

11. (3.5 points)

Below are excerpts from the 2017 Schedule P of two different insurers that began operations in 2014 and only write Workers' Compensation business:

Insurer #1					Insurer #2				
<b>Part 2D: Incurred Net Losses and Defense and Cost Containment (DCC)</b>					<b>Part 2D: Incurred Net Losses and Defense and Cost Containment (DCC)</b>				
Years in Which Losses Were Incurred					Years in Which Losses Were Incurred				
	2014	2015	2016	2017		2014	2015	2016	2017
2014	201	253	279	305	2014	298	283	280	275
2015	xxx	223	292	316	2015	xxx	299	291	283
2016	xxx	xxx	274	345	2016	xxx	xxx	308	291
2017	xxx	xxx	xxx	340	2017	xxx	xxx	xxx	295
Years in Which Premiums Were Earned			Premiums Earned		Years in Which Premiums Were Earned			Premiums Earned	
			Direct and Assumed	Ceded				Direct and Assumed	Ceded
2014			600	85	2014			500	100
2015			595	90	2015			585	155
2016			600	90	2016			645	200
2017			595	85	2017			725	265

a. (2 points)

Based on the information above, fully describe two reasons why a regulator may be more concerned about the financial health of Insurer #1 than Insurer #2.

b. (0.5 point)

Describe one analysis based on section(s) from Schedule P, other than Part 2, that could support the analysis in part a. above.

c. (1 point)

Briefly describe four limitations of using Schedule P to assess reserve adequacy.

## SAMPLE ANSWERS AND EXAMINER'S REPORT

### SPRING 2019 EXAM 6US, QUESTION 11

TOTAL POINT VALUE: 3.5

LEARNING OBJECTIVE: C1

#### SAMPLE ANSWERS

Part a: 2 points

##### Sample 1

Reinsurance Protection

Year	Ceded % of EP	
	Insurer #1	Insurer #2
2014	14.2%	20.0%
2015	15.1%	26.5%
2016	15.0%	31.0%
2017	14.3%	36.6%

Insurer #1 cedes less of its business than #2. Therefore they are more vulnerable when there is adverse development or large losses.

##### Sample 2

Reinsurance Protection

Insurer #1 is ceding a much smaller percent of their business than #2. This creates a risk for Insurer #1 in the case of a large loss and creates more volatility.

##### Sample 3

Reinsurance Protection

2 uses more reinsurance than 1. Reinsurance provides protection against CATs and large losses and reduces volatility. Since 1 only cedes 15% of its book each year, an adverse year could hit it hard and not have enough protection to save it from insolvency.

##### Sample 4

Growth

Zero growth rate / negative growth rate for insurer #1 compared to insurer #2 which are experiencing positive growth. This may indicate that insurer #1 is not competitive and unable to gain market share.

##### Sample 5

Growth

Insurer #1's D&A and Net EP is flat over time while Insurer #2 is growing each year (but not excessively so). Insurer #2's controlled growth likely indicates that it is more competitive in the market from Insurer #1, leading the regulator to believe that Insurer #2 is in a better position and better run than Insurer #1.

## SAMPLE ANSWERS AND EXAMINER'S REPORT

### Sample 6

#### Incurred Net Loss and DCC Development

AY	Insurer #1			Insurer #2		
	2015	2016	2017	2015	2016	2017
2014	25.9%	10.3%	9.3%	-5.0%	-1.1%	-1.8%
2015	x	30.9%	8.2%	x	-2.7%	-2.7%
2016	x	x	25.9%	x	x	-5.5%

One reason can be seen above. Insurer 1 has continuous and large unfavorable year over year changes in its incurred for all AYs. Insurer 2 has small favorable changes. A regulator would be concerned that Insurer 1 has reserve adequacy issues.

### Sample 7

#### Incurred Net Loss and DCC Development

AY	One-Year Development	
	Insurer 1	Insurer 2
2014	26	-5
2015	24	-8
2016	71	-17
<b>Total</b>	<b>121</b>	<b>-30</b>

Insurer #1 has experienced adverse development over the past year. Regulators may be concerned that reserves are not adequate for Insurer #1, in comparison to Insurer #2 which is experiencing favorable development.

### Sample 8

#### Incurred Net Loss and DCC Development

A regulator may be more concerned by #1 because #1 is consistently facing unfavorable incurred loss development while #2 is generally only seeing favorable development historically. If you look across the rows for each Part 2D you will see these trends – e.g. initial ultimate for AY 2014 for #1 was 201 but most recently 305, while that's 298-275 for #2. This may indicate a pressing under-reserving issue for #1 which has implications for solvency, while no such concern for #2.

### Sample 9

#### Incurred Net Loss and DCC Development

Insurer #1 is experiencing consistent adverse development across all AYs. This may be indicative of an insurer who is intentionally understating reserves. Insurer #2 has experienced favorable development, which may mean that reserves are too conservative, although this is preferred to deficient reserves.

## SAMPLE ANSWERS AND EXAMINER'S REPORT

### Sample 10

#### Ultimate Loss Ratio

	Net Ultimate AY Loss Ratios	
AY	Insurer 1	Insurer 2
2014	59.2%	68.8%
2015	62.6%	65.8%
2016	67.6%	65.4%
2017	66.7%	64.1%

Insurer #1 is seeing a significant increase in net loss ratio over the past 4 years. Insurer #2 has seen slight improvement over the same period. Is #1 being impacted by adverse selection? Or inadequate rates?

