# 2013 PART III EXAMINATIONS

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|---|---|
| Subject Title: | **C2B Life Insurance (longer answer component)** |
| Date: | **Wednesday, 16 October 2013** |
| Time: | **1:00 pm – 4:00 pm** |
| **Time allowed:** | Three (3) hours including reading time |
| **Instructions:** | Type your answers to the longer answer component in a Word document (other then those sections specifically requested to be answered in a spreadsheet). Ensure your spreadsheet is not linked to your Word document.<br><br>For Question 1 you MUST submit both your Word document AND your Excel file.<br><br>For Question 2 you MUST submit both your Word document AND your Excel file. |

**Number of Questions:** **Two** (2)

| Question | Marks |
|---|---|
| 1 | 30 |
| 2 | 30 |
| **Total** | **60** |

Candidates are required to answer **ALL** questions.
This paper has **seven** (7) pages (excluding this page).

**COURSE 2B LIFE INSURANCE** **SEMESTER 2 2013 EXAMINATIONS**

**QUESTION 1** **(30 MARKS)**

Globex Corporation Ltd. ("Globex") was founded five years ago and was incorporated with \$150m of ordinary share capital and \$50m of preference share capital. No additional capital has been raised since this initial capital raising.

Globex has one statutory fund which writes lump sum business in Australia written through mortgage brokers who receive both up-front and renewal commission for writing insurance policies issued by Globex. The rates for the policies are reviewed every 3 years. You have recently taken the role of Globex's Appointed Actuary.

The balance sheet for both the Globex Statutory Fund as well as the Shareholder's Fund is shown in Appendix A (note also the accompanying notes which provide further detail for the items included in the balance sheet provided at the end of this question):

a) Using the information provided in Appendices A and B, calculate the Capital Base of Globex, as defined under LPS110, at 30 June 2013 for each of the following:

i) the Statutory Fund;

ii) the Shareholders Fund (also known as the General Fund); and

iii) the company as a whole

(4 Marks)

b) You are now considering the calculation of the Prudential Capital Requirement (PCR) for Globex's statutory fund. In particular, you are considering the risk margins to be used for the calculation of the insurance risk charge under LPS115.

For each of the risk margins covered in LPS115 discuss how you would approach the job of setting these margins for Globex's business. Include in your answer where you are likely to source any information. (8 Marks)

c) Your actuarial analyst has provided the information in the attached spreadsheet relating to Globex's business. This information covers

- Cashflows of premium, commissions and incurred claims; and
- Sum Insured projection for the next 20 years.

Subsequently, you and the Board have agreed to apply the following margins to these cashflows for the purposes of calculating the Insurance Risk Charge under LPS115.

| LPS115 Margin | Stress Margin % |
|---|---|
| Random Stress Margin | 40% increase |
| Event Stress Margin | per LPS115 |
| Future Stress Margin | 25% increase |

Based on this information, calculate the Risk Free Best Estimate Liability (RFBEL), Random Stress, Future Stress and Event Stress margins. Assume a risk free rate of 4% per annum. Explain any assumptions you make in your calculations. You may submit the spreadsheet for your answer but you must clearly label each item of your answer. Note that your calculation of RFBEL will not necessarily match the value shown in Appendix B. (6 Marks)

d) It is now one year later and Globex is looking to move into the Australian group insurance market. In particular, Globex is looking at an opportunity to take on a large block (approximately $100m of annual premium for a 5 year rate guarantee) of industry fund business which contains both lump sum (death and TPD) and Group Salary Continuance (GSC) business. Globex plans to heavily reinsure this business (with the same reinsurer as it has used for its existing business).

In putting together your capital estimates for this transaction, you notice that under LPS117, Globex has an asset concentration risk charge for its exposure to its reinsurance partner. Globex is keen to retain this partner for all of its business due to the competitive terms the reinsurer is able to offer. Draft a memo to the CFO describing

- the alternative ways Globex may reduce or eliminate the asset concentration risk charge
- the advantages and disadvantages of each approach
- your preferred approach and why you have made this choice
- how your preferred approach would impact target capital

(12 Marks)

**Attachments**

1. C2B_LAQ1_Data.xlsx

**Appendices**

A. Globex Corporation Ltd – Balance Sheet at 30 June 2013

B. Additional Information

 

## APPENDIX A: Globex Corporation Ltd – Balance Sheet at 30 June 2013

| Globex Corporation Ltd: Balance Sheet at 30 June 2013 | Statutory Fund ($000s) | Shareholders Fund ($000s) | Company as a whole ($000s) | Notes |
|---|---|---|---|---|
| **ASSETS** | | | | |
| Cash | 25,000 | 8,000 | 33,000 | |
| Investments | 140,000 | 80,000 | 220,000 | (A) |
| Premiums Receivable | 35,000 | 0 | 35,000 | |
| Deferred Tax Assets | 5,000 | 0 | 5,000 | |
| Ceded Policy Liability | 30,000 | 0 | 30,000 | (B) |
| **Total Assets** | **235,000** | **88,000** | **323,000** | |
| **LIABILITIES** | | | | |
| Claims Outstanding | 15,000 | 0 | 15,000 | (C) |
| Commissions Payable | 10,000 | 0 | 10,000 | |
| Policy Liability | 60,000 | 0 | 60,000 | |
| **Total Liabilities** | **85,000** | **0** | **85,000** | |
| **CAPITAL** | | | | |
| Transfers from Shareholders Fund | 120,000 | -120,000 | 0 | |
| Transfers to Shareholders Fund | -50,000 | 50,000 | 0 | |
| Retained Earnings | 80,000 | 8,000 | 88,000 | |
| Shareholder Dividends | n/a | -50,000 | -50,000 | (D) |
| Ordinary Share Capital | n/a | 150,000 | 150,000 | |
| Preference Share Capital | n/a | 50,000 | 50,000 | (E) |
| Subordinated Debt | n/a | 0 | 0 | |
| **Total Capital** | **150,000** | **88,000** | **238,000** | |

A. All investments are held in Australian Commonwealth Government Bonds

B. A 50% quota share is in place where the reinsurer proportionately shares in 50% of the commissions payable and 50% of the insurance risk. In addition the reinsurer provides cover on a per life basis for lump sum lives with greater than $1m retained.

