18. (2.25 points)

The following information is available for a federally regulated property and casualty insurance company. All amounts are in thousands of dollars ($000s).

20.10 – Assets	2018	2017
Recoverable from reinsurers		
Unearned premiums	6,000	5,800
Unpaid claims and adjustment expenses	16,500	16,000
Deferred policy acquisition expenses	9,000	8,700
Receivable from agents and brokers, policyholders and instalment premiums	40,000	35,000

20.20 – Liabilities and Equity	2018	2017
Unearned premiums	60,000	58,000
Unpaid claims and adjustment expenses	184,500	179,000
Unearned commissions	1,250	1,100
Premium deficiency	0	0

Net cumulative paid:

Accident Year	12	24	36
2016	24,000	58,000	75,000
2017	26,000	65,000	
2018	30,000		

Net actuarial present value ultimate:

Accident Year	12	24	36
2016	172,000	170,000	175,000
2017	189,000	195,000	
2018	198,000		

Other information:

- Assume that the net investment income from insurance operations is less than the net investment income plus share of net income (loss) of pooled funds using the equity method.
- The net investment income from insurance operations is 5,200.

Calculate the cumulative discounted excess/(deficiency) ratio for accident year 2017 as at December 31, 2018.

CONTINUED ON NEXT PAGE

QUESTION 18	
TOTAL POINT VALUE: 2.25	**LEARNING OBJECTIVE(S): C1**

SAMPLE ANSWERS

Sample 1

For AY 2017:
Beginning Unpaid Claims & Adjustment Expenses = 189,000 – 26,000 = 163,000
Ending Unpaid Claims & Adjustment Expenses = 195,000 – 65,000 = 130,000
Incremental $Paid_{2018}$ = 65,000 – 26,000 = 39,000

Net Investment Income from Insurance Operations:
Avg. Net UCAE = (184,500 + 179,000 – 16,500 – 16,000) / 2 = 165,500
Avg. Net UPR = (60,000 + 58,000 – 6,000 – 5,800) / 2 = 53,100
Avg. Premium Deficiency = 0
Avg. Unearned Commissions = (1,250 + 1,100) / 2 = 1,175
Avg. DPAE = (9,000 + 8,700) / 2 = 8,850
Avg. Receivables = (40,000 + 35,000) / 2 = 37,500

5,200 = Inv. Yield * (165,500 + 53,100 + 0 + 1,175 – 8,850 – 37,500)
Inv. Yield = 3.0%

Investment Income for AY 2017 in 2018 = 3.0% * (163,000 + 130,000) / 2
= 4,395

Discounted Excess/Deficiency Ratio = $\frac{(163{,}000 - 130{,}000 - 39{,}000 + 4{,}395)}{163{,}000}$
= -0.99% (Deficiency of 0.99%)

Sample 2

Net Investment Income = yield rate * [sum (A) – sum (B)] = 5,200
Sum (A) = 59,000 + 181,750 + 1,175 + 0 = 241,925
Sum (B) = 5,900 + 16,250 + 8,850 + 37,500 = 68,500
Yield Rate = 5,200 / 173,425
Yield rate = 2.998%

APV of Net Unpaid for AY 2017 at 12 months = 163,000
APV of Net Unpaid for AY 2017 at 24 months = 130,000

Investment Income = 2.998% * 0.5 * (163,00 + 130,000) = 4,393

Deficiency Ratio = (189,000 – 195,000 + 4,393) / 163,000 = -0.986%

Sample 3

Net Investment Income from Insurance Operations = [(60,000 – 6,000) + (58,000 – 5,800) + (184,500 – 16,500) + (179,000 – 16,000) + 1,250 + 1,100 + 0 – 9,000 – 8,700 – 40,000 – 35,000] * ½ * yield
173,425 * yield = 5,200

Yield = 3%
Cumulative discounted excess/deficiency ratio = [163,000 – 130,000 – 39,000 + .5 * 3% * (163,000 + 130,000)] / 163,000
= -0.986%

EXAMINER'S REPORT

Candidates were expected to calculate the cumulative discounted excess/deficiency ratio using the information provided. Candidates were also expected to use the correct formula for investment yield based on the fact that net investment income from insurance operations is less than the net income plus share of net income (loss) of pooled funds using the equity method.

Common errors included:

- Using the incorrect formula for investment yield
- Mistaking net ultimate losses for net unpaid losses
- Using cumulative paid losses instead of incremental paid losses to determine the excess/deficiency
- Using the only the ending balance sheet values instead of the average of beginning and ending values to determine investable assets
- Using gross average unpaid losses and unearned premiums instead of net