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University Examinations 2024/2025

FIRST YEAR FIRST SEMESTER EXAMINATION FOR DOCTOR OF PHILOSOPHY IN BUSINESS ADMINISTRATION AND MANAGEMENT

BBT 6153: THEORY OF FINANCE

DATE: JANUARY 2025 **TIME: 3 HOURS**

INSTRUCTIONS: *Answer question **one** and any other **three** questions*

QUESTION ONE (24 MARKS)

Expected returns and standard deviations of three risky assets are as follows:

	Expected Return	Standard Deviation	Correlations		
			A	B	C
A	11%	30%	1.0	.3	.15
B	14.5%	45%	.3	1.0	.45
C	9%	30%	.15	.45	1.0

a. Calculate the expected return and standard deviation of a portfolio of stocks A, B, and C. Assume an equal investment in each stock. (8 marks)

b. Compute the Sharpe ratio of a portfolio that has 30% in A, 30% in B, and 40% in C. The riskfree interest rate is 4%. (8 marks)

c. Assume a portfolio of assets B and C. Determine the weight in asset B, such that the total portfolio risk is minimized. (8 marks)

QUESTION TWO (12 MARKS)

CAPM Consider three stocks: Q, R and S.

	Beta	STD (annual)	Forecast for Nov 2009	
			Dividend	Stock Price
Q	0.45	35%	0.5	45
R	1.45	40%	0	75
S	-0.20	40%	1	20

Use a risk-free rate of 2.0% and an expected market return of 9.5%. The market's standard deviation is 18%. Assume that the next dividend will be paid after one year, at t = 1.

a. According to the CAPM, what is the expected rate of return of each stock? (6 marks)

b. What should today's price be for each stock, assuming the CAPM is correct? (6 marks)

QUESTION THREE (12 MARKS)

a) Client 1: "The value of a firm is maximized by taking on as much debt as possible."

Client 2: "The cost of equity rises as the amount of debt increases, so we should use as little debt as possible to keep the cost of equity down and maximize shareholders' value."

Required:

With reference to relevant theories, critically discuss the clients' comments. (6 marks)

b) Explain the Arbitrage Pricing Theory (APT) and its assumptions. How does APT differ from the

Capital Asset Pricing Model (CAPM)? (6 marks)

QUESTION FOUR (12 MARKS)

a) Discuss the theoretical arguments about the impact of capital structure on firm value and cost of capital and explain the real-world influences on the gearing levels of firms. (6 marks)

b) Explain why market values, if available, are preferred to book values when calculating the weighted average cost of capital for investment decisions. (6 marks)

QUESTION FIVE 12 MARKS)

a) Describe how a firm can use futures contracts as a risk management strategy to hedge against price volatility (6 marks)

b) What is the pecking order theory of financing, and how does it explain the preference for internal financing over external financing in firms? (3 marks)

c) Explain the trade-off theory of capital structure. How do firms balance the benefits of debt (like tax shields) against the costs (such as financial distress) (3 marks)