17. (2.75 points)

An insurance company started writing business on January 1, 2015. The following information is available from its 2017 Annual Statement (all figures are in thousands of dollars):

SCHEDULE P - PART 1 - SUMMARY

Years in Which Premiums Were Earned and Losses were Incurred	Premiums Earned	
	Direct and Assumed	Ceded
2015	500	100
2016	1,150	230
2017	1,400	280
Totals	xxx	xxx

SCHEDULE P - PART 2 - SUMMARY

Years in Which Losses were Incurred	INCURRED NET LOSSES AND DEFENSE AND COST CONTAINMENT EXPENSES REPORTED AT YEAR END		
	2015	2016	2017
2015	220	240	260
2016	xxx	598	644
2017	xxx	xxx	756

SCHEDULE P - PART 3 - SUMMARY

Years in Which Losses were Incurred	CUMULATIVE PAID NET LOSSES AND DEFENSE AND COST CONTAINMENT EXPENSES REPORTED AT YEAR END		
	2015	2016	2017
2015	55	96	143
2016	xxx	150	258
2017	xxx	xxx	189

- Policyholders' Surplus as of December 31, 2017 is 500,000.
- The company has no reserve for Adjusting and Other Expenses.

a. (2.25 points)

Calculate the company's 2017 IRIS ratio 13 (Estimated Current Reserve Deficiency to Policyholders' Surplus).

b. (0.5 point)

Assume IRIS ratio 13 for this company is within the range of usual values. Using the Schedule P exhibits above, describe one reason that a regulator may be concerned with the reserve adequacy of this company.

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FALL 2018 EXAM 6US, QUESTION 17	
TOTAL POINT VALUE: 2.75	**LEARNING OBJECTIVE: C2**
SAMPLE ANSWERS	
Part a: 2.25 points	

Loss & LAE reserves, prior year = 592
(Schedule P, Part 2)-(Schedule P, Part 3) = ((240+598)-(96+150)=592)

One-year loss reserve development = 66
((260+644)-(240+598)=66)

Developed loss & LAE reserves, prior year = 658
(592+66=658)

Premiums earned, prior year = 920
(Direct & Assumed)-(Ceded) = (1,150-230=920)

Developed loss & LAE reserves to premium ratio, prior year = 0.715
(658/920=0.715)

Loss & LAE reserves, 2nd prior year = 165
(Schedule P, Part 2)-(Schedule P, Part 3) = (220-55=165)

Two-year loss reserve development = 40
(260-220=40)

Developed loss & LAE reserves, 2nd prior year = 205
(165+40=205)

Premiums earned, 2nd prior year = 400
(Direct & Assumed)-(Ceded) = (500-100=400)

Developed loss & LAE reserves to premium ratio, 2nd prior year = 0.513
(205/400=0.513)

Average ratio of reserves to premiums = 0.614
((0.715+0.513)/2=0.614)

Premiums earned, current year = 1,120
(1,400-280=1,120)

Estimated loss & LAE reserves required = 688
*(0.614*1,120=688)*

Loss & LAE reserves, current year = 1,070 *((260+644+756)-(143+258+189)=1,070)* Estimated loss & LAE reserve deficiency (redundancy) = -382 *(688-1,070=-382)* Current reserve deficiency (redundancy) to Policyholders' Surplus = -76% *(-382/500=-76%)*
Part b: 0.5 point
• There is adverse loss developments in every AY for the past two calendars years, indicating that the company has been under-reserved. • The company is new and may lack the necessary data and expertise to accurately reserve for new business. • The company has grown rapidly (e.g. unusual result for IRIS Ratio 3 from 2015 -> 2016), and rapid premium growth represents a risk to accurate reserving. • The rapid premium growth may be driven by lax underwriting controls or inadequate rates. • The rapid premium growth may distort the average loss date assumptions that underlie traditional reserving methods. • Despite the rapid growth the company has declined to add more reinsurance protection to limit its net loss exposure. • The company holds no reserve for Adjusting & Other. • Schedule P suggests that the company's business is long-tailed, which adds to the difficulty of accurate reserving. • IRIS 13 can be distorted by significant changes in premium.
EXAMINER'S REPORT
Candidates were expected to understand the IRIS 13 calculation, and to apply knowledge of Reserving and Schedule P to opine on the company's reserve risk.
Part a
Candidates were expected to accurately calculate IRIS 13. Common errors include: • Grouping years together incorrectly. For example, the "(first) Prior Year" reserves include <u>both</u> AY 2015 and AY 2016, evaluated at year-end 2016. Similarly, the current reserves to which the average ratio is applied encompasses all of AY 2015, 2016, and 2017. • Combining the (first) Prior Year and Second Prior Year preliminary ratio in a single quotient, rather than calculating separately and averaging the results. • Using gross premiums instead of net premiums.
Part b
Candidates were expected to accurately identify a risk from the information given, and connect that issue to Reserve Risk. Common errors include:

- Observing a fact from the information given but declining to explain why that issue represents Reserve Risk.
- Interpreting the decrease in Reserves as evidence that the company was over-reserved or adequately reserved (note that reserves <u>should</u> decrease over time as claims are paid, what matters is whether the ultimate is stable).

FALL 2018 EXAM 6US, QUESTION 18

TOTAL POINT VALUE: 3.5 | **LEARNING OBJECTIVE:** C2

SAMPLE ANSWERS

Part a: 1.75 points

Sample 1

RBC Ratio = Total Adjusted Capital / ACL

ACL = RBC * 0.5

$RBC = R_0 + (R_1^2 + R_2^2 + R_3^2 + R_4^2 + R_5^2)^{½}$

R_5 = 0.19 * Net Written Premium

Iris Ratio 2 = NWP / PHS

2.5 = NWP / 250

NWP = 625

R_5 = 0.19*625 = 118.75

$RBC = 30 + (60^2 + 50^2 + 70^2 + 150^2 + 118.75^2)^{½} = 248.18$

ACL = 0.5 * 248.18 = 124.08

RBC Ratio = 200 / 124.08 = 161.2%

Part b: 0.75 point

Company Action Level

Regulator Action – no action at this time

Company Action – submit plan to commissioner on how company will raise capital or reduce risk

Part c: 1 point

Iris Ratio 1 > 900% which is in the unusual range.

Iris Ratio 2 < 300% which is in the normal range.

This means the company is over-reliant on reinsurance. The regulator may be concerned about reinsurance collectability/credit risk.

EXAMINER'S REPORT

Candidates are expected to know the RBC and Iris Ratio formulas and RBC action levels.

Part a

Candidates were expected to know the RBC and Iris ratio formulas. Candidates were expected to know that R_5 uses Net Written Premium and that the Total Adjusted Capital is used to calculate the RBC Ratio.