Exam ILALFVC

Life Finance & Valuation - Canada
AFTERNOON SESSION

Date: Thursday, May 2, 2019
Time: 1:30 p.m. – 3:45 p.m.

INSTRUCTIONS TO CANDIDATES

General Instructions

1. This afternoon session consists of 4 questions numbered 8 through 11 for a total of 40 points. The points for each question are indicated at the beginning of the question.

2. Failure to stop writing after time is called will result in the disqualification of your answers or further disciplinary action.

3. While every attempt is made to avoid defective questions, sometimes they do occur. If you believe a question is defective, the supervisor or proctor cannot give you any guidance beyond the instructions on the exam booklet.

Written-Answer Instructions

1. Write your candidate number at the top of each sheet. Your name must not appear.

2. Write on only one side of a sheet. Start each question on a fresh sheet. On each sheet, write the number of the question that you are answering. Do not answer more than one question on a single sheet.

3. The answer should be confined to the question as set.

4. When you are asked to calculate, show all your work including any applicable formulas.

5. When you finish, insert all your written-answer sheets into the Essay Answer Envelope. Be sure to hand in all your answer sheets because they cannot be accepted later. Seal the envelope and write your candidate number in the space provided on the outside of the envelope. Check the appropriate box to indicate morning or afternoon session for Exam ILALFVC.

6. Be sure your essay answer envelope is signed because if it is not, your examination will not be graded.

Recognized by the Canadian Institute of Actuaries.

Tournez le cahier d'examen pour la version française.

475 N. Martingale Road
Schaumburg, IL 60173-2226

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****BEGINNING OF EXAMINATION****
Afternoon Session
***Beginning with Question* 8**

8. (*8 points*)

(a) (*2 points*) Critique the following statements regarding Actuarial Appraisals:

A. An Actuarial Appraisal should be performed on a Statutory Accounting basis, because valuations should be performed on a conservative basis.

B. The main challenge in using Comparable Company Analysis is that recent transactions of comparable size and lines of business may not exist.

C. An Actuarial Appraisal is typically prepared when a buyer is interested in valuing a targeted company or block of business.

D. An Actuarial Appraisal is not a good valuation method for segregated funds since a single scenario will not capture the cost of the guarantees.

(b) (*3 points*) A block of business has the following parameters:

Balance	**Amount (Millions)**
Required Capital	150
Excess Capital	20
PV of Cost of Capital	30
PV of Distributable Earnings	240
Weighted Average Cost of Capital (WACC)	0%
Projection Horizon	5 Years
Net Income (After Tax Earnings)	Level Each Year

Calculate the following:

(i) Net Income in Year 1

(ii) Value of New Business of the block

Show all work.

8. Continued

(c) (*3 points*) Your company is considering selling a block of business. Your bankers have put together the following data sheet about the buyer:

Balance	**Amount (Millions)**
Expected Return on the Whole Market	9%
Risk Free Rate	4%
Company Stock Beta	0.8
Debt Market Value	100
Equity Market Value	300
Cost of Debt	6%

Your bankers have told you that they believe that the buyer is using a discount rate of 7% for the valuation of the business.

State three reasons that could justify why the buyer could be using a discount rate of 7%, relative to the baseline discount rate from the CAPM framework. Show all work.

9. (*9 points*) PZA Life cedes a block of business to BDC Re on a 40% quota share basis. You are given the balance sheet for the block of business:

Total Assets	170
Best Estimate Net of Reinsurance	120
Margin for prudence	12
Total Liabilities	132
Surplus	38

(a) (*1 points*) Explain why the balance sheet is not consistent with IFRS 4.

(b) (*4 points*)

(i) Describe the two approaches to revise PZA Life's balance sheet so it is appropriate and consistent with IFRS 4.

(ii) List the pros and cons of each approach in (i).

(iii) Revise the balance sheet under one of the approaches. Assume PZA Life uses the same percentage margin for prudence in the calculation of its actuarial liabilities

(c) (*4 points*) The following excerpts are taken from the reinsurance contract between PZA Life and BDC Re.

Insolvency

In the event of insolvency of PZA Life, BDC Re retains the right to be notified of and investigate pending claims and pursue any defense available. BDC Re is required to continue paying claims, but claim amounts may be reduced in proportion to the amount the liquidator has paid directly to claimants. BDC Re may offset claim payments by premium monies owed.

In the event of insolvency of BDC Re, PZA Life may terminate the agreement for new business and recapture all inforce subject to a mutually agreed upon fee. Recapture will be done retroactively to the prior contract anniversary date.

9. **Continued**

Errors and Omissions

Both parties are expected to identify and correct errors at the earliest possible date. The party discovering the error must notify the other party in writing as soon as discovered.

Reporting Requirements

PZA Life may change the reporting format and data used in reports provided to BDC Re as a result of changes to PZA Life's systems. PZA Life must notify BDC Re of the changes at least 15 days in advance

Offset

Mutual debits and credits may be offset against each other, including business from outside of Canada. Offsets will continue in the event of the insolvency of one of the parties.

Critique the above excerpts from the treaty.

10. (*12 points*) You are given the following information about company THL's LowPay Universal Life (UL) product which is marketed as a flexible premium contract that emphasizes insurance protection over savings:

- **Deposits:** Deposit amounts are flexible, subject to a minimum required amount each year.
- **Policy Owners Funds:** Deposits are invested in Guaranteed Interest Certificate accounts with terms of 1, 3 or 5 years.
- **Cost of Insurance Charges:** Increasing each year based on the insured's attained age. Adjustable, but capped at a guaranteed maximum level. Current charges are below the maximum level.

(a) (*4 points*) Describe considerations in determining the following assumptions for the valuation of LowPay UL policy liabilities under CALM:

(i) Projected credited interest rates on policy owner funds

(ii) Projected future deposits

(iii) Cost of insurance charges

(b) (*5 points*) Assume that equity investments are used to back a portion of LowPay UL insurance component cash flows.

(i) List considerations related to setting the reinvestment strategy to calculate CALM reserves.

(ii) Determine the risks associated with the above investment strategy.

10. Continued

(c) (*3 points*) THL's marketing department wants to introduce a new PlatinumPay UL product with an additional policy owner fund where the returns will be tied to an external equity index. The purpose is to emphasize higher savings, increased investment opportunities, and tax advantages.

Determine any changes needed to the following CALM valuation assumptions for PlatinumPay compared to LowPay:

(i) Credited rate

(ii) Policyholder behaviour with respect to fund allocation

(iii) Policyholder behaviour with respect to premium persistency

11. (*11 points*) You are given the following details regarding the Universal Life block of FWL, a large Canadian Life Insurer:

- The death benefit is level throughout the life of the policy.

- The Policyholder Fund has a maximum deposit allowance and accumulates according to a balanced fund index subject to a minimum crediting rate guarantee.

- The product allows the policyholder to put deposits beyond the maximum deposit allowance into an account outside of the policy, called a Side Fund, linked to a Canadian stock index

- Current reserve method follows CALM, according to the CIA Standards of Practice (CIA SOP)

- The General Measurement Approach (GMA) will be used for this product under IFRS 17. (The GMA is also known as the General Measure Model (GMM))

With respect to IFRS 17 and the Universal Life product above:

(a) (*2 points*) Describe the provisions for non-financial risk.

(b) (*2 points*) Compare and contrast the treatment between IFRS 17 and CALM with respect to the guaranteed minimum crediting interest rate.

(c) (*4 points*) Explain the approach used to determine the discounting rates.

(d) (*3 points*) Describe the accounting treatment of the Side Fund.

****END OF EXAMINATION****
Afternoon Session

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