12. (1.75 points)

Given the following information for an insurance company:

Limit of Liability	Current Increased Limits Factor	Indicated Increased Limits Factor
100,000	1.00	1.00
250,000	2.20	2.20
500,000	2.50	2.75
750,000	2.75	3.00
1,000,000	2.90	3.00

- The indicated increased limit factors are based on the company's own loss experience.
- Losses limited to $100,000 have been consistent over time.
- Expected losses limited to $100,000 = $500,000,000.

a. (0.75 point)

Compare the expected losses for the excess layer between $500,000 and $1,000,000 based on the current increased limits factors and the indicated increased limits factors.

b. (0.5 point)

Assess the appropriateness of implementing the indicated increased limits factors.

c. (0.5 point)

The company wishes to offer policy limits exceeding $1,000,000 in the future. Propose an approach to calculating increased limits factors for the higher limits and briefly describe an implementation challenge the company may encounter.

CONTINUED ON NEXT PAGE

QUESTION 12	
TOTAL POINT VALUE: 1.75	**LEARNING OBJECTIVE(S): A8, A9**
SAMPLE ANSWERS	
Part a: 0.75 point	
Current Losses = 500M x (2.9 – 2.5) = 200M Indicated Losses = 500M x (3.0 – 2.75) = 125M The company's experience was better than expected for this layer.	
Part b: 0.50 point	
Any of the following: • The company did not experience any losses greater than $750,000, but the current ILFs suggest this is possible. If they plan to offer limits above $750,000, their pricing with the indicated ILFs will likely be inadequate. • Indicated ILFs are not appropriate since the ILF for 750k = ILF 1M. This means the company will not be charging any additional premium for increased coverage which is not appropriate. • Indicated ILFs are not appropriate since the ILF for 750k = ILF 1M. This is likely due to lack of data in the higher layers, so these ILFs are not very credible.	
Part c: 0.50 point	
Any of the following for the approach: • Curve fitting will use the company's own experience, and if properly implemented, considers an appropriate charge for the higher layers without loss experience. • Use Industry ILFs or Industry benchmarks for policies with limit greater than $1M. • Credibility weight company ILFs with Industry ILFs/Benchmarks. • Calculate the ILFs for policies with limit greater than 1M using ground up / uncensored loss data. • Simulate losses in excess of $1M and calculate ILFs using the simulated loss data for new policy limits. Any of the following for the implementation challenge: • The challenge with curve fitting is that curve selection is not trivial, and the behavior of the largest losses is difficult to model. • Curve fitting fit may be impacted by the lack of losses in higher layers if the company's data is censored at the policy limit. • The company may have a challenge implementing any solution due to the lack of loss data in higher layers or due to censored losses due to policy limits. This could cause results that aren't very credible. • The company may be challenged with allocating additional capital due to the additional risk of higher limit policies. • The company may be challenged with purchasing additional reinsurance due to the risk of writing more higher limit policies.	

EXAMINER'S REPORT

Candidates were expected to demonstrate their knowledge of how different limits of liability are priced using ILFs. This question expected that candidates understand how ILFs are used in pricing, and what they represent in terms of the underlying expected losses in each layer.

Part a

Candidates were expected to be able to calculate the losses in the 500k-1M layer based on both the current and indicated ILFs and show some type of comparison between the expected loss amounts. In order to receive full credit candidates needed to show, or make mention of the difference between current and indicated losses.

Common errors included:

- Only calculating the losses in the layer for both current and indicated ILFs, but not attempting to compare the losses. (Eg. Indicated losses were less than current by $75M).
- Not comparing current vs. indicated losses.
- Only calculating the expected losses in the layer for one of either current or indicated ILFs.
- Calculating the losses for an incorrect layer.
- Using an incorrect formula to calculate losses expected in the layer.

Part b

Candidates were expected to notice that the Indicated ILFs for 750K and 1M limits were equal to each other and therefore inappropriate, as well as to explain either what the cause or effect of this was.

Some candidates did try to assess the indicated ILFs without noticing that the 750k and 1M limit ILFs were equal. Candidates that assessed the indicated ILFs as appropriate did not receive credit unless they were able to comment on the inappropriateness of having equal ILFs for two separate limits.

Common errors included:

- Not identifying the 750K and 1M being equal
- Not offering a cause or effect of the two ILFs being equal

Part c

Candidates were expected to show an understanding of how to calculate ILFs for a limit of liability that was not previously offered by the insurance company, along with an implementation challenge the company would face with offering a new higher limit of liability.

Candidates only received full credit if they explained how their offered approach actually led to the calculation of new ILFs. For example, "Use industry ILFs" or "Credibility weight Insurer ILFs with Industry ILFs" were acceptable responses, however "Use Industry data" was not specific enough. Also some candidates did simply state "Use GLMs" as an approach, but did not clarify how ILFs could be calculated using GLMs, or how this approach was beneficial to pricing new limits being offered.

Common errors included:

- Offering only an approach and not a challenge / offering only a challenge and not an approach
- Not offering an approach specific enough to demonstrate how ILFs were calculated for new limits
- Not offering a challenge relating to implementation of new higher limit policies.
- Offering an incorrect explanation of curve fitting.