected to explain the possible drivers for the observed trend. Common errors included:

- Commenting on small fluctuations from one number to the next and not describing general trend
- Drivers provided has no clear link with the observation stated
- Responses that would require Part 5 to be issued on a summary basis

Part b

The candidate was expected to know the formula for closure rate and compute the triangle correctly using the various claim counts triangle given. The candidate was also expected to state at least one observation based on the constructed closure rate triangle. Common errors included:

- Developing the claim count triangles into ultimate and used the ultimate as denominator when calculating closure rate
- Using incremental closed claim counts/outstanding claim counts=closure rate
- Calculating Claim closure rate=closed-with-payment/D&A premium

Part c

The candidate was expected to come up with at least one additional piece of information that is relevant to assessing change in claim closure rate. Common errors included:

- Failing to explain how the information is related to the situation described in the question
- Mentioning closed severity (which was already given in the question)
- Providing the same information stated in two different ways

Part d

The candidate was expected to come up with at least three functions of Schedule P. Common errors included:

- Listing either inaccurate or not specific parts
- Providing statements related to Schedule F

SAMPLE ANSWERS AND EXAMINER'S REPORT

QUESTION 15	
TOTAL POINT VALUE: 5.75	LEARNING OBJECTIVE: C1 / C3
SAMPLE ANSWERS	

Part a: 2.25 points

The company's changes in unrealized capital gains and changes in provision for reinsurance do not flow through to the income statement.

Change in unrealized capital gain = $98 - $100 = -$2.
It was also acceptable to include the deferred tax asset. -$2*(1-.35)=-$1.3

Provision for reinsurance

Month	Days Overdue	Recovered	Received within 90 days
Jun	195	yes	yes
Jul	165	yes	yes
Aug	135	yes	yes
Sep	105	not yet	
Oct	75	not yet	
Nov	45	not yet	
Dec	15	not yet	

Reinsurance recoverable on paid loss & LAE more than 90 days overdue = $25.

Total reinsurance recoverable on paid loss & LAE + amounts received in the 90 days prior to December 31, 2014 = $25 * 4 + $25 * 3 = $175.

Test ratio = $25 / $175 = 14.3%

The reinsurer is non-slow paying because 14.3% < 20%.

Provision for reinsurance = (recoverable on paid loss & LAE more than 90 days overdue, excluding amounts in dispute + recoverable on paid loss & LAE in dispute) * 20% = $25 * 20% = $5.

Change in provision for reinsurance = prior year's – current year's = $0 - $5 = -$5.

Part b: 2.5 points

Sample Solution 1 (using income):

Gross premiums earned during 2014 = $1,000 * (1/24 + 1/12 * 8) = $708.

Gross losses paid during 2014 = $50 * 7 = $350.

Gross losses unpaid as of December 31, 2014 = $400 + $100 - $350 = $150.

Gross losses incurred during 2014 = gross losses paid during 2014 + change in gross losses unpaid = $350 + ($150 – 0) = $500.

Net premiums earned = $708 * 50% = $354.

Net losses incurred during 2014 = $500 * 50% = $250.

Net commission incurred = direct commissions incurred – ceded commissions incurred = $1,000 * 10% - $500 * 15% = $25.

Other underwriting expenses incurred during 2014 = net commission incurred + general expenses + taxes, licenses and fees = $25 + $40 + $21 = $86

Net investment income earned = total gross investment income – investment expenses = dividend incurred – investment expenses = $10 - $8 = $2.

Change in realized capital gain / (loss) = $95 - $100 = -$5.

Net income = premiums earned – losses incurred – LAE incurred – other underwriting expenses incurred + net investment income earned + net realized capital gains = $354 – $250 – $30 – $86 + $2 + -$5 = -$15.

Change in policyholders' surplus = net income + change in net unrealized capital gains + change in non-admitted assets + change in provision for reinsurance = -$15 + -$2 + 0 + -$5 = -$22.

Sample Solution 2 (using assets and liabilities):

Assets:

	Item	Amount	Note
	Stock purchased	-200	
	Gross WP	1000	
	Ceded WP	-500	
	Commission	-100	
	Ceding commission	75	from 15% of 500
	Expenses	-99	from 30+21+8+40
	Paid loss	-350	from 7*50
	Reins recovered	75	from 3*25
	Reins recoverable	100	from 4*25
	Stock sold	95	
	Common Stock held	100	from book value of stock bought on 2/1/14
	Dividends	10	
	Total Assets	206	

Liabilities:

	Item	Amount	Note
	UEPR	146	from gross EP=1000*(1/24+8/12)= 708 Gross UEP= 1000-708=292 Net UEP= 292/2=146
	Loss reserves	150	from (400+100)-350
	Ceded loss reserves	-75	from 150/2
	Total Liabilities	**221**	

Change in PHS from Balance Sheet: **-15** from 206+(-221)

Change in PHS from non-Balance Sheet items: **-7**

Change in provision for reinsurance	-5	
Change in Unrealized capital gains	-2	
Total	-7	
Total Change in PHS:	**-22**	from -15+(-7)

Part c: 1 point

- The provision for Reinsurance decreases the Surplus and Ceding Commission paid by the reinsurer provided Surplus aid to the PHS. Net Income was negative due to high loss ratio (80%) and high Commissions (10%) on the whole amount of premium (no DPAC for SAP)
- U/W Losses are too high. Expenses are incurred immediately and not amortized so EP is not enough to cover losses and expenses. Slow paying reinsurer increases the provision for Reinsurance which adversely changing surplus.
- Insurer entered into reinsurance agreement to provide surplus relief. PHS increased due to the treaty. Investment in common stock – change in value impacts the surplus along with dividends earned.
- The reinsurance paid a fixed commission which immediately increases assets & increases surplus. If the reinsurer is slow paying and results in an increase to the reinsurance provision which is a liability that decreases surplus.
- Reinsurance Company paying after 90 days is contributing significantly to the decrease in the SAP surplus. The ceding Commission from the reinsurance contract is providing significant surplus relief. W/o this the surplus would have decreased even further.

EXAMINER'S REPORT

Part a

- The candidate was expected to be able to identify and calculate the unrealized capital gain. The candidate was also expected to identify the change in the provision for reinsurance and know the required calculations.
- Some candidates included the calculation of the change in the reinsurance provision in part b instead of part a; credit was awarded in either case.
- Common errors included:
  - determining the provision but not identifying the change in provision which is the adjustment to the surplus
  - not including the correct amounts in the numerator and the denominator of the slow paying ratio

Part b

- The candidate was expected to recognize all the relevant components of the income statement and how to calculate them.
- The more challenging aspects were the monthly pro rata earning routine and the determination of the ceding commission.
- Common errors included incorrect calculation of the gross earned premium and incorrect calculation of net commission amount (agent and ceding).

Part c

- The candidate should be able to identify two different factors that contribute to the change in the PHS.
- The most common error was providing answers that were very generic instead of ones

related to this specific company.

