

NATIONAL UNIVERSITY OF SCIENCE AND TECHNOLOGY
FACULTY OF COMMERCE
DEPARTMENT OF FINANCE
B. COM HONOURS DEGREE IN FINANCE
SUPPLEMENTARY EXAMINATION AUGUST 2010
RISK ANALYSIS (CFI 4104)
TIME: 3 HOURS

Instructions to Candidates

1. Answer **ANY FOUR** questions
2. All questions carry equal marks (25 marks)
3. Show all calculations

QUESTION ONE

- (a) Examine the suitability of gap analysis as an interest rate sensitivity measure for commercial banks. **(15 marks)**
- (b) With the aid of a diagram, discuss the impact of convexity on the value of a portfolio. **(10 marks)**

QUESTION TWO

- (a) Using diagrams, discuss the payoff profiles for forward contracts for both positively and negatively sloped risk profiles. **(10 marks)**
- (b) Discuss the properties of variance and expected returns. **(8 marks)**
- (c) Given the portfolio return as $\tilde{R}_p = a\tilde{X} + b\tilde{Y}$, show that the portfolio mean return is simply the weighted average of returns on individual securities. **(7 marks)**

QUESTION THREE

- (a) Give a chronological account of the development of risk management tools in response to increased volatility in the prices of commodities, interest rates and foreign exchange. **(18 marks)**
- (b) Examine the properties of duration. **(7 marks)**

QUESTION FOUR

- (a) 'Where backtesting has been done and excession percentages are within tolerance, it means the VaR measure is foolproof.' Discuss. **(10 marks)**

- (b) Discuss how you would perform a factor-push stress test on a portfolio comprising of equities, bonds and foreign currency that is held by a Zimbabwean asset management company. **(15 marks)**

QUESTION FIVE

- (a) Discuss the implications of gamma on an option portfolio's risk profile. **(6 marks)**
- (b) TGS Bank is a Zimbabwean commercial bank with a branch network spread throughout the country. Like any other commercial bank, it gives loans to a diverse section of customers that includes farmers, companies and individuals. Discuss the factors that drive TGS Bank's credit risk. **(9 marks)**
- (c) 'The 1-day 95% confidence level VaR for ABC is \$1m.' Scale this VaR to a 10-day 99% confidence level VaR. **(4 marks)**
- (d) Highlight the weaknesses of the historical approach to measuring VaR and offer possible solutions to the problem(s). **(6 marks)**

QUESTION SIX

Discuss in detail the attributes of a good stress test. **(25 marks)**

END OF PAPER: GOOD LUCK