### Sample 11

#### Ultimate Loss Ratio

	Net Ultimate CY Loss Ratios	
CY	Insurer 1	Insurer 2
2014	39.0%	74.5%
2015	54.5%	66.0%
2016	72.4%	66.7%
2017	90.4%	57.6%

Insurer 2 has maintained a steady to reducing net loss ratio while being able to grow their business. Insurer 1 has had significantly worse net loss ratio results each year and is now most likely operating at a combined loss ratio loss (>100%). The regulator will be concerned with Insurer 1's ability to continue and stay solvent at this rate.

### Sample 12

#### Ultimate Loss Ratio

Insurer 1 has increasing loss ratios while also maintaining a similar amount of reinsurance. The net incurred loss ratios have increased from 59% to 67% from 2014 to 2017. Similarly, the insurer has maintained around \$510 of net premium while these ratios rise. Insurer 2 has stabilized and decreased their loss ratios from 69% to 64%.

#### **Part b:** 0.5 point

Any one of the following:

- Look at Schedule P, Part 3, to analyze the payment patterns to see if there have been any deteriorating trends showing there.
- You could look at Part 5, section 3, Reported claims to see if the number of claims is also increasing down the triangle as a result of the adverse selection.
- An analysis closure rates developed from Part 5 could confirm that Insurer #1 has a slower closure rate, allowing the claims to move more in later years.
- Calculate average case reserve outstanding [(Schedule P, Part 2 – Part 3 – Part 4) / Schedule P, Part 5 Outstanding Claim Counts] to see if it is increasing with AY, then shows a pattern of under-reserving.
- Part 4 contains Bulk and IBNR reserves. Could check the development pattern of these

## SAMPLE ANSWERS AND EXAMINER'S REPORT

reserves to see if Insurer #1 is not reserving for IBNR appropriately.

- Analyze average claim severities using claim counts in Part 5 to see how severities change over time for an AY and across AYs. If severities are increasing this can show adverse development in the book.
- Look at reported claim counts (Part 5) over EP (use premium as proxy for exposure) to get an idea if the increasing costs in Insurer #1 is a frequency issue.
- Regulator could examine Part 1 to see how Gross and Ceded Reserves look. If they appear to be proportional then the regulator can infer that they (Insurer 1) are using a quota share, which would support the concern that Insurer 1 may have inadequate reinsurance.

### Part c: 1 point

Any four of the following:

- Loss and DCC are shown combined, so it is not possible to discern DCC patterns separately.
- There is no exposure data, so frequency analysis needs to be done with earned premium, which can be distorted.
- Only shows 10 years' worth of data – not good for long-tailed lines.
- Commutations can distort the triangles.
- Schedule P is net of reinsurance and does not reflect credit risk.
- Claim count definition may change (1 per claim vs. 1 per claimant), but there is not a way to tell this by merely looking at count triangles.
- To fully assess reserve adequacy you really should consult management.
- Schedule P excludes retroactive reinsurance.
- It is net of reinsurance; it might be difficult to see the impacts of various reinsurance agreements.
- Can be distorted by changes in claims handling practices.
- Can be distorted by management decisions on reserving levels.
- Changes in pooling percentages can distort schedule P.
- Schedule P allows multiple lines to be reported in the same exhibit, which makes it difficult to assess adequacy.
- The assembly and allocation of Schedule P data is up to the interpretation of the person completing it.
- Numbers in Schedule P are booked by company's management. It does not reflect actuarial opinion on the assumptions and methods behind the figures.

### EXAMINER'S REPORT

Candidates were expected to demonstrate knowledge of how the data in Schedule P exhibits can be used in actuarial analyses to assess financial health, along with potential limitations of Schedule P data in assessing reserve adequacy.

### Part a

Candidates were expected to identify and calculate two metrics from the Schedule P data provided to evaluate and compare the financial health of two hypothetical insurers.

Common mistakes include:

## SAMPLE ANSWERS AND EXAMINER'S REPORT

- Calculating an appropriate metric, but not interpreting the result to compare the two insurers
- Improperly identifying a metric (for example, referring to a loss ratio as “severity” or referring to incurred loss and DCC development as “reserve development”)
- Providing an inadequate description of how a metric would be calculated and not providing a sample calculation
- Computing and interpreting development as the ratio of incurred losses along the diagonal
- Computing and interpreting 12-month loss ratios rather than loss ratios based on the most recent evaluation

### Part b

Candidates were expected to identify one additional metric from Schedule P data that could be analyzed to support analyses performed in part a.

Common mistakes include:

- Identifying a metric but not explaining how it would be used to support the analysis in part a, for example, “Part 6, EP”
- Identifying Annual Statement exhibits that are not in schedule P, such as the IEE, IRIS Ratios, Schedule F, or Five-Year Historical Data
- Identifying data elements from Schedule P, Part 1 that could be used to replicate the loss ratios calculated in part a without adding any new insight
- Providing an incomplete response, such as “One could use Sch P, parts 2-5 to assess case reserve adequacy”
- Misunderstanding the Schedule P data, for example, “Can use Parts 3 and 4 (Paid and Case) to develop a reported loss triangle”

### Part c

Candidates were expected to identify four limitations of using Schedule P data to assess reserve adequacy.

Common mistakes include:

- Identifying limitations that do not materially impact the assessment of reserve adequacy:
  - Paid losses are net of S&S; Reserves are net of anticipated S&S
  - Doesn't include AAO in the development triangles
  - Schedule P does not reflect cat risk
  - Does not offer CY or PY view
  - Impact of discounting
- Providing responses that were inconsistent with Schedule P:
  - Schedule P does not show ultimate losses
  - Not broken out by LOB
- Stating “Premium is not adjusted for rate changes” without commenting on how this limits frequency analysis