NATIONAL UNIVERSITY OF SCIENCE AND TECHNOLOGY

DEPARTMENT OF INSURANCE AND ACTUARIAL SCIENCE

B.COMM (HONS) IN RISK MANAGEMENT AND INSURANCE

AUGUST 2009 EXAMINATIONS

SUBJECT: **Financial Risk Management (CIN 4205)**

TIME ALLOWED: 3 HOURS

INSTRUCTIONS TO CANDIDATES

1. Answer **any 5** questions.
2. Write clearly and begin each question on a new page.
3. In addition to this paper a candidate should have a **copy of 2002 edition actuarial tables** and a non-programmable scientific calculator.

Q1 With the aid of a diagram, explain in detail the stages in financial risk management process. [20 marks]

Q2 (a) Explain the different types of financial risks to which an organization might be exposed [15 marks]

(b) Identify and explain credit risk mitigation strategies. [5 marks]

Q3 Suppose a company has $ 10 Million bank loan at 1% above the three month deposit rate with quarterly rollovers. At the next rollover date in a month's time, the interest is expected to be higher, so the company decides to hedge this risk by selling 20 three-month interest rate futures contracts. Assume that the deposit rate is currently 12%, that the futures contracts are valued at 87,75% and in a month's time the borrowing rate is 13%.

(a) Show the outcome in the cash market and futures market of this hedging strategy. [10 marks]

(b) It is understood that Money Market hedges are relatively straight forward to implement as compared to hedging with futures. Discuss the drawbacks of using Money Market hedges. [10 marks]

Q4 Explain the following risk quantification models or techniques, also highlighting advantages and disadvantages.

- Variance-covariance approach.
- Historical simulation modeling.
- Gap analysis.
- `Monte Carlo simulation.
- Duration analysis.
- Value-at-Risk. [20 marks]

Q5 Suppose that 1 April a Pension fund manager is uncertain about where the market is going over the next three months and wishes to hedge $ 1 Million of his equity portfolio which has a beta of 1,15. On 1 April the FTSE 100 index is standing at 2204,1 and the value of the June contract on LIFFE is 2300,0. Because the fund manager is long in cash market, he will need to be short in futures market to hedge the portfolio. Initial Margin on FTSE 100 is $1000 and the value of a tick is $ 10.

Calculate:

(a) The number of futures contracts that have to be sold in order to hedge the portfolio.
(b) The cost of putting on the hedge.
(c) The value of the portfolio that he is locking in.
(d) If the index on 30 June is at 3000, calculate the Terminal Value of the Hedged fund. Comment briefly on your answer.

[20 marks]

Q6 Suppose that an investor has a Portfolio valued at $ 100 000 and that he wishes to protect it from falling below this value but does not want to forego the chance of benefiting if the portfolio rises above this level. Suppose we know that after 6 months the portfolio could have risen in value to $ 110 000 or fall in value to $ 90 000. Also suppose that if had risen to $ 110 000, then after a further 6 months the portfolio could have risen to $ 120 000 or fallen to $ 100 000; while if it had fallen to $ 90 000 after 6 months, then by the end of the year, it could have risen to $ 100 000 or fallen to $ 80 000.

Assuming that the riskless security has a semi-annual interest rate of 5% ,

(a) Allocate through dynamic asset allocation the initial investment into risky assets and risk free assets in order to achieve the desired year end portfolio. Comment briefly on your strategy. [15 marks]

(b) In hedging financial risks, when should you use options in preference to futures. [5 marks]

Q7 Suppose a financial manager is holding a portfolio of $ 100 Million comprising of 3 loans (A, B and C) with various probabilities of default. Given that the recovery rate for default is as follows: A = 45%, B = 60% and C = 70%. Assuming the exposures are constant and default events are independent across the borrowers. You are also given the following information:

Borrower	**Exposure ($Millions)**	**Probability of Default**
A	25	0,05
B	30	0,10
C	45	0,20

(a) Calculate the Loss Given Default amount in respect of each borrower. [6 marks]

(b) Calculate: (i) Total Expected Loss arising from this portfolio. [7 marks]

(ii) The Standard deviation. [7 marks].

[Total : 20 marks]

!!!!!!!!!!!!!!!!!!END OF EXAMINATION!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!