INSTITUTE OF ACTUARIES OF INDIA

EXAMINATIONS

12th May 2010

Subject CA3 – Communications

Time allowed: 3 Hours (14.45*- 18.00 Hrs)

Total Marks: 100

INSTRUCTIONS TO THE CANDIDATES

1. ***Please read the instructions on the front page of answer booklet and instructions to examinees sent along with hall ticket carefully and follow without exception***

2. ****You have 15 minutes at the start of the examination in which to read the questions. You are strongly encouraged to use this time for reading only, but notes may be made. You then have 3 hours to complete the paper.***

3. ***You must not start writing your answers until instructed to do so by the Supervisor.***

4. ***Attempt BOTH the questions.***

5. ***Mark allocations are shown in brackets.***

AT THE END OF THE EXAMINATION
Please return your answer book and this question paper to the supervisor separately.

Q. 1) You work as an actuary in the enterprise risk management function of a life insurance company. Your manager, the Chief Risk Officer, has been approached by a financial journalist who is covering the global financial crises and its impact on both the banking and insurance industries. In particular the journalist has raised the issue of how insurers seemed to have fared better than banks in the crises.

In order to respond to the journalist an analyst in your team has prepared briefing notes.

Characteristics of banking	• Banks are engaged in risk transfer • Banks accept short term liquid demand deposits and grant long term loans • Such activities lead to banks accepting credit risk in relation to the lending activities • It gives rise to liquidity risks due to the mismatch between the asset and liability duration • Bank depositors' decision to withdraw deposits is highly correlated • There is a strong interdependence amongst banks with reliance on funding to meet liquidity requirements • This model has encouraged regulation including the provision of deposit insurance, liquidity prescriptions and capital adequacy rules to supervise the industry and protect customers • Banks are vulnerable to contagion and systemic risk including bank runs • Central banks act as lenders of last resort to prevent financial crises
Characteristics of insurance	• Mechanism of pooling and transfer of the financial consequences of risk • Insurer receives a premium for taking on this risk which compensates it for the expected losses, operating expenses and cost of capital held. • Access to insurance allows people and businesses to engage in risky activities that they otherwise might not engage in due to the spectre of losses • Absence of insurance would increase risk aversion and may dampen economic growth • A key challenge in insurance is the so-called "inversion of production cycle" as products are priced without knowing the ultimate costs with certainty • Claim payments typically pre-funded by a flow of premium payments which enable insurers to avoid reliance on short term market funding • Premiums are invested in assets to support future claims and operating expenses but typically do not employ leverage

Characteristics of insurance	• Claim payments follow predictable patterns and changes in liabilities do not usually force insurers to sell assets in a large scale manner • Life insurers may face early surrender of policies that are particularly sensitive to financial market conditions which may force asset sales at times when their market values are depressed • Investments play an important role in insurance by generating risk adjusted returns to preserve solvency of the company and provide a return on capital • Insurers determine investment strategy keeping in mind the liabilities through Asset Liability Management ("ALM") • Insurers are not so dependent on each other except for extreme events

Draft a response in the form of an article suitable for use by the journalist in about 500 – 600 words on behalf of your manager covering the following elements in particular:

- Compare and contrast the banking and insurance industries

- Highlight the reasons which may lead the banking industry to contagion making it more vulnerable to the sort of crises we witnessed recently

- Identify the reasons which make insurers less vulnerable to crises and those aspects of the industry which are prone to contagion **[60]**

Q. 2) Your friend has read the following note from a friend who works in the actuarial department of a life insurer and is unable to understand the concepts explained.

"Unit-linked products with highest unit price guarantee"

Under a typical unit-linked product the investment risk is entirely borne by the policyholder with the value of the maturity benefit being the multiplicative product of the number of units and the unit price. The unit price is determined by the market value of the underlying investments.

The policyholder's premiums are used to purchase units net of a premium allocation charge which is a percentage of the premium paid. The units are invested in different kinds of financial instruments such as equities or bonds and the price of the units fluctuates with the market value of the underlying investments.

While the above structure is very transparent in that the policyholder knows at any given time the value of his unitholdings which he can compute by multiplying the number of units by the unit price which is published in the newspapers, there is no investment guarantee. In an extreme situation the investments could become worthless. Customers have become increasingly concerned about these issues given the recent equity market turndowns.

In order to meet the customer desire for investment guarantees life insurers have developed unit-linked product with highest unit price guarantees. Under these products on maturity the customer receives the greater of the value of his unitholdings (as in a standard unit-linked product) and the number of units at maturity multiplied by the highest unit price on a number of specific dates during the term of the policy. Therefore even if due to financial market upheavals the value of the customer's unitholdings rapidly falls there is a floor below which the value cannot fall.

These guarantees are complex for insurers to manage and are typically managed by looking at the value of the guarantee at any time and determining the equity proportion of the investments so that the insurer can still withstand a financial market fall without the guarantee coming into the money. This requires ongoing monitoring of the financial markets and switching from equities to bonds if the markets start falling significantly.

Redraft the note in about 450-550 words to make it suitable for sending it to your friend who is not conversant with financial matters.

[40]

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