NATIONAL UNIVERSITY OF SCIENCE AND TECHNOLOGY
FACULTY OF COMMERCE
DEPARTMENT OF FINANCE
BACHELOR OF COMMERCE HONOURS DEGREE IN FINANCE
PART IV – FINAL EXAMINATION - JUNE 2010
RISK MANAGEMENT [CFI 4204]
TIME ALLOWED: 3 HOURS

Instructions to Candidates

1. Answer any **FOUR** questions
2. Show **ALL** calculations
3. All questions carry 25 marks each

QUESTION 1

(a) Explain how a bank with excess liquidity will structure the timing and maturity of its investments to minimise reinvestment risk. **[7 marks]**
(b) Discuss the cash matching approach to asset and liability management in the context of a fixed interest rate environment. **[8 marks]**
(c) Suppose that Bank XYZ has a funding deficit and the resources amortise quicker than assets. Explain how the bank would structure the funding so that the interest margin is fully hedged. **[10 marks]**

QUESTION 2

Suppose it is 1 April and a fund manager in the UK is expecting to receive dividend payments of $2million on his investments in the USA on 1 June. The dividends will be repatriated immediately and the fund manager is concerned that the pound will strengthen against the US dollar between 1 April and 1 June and therefore decides to hedge the position using currency futures contracts. On 1 April the spot exchange rate is $1.70 per pound and the June LIFFE futures price is $1.72.

Required

(a) What action should the fund manager take in the futures market? **[2 marks]**
(b) Calculate the number of sterling contracts required to hedge this exposure. **[5 marks]**
(c) Calculate the value of the contracts in US dollars. **[3 marks]**
(d) Suppose that on 1 June the spot rate has risen to $1.77 and the futures price has risen to $1.78. Calculate the profit or loss on **both** the cash and futures positions. **[6 marks]**
(e) Calculate the hedge efficiency. **[3 marks]**
(f) Comment on what caused the efficiency of the hedge not to be 100 percent. **[6 marks]**

QUESTION 3

(a) Examine the suitability of duration gap analysis in measuring balance sheet sensitivity to interest rate changes. **[8 marks]**
(b) Discuss the two types of liquidity gaps. **[8 marks]**
(c) Examine the circumstances under which a commercial bank's liquidity ratio can worsen and briefly discuss how the ratio can be maintained. **[9 marks]**

QUESTION 4

(a) Discuss the major flaws that are inherent in Basel I that necessitated the birth of Basel II. **[16 marks]**
(b) Analyse the three allowable approaches to calculating the Basel II operational risk charge. **[9 marks]**

QUESTION 5

(a) Share prices move according to the following binomial process: during any six month period, there is a 50% chance that share prices will rise by 8 percentage points and a 50% chance that share prices will fall by 8 percentage points. On the other hand, Treasury bills generate a safe return of 4% during any six month period. Design a minimum-cost portfolio strategy that guarantees a year end portfolio value of $1 million whatever happens to share prices, but which takes advantage of favourable share price movements. **[20 marks]**
(b) Briefly discuss the concept of perturbation-based hedging. **[5 marks]**

QUESTION 6

(a) Calculate the number of December futures contracts on the FTSE100 index needed to hedge an equity portfolio currently valued at £2 659 474.00, with a beta of 0.95. The current value of the FTSE100 index is 1961.20 while the December contract is quoted as 2021.20. **[7 marks]**
(b) Evaluate the importance of the following concepts in the risk management process:
    i. Risk appetite **[6 marks]**
    ii. Risk limits **[6 marks]**
    iii. Risk-adjusted performance measurement **[6 marks]**

END OF PAPER. GOOD LUCK.