15. (4 points)

Given the following direct and assumed premium and loss information for an insurance company that started writing business on January 1, 2015 (in millions of dollars):

Total premiums written during 2015	220
Total premiums earned during 2015	120
Total losses unpaid as of December 31, 2015	80
Policyholders' Surplus as of December 31, 2015	40
Total losses paid during 2016	35
Accident year 2016 losses paid during 2016	20
Total losses unpaid as of December 31, 2016	150
Accident year 2016 losses unpaid as of December 31, 2016	75

Additionally:

- There are no Defense and Cost Containment expenses.
- On January 1, 2015 the insurer entered into a quota share reinsurance agreement, with a non-affiliated reinsurance company, covering 70% of its business written. This contract was renewed on January 1, 2016.
- The ceding commission for the reinsurance agreement is 30%.

a. (1 point)

Determine whether the insurance company's 2015 IRIS ratio 4, Surplus Aid to Policyholders' Surplus, falls within the range of usual values.

b. (1 point)

Determine whether the insurance company's 2015 IRIS ratio 2 falls within the range of usual values.

c. (1.25 points)

Determine whether the insurance company's 2016 IRIS ratio 11 falls within the range of usual values.

d. (0.75 point)

Fully describe the impact on the insurance company's 2016 IRIS ratio 11 if the reinsurer were to become insolvent during 2016.

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QUESTION 15	
TOTAL POINT VALUE: 4	LEARNING OBJECTIVE: C2
SAMPLE ANSWERS	

Part a: 1 point

Ceded UEP = (220 – 120) * 70% = 70

Surplus Aid = 30% × 70 = 21

Surplus Aid/PHS = 21/40 = 52.5%

Greater than 15%, so unusual

Calculations could be done in a different order. For example, the ceding percentage and ceding commission could be applied to the WP and EP separately before doing the subtraction to find the ceded UEP.

Part b: 1 point

Sample 1

Adjusted PHS = 40 – 21 = 19 since IRIS 4 is unusual

NWP = 220 * (1 – 70%) = 66

IRIS 2 = 66 / (40-21) = 347%.

Less than 300%, so usual

Sample 2

NWP = 220 * (1 – 70%) = 66

IRIS Ratio 2 with original PHS= 66/40=1.65%

Surplus Aid/PHS = 21/40 = 52.5%

Adjustment for Surplus Aid= 165%/(1-.525)= 347%

Part c: 1.25 points

AY 2015 losses during 2016 = (150 – 75) + (35 – 20) = 90

AY 2015 One-Year Direct Reserve Development = 90 – 80 = 10

AY 2015 One-Year Net Reserve Development = 10 * (1 – 70%) = 3

IRIS 11 = 3/40 = 7.5%

Less than 20%, so usual

The calculation for the One-Year Net Loss Reserve Development could have been done in a different order and the impact of the ceding commission could have been calculated earlier.

Part d: 0.75 point

Sample 1

One-year net loss reserve development in the numerator would increase significantly as ceded loss recoveries are eliminated (or reduced) due to the insolvency.

Policyholders' surplus from prior year does not change.

Therefore, IRIS Ratio 11 would increase significantly due to the reinsurer's insolvency.

Sample 2

There would be no reinsurance recoverable, so the numerator would be 10

IRIS 11 would be 10/40=0.25 (which shows the candidate knows to use the prior year PHS, not the adjusted PHS)

EXAMINER'S REPORT

Candidates were expected to know and be able to calculate and to interpret IRIS ratios 2, 4, and 11

Part a

Candidates were expected to calculate IRIS 4 with the given information and determine whether it resulted in an unusual value (including stating the threshold).

Common mistakes included:

- Using WP instead of UEP
- Using a quota share percentage of 30% instead of 70%
- Using a ceding commission of 70% instead of 30%
- Using 30% as the ceding amount and then using 30% ceding commission rate to the result.

Part b

Candidates were expected to calculate IRIS 2 and determine whether it resulted in an unusual value (including stating the threshold).

Common mistakes included:

- Not adjusting the PHS

Part c

Candidates were expected to calculate IRIS 11 and determine whether it resulted in an unusual value (including stating the threshold).

Common mistakes included:

- Using the adjusted PHS instead of the original
- Calculating the one-year 2015 direct reserve development incorrectly not including the paid amount in 2016 on 2015 losses.
- Using the direct reserve development instead of net.

Part d

Candidates were expected to calculate the impact on IRIS 11 if the reinsurer were to become insolvent.

Common mistakes included:

- Stating that is the insurer and not the reinsurer who became insolvent and then tried to describe the impact of the insurer's insolvency

QUESTION 16	
TOTAL POINT VALUE: 2	**LEARNING OBJECTIVE: C2**
SAMPLE ANSWERS	

Part a: 1 point

Any two of the following:

- Compare IRIS Ratio 1:
  Company A: (2200 + 1000)/ 820 = 3.9
  Company B: (6500+300)/2400 = 2.8.
  Company A is more leveraged (3.9 > 2.8)
- Compare IRIS Ratio 2:
  Company A: (2200+1000-700)/820 = 3.05
  Company B: (6500+300-200) = 2.75
  - Company A IRIS 2 > 300% outside of range of usual values OR
  - Company A IRIS 2 > Company B IRIS 2 (3.05 > 2.75) thus Company A is more leveraged.
- Disparity between IRIS 1 and 2 is larger for A (3.9 vs 3.05) than B, thus insurer A may be relying too much on reinsurance (higher credit risk).
- Compare Assumed Premium / Gross Written Premium. Company A has higher ratio 1000/(2200+1000) = 31.25% compared to B, 300/(6500+300) = 4.41%. An insurer generally has less control over assumed business
- Compare Ceded Premium / Net Written Premium. Company A has a higher ratio 700/2500 = 28% compared to B 200/6600 = 3%. A is more reliant on reinsurance which poses a credit risk for uncollectable reinsurance.
- Compare lines of business:
  - Company A writes property lines of business, which are prone to catastrophes OR
  - Company A writes lines that are not well diversified. HO and Fire and Allied Lines are both prone to fire risks OR
  - Company A writes personal lines insurance (HO) which has less sophisticated insureds/voter concerns

Part b: 1 point

Any two of the following:

- Compare Net UW profit/ NWP (A: 10% vs B: 6.1%) OR Net UW profit/GWP (A: 7.8% vs B: 5.9%) OR Net UW profit/Surplus (A: 30.5% vs B: 16.7%) – Company B is less profitable than Company A
- Compare line of business:
  - Company B has longer tail lines with a higher chance of
    - adverse development OR
    - Mass Torts OR
    - asbestos and environmental claims.