21. (1.75 points)

Given the following information:

Accident	Cumulative Paid Claims ($) as of (months)		
Year	12	24	36
2013	5,500	5,800	6,000
2014	4,800	5,500	
2015	3,600		

Accident	Cumulative Reported Claims ($) as of (months)		
Year	12	24	36
2013	6,000	6,300	6,000
2014	5,400	6,200	
2015	4,150		

Accident	Open Claim Counts as of (months)		
Year	12	24	36
2013	25	15	15
2014	30	15	
2015	15		

a. (1.25 points)

Create two diagnostic triangles and discuss whether there have been any changes in case reserve adequacy.

b. (0.5 point)

Recommend and briefly justify an appropriate technique to determine ultimate claims based on the conclusion in part a. above.

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QUESTION 21

TOTAL POINT VALUE: 1.75 | **LEARNING OBJECTIVE(S): B2, B4, B5**

SAMPLE ANSWERS

Part a: 1.25 points

Diagnostic #1

Paid to Reported

	12	24	36	
2013	.917	.92	1	.917 = 5500 / 6000
2014	.889	.887		
2015	.867			

OR

Reported to Paid

	12	24	36
2013	1.09	1.09	1
2014	1.13	1.13	
2015	1.15		

OR

Case to Reported

	12	24	36
2013	.08	.08	0
2014	.11	.11	
2015	.13		

Diagnostic #2

Average O/S

	12	24	36	
2013	20	33.33	0	20 = 500 / 25
2014	20	46.67		
2015	36.67			

- Paid to reported ratios have been decreasing which suggests an increase in case reserve adequacy
- the latest diagonal of average o/s are much higher than in the past which indicates a reserve adequacy increase

Part b: 0.5 point

- Since it appears there has been an increase in case reserve adequacy, we can use the reported Berquist-Sherman technique which adjusts prior diagonals for current levels of O/S adequacy and will lead to a reasonable estimate.

- Use Berquist Sherman case O/S adjustment to restate previous years case o/s to current level so that LDFs will not be distorted and you can get a better estimate of ultimate. When case o/s adequacy is strengthened, unadjusted development methods will overstate LDFs & the ultimate.
- Since reported methods would be distorted by the change in case reserve adequacy, we suggest using the paid development method if paid development and settlement rates are consistent.
- An appropriate technique would be to use the expected claims technique. This is unaffected by operational changes like changes in reserve adequacy or settlement rates, and as such will give an appropriate estimate of ultimate claims

EXAMINER'S REPORT

This question required candidates to calculate two diagnostic triangles, and use those triangles to determine if there had been any changes in case reserve adequacy. Candidates were then expected to identify a reserving technique that would be appropriate to estimate unpaid claims based on their observations regarding case reserve adequacy.

This question was fairly straightforward, and candidates performed well.

Part a

Candidates were expected to identify and calculate two valid diagnostic triangles from the data given that would give the actuary an indication of whether or not there had been a change in case reserve adequacy. Candidates were then expected to interpret the results of the diagnostics to determine whether or not case adequacy had actually changed.

Common mistakes included:

- Only calculating one diagnostic triangle
- Calculating a triangle that is not a diagnostic (e.g., total case reserves, cumulative development factors)
- Calculating what may have been a valid diagnostic without the appropriate data.
    - Reported severity should be reported claims divided by reported claim counts, not reported claims divided by open claim counts
    - Paid severity should be paid claims divided by paid claim counts or closed claim counts, not paid claims divided by open claims.
    - Incremental closed claims cannot be calculated by taking the incremental diagonals from the open claim count triangle because this does not account for newly reported claims.
- Addressing only one diagnostic in the assessment of case reserve adequacy
- Not providing an assessment of the diagnostics
- Not addressing how the diagnostics indicated whether or not there was a change in adequacy.
- Simply stating that there was/was not a change in adequacy without tying the assessment to what was seen in the diagnostics.

Part b

Candidates were expected to identify a technique that would not be affected by the case reserve strengthening observed in part a. and include a justification of why this technique would not be distorted by the strengthening.

Common mistakes included:

- Simply stating a technique
- Identifying a technique without justifying why it would not be distorted by the change in adequacy identified in part a.
- Identifying a technique that would not address the change in adequacy identified in part a.
- Confusing accident year and calendar year when discussing how the case reserves are restated in the Berquist Sherman adjustment.