SAMPLE ANSWERS AND EXAMINER'S REPORT

QUESTION 16	
TOTAL POINT VALUE: 4.25	**LEARNING OBJECTIVE: C1**
SAMPLE ANSWERS	
Part a: 1.25 points	

Any five of the following:

- Changes in Incurred Loss and LAE
- Discounting
- Premium Deficiency Reserve
- High Deductibles
- Subsequent Events
- Reinsurance Assumed/Ceded
- Summary of Significant Accounting Policy

Part b: 1.5 points

- Change in Incurred Loss
  - (2,047,000+353,000)-(1,860,000+265,000) = 245,000;What line of business was cause
  - Changes in Losses Note would say losses incurred on prior years are 245K = 2687-287-2155 and what caused this
- Discounting
  - Include discount of 3% and where it was derived (i.e. US life table)
  - Tabular discount of 3%; assumption and basis
- Premium Deficiency Reserve
  - 37,000; was investment income considered
  - 0; this assumes the figure in the table is gross of investment income
- High Deductible
  - Company needs to disclose reserve credit of $1.2M and the billed but uncollected amount of $800K
  - Amount of recoverables on high deductible policies: 800+1200=$2M
- Subsequent Event
  - $50 million loss occurred on 1/15/2015. This event is a Type 2 (non-recognized) event, but needs to be reported because it will be material in future reserves
  - On Jan 15 a new loss of $50M occurred. This is a type 2 material subsequent event
  - Disclose type 2 unrecognized subsequent event occurred that will have a material impact
  - Since this is a non-recognized subsequent event that would have a material impact disclose large factory explosion
- Reinsurance Assumed/Ceded
  - State there is no assumed or ceded reinsurance

Part c: 1.5 points

- Change in Incurred Loss
  - Can help users identify whether there are significant adverse development. If adverse development consistently occurs, may question under-reserving
  - What caused this development to assess whether material adverse risk still remains and determine whether reserves are reasonable
  - Shows how company's reserves are developing (if high adverse development,

could hurt surplus, must investigate cause further) just reserve strengthening? Or deficient reserves?

- Discounting
  - Different companies discount differently so this helps make Financial statements more consistently comparable
  - Helps user understand stated basis of reserves and assumptions used in calculation of discount. Different companies use different methods to determine reserves
  - Know the discounting method and amount of this insurer; user can compare different company's reserves without misleading
- Premium Deficiency Reserve
  - If no note, users may not know that deficiency exists as it is grouped with UEPR, May indicate unprofitable business
  - Can assist if non-zero by pointing to lines that have rate adequacy issues; PDR of zero does not necessarily mean that rates are adequate
  - Premium Deficiency note would enable the user to detect that rates have not been adequate. The PDR could be hidden in the UEPR and the only way a user would know is by looking at the Notes section
  - If the premium deficiency is accounted for by modifying the UEPR in the annual statement, this note is the only way user would know if deficiency. Could lead user to believe that rates are inadequate
- High Deductibles
  - Help users to estimate the credit risks associated with large deductible recoveries. If there's a major impact on company's surplus
  - Large deductible policies help user assess the credit risk that insurer is exposed to. User can take the fact that these recoverables may not be recovered into account when evaluating the company's financial health
  - If company has significant amount of recoverables under high ded policies would want to assess credit risk that might reduce financial strength
- Subsequent Event
  - Provide caveat that though Annual Statement is reflective of 2014 results there is an outstanding situation the co is exposed to. Gives regulators sense that financial condition may be weaker than implied by '14 statement
  - User would not know impact if not disclosed; amount 50M is material to the F/S and may cause insolvency
  - The subsequent event note informs us of the company's exposure to events not considered in the annual statement. The 50M loss will likely have a significant impact on surplus leaving the company in financial difficulty
  - User can see if subsequent events have caused a material change to the insurer's health after the evaluation date of the financial statement
  - Since the insured loss was $50M this event has a material impact on the financial health of the company, which the user would not be able to ascertain without the note (not included in financials as non-recognized)
- Reinsurance Assumed/Ceded
  - Since no reinsurance user will be notified that company may be at risk for

insolvency with large losses

- The note on reinsurance would simply indicate that the company is not reinsured and this might raise concerns to the user because WC insurance is usually written without claim limits and has a rather wide probability distribution and long-tail exposure
- Important to know no reinsurance because exposed to upper limit on all losses, particularly important as WC medical could skyrocket
- Reinsurance is very critical to protect the policyholder. Reinsurance provides cat protection and stabilizes income. Regulator and policyholders will be very concerned of this as policyholders will not get the full amount of loss in the event of insurer's insolvency
- Significant Accounting Policies – no candidate used this Note for part c

EXAMINER'S REPORT

Part a

The candidate was expected to be able to review the information given and identify five notes to the Financial Statement that would specifically reference that information. The candidate did not need to provide exact names of these Notes as long as they addressed the correct concepts. Common errors included retroactive reinsurance, unearned premium reserves, catastrophes, investments, and notes to other sections in the annual statement (sch. P, sch. F, page 14, etc.).

Part b

The candidate was expected to choose three notes from part a and provide any values and descriptions that should be disclosed in that note. This question was straightforward and the majority of the values required no calculations. Common errors included:

- Miscalculating the change in incurred losses by including the current year
- Providing the premium deficiency reserve without a comment on investment income
- Failing to acknowledge the subsequent event was not included in the annual statement
- Mentioning only one of the two values needed for high deductible
- Providing numerical values without including the description

Part c

The candidate was expected to explain how three notes could assist a user in evaluating the financial health of the company. This part of the question was the most challenging as the candidate had to go beyond the information given in the question to assess the usefulness of the information. Many candidates identified the risk that the note would illustrate; however, few provided the details that explained how this company's health was impacted by the risk. Additionally, many candidates listed general risks that weren't relevant to the particular company, such as reinsurance collectability risk when the company had no reinsurance, or non-tabular discounts when the company only disclosed tabular discounts.

SAMPLE ANSWERS AND EXAMINER'S REPORT

QUESTION 17	
TOTAL POINT VALUE: 3	**LEARNING OBJECTIVE: C2**
SAMPLE ANSWERS	
Part a: 1.5 points	
R1 Fixed Income Bond Charge: 20,150 x 0.01 = 201.5 Bond Size Factor: 2.5 Bond Size Charge: (2.5-1) x 201.5 = 302.25 Asset Concentration: Total bond top 10 (20,150 - 550 - 600) x 0.01 = 190 R1 Charge = 201.5 + 302.25 +190 = 693.75	
Part b: 1 point	
R2 Charge Stocks: 9,100 x 0.15 = 1,365 Asset Concentration Factor: (9,100 – 200) x 0.15 = 1,335 R2 charge = 1,365 + 1,335 = 2,700	
Part c: 0.5 point	
Any two of the following: • Buy bonds from a larger set of issuers. • Invest in better rated bonds. • Shift portion of portfolio to US government guaranteed bonds which have an RBC factor of 0. • Shift from class 02 to class 01 bonds where the charge is lower, 0.3% • The insurer could place more bonds with issuer 11 and 12 (and less in issuers 1-10) so they wouldn't be included in the asset concentration factor. • If it increased stock holdings with issuers with low bond holdings, then it would incur lower asset concentration factors within R1 (but higher in R2)	
EXAMINER'S REPORT	
The candidate was expected to know how to calculate RBC charges for R1 and R2 as well as how portfolio changes can affect these charges. Many candidates demonstrated knowledge of the general concepts but failed to correctly complete the calculations.	
Part a	
Candidates were expected to accurately calculate the total R1 charge as well as each piece: bond charge, bond size charge, and asset concentration charge. Common errors included applying the bond size factor to the asset concentration charge, omitting the asset concentration charge, omitting the bond charge, and calculating the asset concentration charge using the formula for loss or premium concentration factors.	
Part b	
Candidates were expected to know how to calculate an R2 charge including the asset concentration factor and the stock charge. Common errors included omitting the asset concentration charge and calculating the asset concentration charge using the formula for loss or premium concentration factors.	
Part c	
The candidate was expected to know how adjustments to the portfolio could affect the R1 charge. Candidates needed to have two separate recommendations that would reduce the R1 charge. Common errors included giving two answers that were not substantially different, suggesting to	

