18. (2 points)

An actuary is considering whether to use the Cape Cod technique or the Bornhuetter-Ferguson technique.

a. (0.5 point)

Briefly describe one similarity and one difference between the Cape Cod and Bornhuetter-Ferguson techniques.

b. (0.5 point)

Identify two adjustments to reported claims that may be needed before applying either technique.

c. (0.5 point)

Identify two adjustments to earned premium that may be needed before applying either technique.

d. (0.5 point)

A court decision in 2014 resulted in larger payments to be paid to claimants. Justify which technique would be more appropriate for estimating the accident year 2015 IBNR.

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QUESTION 18

TOTAL POINT VALUE: 2	**LEARNING OBJECTIVE(S): B3, B5**

SAMPLE ANSWERS

Part a: 0.5 point

Sample Responses for "Similarity"

- Both use a credibility weighted average of the development technique and an expected claims technique.
- Both use an ELR to determine IBNR
- Both a credibility weighted average of the expected claims method and the chain ladder method.
- Both have the same formula for computing the ultimate claims estimate = Actual Reported + Expected Ultimate x % Unreported
- Both methods assume that past data tells you nothing about loss development or IBNR going forward. They assume that IBNR is better determined based off an expected claim technique.

Sample Responses for "Difference"

- CC calculates ELR based on actual reported and OL earned premium. BF takes ELR using an a prior estimate
- The calculation of the ELR is different. The BF method uses an a priori estimate whereas the CC method uses ratio of reported claims to used up premium.
- The ELR in the BF method can be judgmentally selected from industry or pricing data while the ELR in the CC method is calculated using historical data.
- The ELR in the BF method is an a priori estimate while the CC uses the past data to calculate the ELR
- The process to determine the ELR is different. BF uses an a priori estimate whereas the CC method calculates the ELR based on historical data.

Part b: 0.5 point

- Need to trend losses for any severity/frequency trend. Remove shock loses from data and apply a large loss load
- Tort Reforms; Loss Trend
- Benefit changes; Loss Trend
- Loss Trend; For the CC technique, if there has been a change in claims payment pattern or case reserve philosophy, the paid/incurred losses need to be adjusted to match the development patterns used to calculate the "used up" premium.

Part c: 0.5 point

- Need to on-level premiums for any rate changes. Need to trend premiums to current level.
- Adjust for historical rate changes; Adjust for premium trend
- On-Level premiums to current rate level. For the CC method, you also need to calculate "used up" premium by multiplying OL premium by the % reported.

Part d: 0.5 point

- Assumption: Court decision ruling will only affect 2014
  As such, BF would be more appropriate since I will calculate ELR on an a priori estimate,

- The CC technique. It would be more responsive to changes in payments.
- Depends on if the court decision was related to a particular claim only or if it's expected to impact claims going forward. If it only applies to a single claim in 2014, BF technique would be preferred since the ELR won't be impacted by this large claim. If we expect the court decision to impact claims going forward, the CC method is preferable because it is more responsive.
- The CC technique would be more appropriate if the ELR used in the BF method was not adjusted for the court decision. The ELR in the CC method is more responsive.
- The BF method is preferred because the ELR can be selected to reflect the new claims environment. Unless adjustments are made to historical data, CC will underestimate the ELR as majority of historical years do not reflect new claims environment after the court ruling.
- I would recommend the BF technique if adjustments are made to the ELR to account for the new claims environment.

EXAMINER'S REPORT

Candidates were expected to know the fundamental differences behind the CC and BF methods, namely that the CC technique will automatically react to changing claims environment while the BF method will not automatically react.

Candidates performed very well on this question. The question was a fairly straightforward comparison of two different claims estimation techniques. Candidates were able to fully describe the differences between the CC and BF methods including non-superficial adjustments needed to premium and losses to make the historical data representative of the claims environment applicable to a certain accident year.

Part a

Candidates were expected to know that the BF and CC method are similar in that both techniques credibility-weight the development technique and the expected claims technique based on the % reported / % paid. Candidates were expected to discuss the differences in how the ELR is determined for both methods.

Common errors included:

- Stating that both methods determined the ultimate claim estimate from the expected claim technique. Candidates needed to state that both techniques determined the IBNR or unpaid estimate from the expected claims technique.
- Stating that the only difference between the two methods is that CC considers the current year while BF does not. Candidates were expected to clarify that since the CC method uses historical data directly, it would automatically respond to a changing claims environment if the current accident year was included in the analysis. The BF method can have its ELR adjusted as needed to reflect emerging experience, and as such, the BF method can be altered to account for the current accident year.

Part b

Candidates were expected to know that the historical losses underlying the ELR in the BF and CC technique should be comparable to the losses expected in the year for which the ultimate claims estimate is being calculated, and how to adjust the historical losses to achieve this.

Common errors included:

- Proposing adjustments for "one time changes" or for "continuous changes" without giving an example, such as benefit level changes or trend.
- Discussing adjustments to the data supporting the loss development pattern selected in an external study without also discussing how similar adjustments should be made to the historical experience used directly in the method as well.
- Stating "losses should be brought to current level" without explicitly stating what adjustments should be considered.

Part c

Candidates were expected to know that the historical premium underlying the ELR in the BF and CC technique should be comparable to the premium expected in the year for which the ultimate claims estimate is being calculated, and how to adjust the earned premium to achieve this.

Common errors included:

- Stating "premium should be brought to current level" without explicating stating what adjustments should be considered.
- Proposing adjustments for "one time changes" or for "continuous changes" without giving an example, such as rate level changes or trend.

Part d

Candidates were expected to identify that accident year 2014 would have markedly different experience, and translate that finding into an appropriate recommendation based on how the candidate believed the claims environment would act going forward.

Candidates did not need to agree on how the court decision would apply going forward as long as the method selected was appropriate for the assumption made. Potential answers included:

- This spike was an anomaly (i.e. the court case will not apply going forward). Therefore, the BF technique with an unadjusted ELR is appropriate.
- The court case is expected to apply going forward. Therefore, the BF technique with an adjusted ELR is appropriate.
- The court case is expected to apply going forward. Therefore, the CC technique is appropriate since it is more responsive than the BF technique.

Common errors included:

- Stating a method without discussing why the method was appropriate.
- Stating a method and giving an incorrect or incomplete explanation of why it was appropriate.