

18. (3.75 points)

Given the following information for a monoline insurer (all dollar figures are in millions):

The RBC charges for 2016 are:

R1	\$2
R2	\$5
R3	\$1.5
R4	\$10
R5	\$6

Net written premium:

2013	2014	2015	2016	2017
\$18	\$20	\$21	\$30	\$35

Assume the following figures for 2017:

- Industry average loss & LAE ratio is 85%
- Company average loss & LAE ratio is 90%
- Expected industry loss & LAE ratio is 95%
- Adjustment for investment is 96%
- Underwriting expense ratio is 25%

Given the following additional information:

- The insurer has no loss sensitive policies
- Loss and LAE reserves are \$50 in both 2016 and 2017
- The excessive growth factor for R5 is 0.225

a. (3.25 points)

Assuming that RBC charges R0, R1, R2, R3, and R4 are the same in 2016 and 2017, calculate the amount by which the total RBC charge for the insurer changes from 2016 to 2017.

b. (0.5 point)

Describe why the RBC formula increases the capital requirement for an insurer experiencing excessive premium growth.

## SAMPLE ANSWERS AND EXAMINER'S REPORT

risk is not introduced.

Common errors included:

- Providing a broad responsibility that did not relate back to risk and/or solvency such as setting rates or determining reserves for Actuarial
- Discussing Pillar I or Pillar III requirements
- Listing other areas within an insurance company such as claims, underwriting, accounting, etc.
- Providing ORSA as one of the four functional areas
- Switching the responsibilities of Internal Audit with Compliance or vice versa
- Stating that the Internal Audit function checked the data and/or the methodology
- Stating External Audit instead of Internal Audit
- Describing a risk management task rather than monitoring the risk management function
  - Example: "Measuring the company's risk" is a task. The Risk Management functional area is responsible for monitoring the risk management process and ensuring that an aggregate view of risk is maintained.

<b>QUESTION: SPRING 2018 EXAM 6U, QUESTION 18</b>	
<b>TOTAL POINT VALUE: 3.75</b>	<b>LEARNING OBJECTIVE: C2</b>
<b>SAMPLE ANSWERS</b>	
<b>Part a: 3.25 points</b>	
<i>Sample 1</i>	
$2016 \text{ RBC} = R_0 + \sqrt{R_1^2 + R_2^2 + R_3^2 + R_4^2 + R_5^2}$ $= R_0 + \sqrt{2^2 + 5^2 + 1.5^2 + 10^2 + 6^2} = R_0 + 12.933M$	
Company LR = Average [(0.9/0.85)*(0.95), (0.95)] = 0.9779	
2017 NWP RBC base charge = 35M*(0.9779*0.96 + 0.25 - 1) = 6.607M	
NWP growth rates:	
2013-2014: (20/18 - 1) = 11.11%	
2014-2015: (21/20 - 1) = 5%	
2015-2016: (30/21 - 1) = 42.86% → capped at maximum of 40%	
2016-2017: (35/30 - 1) = 16.67%	
3-year average: (16.67% + 40% + 5%)/3 = 20.56%	
Cap 3-year average : max( min(40% , 20.56%) , 10%) = 20.56% → no impact in this case	
excess growth: 20.56% - 10% = 10.56%	
RBC charge for excessive growth: (10.56%*0.225*35M) = 0.832M	
Total 2017 R5 = 6.607M + 0.832M = 7.439M	
2017 RBC = R0 + $\sqrt{2^2 + 5^2 + 1.5^2 + 10^2 + 7.439^2} = 13.66M$	

## SAMPLE ANSWERS AND EXAMINER'S REPORT

Change in RBC = 13.66M – 12.933M = **0.727M**

### **Part b:** 0.5 point

#### Sample 1

- Less insight into new business, so it is harder to underwrite / price the risk

#### Sample 2

- Excessive premium growth
  - Is a major factor that has historically led to insolvency
  - Is an indication that the insurer has lax u/w standards or is charging bargain rates

#### Sample 3

- Less insight into new business, so it is harder to estimate unpaid claims

#### Sample 4

- When growing rapidly the insurer has a smaller margin of error when setting reserves
- Rapid growth may also signify that the insurer is sacrificing commissions and using lax underwriting standards to increase market share

#### Sample 5

- Less insight into new business, so it may be unprofitable / result in poor underwriting results

#### Sample 6

- When a book is growing rapidly, you may understate the unpaid claim amounts since the writings are skewed towards the second half of the year

#### Sample 7

- Rapid growth may indicate the insurer is trying to increase cash flow to pay for current liabilities. This is a short-term solution to the problem and may lead to solvency issues.

### **EXAMINER'S REPORT**

The candidate was expected to calculate RBC and understand why premium growth increases the RBC results.

#### **Part a**

Candidates were expected to understand how to calculate RBC, including the impact of excessive premium growth.

Common errors that received deduction of credit included:

- failure to cap the 2015-2016 growth rate at 40%
- failing to use only the portion of the capped, average growth rate in excess of 10%
- not using any growth rate at all in the calculation and just using the 0.225 charge factor

#### **Part b**

Candidates were expected to understand why excessive premium growth results in a higher RBC charge

Common errors included:

- Reciting the definition of R5
- Stating that new business loss ratio is worse than renewal business loss ratio