buy more bonds without suggesting an increase in issuers, reducing the portfolio (since the question specifically states this is not allowed), and suggesting a method that would only redistribute bond holdings without reducing the asset concentration factor.

SAMPLE ANSWERS AND EXAMINER'S REPORT

QUESTION 18	
TOTAL POINT VALUE: 4.25	**LEARNING OBJECTIVE: C2 / E1**
SAMPLE ANSWERS	
Part a: 0.75 point	
Ceded Paid Loss= 2,625 + 2,000 = 4,625 Ceded Reserves = 0 Ceded Ultimate Loss = Ceded Paid Loss + Ceded Reserves = 4,625 + 0 = 4,625	
Part b: 3 points	
<u>**IRIS Ratio 2**</u> IRIS Ratio 2 = NWP/Surplus Numerator: NWP =12,500 Denominator: Adjust the Policy Holder Surplus (PHS) to account for the commutation Adjusted PHS = Current Year PHS as given + Commutation Price Paid – Ceded Reserves Commuted: 50,000 + 2,000 - 3,500 = 48,500 or Adjusted PHS = Current Year PHS as given + Change in Ultimate Ceded Loss: 50,000 + 4,625 – 6,125 = 48,500 Calculate the ratio NWP/ Adjusted PHS = 12,500 / 48,500 = 25.77% OR IRIS Ratio 2 = NWP/Surplus Numerator: NWP =12,500 Denominator: Adjust the Policy Holder Surplus (PHS) to account for the commutation and state tax rate and reserve discounting assumptions (example 35% rate, and no discounting) Adjusted PHS = Current Year PHS as given + Commutation Price Paid – Ceded Reserves Commuted: 50,000 + (2,000 - 3,500) * (1 - 35%) = 49,025 or Calculate the ratio NWP/ Adjusted PHS = 12,500 / 49,025 = 25.5% <u>**IRIS Ratio 7**</u> IRIS Ratio 7 = Change in PHS / Prior PHS Find the difference between the current adjusted PHS and the prior PHS and place in the numerator Adjusted PHS calculated above in Ratio 2 Change in PHS = Current Year Adjusted PHS – Prior Year PHS 48,500 - 55,500 = -7,000 Denominator: Prior year's PHS = 55,500 (given in the problem, does not require adjustment) Calculate the ratio Change in PHS/ Prior PHS = -7,000 / 55,500 = -12.6% OR IRIS Ratio 7 = Change in PHS / Prior PHS Find the difference between the current adjusted PHS and the prior PHS and place in the numerator Adjusted PHS calculated above in Ratio 2, tax effected	

Change in PHS = Current Year Adjusted PHS – Prior Year PHS 49,025 - 55,500 = -6,475
Denominator: Prior year's PHS = 55,500 (given in the problem, does not require adjustment)
Calculate the ratio Change in PHS/ Prior PHS = -7,000 / 55,500 = -11.67%

IRIS Ratio 11
IRIS Ratio 11 = 1 yr. Loss Development/ Prior PHS
Calculate the adjusted 1 yr. Loss Development as a result of the commutation
1 yr. Loss Development = 10,750 - 2,000 + 3,500 = 12,250 or
1 yr. Loss Development = 10,750 + 6,125 – 4,625 = 12,250
Denominator: Prior Year PHS = 55,500 (given in the problem, does not require adjustment)
Calculate the ratio 1 yr. Loss Development/ Prior PHS = 12,250 / 55,500 = -22.07%

Part c: 0.5 point

IRIS Ratio 5: Two-Year Overall Operating Ratio
Will help regulators assess the operating profitability of the company, if the combined ratio is below 100% other unusual values are less of a concern

IRIS Ratio 12: Two-Year Reserve Development to PHS
Will help regulators determine if there is a history of adverse development.

IRIS Ratio 13: Estimated Current Reserve Deficiency to PHS
Will help the regulator determine if the reserves are adequate.

IRIS Ratio 1 : Gross Premium Written to PHS
Based on the very low value of Ratio 2, regulator should check the GWP to Surplus, to assess the company's reliance on reinsurance and determine if they are too highly leveraged

IRIS Ratio 3 : Change in NWP
Due to the shrinking surplus in Ratio 7, the regulators may want to investigate whether the company is growing or shrinking based on the change in NWP, because they may not have be able to support the growth

IRIS Ratio 4: Surplus Aid to PHS
Given that the Ratio 7 is below the usual range, regulators should calculate the Surplus Aid to PHS to determine if the company is relying too heavily on reinsurance and assess whether they need to remove the aid from the other ratios calculated

IRIS Ratio 6: Investment Yield
Regulators may want to determine if the company is obtaining an investment yield that is able to compensate for the adverse development observed and additional net reserves taken on.

IRIS Ratio 8: Change in Adjusted PHS
Due to the unusual value for Ratio 7, regulator may want to review the change in surplus that can be attributed to operations only

SAMPLE ANSWERS AND EXAMINER'S REPORT

IRIS Ratio 9: Adjusted Liabilities to Liquid Assets
Regulator may want to review if the insurer has enough assets to cover their liabilities given that the reserves have been developing adversely

EXAMINER'S REPORT

The candidate was expected to know how to adjust ceded loss amounts and policy holder surplus for a reinsurance commutation, as well as how to calculate and apply IRIS ratios.

Part a

The candidate was expected to know that after the commutation:

- the ceded paid loss should be increased by the price paid for the commutation
- the ceded loss reserve is set to zero
- the ceded ultimate loss = ceded paid + ceded reserve

Most candidates understood that the ceded reserves should be set to zero. However, most candidates did not get the ceded paid loss and ceded ultimate loss calculations correct.

