4. (2 points)

A product manager is proposing to revise rates in the scenarios described below. As an actuary, briefly assess the approach taken in each scenario and, if necessary, recommend an adjustment.

a. (0.5 point)

The loss provision in the indicated rate for next year is calculated as historical reported loss divided by exposure.

b. (0.5 point)

The indicated rate for next year is calculated using projected losses and loss adjustment expenses based on historical experience. In the next month, the company will be revising its underwriting guidelines, increasing the minimum deductible from $500 to $1,000.

c. (0.5 point)

The indicated rate for a classification is calculated based on one year of historical data that includes 25 earned car years.

d. (0.5 point)

The indicated rate change is calculated using the ratio of developed, trended historical losses capped at $100,000 to on-level total earned premium. Loss trend factors and loss development factors are determined using data limited to $100,000. The company has a significant number of claims in excess of $100,000.

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EXAM 5 SPRING 2014 SAMPLE ANSWERS AND EXAMINER'S REPORT

QUESTION: 4

TOTAL POINT VALUE: 2

LEARNING OBJECTIVE(S): A6

SAMPLE/ACCEPTED ANSWERS:

Part a: 0.5 point

- I would use developed to ultimate and trended losses, divided by trended exposures. Untrended and historical losses and exposures will not give an accurate loss cost for the projected period in which the rates will be in effect.
- Ok to use loss/exp if doing pure premium method but losses should be trended and fully developed. If not, rates will be distorted. (understated)

Part b: 0.5 point

- Loss, LAE provision will be overstated since increase in min deductible will lead to fewer covered losses. Restate historical losses and LAE with $1000 min deductible.
- The indicated rate is based on historical losses projected to future level. If the trend used to project the losses already incorporates the expected change of deductibles, then no adjustment is needed.
- Should evaluate the appropriateness of the deductible factors used. If correct, the trend should not be a problem.

Part c: 0.5 point

- Data has low credibility due to low number of exposures. Extend experience period to include more than one year to increase credibility.
- Include more relevant data from benchmarks such as ISO or use competitor's info to calculate a complement of credibility. The 25 earned car years and 1 year of historical data is not enough to provide a stable and accurate forecast for future experience.
- There is insufficient data to produce a credible classification (both in terms of number of car and in terms of number of year). The classification can be pooled with other similar, larger groups to form a more statistical significant group.

Part d: 0.5 point

- The losses above $100,000 still need to be added back in as a large loss load. If the analysis excludes these large losses all together, then losses will be underestimated and rates will be inadequate.
- Since the company has a significant number of claims in excess of $100,000, we should use uncapped historical losses data to calculate the indication rate. The capped data does not reflect the true experience, and the rate might be too low by using the capped data.

- I would use the higher capping than 100K.The goal of ratemaking is to include as many losses as possible into the project process as long it doesn't introduce to much volatility. I would increase the capping and for the "shock" losses above a higher capping say 250K or 500K. I would add an ILF factor or large loss load.

EXAMINER'S REPORT:

General Commentary

Candidates were expected to use knowledge from the CAS "Statement of Principles Regarding Property and Casualty Insurance Ratemaking" and "Basic Ratemaking" to provide an assessment of the product manager's analysis and recommend an adjustment if needed in each sub part.

Part a

Candidates were expected to assess that using unadjusted historical data will not produce an accurate prospective estimate of the rate being calculated. Candidates were expected to suggest adjusting losses by an appropriate trend and developing losses to ultimate.

Full credit was also given for stating that this used the pure premium method and providing the appropriate adjustment.

Candidates generally did well recommending the appropriate adjustments needed for this analysis. Most candidates who lost credit on this question did not give an appropriate assessment of the product manager's proposal.

The most common errors were:

- Providing the appropriate adjustments, without completing the assessment portion of the question.
- Stating that the historical experience needs to be brought to the current level instead of the prospective level.
- Recommending adjusting the data for prior rate changes. Since the question clearly indicates exposures are used, not premium, historical rate changes do not need to be accounted for in the indication calculation.

Most candidates also appropriately stated that the exposures need to be trended if the exposure base is inflation sensitive; however credit was not subtracted for not including this piece since exposures do not always need to be trended depending on the line of business being rated.

Part b

Candidates were expected to assess that, with the increased deductible, losses would be overstated in the future period. Candidates should have recommended adjusting the historical experience for the deductible change. Candidates could also receive full credit for giving a complete discussion on no change being necessary if the deductible relativities are priced appropriately.

Most candidates who lost credit on this question did not give an appropriate assessment of the product manager's proposal.

A few of the common suggested adjustments that were not given credit include:

- Adjustments to premium but no comment on losses
- The only recommendation being to use policy year data
- Recommending to use ILFs instead of deductible factors

Many candidates said that policy year data should be used. While this was not wrong, it was not relevant for the question since this would only be applicable if the minimum deductible change occurred in the past, not will be occurring in the future. No credit was given or taken away for commenting on using policy year data. The subpart starts with "The indicated rate." This suggests a pure premium approach, which uses exposure instead of premium. However, no credit was given or taken away for commenting on adjusting premium. This is different from part a, where loss divided by exposure was explicitly stated in the question.

Part c

Candidates were expected to assess that the data given was not credible enough to be used on its own. They should have recommended a specific way to adjust this data given the lack of credibility.

Most candidates received full credit for this subpart. Candidates who lost credit on this question generally did not give a specific credibility complement. Others misread the question to be using 25 years of historical experience.

A few of the common recommendations that were given credit for being a complement of credibility or adding to the given data include:

- More years of experience
- Industry/benchmark data
- Larger group/class
- External/outside data
- Internal data

Answers that were not given credit include:

- Complement of credibility (without giving an example similar to the above)
- Other data
- More data
- Increased data volume

Part d

Candidates were expected to assess that not including the losses would make the rate inadequate. They should have recommended including the losses above the cap in some way, either through a large loss

provision, or using uncapped losses. Alternatively, candidates could have stated that the methodology was okay assuming that a large loss provision was also included.

Candidates generally provided an appropriate adjustment for this subpart.

Appropriate assessments include:

- Stating that the rate will be inadequate/understated.
- Detailed discussion on why the $100,000 limit may be inappropriate since a capping level should be selected to include as much data as possible while reducing volatility introduced from large losses.

The most common mistakes on this question were:

- No appropriate assessment of the project manager's proposal.
- Recommending increasing the cap, but not taking into account losses that were still above the increased cap.
- Adding in losses above the cap, but also moving the earned premium down to the $100,000 level as this would now overstate the indication.
- Commenting on how trends and development based on limited data are not appropriate for uncapped data, without assessing that the rate will be inadequate and that the excess losses need to be accounted for somehow.