21. (1.5 points)

Given the following as of December 31, 2017:

Accident Year	Cumulative Received Salvage and Subrogation (S&S) ($000) as of (months)			
	12	24	36	48
2014	4,700	7,000	7,200	7,300
2015	4,300	6,600	6,800	
2016	4,300	6,800		
2017	4,900			

Accident Year	Cumulative Paid Claims Gross of S&S ($000) as of (months)			
	12	24	36	48
2014	13,500	16,800	16,800	16,800
2015	13,300	16,900	16,900	
2016	13,200	16,800		
2017	12,900			

Accident Year	Selected Ultimate Claims Gross of S&S ($000)
2014	16,800
2015	16,900
2016	16,800
2017	16,400

- There is no development beyond 48 months.

Estimate ultimate salvage and subrogation for accident year 2017 using a ratio approach.

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QUESTION 21	
TOTAL POINT VALUE: 1.50	**LEARNING OBJECTIVE(S): B6**

SAMPLE ANSWERS

Sample 1

Ratio of Salvage & Subrogation to Paid Claims

Accident Year	12	24	36	48
2014	0.348	0.417	0.429	0.435
2015	0.323	0.391	0.402	
2016	0.326	0.405		
2017	0.380			

Link Ratio

Accident Year	12-24	24-36	36-48	48-Ult
2014	1.198	1.029	1.014	
2015	1.211	1.028		
2016	1.242			

Assume all ratios are random fluctuations. We take the average of the ratios.

	12-24	24-36	36-48	48-Ult
Selected LDF	1.217	1.0285	1.014	1.000
CDF	1.2692	1.0429	1.014	1.000

Accident Year	Estimated Ultimate Ratio
2014	0.435
2015	0.402*1.014 = 0.408
2016	0.4224
2017	0.4823

The accident year 2017 ultimate ratio is relatively too high compared to other years. We select the average of the prior 3 years of the ultimate ratio.

Selected Ultimate Ratio for Accident Year 2017 = $\frac{0.435+0.408+0.4224}{3} = 0.421$

Ultimate Salvage & Subrogation for AY 2017 = $0.4218 * 16{,}400{,}00 = \$6{,}917{,}520$

Sample 2

Ratio for Rec. Sub Sal to Paid Claims (Gross)

	12	24	36	48	Ult Est (latest diag times CDF)
14	0.348	0.4166	0.428	0.4345	0.4345
15	0.3233	0.3905	0.402		0.408
16	0.3259	0.4047			0.422
17	0.3798				0.4853

	12-24	24-36	36-48	48-Ult
14	1.197	1.0273	1.015	
15	1.207	1.029		
16	1.2425			
17				
Sel	1.22475*	1.028	1.015	1.0
CDF	1.2779	1.0432	1.015	1.0

* Select avg of past 2 yrs since there appears to be increasing trend

Keep .4853 selection as we notice increasing trend

.4853 * 16,400 = 7958.92

EXAMINER'S REPORT

Candidates were expected to know how to apply the ratio approach to estimate ultimate salvage and subrogation. This involves calculating the appropriate ratios, calculating the development factors for these ratios, making an actuarially sound selection of an ultimate ratio, and using that ratio to estimate the ultimate salvage and subrogation dollars.

Common mistakes included:

- Failure to calculate and/or consider ultimate S&S ratios for years 2014-2016.
- Confusing the ratio approach for S&S with ALAE estimate methods.
- Calculating S&S ratios using ultimate gross claims instead of cumulative paid claims in the denominator.