Part b

In order to properly answer part b, candidates were expected to know the following:

- IRIS Ratios, 2, 7, and 11
- How to adjust the current year surplus for the impact of the commutation
- How to adjust the one year loss development for the commutation

Common errors included:

- Adding the price of the commutation to the Net Written Premium in ratio 2
- Not adjusting the current PHS for the impact of the commutation at all or correctly in ratios 2 and 7
- Subtracting the Current PHS from the Prior PHS in ratio 7, thus reversing the sign and interpretation of the result
- Dividing by the current year PHS instead of prior years PHS in Ratios 7 and 11
- Trying to adjust the Prior Year PHS for the impact of the commutation in ratios 7 and 11
- Not adjusting the 1 yr. Loss Reserve Development for the impact of the commutation in ratio 11
- Not knowing the formula for IRIS Ratio 7

Part c

The most common error was not basing the answer to this part on the results of part b. (i.e., the candidate just listed and/or described 2 IRIS ratios but did not tie them back to part b).

QUESTION 19	
TOTAL POINT VALUE: 5.25	LEARNING OBJECTIVE: C2 / C3
SAMPLE ANSWERS	

Part a: 1.5 points

$RBC = R_0 + \sqrt{R_1 + R_2 + R_3 + R_4 + R_5}$

$RBC = 26 + \sqrt{78^2 + 104^2 + 78^2 + 260^2 + 156^2} = \$365$

$Authorized\ Control\ Level\ (ACL) = 0.5 * RBC = 0.5 * 365 = 182.5$

$RBC\ Ratio = \frac{Total\ Adjusted\ Capital}{ACL} = \frac{335}{182.5} = 183.6\%$

Company Action Level is triggered (from 150% to 200%)

The state department of insurance is not required to take action

The company must submit a plan of action to the insurance commissioner of the domiciliary state explaining how the company intends to obtain the needed capital, or to reduce its operations or risks to meet the RBC standards.

Part b: 2.75 points

$Assets = Free\ Surplus + Solvency\ Capital\ Requirement\ (SCR) + Risk\ Margin + Best\ Estimate\ Liabilities$

Solvency Capital Requirement = one-year 99.5% Value at Risk (VaR)=350

Risk Margin and Best Estimate Liabilities are calculated based on the fair value of claims liabilities and risk margin with the following adjustments:

- R-i=6%; i=risk free rate +illiquidity margin
- Required Capital = SCR at each point in time

	Total	2015	2016	2017
Payments in Period	350	200	100	50
Payment Duration		0.5	1.5	2.5
Discount Rate (i)		1%	1%	1%
PV of Payment	346.30	199.01	98.52	48.77
Required Capital (SCR)		350	350	350
Risk Cost of Capital		6%	6%	6%
Cost of Capital in Period		21.0	21.0	21.0
Duration		1.0	2.0	3.0
Discount Rate (i)		1.0%	1.0%	1.0%
Associated Risk Margin	61.76	20.79	20.59	20.38

Best estimate liabilities	346.30
Risk margin	61.76
Solvency capital requirement	350.00
Total required assets	758.06

IFRS Assets = 800 which is > 758.06

Therefore, no regulatory intervention required.

SAMPLE ANSWERS AND EXAMINER'S REPORT

Part c: 1 point

- Solvency II uses IFRS assets, while RBC is based on SAP values. This causes differences in the asset valuation. For example, IFRS has different standards for a risk transfer to be considered reinsurance.
- Required capital under Solvency II is based on the 99.5% VaR, while RBC is not based on modeled results.
- Reserves are not discounted under RBC, while Solvency II discounts reserves and adds a risk margin.
- Solvency II can be tailored to individual companies (ORSA), while RBC uses the same set of formulas for all companies.
- RBC does not consider many risks which Solvency II does. These risks include:
    - Interest rate risk
    - Catastrophe risk
    - Operational risk
- RBC has four action levels based on the RBC ratio, while Solvency II has two quantitative requirements (SCR and MCR).
- Solvency is principle based, while RBC is rule based.
- Solvency II requires more disclosures and is more transparent, therefore increasing market discipline and potentially leading to less regulatory action. Calculations underlying a company's RBC are confidential, even though the RBC formula results are available to the public.

EXAMINER'S REPORT

Parts a and c asked candidates to demonstrate knowledge of RBC and Solvency II. Part b was challenging, as it required execution of a complex Solvency II capital calculation.

Part a

Candidates were expected to calculate the authorized control level and RBC ratio, identify the appropriate action level, and describe the required actions for the regulator and the company. Common errors included not properly identifying the Company Action Level or the company or regulatory actions to take. Some candidates made calculation errors.

Part b

Candidates were expected to calculate the present value of liabilities, add a risk margin, determine if the company has any free surplus over the technical provisions and SCR and explain whether any regulatory action is necessary. Common errors included:

- Not accounting for risk margin at all
- Incorrectly calculating the discount rate
- Not correctly comparing IFRS assets to required assets (or, equivalently, not correctly comparing required capital to held capital)
- Incorrectly identifying the Solvency Capital requirement (for example, as 99% VaR)
- Failing to identify the required capital as being equal to the SCR

Most candidates failed to identify the required capital. Other measures of required capital were accepted if candidates stated the assumptions they used.

Part c

Candidates were expected to describe two differences between RBC and Solvency II that could result in different regulatory actions. The most common error was not providing a complete

answer – for example, describing one aspect of Solvency II but not describing how it differed from RBC.

SAMPLE ANSWERS AND EXAMINER'S REPORT

QUESTION 20	
TOTAL POINT VALUE: 3.75	**LEARNING OBJECTIVE: C4**
SAMPLE ANSWERS	
Part a: 3.25 points	

- Indirect Approach
  - Regular Taxable Income (RTI) declines by $80m(4%) + $60m(3%)(15%) = $3.47m
  - Alternative Minimum Taxable Income (AMTI) declines by $3.47m + 75% [$60m(3%)(85%)] = $4.6175m
  - On 1/1/2015, the insurer buys $*x* of tax-free bonds and $140m-*x* of taxable bonds.
  - RTI increases by ($140m-*x*)(5.5%) + *x*(4%)(15%) = $7.7m - 4.9%*x*.
  - AMTI increases by $7.7m- 4.9%x + 75%(*x*)(4%)(85%) = $7.7m –2.35%*x*.
  - Set AMTI = 1.75(RTI) and solve for *x*
  - $7.7m – 2.35%x - $4.6175m = 1.75($7.7m – 4.9%x – $3.47m)
  - 6.225%x = $4.32m
  - *x* = $69.40m
  - Invest $69.40m in tax-free bonds and $70.60m in taxable bonds.
  - Alternative: could set x=dollar amount of taxable bonds and $140m-x of non-taxable bonds and solve appropriately.
  - Alternative: could set x=percentage of $140m proceeds invested in taxable bonds and (1-x) = percentage of proceeds invested in non-taxable bonds (or vice versa).
- Direct Approach
  - On 1/1/15, insurer's bond portfolio is as follows:
    - Taxable bonds @4% = $320m = 80%($400m)
    - Tax-free bonds @3% = $540m = 90%($600m)
    - Taxable bonds @5.5% = $140m – $*x*
    - Tax-free bonds @4% = $*x*
  - RTI = $320m(4%) – $3.4m + 0.15($540m)(3%) + ($140m – *x*)(5.5%) + 0.15(*x*)(4%)= $19.53m – 4.9%(*x*)
  - AMTI = ($19.53m – 4.9%(*x*)) + 0.75(0.85($540m)(3%) + 0.85(*x*)(4%)) = $29.8575m – 2.35%(*x*)
  - Set AMTI = 1.75(RTI) and solve for *x*.
  - $29.8575m – 2.35%(*x*) = 1.75($19.53m – 4.9%(*x*)).
  - $4.32m = 6.225%(*x*)
  - *x* = $69.40m
  - Invest $69.40m in tax-free bonds and $70.60m in taxable bonds.
  - Alternative: could set x=dollar amount of taxable bonds and $140m-x of non-taxable bonds and solve appropriately.
  - Alternative: could set x=percentage of $140m proceeds invested in taxable bonds and (1-x) = percentage of proceeds invested in non-taxable bonds (or vice versa).
- Some candidates recognized there was algebraic simplification that lowered the number of calculations:

