

EXAM 6 – CANADA, FALL 2019

19. (5.25 points)

The following information is available for a federally regulated property and casualty insurance company as at December 31, 2018. All amounts are in thousands of dollars (\$000s).

Capital available:

Common shares issued by the company	15,500
Surplus	18,100
Goodwill and intangible assets	2,200
Retained earnings	2,500
Earthquake, nuclear and general contingency reserves	1,000
Accumulated other comprehensive income	4,500
Deferred tax assets	3,600
Category B instruments	7,500
Category C instruments	3,000

Market risk:

Interest rate risk shock factor	1.25%
Bond and debentures (modified duration 4 years)	12,300
Commercial paper (modified duration 3 years)	7,000
Net premium liabilities (modified duration 1.5 years)	8,000
Net unpaid claim and adjustments expenses (modified duration 1.75 years)	13,500
Capital required for foreign exchange risk	150
Capital required for equity risk	1,000
Capital required for real estate risk	200

Assume that there are no allowable interest rate derivatives.

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Operational risk:

	2018	2017	Risk factor
Direct premiums written in the past 12 months	51,000	34,000	2.50%
Assumed premiums written in the past 12 months arising from third party reinsurance	19,200	12,500	1.75%
Assumed premiums written in the past 12 months arising from intra-group pooling arrangements	0	0	0.75%
Ceded premiums written in the past 12 months arising from third party reinsurance	5,300	4,250	2.50%
Ceded premiums written in the past 12 months arising from intra-group pooling arrangements	0	0	0.75%

Other information:

Capital required for insurance risk	29,500
Capital required for credit risk	5,000
Correlation factor between asset risk margin and insurance risk margin	50%

Calculate the Minimum Capital Test (MCT) ratio and assess whether it meets OSFI's supervisory target expectations.

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SAMPLE ANSWERS AND EXAMINER'S REPORT

QUESTION 19	
TOTAL POINT VALUE: 5.25	LEARNING OBJECTIVE(S): C2
SAMPLE ANSWERS	
<p><u>Sample</u></p> <p><i>Capital available</i></p> $= 15,500 + 18,100 - 2,200 + 2,500 + 1,000 + 4,500 - 3,600 + 7,500 + 3000$ $= 46,300$ <p>(the deductions are for goodwill and intangible assets and deferred tax assets)</p> <p>Check if Cat B+C exceeds the cap: $0.4(46,300 - AOCI) = 16,720 > 7,500$ (it's fine) Check if Cat C exceeds the cap: $0.07(46,300 - AOCI) = 2,926 < 3,000$ (cap at 2,926) Hence <i>capital available</i> = $46,300 - (3,000 - 2,926) = 46,226$</p> <p><u>For market risk</u></p> $\text{Duration of asset} = \frac{4 * 12,300 + 3 * 7,000}{19,300} = 3.637$ $\text{Duration of liab} = \frac{1.5 * 8,000 + 1.75 * 13,500}{21,500} = 1.6569$ <p><i>Interest rate risk margin</i> = $3.637 * 19,300 - 1.6569 * 21,500 * 0.0125 = 432.1344$ <i>Total market risk margin</i> = <i>Interest risk margin</i> + <i>FE risk margin</i> + <i>EQ risk margin</i> + <i>Real est. risk margin</i> = 1,782</p> <p>I + M + C = 36,282</p> <p><u>For operational risk</u></p> $\text{Cap} = 30\% * (I + M + C) = 10,884$ <ul style="list-style-type: none"> - Component # 1 : $8.5\% * (I + M + C) = 3,083.9$ - Component # 2 : $2.5\% * P_w = 1,275$ - Component # 3 : $2.5\% * P_c = 132.5$ - Component # 4 : $1.75\% * P_a = 336$ - Component # 5 : $2.5\% * P_{\Delta} = 2.5\% * [(51,000 + 19,200) - 1.2 * (34,000 + 12,500)]$ <p><i>Operational risk margin</i> = $\min(10,884 ; 5,187) = 5,187$</p> <p><u>For Diversification credit</u></p> $DC = I + A - \sqrt{I^2 + A^2 + 2RAI} \quad (R = 0.5; A = M + C = 6,782 ; I = 29,500)$ $DC = 2,870.75$ <p>Hence, capital required at target = $I + M + C + O - DC = 36,282 + 5,187 - 2871 = 38,598$</p> $MCT = \frac{\text{Capital available}}{\text{Capital required}} * 1.5 = 179.64\% > 150\% \text{ (meets supervisory target expectations)}$	

SAMPLE ANSWERS AND EXAMINER'S REPORT

EXAMINER'S REPORT

Candidates were expected to calculate the Minimum Capital Test (MCT) and assess whether the calculated ratio meets OSFI's supervisory target expectations. This includes the calculation of capital available, capital required for market risk and operational risk, diversification credit, and the ratio itself.

Common errors included:

- Not commenting on financial condition through a comparison of the MCT ratio against the supervisory target
- Not considering goodwill and deferred tax assets as deductions to capital available
- Not computing the limit of capital of category C and B+C