11. (3.25 points)

Given the following ground-up uncapped loss profile for a book of business:

Claim Type	Number of Claims	Loss Amount of each Claim
A	200	$5,000
B	100	$20,000
C	10	$100,000
D	10	$400,000

a. (1.25 points)

Calculate the increased limits factor for an increased limit of $25,000 and a basic limit of $10,000.

b. (1.5 points)

Calculate the severity trend for the layer excess of $50,000 assuming a ground-up severity trend of 10% over the next year.

c. (0.5 point)

Provide one reason why the data above would not be appropriate to determine an increased limits factor for $100,000 and suggest an alternative source that could be used.

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QUESTION 11

OTAL POINT VALUE: 3.25 | **LEARNING OBJECTIVE: A8**

SAMPLE ANSWERS

Part a: 1.25 points

Sample Answer 1

LAS(10K) = [200*5K+(100+10+10)*10K]/[200+100+10+10] = 6.875K
LAS(25K) = [200*5K+100*20K+(10+10)*25K]/[200+100+10+10] = 10.9375K
ILF(25K) = 10.9375/6.875 = 1.591

Sample Answer 2

Losses at Increased limits: 200*5000+100*20000+20*25000 = 3,500,000
Losses at basic limits = 200*5000+120*10000 = 2,200,000
ILF = 3,500,000/2,200,000 = 1.591

Sample Answer 3

LAS(10,000) = [5000*200 + (100+10+10)*10000]/320 = 6875
LAS(between 25,000, 10,000) = [10000*100+15000*10+15000*10]/[320] = 4062.5
ILF = [6875+4062.5]/6875 = 1.591

Part b: 1.5 points

Sample Answer 1

XS 50,000	Trended Claim Amount	New XS 50,000
0	5,500	0
0	22,000	0
50,000*(10)	110,000	60,000*(10)
350,000*(10)	440,000	390,000*(10)
4,000,000		4,500,000

Severity trend = 4,500,000/4,000,000 = 12.5%

Sample Answer 2

Current severity in excess of 50k
= [10*(100,000-50,000)+10*(400,000-50,000)]/20
= 200,000
Next year's excess severity (apply 1.1 trend)
= [10*(100,000*1.1-50,000)+10*(400,000*1.1*50,000)]/20
= 225,000
Excess Severity Trend = 225,000/200,000 = 1.125 (12.5% trend)

Part c: 0.5 point

Sample Answer 1

There are too few losses above $100,000 to be credible. One could use industry ILF factors instead.

Sample Answer 2
There is a small amount of claims that are large or equal to 100000, the calculated ILF would not be credible.
One can use the data for several similar business combined to calculate ILF(100000)

Sample Answer 3
Too few claims with sev at or above 100,000. Results could be volatile, so curve fitting might be better.

Sample Answer 4
The data would not be approp to det ILF for 100k as there are very few claims @ the 100k & even higher. One alt. source is competitor filings/rate pages approved.

EXAMINER'S REPORT

Candidates were expected to calculate an increased limits factor, excess trend, comment on credibility of excess data, and propose an alternative source for ILFs.

Part a

Candidates were expected to know how to calculate an increased limits factor. Since the data provided was ground up & uncapped and both layers had the same frequency, the candidate could calculate either limited average severities or total capped losses at both $25k and $10k.

Common mistakes included:

- Calculating the Limited Average Severity as the total capped loss instead of taking the average.
- Taking a straight average of the loss amounts instead of incorporating the claim count distribution.

Part b

Candidates were expected to apply the ground up trend factor to the ground up losses, then calculate either the average claim size or the total claim amount excess of $50k both before and after trend. The excess trend is the ratio of the two calculated values.

Common mistakes included:

- Simply adding the various losses excess of $50k rather than taking the average or total losses in the layer.
- Calculating the average claim size for the excess layer including all claim counts. The average excess severity includes only the 20 claims that reach the excess layer.

Part c

Candidates were expected to note the small amount of claims excess of $100k and comment on the lack of credibility in the data due to size. A number of alternative sources were accepted such as industry data (from rating bureaus such as NCCI or ISO, or from other external sources such as RAA), competitor's analysis, additional internal data either from another similar line of business or by incorporating more years, and fitting a loss distribution curve to the data and modeling output for higher layers.

Common mistakes included:

- Assuming that the decrease in claim counts at higher layers violates the assumption that frequency be the same for various layers in an ILF analysis. Fewer claims at higher amounts is not necessarily a decrease in frequency but rather a product of a loss distribution where larger claims are not as common.