- 0.2 X AMTI = 0.35 X RTI
- 0.2 X [RTI + 0.75 X (Income that Escapes Taxation)] = 0.35 X RTI
- RTI + 0.75 X (Income that Escapes Taxation) = 1.75 X RTI
- 0.75 X (Income that Escapes Taxation) = 0.75 X RTI
- Income that Escapes Taxation = RTI
- Taxable bonds @4% = $320m = 80%($400m)
- Tax-free bonds @3% = $540m = 90%($600m)
- Taxable bonds @5.5% = $140m – $*x*
- Tax-free bonds @4% = $*x*
- RTI = $320m(4%) – $3.4m + 0.15($540m)(3%) + ($140m – *x*)(5.5%) + 0.15(*x*)(4%)= $19.53m – 4.9%(*x*)
- Income that Escapes Taxation = 0.85($540m)(3%) + 0.85(*x*)(4%) = 13.77 + 3.4%(x)
- $19.53m – 4.9%(*x*) = $13.77 + 3.4%(*x*)
- *x* = $69.40m
- Invest $69.40m in tax-free bonds and $70.60m in taxable bonds.
- Alternative: could set x=dollar amount of taxable bonds and $140m-x of non-taxable bonds and solve appropriately.

Part b: 0.5 point

Any two of the following:

- Yield: Stocks have higher expected yields than bonds.
- Diversification: It was once more difficult to diversify a bond portfolio than a stock portfolio.
- Asset liability management: Property-casualty reserves are inflation-sensitive. Bonds are not always a suitable funding vehicle.
- Statutory accounting principles and management dislike for erratic income due to the relative riskiness of stocks compared to bonds create incentives for insurers to hold bonds instead of stocks.
- Liquidity: having actively traded investments ensures there is a market to sell investments, if needed.
- Duration matching of assets and liabilities reduces or eliminates risk of having to sell bonds at a loss.
- Impact of the quality of investments on the RBC calculation.
- Regulator guidelines or limits placed upon an insurer's investment portfolio such as those proscribed by the NAIC Model Investment Law including:
  - The Defined Limit system
  - The Prudent Person system
- Desire to maintain IRIS Ratio 6, Investment Yield, in acceptable range.
  - Candidates were required to refer to the specific ratio related to investments, although not by number.

EXAMINER'S REPORT

Part a

The candidate was expected to know how to optimize and insurers after tax income by calculating the amount to invest in taxable and tax free bonds. Common errors included:

- Applying incorrect yields to older bonds that haven't yet matured

• Applying incorrect yields to newly purchased bonds • Incorrect sign of other income or neglecting to include other income (required in direct approach) • Not writing amount invested in taxable/tax-free bonds at end of problem, capping final solution at \$0 or \$140 • Incorrect calculation of bonds maturing/remaining or incorrect amount to be reinvested • Not including income that escapes taxation from old bonds in AMTI calculation
Part b
The candidate was expected to know the drivers behind an insurance company's investment choices. Common errors included listing a consideration (rather than briefly describing), and mentioning double-taxation of dividends (this involves tax incentives).

QUESTION 21	
TOTAL POINT VALUE: 2	LEARNING OBJECTIVE: D1

SAMPLE ANSWERS

Step 1:

- The company must notify the domiciliary commissioner of the change in appointed actuary and that the newly appointed actuary meets the qualification standards
- The company must notify the DOI within 5 days
- You must tell the commissioner of the change in AA and submit the name of the new AA along with their qualifications

Step 2:

- The company must inform the commissioner of any disagreements related to the substantive wording of the SAO and provide a description of the disagreements and how they were resolved within 10 days.
- Within 10 days the company must notify the DOI of any disagreements in material wording, RMAD, scope, etc within the past 24 mos.
  The company must tell the DOI of any material disagreements with the AA over the past 24 months; in this case with the substantive wording in the SAO.

Step 3:

- The company must request that the former actuary provide a letter stating whether he/she agrees with the statements in the Company's letter
- The insurance company must ask the exiting AA to comment on any disagreements
- You need to reach out to the former AA and ask that they share their side of the story over any disagreements that may have happened.

Step 4:

- The company must appoint a new Appointed Actuary by the 2014 year end so they can opine on the 2014 SAO
- A new actuary must be appointed by the Board of Directors to opine on the 2014 year
- The actuary must be appointed by the Company's Board. This appointment must occur prior to December 31, 2014.

EXAMINER'S REPORT

This question on the Statement of Actuarial opinion asked the candidate to identify the steps needed as a result of changing its Appointed Actuary over substantive wording based on the 2014 SAO instructions. The steps are clearly identified within COPLFR.

- Step 1: Most candidates were able to generally mention to notify DOI, but often did not include any more detail. Also some candidates incorrectly said that the company needs to inform the board of directors instead of the Commissioner/DOI.
- Step 2: Many candidates struggled to hit the key points on this step. Frequently candidates only mentioned to inform the DOI of disagreements and left out detail on the type of disagreements, such as the substantive wording in the SAO. Another common answer that did not go into enough detail was the company needs to tell the Commissioner why the appointed actuary left or why they are changing their appointed actuary.
- Step 3: The most common error related to this step was omitting it entirely.
- Step 4: Many candidates left the last step blank or repeated one of the prior steps.

SAMPLE ANSWERS AND EXAMINER'S REPORT

QUESTION 22

TOTAL POINT VALUE: 2.25 | **LEARNING OBJECTIVE: D1**

SAMPLE ANSWERS

Part a: 0.75 point

1. Need to specify the insurance laws of (State of Domicile)
   OR
   missing the State

2. The actuary should disclose the minimum amount that the actuary believes is reasonable
   OR
   The amount by which the recorded reserve differs from the minimum amount the actuary believes is reasonable should be disclosed

3. Need specify the opinion is on "loss and loss adjustment expense" as opposed to just "loss"

Part b: 0.5 point

Yes, the carried reserves with the materiality standard are within the range of estimates.
$600<($590+$100)=$690< $700
OR
Yes, because the difference between the high estimate and the recorded reserve ($110M) is greater than the materiality standard ($100M)

Part c: 1 point

Calculation	**2014**	**2013**	**2012**	**2011**
Ratio	27/450	29/400	17/350	19/300
Percentage	6.0%	7.3%	4.9%	6.3%
	Yes	Yes	No	Yes

Since the calculation results in values above 5% in at least three years, the actuary needs to discuss what caused the adverse development.

