BINDURA UNIVERSITY OF SCIENCE EDUCATION

FACULTY OF COMMERCE

DEPARTMENT OF BANKING AND FINANCE

MARKET AND LIQUIDITY RISK MANAGEMENT (BS 448)

DURATION: 3 HOURS

NOV 2024

INSTRUCTIONS TO CANDIDATES

1. Answer any **four** questions altogether.
2. All questions carry 25 marks each.
3. Start answering each question on a new page.

QUESTION ONE

Suppose that a trader has bought some illiquid shares. In particular, the trader has 100 shares of A, the bid is \$50 and the offer is \$60, and 200 shares of B, the bid is \$25 and the offer is \$35.

a) What are the proportional bid–offer spreads? (5)

b) What is the impact of the high bid–offer spreads on the amount it would cost the trader to unwind the portfolio? (5)

c) If the bid–offer spreads are normally distributed with mean \$10 and standard deviation \$3, what is the 99% worst case cost of unwinding in the future as a percentage of the value of the portfolio? (5)

d) Why does a bank need to keep track of the assets it has pledged as collateral as part of its procedures for managing liquidity funding risk? (10)

[25 marks]

QUESTION TWO

a) Discuss the key sources of liquidity funding risk in Zimbabwe. (10)

b) Guided by the Basel [III] accord, recommend strategies that Zimbabwean banks can implement in order to manage liquidity risk [15]

[25 marks]

QUESTION THREE

a) A fund manager announces that the fund's one-month 95% VaR is 6% of the size of the portfolio being managed. You have an investment of $100,000 in the fund. How do you interpret the portfolio manager's announcement? [5]

b) A fund manager announces that the fund's one-month 95% expected shortfall is 6% of the size of the portfolio being managed. You have an investment of $100,000 in the fund. How do you interpret the portfolio manager's announcement? [5]

c) Compare and contrast the market risk concepts of Value at Risk and Expected Short Fall highlighting the strength and weakness of each technique [15]

[25 marks]

QUESTION FOUR

A five-year bond with a yield of 11% (continuously compounded) pays an 8% coupon at the end of each year.

a) What is the bond's price? (5)

b) What is the bond's duration (5)

c) Calculate the effect on the bond's price of a 0.2% decrease in its yield. (5)

d) Recalculate the bond's price on the basis of a 10.8% per annum yield and verify that the result is in agreement with your answer to (c). (5)

e) What does duration tell you about the sensitivity of a bond portfolio to interest rates? [5]

[25 marks]

QUESTION FIVE

Citing relevant case studies, discuss the risk management mistakes that risk professionals should avoid to ensure stability of banks and other financial institutions.

[25 marks]

QUESTION SIX

a) The Delta of a derivatives portfolio dependent on an index is –2,100. The index is currently 1,000. Estimate what happens to the value of the portfolio when the index increases to 1,005. (5)

b) The Vega of a derivatives portfolio dependent on the dollar–sterling exchange rate is 200 ($ per %). Estimate the effect on the portfolio of an increase in the volatility of the exchange rate from 12% to 14%. (5)

c) The Gamma of a delta-neutral portfolio is 30 (per $ per $). Estimate what happens to the value of the portfolio when the price of the underlying asset (i) suddenly increases by $2 and (ii) suddenly decreases by $2. (5)

d) How does the sources and uses of funds approach help a manager estimate a financial institution's need for liquidity (10)

[25 marks]

END OF EXAMINATION