4. (3.75 points)

Given the following information:

Accident Year	Frequency	Severity
2011	0.100	$25,000
2012	0.090	$27,250
2013	0.081	$30,248
2014	0.082	$33,423
2015	0.080	$36,599

Accident Year	Ultimate Losses ($000)
2013	48,000
2014	55,000
2015	60,000

- Exposures are constant.
- The company only writes semi-annual policies.
- The rate filing will be effective on January 1, 2017.
- Rates will be in effect for one year.

a. (2.5 points)

Calculate the average annual trended ultimate losses that should be used to determine the indicated rate change. Briefly justify the frequency trend and severity trend selections.

b. (0.5 point)

Discussions with the underwriting team reveal that changes in underwriting guidelines in the 2012 policy year resulted in lower claim counts. Describe how this information may change the estimate in part a. above without performing any additional calculations.

c. (0.75 point)

Discussions with the underwriting team reveal that the company has been writing fewer high deductible policies, starting in policy year 2014. Fully describe how this information may change the estimate in part a. above without performing any additional calculations.

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QUESTION 4	
TOTAL POINT VALUE: 3.75	**LEARNING OBJECTIVE: A3**

SAMPLE ANSWERS

Part a: 2.5 points

Frequency
2011 to 2012: 0.090/0.100 = 0.900 or -10.0%
2012 to 2013: 0.081/.090 = 0.900 or -10.0%
2013 to 2014: 0.082/.081 = 1.012 or +1.2%
2014 to 2015: 0.080/.082 = 0.976 or -2.4%

Severity
2011 to 2012: 27,250/25,000 = 1.090 or +9.0%
2012 to 2013: 30,248/27,250 = 1.110 or +11.0%
2013 to 2014: 33,423/30,248 = 1.105 or +10.5%
2014 to 2015: 36,599/33,423 = 1.095 or +9.5%

Frequency:
Selected -0.6% using AYs 2013-2015 given change in frequency from AY 2013 and forward.
Frequency seems stable in recent years so selected trend of 0%.
Severity: Stable so select average of all years of +10.0%.

Trend to average accident date of 10/1/2017 from 7/1/201x.
2013: 48,000 * (1.1*0.994)^(4.25 years) = 70,154
2014: 55,000 * (1.1*0.994)^(3.25 years) = 73,518
2015: 60,000 * (1.1*0.994)^(2.25 years) = 73,351

Calculate the average: $72,341

Part b: 0.5 point

Sample Answer 1
This can change the selected frequency trend because we may choose to exclude accident years 11 and 12 and have a frequency trend close to 1. It would bring trended ultimate losses higher by increasing the frequency trend.

Sample Answer 2
This would explain the drop in frequency we see in AY 2012. I might further adjust my frequency trend in part a (possible trend at 0). This would result in higher trended ultimate losses.

Sample Answer 3
This won't change my estimate as I used the most recent data after 2012 that takes this change into account already.

Part c: 0.75 point

Fewer high deductible policies mean that frequency will increase, since the high deductibles decrease frequency since there are some claims not reported below the high deductibles. Severity will decrease, as high–deductible policies tend to have higher severities since there are no small nuisance claims. If this is a trend that will continue in the future, severity trend should decrease, frequency trend should increase, and pure premium trend increase resulting in projected ultimate losses increase.

EXAMINER'S REPORT

EXAM 5 FALL 2016 SAMPLE ANSWERS AND EXAMINER'S REPORT

Part a

Candidates were expected to demonstrate how to calculate frequency and severity trends. Additionally, candidates were expected to make reasonable selections for the purposes of projecting past losses to future experience periods, requiring candidates to be able to determine appropriate trending time periods, apply selected trends, and determine an appropriate selection of average ultimate loss.

Common mistakes included:

- Miscalculations in time periods
- Lack of justification for trend selections
- Not computing an average

Part b

Candidates were expected to know how a change in underwriting policy which lowers claim counts impacts the frequency trend and trended ultimate losses. To receive full credit, candidates were expected to address whether the frequency trend would increase, decrease, or stay the same based on the response to part a and how it would impact the trended ultimate loss.

Common mistakes included:

- Discussing the change as if it could happen and not relate it to subpart a)
- Not addressing how it would impact the trended ultimate loss

Part c

Candidates were expected to know how a change in the mix of business to less high deductible policies impacts the frequency and severity trends and trended ultimate losses.

A common mistake was not addressing how it would impact the trended ultimate loss