For proposed language, anything that tied the adverse development back to a cause received credit, such as:

- Due to WC Tail
- Asbestos/Environmental changes
- Unanticipated loss trends
- Company knowingly booking below the range of reasonableness
- Change in statutes
- CAT losses developing adversely

EXAMINER'S REPORT

The question expected candidates to be aware of necessary language that is contained within a statement of actuarial opinion and to calculate standard IRIS ratios of One-Year Reserve Development to Surplus.

Part a

Candidates were expected to identify errors in the statement. Common candidate errors included not explicitly referencing that the Statement of Actuarial Opinion needs to include the specific domiciliary state laws that apply, stating "applicable" should be replaced with "State", or not referencing either the minimum reasonable reserve level or the dollar amount by which the booked numbers are deficient. Some candidates thought that the statement explicitly had to say deficient.
Part b
Candidates were expected to know how to determine whether RMAD exists. The most common error was failing to identify that potential reasonable development on carried reserves (110M) exceeded the materiality threshold (100M). Other errors included using IRIS ratios as justification for RMAD or using historical development relative to the materiality threshold.
Part c
Candidates were expected to be able to calculate the Actuarial Opinion Summary test values and provide sample language to be included in the disclosure related to these values. Common errors included: Calculating 1 yr. reserve development with current surplus, stating that 4 years were in excess of the 5% threshold, forgetting to include explanation for exceptional values, and stating that adverse development is caused by adverse development or reserve development (rather than a specific reason).

SAMPLE ANSWERS AND EXAMINER'S REPORT

QUESTION 23	
TOTAL POINT VALUE: 4	LEARNING OBJECTIVE: D1

SAMPLE ANSWERS

Part a: 2 points

- % of surplus, e.g. 10% of \$11M = \$1.1M
- % of recorded reserve, e.g.10% of \$14.6M = \$1.46M
- The amount of adverse deviation in reserves that would cause surplus to drop to next RBC action level (CAL); e.g. \$11M - 2*\$5M = \$1M
- The amount of adverse deviation in reserves that would cause surplus to drop below amount required to maintain current financial strength rating;
  e.g. \$11M - \$9.9M = \$1.1M

Part b: 0.5 point

- The materiality standard should address solvency concerns as the intended users of the SAO are regulators.
- Given above, and to be conservative, the lowest of the standards presented in part a would be a suitable choice.

Part c: 1 point

- If 10% of recorded reserve is greater than Adjusted Capital less CAL, then the NAIC Financial Analysis Handbook suggests that there is a presumption of a risk of material adverse deviation.
  - 10% x \$14.6M = \$1.46M > \$11M – 2 x \$5.0M
- If the recorded reserve plus the materiality standard is less than the high end of the actuary's range of reasonable reserve estimates, then there is a presumption of a risk of material adverse deviation.
  - \$14.6M + \$0.9M = \$15.5M < \$15.7M

Part d: 0.5 point

- The prior actuary's report is unavailable for review.
- Because the prior actuary's report is unavailable, the opining actuary is unable to determine if there are changes in assumptions and/or methodology that are material.

EXAMINER'S REPORT

Candidates were expected to know the requirements surrounding the issuance of Statements of Actuarial Opinion, e.g. different materiality standards, justifying a chosen materiality standard, assessing possible factors that would suggest a risk of material adverse deviation exists, and describing appropriate disclosures that should be included in the SAO when the prior actuary's report is unavailable for review.

Part a

Common errors included:

- 0.2M = distance to low end of the actuary's range
- 1.3M = width of actuary's range
- Any percentage of premium
- Percent of actuary's estimate rather than the carried reserve
- Amount to reduce surplus to ACL rather than CAL, the next RBC level below current

Part b

This part asked the candidates to justify their selection of a materiality standard from those they

listed in part a. Most candidates were able to state a reasonable explanation for their choice (e.g. amount that would cause RBC to fall to next action level) but did not provide a rationale for why this was of suitable choice (i.e. because intended users of the SAO are regulators who are primarily concerned with solvency).
Part c
This part asked the candidates to describe two reasons why the appointed actuary might conclude that a risk of material deviation exists. Most candidates were able to identify the position of the recorded reserve relative to the actuary's range as a reason to conclude a RMAD exists. However, very few identified that the Company would also fail the NAIC check-list test and thereby raise regulatory scrutiny regarding the type of RMAD disclosure. Common errors included: • recorded reserve is "close" to the low end of the actuary's range; • reference to the fact that the prior actuary's report was not available; • reference to possible general exposure factors such as asbestos & environmental exposures or catastrophic losses that may contribute to higher than normal uncertainty in estimating loss reserves. Given the facts that were provided, both of the numerical tests would suggest that a RMAD be included in the SAO, so it is unnecessary to assume that other hypothetical risk factors exist to conclude that a RMAD disclosure should be given.
Part d
This part asked the candidates to describe the appropriate disclosures regarding methods & assumptions that should be included in the Relevant Comments section of the SAO. Most candidates were able to correct identify that because the prior actuary's report was unavailable, the current actuary should disclose that he/she was unable to determine if there were any changes in assumptions and/or methodology. Common errors included: • failing to recognize that the prior actuary's report was unavailable • providing a list of other disclosures required, not just those pertaining to changes in methods and assumptions, e.g. RMAD • referring to how the materiality standard was determined

SAMPLE ANSWERS AND EXAMINER'S REPORT

QUESTION 24	
TOTAL POINT VALUE: 2.5	**LEARNING OBJECTIVE: D1**
SAMPLE ANSWERS	
Part a: 0.5 point	
Any one of the following: • An omission, understatement, or overstatement in a work product is material if it is likely to affect the intended user's decision making process or reasonable expectation • The amount that can cause a change in decision making for management, investors, consumers or regulators • An amount is material if including or excluding from disclosure would impact user's decision • The impact of a result or statistic such that a large enough change will result in a different decision by some or all intended users of the actuarial report • Material if it would influence the decisions of regulators/investors/business partners • Materiality relates to an actuarial work product being potentially misleading, leading to wrong decisions by the products intended users • Materiality is the amount of deviation from expected results that would make a difference to the way that the intended end user of the work product would interpret the results • Actuaries only need to make disclosures on items that are material. Item that are material could cause the user of the actuarial communication to take a different action • One event would be material if the related users would change their decision regarding the insurance company's solvency and financial health • Something is material if the information is relevant to user and would significantly alter users assessment of future environmental conditions. Most prominently, materiality should be considered in context of reserving. • Materiality is the amount of deviation in a number that can change a reader's conclusion	
Part b: 0.5 point	
Any one of the following: • Future liability yet to be identified that it is not reliably estimable, such as courts ordering payments of insurance claims where perils are explicitly excluded (for example, Asbestos/Product liability). • There could be an unforeseeable event that the insurer did not consider being liable for – or the extent to which it was liable. A good example of this is asbestos reserves which have caused many insurer's losses to develop more adversely than anticipated. • Because some reserves are long-tail since claims can take years to settle and it's hard to estimate what's the final settlement would be. For example, asbestos exposure can last for years and normally the settlement amounts are large. • Economic and judicial issues are not quantifiable in an actuarial review. How these affect the company's financial position are nearly impossible to determine. For example, if a new law is put into place that allows liability claims to settle for double what they are currently, the company's reserves would most likely be inadequate but there is no way for the actuary to account for it. • One possible example is a large concentrated catastrophe exposure, such as from a	

terrorist attack. The actuary doesn't have enough historical data to develop a range of all possible outcomes. 9/11 was probably an example of losses we never expected to be exposed to.

