8. (1.5 points)

An actuary has been using risk-adjusted increased limit factors to account for riskiness in pricing. The actuary's coworker has suggested an alternate approach of using non-risk-adjusted increased limit factors and, instead, varying the profit and contingency load with the policy limit.

Compare and contrast the two methods with respect to each of the following:

- Accuracy
- Ease of calculation
- Clarity

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SAMPLE ANSWERS AND EXAMINER'S REPORT

QUESTION 8	
TOTAL POINT VALUE: 1.50	**LEARNING OBJECTIVE(S): B1**
SAMPLE ANSWERS	

Sample 1

Accuracy – the risk adjusted ILF is more accurate than the varying profit and contingency because it is more explicitly calculating the risk load as limits increase. The profit varying is more arbitrary.

Ease of Calculation – The risk load is much more computationally difficult. The profit can be more judgmentally selected.

Clarity – The risk load has a foundation in mathematics so would be more clear to a trained eye. But a lay person would likely better understand the profit variation.

Sample 2

1) The variance and standard deviation approaches are much more rigorous and do a better job of calculating risk loads from an accuracy perspective. They can calculate loads more precisely and wouldn't have to be bucketed like the proposed plan would.

2) The proposed plan would be easier to calculate risk loads for. A system of varying profit and contingency could be as simple as you'd like. On the other hand, the more complicated you make it, the closer you get to using risk-adjusted ILFs.

3) The risk-adjusted ILFs are clear in that the loading takes place behind the scenes (in the calculation of the ILF). The proposed method is presumably clear because the method of varying profit and contingency load would be explicitly laid out and simple to apply. In this sense, the proposed method is probably simpler.

Sample 3

Accuracy: Risk-adjusted ILF produces a more accurate premium. Varying the P/C load is a variable expense and will require us to take in a different amount of fixed expenses.

$\frac{p+f}{1-v}$ where f = fixed, v = variable, p = pure premium

This is less accurate because fixed expenses should not vary by limit. Risk-adjusted ILF allows us to calculate p directly and keep fixed expenses the same.

Ease of Calculation: Determining a risk load may require more work because the k constant will need to be calibrated to the portfolio. Profit and contingency needs to be set judgmentally for each limit, which may also take time but is far less technically rigorous.

Clarity: The varying P/C is likely more clear and transparent for those who don't have a thorough

understanding of the portfolio. This is because it is explicitly defined in the premium calculation rather than buried in the pure premium calculation (which itself is an input into the premium calculation).

Sample 4

Accuracy: ILF derivation assumes that profit and contingencies are variable and the same across all limits. Adjusting the profit provision to vary with limit violates this assumption, therefore ILFs that have not been adjusted for risk load would be incorrect. Calculating risk load separately for each limit and using risk-adjusted ILFs is more accurate.

Ease of Calculation: Calculating separate risk loads for each possible limit is much more time consuming and calculation intensive compared to having a variable percentage applied to calculate the premium.

Clarity: It's unclear how the variable profit provision load would be determined using the alternate method, while the current method is a defined and reasonable approach.

EXAMINER'S REPORT

Candidates were expected to understand the calculation of ILF risk-adjustment as well as the purpose. This would then have been contrasted to a simpler profit/contingency approach across the categories of accuracy, ease of calculation, and clarity. For each of these three, candidates were expected to state what their position was on the better of the two and provide a reason for that opinion.

Candidates received no credit for:

- Stating a position across all categories without any attempt at stating a reason as to why
- Stating that both are the same method without detailing how that might be the case

Common mistakes included:

- Comparing risk-adjusted strictly to non-risk-adjusted without profit adjustment
- Focusing only on the calculation of the premium itself while not mentioning the work involved in determining risk-adjustment factors
- Stating the profit/contingency load would be harder to calculate because you already have risk loads
- Stating that risk adjustment is easier to calculate because there is a formula for it
- Not identifying or incorrectly identifying to whom one method versus the other may be clearer
- Assuming the profit/contingency load would be invisible and buried in rest of profit