24. (2.5 points)

Given the following information as of December 31, 2014:

Accident	Paid Claims ($) as of (months)		
Year	12	24	36
2011	200	560	570
2012	150	250	400
2013	150	350	
2014	50		

Accident	Received Salvage and Subrogation ($) as of (months)		
Year	12	24	36
2011	20	90	100
2012	16	40	70
2013	15	56	
2014	5		

- Ultimate claims for accident year 2014 = $150.
- There is no development beyond 36 months.
- A simple all-year average is used for all development factors.

a. (0.75 point)

Estimate the ultimate salvage and subrogation for accident year 2014 using the development technique.

b. (1.25 points)

Estimate the ultimate salvage and subrogation for accident year 2014 using a ratio approach.

c. (0.5 point)

Given the following additional information for accident year 2015 as of December 31, 2015:

- Ultimate claims = $175
- Salvage and subrogation received = $12

Recommend and briefly justify an ultimate salvage and subrogation estimate for accident year 2015.

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QUESTION 24

TOTAL POINT VALUE: 2.5 | **LEARNING OBJECTIVE: B6**

SAMPLE ANSWERS

Part a: 0.75 point

S&S - Age-to-Age Factors

Accident Year	12-24	24-36
2011	4.500	1.111
2012	2.500	1.750
2013	3.733	
Selected AtA	3.578	1.431
AtU	5.118	1.431

2014 Ult S&S : 5 x 3.578 x 1.431 = $25.59

Part b: 1.25 points

Sample Answer 1

Ratio of S+S to Paid Claims

Accident Year	12	24	36
2011	0.100	0.161	0.175
2012	0.107	0.160	0.175
2013	0.100	0.160	
2014	0.100		

Ratio Development

Accident Year	12-24	24-36
2011	1.607	1.092
2012	1.500	1.094
2013	1.600	
2014		
Selected AtA	1.569	1.093
AtU	1.714	1.093

Ultimate Ratio: 0.100 x 1.714 = 0.1714

2014 Ult S&S : 150 x 0.1714 = $25.72

Sample Answer 2

Ratio of S+S to Paid Claims

Accident Year	12	24	36
2011	0.100	0.161	0.175
2012	0.107	0.160	0.175
2013	0.100	0.160	
2014	0.100		

Additive Ratio

Accident Year	12-24	24-36
2011	0.061	0.015
2012	0.053	0.015
2013	0.060	
2014		
Selected AtA	0.058	0.015
AtU	0.073	0.015

Ultimate Ratio: 0.100 + 0.73 = 0.173

2014 Ult S&S: 150 x 0.173= $25.93

Part c: 0.5 point

Sample Answer 1

I recommend applying a selected S/S ratio of 0.1 with the S/S ratio CDF to get au ultimate of 175(0.1)(1.1714) = $30 . The direct S/S development technique would be highly leveraged and would overstate the estimate of S/S. The ratio approach is more stable and would produce a more reasonable estimate.

Sample Answer 2

Ultimate S/S = 175 x 0.175 = 30.63

I choose the ratio approach since the development factors in a) are very volatile. The selected ratio of 0.175 is consistent with ratios from prior years. This is more stable and reliable than applying the S/S development factor.

Sample Answer 3

AY 2015 is an immature year and the development factors based on the development technique are highly leveraged. Thus to produce a more stable estimate, I'd recommend the ratio approach.

2015 Ultimate S/S = (0.1 x 1.569 x 1.093) x 175 = 30.01

EXAM 5 FALL 2016 SAMPLE ANSWERS AND EXAMINER'S REPORT

EXAMINER'S REPORT
Part a
Candidates were expected to calculate the ultimate salvage and subrogation using the development technique given paid claims and received salvage and subrogation triangles. A common mistake was not calculating the development triangle.
Part b
Candidates were expected to calculate the ultimate salvage and subrogation using the ratio approach. Candidates were expected to calculate the Salvage+Subrogation-to-paid claims triangle, calculate the development triangle of the ratios, and apply the selected CDF to the undeveloped ratio to calculate ultimate salvage and subrogation. Common mistakes included: • Selecting directly an ultimate ratio instead of calculating development factors and applying the CDF. • Selecting development factors based on a single pair of ratios instead of using the whole triangle. • Incorrectly calculating the CDF or the ultimate Salvage+Subrogation ratio or dollar amount.
Part c
Candidates were expected to recognize that the development factors in part a) were highly leveraged and would result in a more volatile answer whereas the ratio approach provided stability. Candidates were expected to recommend the ratio approach and point out the stability of the ratio method over the highly leverage development method. Common mistakes included: • Recommending an ultimate using the development technique • Using undeveloped Salvage+Subrogation to ultimate claims ratio • Not adequately justifying the recommendation of the ratio approach