7. (4.5 points)

Given the following data as of December 31, 2018:

Accident Year	Cumulative Reported Loss + ALAE ($000s) as of (months) 12	24	36
2016	3,440	4,107	4,522
2017	3,427	4,109	
2018	3,545		

Calendar Year	Earned Premium ($000s)	Fixed Expenses ($000s)
2016	10,500	1,155
2017	12,000	3,600
2018	12,500	1,500

Rate Change History	
Effective Date	Change
July 1, 2017	5%
July 1, 2018	2%

4%	Annual loss and ALAE trend
3%	Annual premium trend
60%	Expected Loss and ALAE Ratio
30%	Variable Expense Ratio
5%	Profit and Contingencies Provision
7%	ULAE Provision (as % of Loss and ALAE)
1.031	36-to-ultimate tail factor

- In 2017 the company implemented a new policy issuance system.
- Rates are in effect for one year.
- All policies are annual.
- Exposures are written evenly throughout each calendar year.

Calculate the indicated rate change for policies effective January 1, 2020 using the reported Bornhuetter-Ferguson technique for the last three accident years.

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QUESTION 7

TOTAL POINT VALUE: 4.5 | **LEARNING OBJECTIVE(S): A5, B3**

SAMPLE ANSWERS

	12-24	24-36	36-48
2016	1.194	1.101	
2017	1.199		
Average	1.1965	1.101	1.031
CDF	1.358	1.135	1.031

		BF (000's)	Trend	ULAE	Ult. Trend. Loss+LAE (000's)
2016	$4522+10500*.6*(1-1.031^{-1})$ =	4711.43	$1.04^{4.5}$	1.07	6014.32
2017	$4109+12000*.6*(1-1.135^{-1})$=	4965.39	$1.04^{3.5}$	1.07	6094.72
2018	$3545+12500*.6*(1-1.358^{-1})$=	5522.17	$1.04^{2.5}$	1.07	6517.44

2016 = 1.071 -> OL factor
2017 = 1 .875 1.00625 -> 1.064 OL factor
1.05 .125
2018= 1 .125
1.05 .75 1.046 -> 1.024 OL factor
1.071 .125

	EP	OL	Trend	Trended OLEP	LR	Avg LR = 45.72%	FE Ratio
16	10500	1.071	1.03^4.5	12845.36	46.82%		11%
17	12000	1.064	1.03^3.5	14159.67	43.04%		30%
18	12500	1.024	1.03^2.5	13781.71	47.29%		12%

2017 FE Ratio caused by system implementation, assume one time and exclude; avg 16 and 18 -> 11.5%

Indicated rate change = (45.72% + 11.5%) / (1 – 0.3 -0.05)-1 = -12.0%

EXAMINER'S REPORT

Candidates were expected to demonstrate knowledge of completing an overall rate level indication using the loss ratio method, including calculating development factors, calculating on-level factors using rate change history, trending and developing loss, on-leveling and trending premium, applying a ULAE load, and incorporating an appropriate fixed expense load.

Common mistakes included:

- Not accounting for outlier fixed expense year in 2017.
- Using On-leveled earned premium (OLEP) as the base for the expected loss in the Bornhuetter-Ferguson (BF) method.
- Using OLEP as the base for the fixed expense load.
- Assuming all expenses were variable.

- Using the development method to develop loss instead of the BF method.
- Adding LDFs (rather than multiplying) to calculate CDFs.
- Including fixed expense in the L&LAE Ratio.
- Trending reported losses in the BF method.
- Calculating rate indications for each year individually.