FN241 class 12-13 review questions

Provide precise and concise responses to the following questions referring to theories, concepts, and frameworks as discussed in the class materials and the main textbook. For quantitative problems, demonstrate the process of calculation and clearly highlight your answers as appropriate. Write down your answers clearly so that the lecturer can read them easily.

Review questions

1. Answer the following questions
   a. Briefly explain three reasons for reinsurance
   b. Distinguish between facultative reinsurance and treaty reinsurance
   c. What is the meaning of adverse selection? What is the difference between adverse selection and moral hazard?
   d. Identify some methods that insurers use to control for adverse selection.

(a) Reinsurance is used for several reasons:

(1) To increase the company's underwriting capacity

(2) To stabilize profits

(3) To reduce the unearned premium reserve

(4) To provide protection against a catastrophic loss

(b) Facultative reinsurance is an optional, case-by-case method used when the ceding company receives an insurance application that exceeds its retention limit. Reinsurance is not automatic. The primary insurer negotiates a separate contract with a reinsurer for each loss exposure for which reinsurance is desired. However, the primary insurer is under no obligation to cede insurance and the reinsurer is under no obligation to accept the insurance. If a willing reinsurer is found, the primary insurer and reinsurer can then enter into a valid contract.

(c) Adverse selection is the tendency of persons with a higher-than-average chance of loss to seek insurance at standard (average) rates, which, if not controlled by underwriting, results in higher than expected loss levels. Adverse selection occurs when there's a lack of symmetric information prior to a deal between a buyer and a seller, whereas moral hazard occurs when there is asymmetric information between two parties and change in behavior of one party after a deal is struck.

(d) Adverse selection can be controlled by careful underwriting, by charging higher premiums to substandard applicants for insurance, and by certain policy provisions.

2. Answer the following questions
   a. Briefly discuss the two principal types of financial reserves needed to be maintained by P&C insurers.
   b. What are the two major sources of revenue for a non-life insurance company? What are the major expenses of non-life insurance company?
   c. Name three ways in which the assets of a life insurance company differ from the assets of a non-life insurance company.

   a. *Loss reserves* are estimated costs of settling claims for losses that have already occurred but have not been paid as of the valuation date. This is important because certain claims may take longer time to settle.
   Unearned premium reserves represent the unearned portion of gross premium on all outstanding policies at the time of valuation. It's use to pay for losses that occur during the policy period, premium refund, serve as basis for determining the amount to be paid for reinsurer for carrying the reinsured policies until the end of term.

   b. The two major sources of revenue for a property and casualty insurance company are the premiums that it earns for providing insurance coverage and investment income generated from its portfolio of invested assets.
   The major expenses for a property and casualty insurance company are loss payments, loss adjustment expenses, commissions, premiums taxes, and general expenses.

   c. Although the assets of a life insurance company are quite similar to the assets of a property and casualty insurance company, there are three important differences. First, an important asset for many life insurance companies is policy loans. Policyholders who own cash-value life insurance products may borrow the cash value from the insurer. Life insurance policy loans are an interest-earning asset for a life insurance company. The second difference between a life insurance company's investments and the investments of a property and casualty insurance company is investment duration. Life insurers tend to invest with a longer time horizon, matching the maturity of the contracts offered with the investments backing the contracts. Finally, life insurers have "separate account" assets. Some insurers sell products that are interest-sensitive (e.g. variable life insurance, variable annuities, and private pension benefits). The assets backing these products are held separate from the insurer's general assets in a different account.

Application questions

1. Based on the balance sheet and P&L statements in class 13 material, calculate relevant financial ratios.
   Loss ratio = (133.6+14)/205 = 72%
   Expense ratio = 64.64/206 = 31.4%
   Combined ratio = 72% + 31.4% = 103.4%
   Investment income ratio = 18/205 = 8.8%
   Overall operating ratio = 103.4% - 8.8% = 94.6%

2. Life insurance investments are said to be a crucial contributor impacting a nation's economic and social wellbeing. Why?
   (1) Life insurance contracts are long term, its liabilities extend over long period of time, safety of principal is primary considerations, and thus majority is invested heavily in bonds. (2) Investment income is crucial in reducing cost of insurance (premium is invested and earned interest). (3) Life insurance premiums are an important source of capital funds to the economy – it's invested in business and social ventures.