

2. (2 points)

Given the following information for an insurance company:

- Proposed effective date of the next rate change is January 1, 2014.
- Rates will be in effect for 1 year.
- All policies have 12-month terms and are written uniformly throughout the year.
- Calendar year 2012 earned premium at current rate level is \$114,208,050.

12 Month Period Ending	Written Premium at Current Rate Level	Written Exposures
December 31, 2011	\$104,500,000	110,000
June 30, 2012	\$113,800,500	121,000
December 31, 2012	\$123,916,100	133,100

a. (1 point)

Utilizing one-step trending, calculate the calendar year 2012 projected earned premium at current rate level for use in calculating the rate change.

b. (0.25 point)

Briefly discuss why a premium trend should be utilized in a rate level indication.

c. (0.25 point)

Briefly discuss why it is inappropriate to use written premium at historical rate levels to determine premium trends.

d. (0.5 point)

The insurance company decides to move all existing business with a \$100 deductible to a \$500 deductible upon renewal during calendar year 2013. Given this new information, discuss whether the true projected earned premium will be higher, lower, or unchanged from that in part a. above.

## Exam 5 Question #2

- a. Dec 31 2011      950 ↙      -1%      select semiannual trend at -1%  
     June 30 2012      940.5 ↙      -1%  
     Dec 31 2012      931

Trend period: 1/1/2012- 7/1/2014

Avg. written dates.

2.5 yrs (5 half years)

$$114,208,050 ([1 - .01])^5 = 108,610,779$$

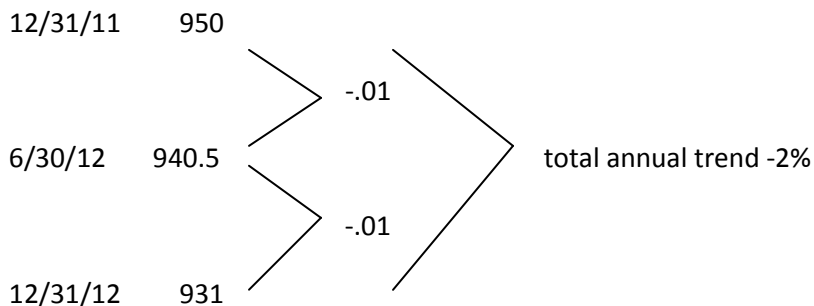
OR

Trend period 1/1/12 to 7/1/14

2.5 yrs

CY 2012 Earned from @CRL \* Trend<sup>2.5</sup> = Projected EP

AVG WNT @ CRL



$$\text{Projected 2012 EP @ CRL} = 114,208,050 * 0.98^{2.5} = 108,583,017.3$$

- b. It takes into account changes in exposure distributions, for what is expected to occur when rates are in effect.

OR

Premium trend accounts for the gradual shift in the book of business for things such as inflation or mix of business

- c. Using historical rates would cause a double-counting effect in the trend calculation

OR

Using written premium at historical rate leads to determine premium trend would include rate changes in the selected trend number, when we don't necessarily expect those rate changes to continue into the future.

- d. This change would cause premiums to go lower because fewer losses would be paid. The true projected premium is lower than that calculated above.

OR

The true projected earned premium will be longer because a higher deductible gives the insured a discount on premium.

**Exam 5 Examiner's Report  
Spring 2013**

1.

- a. Most candidates answered this question correctly. A small number of candidates misread the problem and assumed that the provided vehicle counts were actually the exposures over the two year period, which caused the answer to be halved.
- b. Most candidates answered this question correctly. A small number of candidates misread the problem and assumed that the provided vehicle counts were actually the exposures over the two year period, which caused the answer to be halved. A few others calculated only the earned car-years for one of the evaluation dates requested.
- c. Candidates generally answered this answer correctly. A small number of candidates misread the problem and assumed that the provided vehicle counts were actually the exposures over the two year period, which caused the answer to be halved. Some candidates also provided the combined values for both Policy A & B instead of just policy B. Full credit was given to candidates that clearly identified the portion attributable to Policy B. A few others calculated only the written car-years for one of the evaluation dates requested.
- d. Candidates generally answered this answer correctly. A small number of candidates misread the problem and assumed that the provided vehicle counts were actually the exposures over the two year period, which caused the answer to be halved. Some candidates also provided the combined values for both Policy A & B instead of just policy B. Full credit was given to candidates that clearly identified the portion attributable to Policy B. A few others calculated only the written car-years for one of the calendar years requested.

There were also some candidates who weren't familiar with the concept of having negative calendar year counts in cases where a multiple-year policy was cancelled in a subsequent year. These candidates often got the 2010 value correct, but would either answer the 2011 value as 0 or 100.

2.

- a. In general candidates scored well. Some of the common errors were:
  - -1% trend (not annual)
  - Wrong trend period
  - 8.5% or 8.9% trend (using total WP or WP over EP)
  - Apply trend to WP
  - Calculating EP from WP instead of projecting the given EP

- b. A common error was to say the premium trend is used to bring historical premium to expected future cost level which is stating what the premium trend does but not why you'd do it. The other common mistake was to mention rate changes as part of the premium trend.
  - c. Candidates often compared average premium to total premium instead of historical premium to current level premium. The other common mistake was to compared written premium to earned premium instead of historical premium to current level premium.
  - d. Candidates scored very well on this part. When candidates missed points it was due to not responding to the actual question asked but instead describing how the issue could be addressed.
3. The question presented an analysis for a rate indication. The candidate was requested to provide 5 improvements for the analysis and briefly explain the purpose of each. Suggesting improvements to the company's operation did not address the question asked and did not receive credit.

The majority of candidates recommended and received full credit for at least four enhancements to the analysis. Many recommended and received full credit for five. Those that did not receive credit for all 5 recommendations didn't attempt an answer or suggested enhancements that did not improve the analysis. Additionally, some candidates confused various concepts (for example, "trend losses to ultimate"), provided a response that summarized prior enhancements, were too general in their recommended improvement, or simply identified a shortcoming in the analysis without offering an enhancement, and did not receive credit.

Candidates generally struggled to receive credit for briefly explaining the purpose of each recommendation; most candidates received less than full credit on four of the five explanations requested. Most candidates did not provide an explanation or attempted to give further explanation of the enhancement without explaining its purpose -- these did not receive credit. Many candidates restated a version of the original recommended improvement to the analysis in their explanation of the purpose (i.e. "Earned premium can be adjusted to the current rate level. This makes sure that all premiums are on-level."), which did not get credit for explaining the purpose of the bringing the premium to current rate levels.

4. Many candidates did not identify the need to adjust historical loss ratios for the future 2012 level. Some did not develop on-level-factors or apply them appropriately to the historical loss ratios, while others did not apply loss trend to the historical loss ratios. Some thought that the 2012 on-level earned premium was the only on-level adjustment needed, but this number was provided and the historical loss ratios still need adjustment for future levels. We also frequently saw misidentified loss trend periods (2 years instead of 3, 1.5 years instead of 1, etc.).
5. In general, this question was completed well although there were a couple common errors on this question.