- Not everything is known about claims at the time the reserve was set. For example, construction defect claims may have a large reporting lag.
- Some possibilities are so far remote that quantification and identification is very challenging. i.e.: Proliferation of lawsuits that would affect line of business. There is no way the actuary can foresee this, but it could happen.
- Would be very difficult to quantify and include in reserves any events that occur with extremely low frequency but cause extremely high severity. For example, it would be hard to include earthquake risk in NY property insurance where earthquakes are not particularly likely, but could cause severe losses if they occurred.
- Estimating reserves is to estimate future claim obligations. As the future events have not happened and are uncertain, it is not feasible to accurately determine a range of all possible outcomes. For example, prior to 2012, we would not have expected the damage that Sandy caused. This is a large catastrophic event, which is very hard to predict.
- Historical events are the usual basis for determining possible outcomes, but an event could occur that wasn't accounted for. For example, very high inflation on medical WC costs.
- For some lines of business, sufficient credible data may not be available to set reserves with a high degree of accuracy. Flood insurance has this issue and it is one of the reasons the federal government became involved. The risk was too difficult to price and reserve, making it uninsurable.
- Because the amount of liabilities may be uncertain, e.g. medical malpractice claims may depend on jury's decision (award is uncertain) and may be affected by legislative changes.
- Some lines of business have long reporting lags. Thus, you will never know exactly what is a reasonable range. For example, occurrence policies on medical professional liability coverage could potentially not see a claim for years.
- If a company writes a new line of insurance, there may not be any industry data available for use by the Appointed Actuary, so the actuary may not be able to estimate values without the data. An example would be a company is the first to write tuition insurance and it's new in the marketplace and no data is available.
- There could be a law change that retroactively affects all open claims. Example is a law change that requires that all auto claims should include payment for diminution of value (i.e. all existing and future claims).
- Not responsible for things which could happen in the future. Example – fluid used in auto air conditioning found to be cancer-causing, leading to large losses.
- The range will be too wide too include all possible range. Also, the impact of certain outcomes may not be quantifiable at the moment, eg. Mass tort claims.
- Actuary may be unaware of a situation arising. For example, many companies have recently been exposed to cyber hacks. Twenty years ago, the thought of this happening probably never crossed anyone's mind. Therefore, the actuary was unable to accurately build this into their range of reasonable estimates.

Part c: 1.5 points

Coastal Homeowners

- Growth → new business may not be as predictable so greater risk. Lack of experience → greater risk reserves/rates are inadequate. Combined growth and not much experience means lots of RMAD.
- The growth may impact/distort some standard actuarial methods, unless they can be accurately accounted for. The lack of experience will also make accurate reserve estimates very difficult, especially give the CAT nature of the coastal area. This will likely increase the possibility that RMAD exists.
- Coastal influence: Lack of available expertise can interact with growth in a soft market to cause risk for material adverse deviation. The soft market can cause UW guidelines to be relaxed. If claims handlers lack experience, they may not adjust their claims practices accordingly, meaning that claims reserves may be inadequate.
- Since the company is expanding during a soft market (lower premium) without prior experience, the actuary could conclude that the carrier has a risk of a large CAT event and isn't properly handling this risk due to lack of experience w/product. Thus there is a RMAD since a large cat event can hit the reserves.

Mortgage

- If unemployment increases and home prices decrease at the same time, there would be significant defaults on mortgages => people could no longer afford their homes and can't sell them for what they owe. This would cause mortgage insurance to be under reserved and there would be significant risk of adverse development.
- If the unemployment rate increases and home prices decrease, there will be a much higher rate of default and banks will not be able to recover the outstanding balance due to the home price decrease. This would increase the RMAD.
- Unemployment rate – sustained high unemployment rate could result in more foreclosures. Change in home prices – put homeowners underwater if the drop is drastic. In combination the two factors could increase foreclosure rates and hence related losses.
- If increasing unemployment and decreasing prices, greater chance of default, meaning wider range for mortgage insurance reserves, meaning greater risk of RMAD.
- Increasing home prices with decreasing unemployment rates could make an actuary less concerned with risks of foreclosure and mortgage company solvency. Less risk and uncertainty than if one or other or both factors.
- An increase in home prices accompanied by a reduction in unemployment would cause an actuary to worry less about adverse development than if unemployment was increasing.

Automobile

- If the value of the US $ goes down & parts needed to repair cars from collisions are only available in foreign market => new parts are pricier b/c of exchange rate => a company's reserves for auto phys dam would be too low b/c prior average repair costs have now cone up significantly => reserves will show significant adverse deviation.
- A lot of auto parts are made abroad, so if dollar weakens then parts will cost more, leading to increased auto repair costs due to reduced parts availability as parts suppliers search for cheaper parts. Combo results in material adverse deviation in

auto book (more rental car coverage and higher priced parts)

- If car parts for foreign made vehicles become scarce at the same time that the dollar weakens, then severities for auto physical damage could significantly increase, leading to a risk of material adverse deviation.
- A stronger dollar in US coupled w/increase availability of repair parts could lead to cheaper rates to fix cars. This could lead to less uncertainty and less chance of RMAD.
- No significant RMAD if there is a favorable FX rate change. It may be cheaper to buy new cars from overseas which would offset the lack of repair parts. Getting a new car would be cheaper than replacing a part. Thus reserves could remain unchanged.

EXAMINER'S REPORT

Part a

The candidate was expected to know the meaning of materiality but was not expected to quote a definition verbatim. Common errors included:

- Only providing a description of possible metrics for determining materiality.
- Not mentioning that materiality depends on the user/audience – it was not sufficient to state that it would change/affect the actuarial opinion with no mention of the impact to the user.
- Simply saying it was something that needed to be disclosed.
- Attempting to define material adverse deviation rather than defining the concept of materiality.

Part b

The candidate was expected to clearly state a reason for not considering all of the possible outcomes when establishing a reserve range. This should include an explanation/example as to why this reason causes difficulties. Common errors included:

- Not providing an example.
- Stating a description that was too broad, such as "uncertainty in claims", "too many risks", "exposures with a lot of uncertainties", "limited data"

Part c

Candidates were expected to describe the interaction of the risks, including the correct combination of directions for the two risks, as well as give a valid outcome of the interaction as they relate to risks and uncertainties that could result in MAD. This part of the question required candidates to apply the concepts to situations that were not specifically described in the readings. Common errors included:

- Not describing why the interaction or combination of the two risk factors was significant. Some candidates considered each risk factor individually rather than as a combination, or only discussed one of the risks.
- Not making a specific link to the impact of the risk factors on material adverse deviation.
- Providing overly general descriptions of the impact, such as "leads to uncertainty" or "leads to insolvency".
- For 1, some candidates discussed low or inadequate premiums when growing in a soft market. On its own, this is not directly related to MAD.
- For 2 and 3, many candidates did not identify the direction for the risk factor.

