

**NATIONAL UNIVERSITY OF SCIENCE AND TECHNOLOGY
FACULTY OF COMMERCE
DEPARTMENT OF BANKING
BACHELOR OF COMMERCE HONOURS DEGREE IN BANKING
PORTFOLIO THEORY AND INVESTMENT ANALYSIS
[CBA 4104]**

FINAL EXAMINATION

DECEMBER 2011

TIME: 3 HOURS

INSTRUCTIONS TO CANDIDATES

- Answer any **FOUR (4)** questions.
- Start the answer to each full question on a fresh page of the answer sheet.
- Indicate on your answer booklet whether you are in the conventional or parallel programme.
- Show all workings.

INFORMATION FOR CANDIDATES

- The paper contains **SIX (6)** questions.
- All questions carry equal marks [**25 marks**].
- The businesses in this question paper are intended to be fictitious.

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Turn Over

QUESTION ONE

- a) Kachasu Can Company's (KCC) latest annual dividend of \$1.25 per share was paid yesterday and maintained its historic 7% annual rate of growth. You plan to purchase the stock today because you believe that the dividend growth rate will increase to 8% for the next three years and the selling price of the stock will be \$40 per share at the end of that time.
- i) How much should you be willing to pay for the KCC stock if you require a 12% return? [4 marks]
 - ii) What is the maximum price you should be willing to pay for the KCC stock if you believe that the 8% growth rate can be maintained indefinitely and you require a 12% return? [6 marks]
 - iii) If the 8% rate of growth is achieved, what will be the price at the end of year 3, assuming the conditions in part b? [4 marks]
- b) Edward, an astute investment analyst, views the two valuation approaches (present value of cash flows and the relative valuation ratios) as complementary rather than competitive. Discuss Edward's view. [11 marks]

QUESTION TWO

- a) You are an investment manager who is assisting NUST Ltd to establish a new pension fund. You are asked about international equities and whether the NUST Investment Committee should consider them as an additional asset for the pension fund.
- i) Explain the rationale for including international equities in NUST's equity portfolio. [9 marks]
 - ii) List three possible arguments against international equity investment and briefly discuss the significance of each. [6 marks]
- b) Florence has a margin account and deposits \$50 000. Assuming the prevailing margin requirement is 40%, commissions are ignored and Mbada Corporation is selling at \$35 per share:
- i) How many shares can Florence purchase using the maximum allowable margin? [3 marks]

- ii) What is Florence's profit/loss if the price of Mbada's stock rises to \$45 or falls to \$25? [3 marks]
- iii) If the maintenance margin is 30%, to what price can Mbada Corporation fall before Florence will receive a margin call? [4 marks]

QUESTION THREE

Mark Fish (Pvt) Ltd, a South African company, is considering investing in Open Air Entertainment (Pvt) Ltd, a Zimbabwean company in the restaurant industry. As an investment analyst, you are provided with the following earnings analysis for Open Air Entertainment.

	2010	2009
Dividend per share	39c	36c
Payout rate	15%	15.3%
Earnings per share	2.60	2.35
Tax/Earnings before tax	33.8%	33.8%
Return on assets	15.8%	15.1%
Profit margin	25.9%	25.6%
Asset turnover	0.61	0.59
Total debt/Equity ratio	0.98	1.35
Interest/Total debt ratio	6.9%	6.4%

Evaluate the attractiveness of the proposed investment in Open Air Entertainment.

[25 marks]

QUESTION FOUR

- a) Assume you have a one-year investment horizon and are trying to choose among 3 bonds. All have the same degree of default risk and mature in 10

years. The first is a zero-coupon bond that pays \$1 000 at maturity. The second has an 8% coupon rate payable once per year. The third has a 10% coupon rate payable once per year.

- i) If the bonds are priced to yield 8% to maturity, what are their prices? [3 marks]
 - ii) If the bonds' yield to maturity is expected to be 8% at the beginning of next year, determine your rate of return on each bond during the one-year holding period. [5 marks]
- b) Identify 5 key determinants of bond safety and, in each case, explain how they affect the quality rating of a bond. [7 marks]
- c) Chinoz Corporation issues 2 bonds with 20-year maturities. Both bonds are callable at \$1 050. The first bond is issued at a deep discount with a coupon rate of 4% and a price of \$580 to yield 8.4%. The second bond is issued at par value (\$1 000) with a coupon rate of 8.75%.
- i) What is the yield to maturity of the par bond? [3 marks]
 - ii) If you expect market rates to fall substantially in the next 2 years, which bond would you prefer to hold? Justify your choice. [7 marks]

QUESTION FIVE

- a) A universe of securities includes a risky stock (X), a stock index fund (M), and treasury bills. The data for the universe are as follows:

	Expected Return (%)	Standard Deviation (%)
X	15	50
M	10	20
Treasury Bills	5	-

The correlation coefficient between X and M is -0.2.

- i) Draw the opportunity set of securities X and M. [2 marks]
- ii) Find the optimal risky portfolio, its expected return and standard deviation. [8 marks]

- iii) Find the slope of the Capital Allocation Line generated by Treasury bills and the risky portfolio. [3 marks]
- b) Describe the market portfolio and explain why all investors would hold the market portfolio when security markets are in equilibrium. [8 marks]
- c) State and explain 2 important applications of the Capital Asset pricing Model. [4 marks]

QUESTION SIX

- a) It is generally agreed that the predictive content of forecasts used in active portfolio management must be sufficiently large to overcome attendant costs. State and explain any 4 such costs. [6 marks]
- b) Consider a bond with annual coupon payments of \$100, a principal payment of \$1 000 in 10 years, and a cost of \$1 000. Assume a flat yield curve with a 10% yield to maturity.
 - i) What is the duration of the bond? [2 marks]
 - ii) If the yield curve remains unchanged, what is the bond's duration in 3 years, in 5 years, and in 8 years? Comment on the implications of the results. [5 marks]
- c) Compare and contrast 4 prominent approaches to measuring investment performance on a risk-adjusted basis. In developing your answer, comment on the conditions under which each measure will be most useful. [12 marks]