C. Refers to claim payments that come due prior to the balance date

D. Dividend payments have been made on both ordinary and preference share issues

E. Preference shares rank below ordinary creditors to the company, but above policyholders. Under the terms of the preference share, 7% of the face value of the preference share is payable each year and the holder of the share has the option of redeeming the preference share at its face value at any time after the first 5 years since its issue.

 

**APPENDIX B: Additional Information**

| Reserves (gross of reinsurance) | $000s |
|---|---|
| Risk Free Best Estimate Liability | (200,000) |
| Unearned Premium Reserve | 10,000 |
| Incurred But Not Reported Reserve (IBNR) | 15,000 |
| Disabled Lives Reserve (DLR) | 50,000 |

- No policies issued by Globex have a surrender value
- All reinsurance arrangements have an executed and legally binding contract in place.

**QUESTION 2** **(30 MARKS)**

Omega Life Insurance is a new insurance company operating in the newly formed nation of Utopia. Omega Life plans to offer death cover to small community groups which will cover members of that group. The policies issued all renew at 1 July of each year with all premiums payable annually in advance. The policies that Omega plans to offer have a term of 5 years, are not underwritten and have a pre-existing condition exclusion applied during the 5 years of the policy term (the community groups can choose to lapse over that term).

Omega Life plans to write the following volumes of new business (all schemes are written at 1 July). All premiums are paid annually in advance at 1 July of each year.

| Year ending 30 June | New Business Volumes | |
|---|---|---|
| | Number of New Policies | Average Policy Annual Premium ($000s) |
| 2014 | 4,000 | 800 |
| 2015 | 6,000 | 950 |
| 2016 | 9,000 | 1,200 |
| 2017 | 12,000 | 1,350 |

The following assumptions have been developed for the purposes of business forecasting:

- Loss Ratio: 75% of premium
- Initial Commission: 30% of first year premium
- Renewal Commission: 0% or premium
- Maintenance Expenses: 12%  of each years' premium plus a flat $1m per annum
- Lapse Rate: 12% at each scheme renewal date
- Premium Growth Rate: 0% p.a.
- DAC Amortization: Straight line amortization over the term of the policy
- IBNR: Calculated as 25% of expected claims over the next 12 months

Omega Life uses an accumulation method to calculate its policy liabilities.

- Investment Income: 4.0% p.a.
- Capital: Capital is held at the maximum of $10 million and 115% of premium income
- Tax at 30% of profits

 

a) You have been asked to develop a business forecast for 2014 – 2017 for the life insurance business of Omega Life Ltd based on the assumptions listed above. The company has developed a standard template to be completed for the purposes of presenting the business forecast to the board.

Your student has copied the above assumptions into a spreadsheet and has already created a projection of premium revenue based on the assumptions above. This information along with the company's planning template has been provided in the accompanying spreadsheet.

Complete the business forecast for 2014 – 2017 for Omega Life. Clearly identify any assumptions that you make in putting together the forecast. You may assume these calculations and assumptions are performed correctly in the spreadsheet. You may submit the spreadsheet for your answer but you must clearly label each item of your answer. (9 Marks)

b) It is now mid-2014 and Omega Life has not written as many policies as it planned. However, the company has been able to write a number of policies with high average premium size. The details of the experience for the 2014 year are listed below:

| | | |
|---|---|---|
| New Business Volumes | | |
| | Number of Policies | 1,500 |
| | Average Policy Size | 1,400 |
| Loss Ratio | | 85% |
| Actual investment income | | 6% |

Notes:

Claims Incurred includes claims notified and IBNR

All other experience items are consistent with those assumed in the forecast

 

Omega Life's board have asked you to:

i) provide an analysis of profit and

ii) give your advice on what the analysis means for the business.

Your analysis of profit must be provided in the following format:

| **Analysis of Profit for Omega Life Ltd** | $ |
|---|---|
| Forecast 2014 Profit (pre-tax) | |
| Impact on Pre-tax profit resulting from | |
| 1) Number of New Business Sales | |
| 2) Average size of New Business Sales | |
| 3) Claims Experience | |
| 4) Investment Income Experience | |
| 5) Other | |
| Actual 2014 Profit (pre-tax) | |

**(9 Marks)**

c) As a result of the experience in 2014, the board and management are considering the strategy for Omega Life going forward. Some of the options for the business going forward to be considered include:

i) Increasing business volumes by increasing the level of upfront commission;

ii) Changing the investment mandate to allow the company to invest in corporate bonds with BBB and lower levels of credit rating; and

iii) Removing the 5 year pre-existing condition exclusion on the policies and instead to fully underwrite all lives that will be given cover.

The Board has asked for your opinion on each of these options. Your opinion on each option should cover the following items:

- The expected impact on the profit and loss forecasts;
- The expected impact of the level of risk undertaken by the company; and
- Whether or not the company should implement this strategy

(12 Marks)

**Attachments**

1. C2B_LAQ2_(student notebook)

**END OF PAPER**

 