SAMPLE ANSWERS AND EXAMINER'S REPORT

QUESTION 25

TOTAL POINT VALUE: 2	**LEARNING OBJECTIVE: D1**

SAMPLE ANSWERS

Part a: 1 point

Any four of the following:
- Date of Review
- Source of data (name, affiliation)
- Evaluation date
- Reconciliation to Schedule P
- Are you opining on UEPR or long duration contracts?
- Reviewed methods/assumptions used in determining reserves listed in Exhibit A
- Reviewed data for reasonableness/consistency
- If there are any reserve amounts the actuary is not opining on
- Reflect Disclosure Items Exhibit B

Part b: 1 point

Any four of the following:
- Whether a Risk Margin is used, and basis for risk margin
- Amount of reserve discount
- Amount of tabular discount
- Amount of non-tabular discount
- Discount table used/description of tabular discount/basis & assumptions for tabular discount
- Determination/basis/selection method/methodology of discount rate (also source)
- Description of tabular discount
- Material changes in discounting methods
- Specific risks/uncertainties with regard to timing of future payments
- Accounting date
- Valuation date
- Review date
- If any assumption/method was prescribed by applicable law (permission granted)
- If a range is specified, basis for the range
- Significant limitations that constrained actuaries analysis
- Materially differs from ASOP 20
- Selection of Tabular discount rate
- Selection of Non Tabular discount rate

EXAMINER'S REPORT

The candidate was expected to know details regarding the Scope Section for the NAIC Statement of Actuarial Opinion and what needs to be disclosed on an actuarial communication in regards to discounting.

Part a

- The candidate was expected to know 4 items in the SCOPE paragraph: Date of Review, Source of Data, Evaluation Date, Reconciliation to Schedule P, but many other areas, such as reviewed data for reasonableness, could be mentioned.

- Common errors included:
  - Unpaid loss reserve—net or gross or Unpaid LAE reserve—net or gross
  - Providing items from the Opinion Paragraph (rather than scope)

Part b

The candidate was expected to know 4 items for discounting, such as whether Risk Margin is used and basis for risk margin, amount of reserve discount, material changes in discounting methods, and accounting date. Many other responses such as valuation date or review date could be mentioned. Common errors included:

- Saying discount rate alone, without "basis"
- Unclear language on amount of discount

SAMPLE ANSWERS AND EXAMINER'S REPORT

<table>
<tr><td colspan="2">QUESTION 26</td></tr>
<tr><td>TOTAL POINT VALUE: 2.5</td><td>LEARNING OBJECTIVE: E1</td></tr>
<tr><td colspan="2">SAMPLE ANSWERS</td></tr>
<tr><td colspan="2">Part a: 1.5 points</td></tr>
<tr><td colspan="2">

Contract #1:

Yes, contract #1 meets the criteria. It's a QS agreement that transfers a large portion of insurer's risk (80%), the provisional commission looks reasonable. Although there is a loss ratio cap, the cap is very high, so it should be able to transfer a large amount of insurance risk.
Contract 1 meets the criteria for reinsurance risk transfer. It is reasonably possible for the reinsurer to realize a significant loss, when loss ratio exceeds 200%. Quota share treaty ensures that the reinsurer assumes both underwriting and timing risks.
#1: reasonably self-evident due to high loss ratio cap, and high amount of % ceded in quota share
Contract #1 qualifies because It has no significant limiting features because it is a quota share contract with a high loss ratio cap
Meets because reinsurer assumes substantially all of the underlying risk due to being quota share with high loss ratio cap

Contract #2:

No, the premium paid is relatively high compared to the loss transferred. Need further analysis to investigate whether it's possible to realize a significant loss.
Exposed to limit of 0.75 x 1 + 0.56 x 5 = 3.55M:
Given the premium of 2.4M (or 2.47 incl. maintenance fee to avoid commutation), this is high relative to the limit. Moreover, losses in the high excess layers might be much less likely. It is therefore not reasonably self-evident that the contract transfers significant insurance loss.
Not reasonably self-evident because partial participation in high excess layers are significant limiting features.

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<tr><td colspan="2">Part b: 0.5 point</td></tr>
<tr><td colspan="2">

Transfers both underwriting and timing risk; It's reasonably possible for reinsurer to realize a significant loss (exception in cases where substantially all of the risk is transferred)
Timing risk; Underwriting risk; Reasonable possibility of significant loss
Contract must transfer both u/w (uncertainty of amount) and timing (uncertainty of payment) risks; Assuming entity must be reasonable possible to realize significant loss
Significant insurance risk; Reasonably possible that reinsurer may realize significant loss
Requirements for GAAP/SAP: if SAP recognizes then GAAP will too. No strict rules but industry standard is ERD>1% or 10-10 Rule, which says risk transfer exists if >10% chance that reinsurer incurs >10% loss.
To qualify for reinsurance accounting under GAAP the following criteria must be met: reasonable chance that the reinsurer will incur a significant loss and there is uncertainty in the timing and payments.

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<tr><td colspan="2">Part c: 0.5 point</td></tr>
<tr><td colspan="2">

Maintenance Fee

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    - Yes, it's a cash flow between insurer and reinsurer
    - Yes, cedent must pay this to reinsurer to prevent commutation
    - Yes should be included because it is a payment between insurer and reinsurer and could eliminate coverage if not paid
    - Yes, it would change the reinsurer's calculated profit or loss
- Profit Commission
    - No, risk transfer analysis focuses on loss scenario, which will have no profit commission
    - No, profit commission impacts cedent's results which should not be considered in risk transfer analysis
    - No, any indirect economic impact is already accounted for in premium
    - No, including would have potential for manipulation

EXAMINER'S REPORT

Candidates were expected to have a good grasp of the fundamentals of risk transfer and be able to use a basic understanding of the material and apply it to specific examples.

Part a

Candidates were expected to be able to evaluate the "reasonably self-evident" criteria for reinsurance contracts. Common errors included: not providing enough information, assuming that any loss ratio cap meant no chance of significant loss even if cap is high, and misunderstanding commutation clauses, reinsurer's margin and profit commission. Some candidates seem to have been thrown off by the sliding scale commission stated in the question for Contract #1 as "90% - LR, if 62% < LR < 71%" and misinterpreted that as the commission is 90% when the LR is between 62% and 71%.

Part b

Common errors included providing an incomplete answer, such as referencing the 10-10 or 1% ERD rule without discussing how it relates to the GAAP requirements. Many candidates confused the idea of underwriting risk with a chance of significant loss.

Part c

This question required a deeper understanding of risk transfer than part b. Common errors included assuming that a maintenance fee is not a cash flow between insurer and reinsurer, and that not including profit commission would lead to manipulation.