7. (2.25 points)

Given the following information:

	Calendar Year			
Expense Ratios	2013	2014	2015	% Fixed
General Expenses	4.2%	5.1%	5.9%	70%
Other Acquisition	9.9%	10.6%	11.5%	80%
Taxes, Licenses and Fees	1.5%	1.4%	1.5%	30%
Commission and Brokerage	11.1%	10.4%	11.0%	0%

- Projected ultimate pure premium, including LAE = $600.
- Underwriting profit provision = 12%.
- Projected average premium per exposure = $1,000.

a. (1.75 points)

Calculate the indicated average rate using the premium-based projection method for determining expense provisions. Justify all selections.

b. (0.5 point)

Management would like to achieve its targeted underwriting profit without changing rates. Discuss whether this is a reasonable expectation based on the information above.

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QUESTION 7	
TOTAL POINT VALUE: 2.25	LEARNING OBJECTIVE(S): A4, A6
SAMPLE ANSWERS	
Part a: 1.75 points	

Sample 1

General expenses and other acquisitions are both increasing so the most recent data has been chosen.

General expenses: .059

Other Acquisitions: 0.115

Taxes, Licenses + fees and commissions + Brokerage do not have any clear pattern and all year average was chosen

Taxes Lisces + fees: (.015+.014+.015)/3 = $.014\overline{6}$

Commissions + Brokerage: (.111+.104+.11)/3 = $.108\overline{3}$

% fixed expenses

.059*(.7)+115(.8)+$.014\overline{6}$(.3)+ $.108\overline{3}$(0) = .1377

% variable expenses

.059*(.3)+115(.2)+$.014\overline{6}$(.7)+ $.108\overline{3}$(1) = .1593

Average fixed expenses per exposure = (.1377)(1000)=137.7

$$\frac{600 + 137.7}{1 - .12 - .1593} = 1023.59 = Indicated\ average\ rate$$

Sample 2

Exp	(1) % Fixed	(2) Selected	
GE	70%	5.5%	<- avg 14+15. Exp Rto are ↑ so want to be responsive to this chg.
OA	80%	11.05%	<- same as GE
TLF	30%	1.5%	<- all yr avg, no distinct pattern
CB	0%	10.8%	<- all yr avg, no distinct pattern

Total = 28.85%

FER = 13.13% <- sumprod[(1),(2)]

VER = 15.72%

Ind Avg Rate = $\frac{600+.1313(1000)}{1-.1572-.12} = 1011.76$

Sample 3

Since GE and OA expenses seem to be trending upwards, I will use 2015 expense ratios. For T,L,&F and commissions I will exclude CY2014 since those years seemed to have lower expenses. Since CY2015 & 2013 are similar, I will use 2015 for everything.

2015	Fixed	Variable
GE	(.7)(5.9)=4.13%	(.3)(5.9)=1.77%

OA	(.8)(11.5)=9.2%	(.2)(11.5)=2.3%
T,L,&F	(.3)(1.5) = .45%	(.7)(1.5)=1.05%
C&B	0%	11%
Total	13.78%	16.12%

Indicated avg Rate = $\frac{600+1000(.1378)}{1-.12-.1612} = 1026.43$

Sample 4

Used straight averages – assumed increases in GEN & OTHER are not indicative of trend, need more yrs to know that

Selected TOTAL GENERAL -> 5.067% x .7 -> 3.55% is fixed
" TOTAL OTHER -> 10.067% x .8 -> 8.53% " "
" " TL&F -> 1.467% x .3 -> 0.44% " "
" " C&B -> 10.83% x 0 -> 0% is fixed
TOTAL FIXED EXPENSES = 3.55% + 8.53% + .44% = 12.52%
" VARIABLE " = 15.514% = 5.067% + 10.067% + 1.467% + 10.83% - 12.52%

$$\frac{TOTAL\ FIXED\ EXPENSES}{PREMIUM} = 12.52\%$$

AVG PREM / EXPOSURE = 1000
1000 x 12.52% = FIXED EXPENSE / EXPOSURE
$\frac{600+125.2}{1-.15514-.12} = 1000.5$ -> INDICATED AVG RATE

Part b: 0.5 point

- This is not a reasonable expectation. The indicated rate is higher than the current rate. Additionally, if the fixed expenses continue to increase as they have been, this would make the indicated rate even higher, making the company even less likely to hit their target UW profit without changing rates.
- Using fundamental ins. Equation:
  Premium = Loss & ALAE + Expenses + UW Profit
  Management could achieve this by lowering expenses (more efficient processes), lowering losses (tighter claim settlement practices) or by marketing/underwriting to lower risk individuals/insureds.
- This could be reasonable if the insurer did other things such as reduce expenses, target profitable business to reduce expected losses, implement loss prevention/control programs through insureds, or layoffs (also ↓ expenses).
- They will be able to achieve the target profit without changing rates. In fact, price are actually too high so they will even make a better profit than the target one. Only, General Expenses and Other Acquisition are to follow because they continue going up. We will need to increase rates in the long run.

EXAMINER'S REPORT

Candidates were expected to determine the indicated rate after selecting reasonable expense ratios, split into fixed and variable components. Candidates were also expected to assess if the target underwriting profit could be achieved without changing rates by evaluating the expense trends.

This question was relatively straightforward, and most candidates performed well, with many candidates making the expected observations on the expense trends, selecting expense ratios consistent with the trends and completing the calculation to determine the indicated rate without error.

Part a

Candidates were expected to select appropriate expense ratios, accounting for observed trends and volatilities. Candidates were further expected to be able to appropriately separate the expense ratios into fixed and variable components, and determine the indicated rate given the selections and the necessary pure premium and target profit provision information.

Common mistakes included:

- Some candidates took the following approach: splitting the annual expenses into fixed and variable parts. They then reviewed and made selections for each fixed and variable. A common inaccuracy made by candidates in this approach is allowing the volatility of the commission and brokerage expenses to hide the apparent trend in the general and other acquisition expenses, resulting in inconsistent treatment relative to the treatment of the fixed expenses portion of the general and other acquisition expenses.
- Applying the fixed expense ratio to the pure premium rather than the projected premium or the indicated premium.

Part b

Candidates were expected to draw a conclusion on the feasibility of achieving the target underwriting profit provision, taking into consideration expense trend observations and offering specific alternatives to changing rates.

Common mistakes included:

- Failing to discuss the expense trend observations
- Offering a proposed alternative approach without any support for the proposal