

**DP09**

# **Investment**

**13 OCTOBER 2005**

1. Time allowed : Three (3) hours
2. Total number of questions : Five (5) questions
3. Number of questions to be answered : All five (5) questions  
Part A : One (1) question [20 marks]  
Part B : Four (4) questions [20 marks each]
4. Show details of workings, where appropriate. Silent, non-programmable calculators may be used.
5. Begin each answer to a new question on a fresh page.
6. Answer **all** questions in **English**.
7. A blank page is provided at the end of the question paper for rough work.

## PART A

1. **Only brief answers are required in this section (a few words or a few sentences). Answer ALL parts of the question.**

- (a) State **five** determinants of a warrant premium. [5]
- (b) You are given the following information on BCG Berhad:

Market price per BCG Berhad share	RM1.50
Number of shares outstanding	80,000,000
Expected dividend payout ratio	20%
Expected net profits attributable to shareholders	RM20,000,000
Shareholders' fund	RM60,000,000

- (i) Compute the book value per share of BCG Berhad. [2]
- (ii) Compute the dividend yield of BCG Berhad. [3]
- (iii) Compute the earnings per share of BCG Berhad. [2]
- (iv) What is the price/earnings ratio that BCG Berhad is trading on? [1]
- (c) State **three** privileges of an ordinary shareholder of a company. [3]
- (d) Explain the differences between general obligation bonds and revenue bonds. [4]

(Total:20 marks)

## PART B

### ANSWER ALL QUESTIONS

2. (a) Consider the following data:

Portfolio 1		
	Probability of return	Possible return
Stock A	0.3	10%
Stock B	0.4	20%
Stock C	0.3	5%
Risk-free rate	5%	
Risk premium	8%	
Beta	3.0	

Portfolio 2		
	Probability of return	Possible return
Stock E	0.25	7%
Stock F	0.45	10%
Stock G	0.3	15%
Risk-free rate	5%	
Risk premium	10%	
Beta	0.7	

- (i) Compute the expected rates of return for Portfolio 1 and Portfolio 2. [4]
- (ii) Using the Capital Asset Pricing Model, compute the required rates of return for Portfolio 1 and Portfolio 2. [4]
- (iii) Which portfolio would you invest in? Why? [2]

(b) You are given the following information on Stock Z:

Covariance of stock returns to market returns	3
Variance of market returns	2

What is Stock Z's beta? [2]

- (c) (i) What causes the slope of a security market line (SML) to change? [2]
  - (ii) What causes a parallel shift of the SML? [2]
  - (d) What is the main difference between fundamental analysis and technical analysis? [4]
- (Total:20 marks)

3. (a) You are given the following data on XYZ Berhad:

Item	RM
Sales	4,000,000
Profit before tax	500,000
Interest expenses	600,000
Depreciation	500,000
Ordinary equity	3,500,000
Total liabilities	1,000,000

The tax retention rate is 72%.

Using the Du Pont System, compute the following:

- (i) Operating profit margin [2]
  - (ii) Total asset turnover [2]
  - (iii) Interest expense rate [2]
  - (iv) Financial leverage multiplier [2]
  - (v) Return on equity [2]
- (b) Consider the following information:

Item	A long call option of Stock A	A long put option of Stock B
Stock price (RM)	5.00	4.50
Exercise price (RM)	4.00	4.20
Option premium (RM)	0.50	0.50

- (i) What is the intrinsic value of the call option of Stock A? [2]
- (ii) What is the intrinsic value of the put option of Stock B? [2]

- (iii) If you are a fund manager, what can you do to earn a riskless profit? [3]
- (c) State the theory that best explains each of the following:
- (i) The upward-sloping curves will predominate because of the uncertainty of the premiums in longer-term securities. The yield curve will shift as expectations about future rates change. [1]
- (ii) The yield curve will change as the demand for or supply of securities in various parts of the maturity range changes. Such changes may have little or no effect on other parts of the yield curve. [1]
- (iii) The shape of the yield curve at any point in time has implications on the expectations of market participants. [1]
- (Total:20 marks)
4. (a) State **three** key assumptions of the Infinite Period Dividend Discount Model. [3]
- (b) You are given the following data on Stock M:
- |   |        |
|---|--------|
| Risk-free rate  | 5%     |
| Risk premium  | 9%     |
| Beta ( $\beta$ )                                      | 0.8    |
| Current dividend ( $D_0$ )                            | RM0.10 |
| Current earnings per share ( $E_0$ )                  | RM0.20 |
| Expected growth rate of dividend and earnings ( $g$ ) | 5%     |
- (i) Using the Capital Asset Pricing Model, calculate the required rate of return of Stock M. [1]
- (ii) Using the Infinite Period Dividend Discount Model, calculate the value of Stock M. [2]
- (iii) Using the Earnings Multiplier Model, calculate the following:
- (aa) The expected price/earnings ratio of Stock M [2]
- (bb) The dividend payout ratio of Stock M [1]
- (c) State **five** uses of a put option. [5]
- (d) ABC Berhad is considering a 1:4 rights issue at RM1 per share. The current market price is RM2 per share.
- (i) Calculate the theoretical ex-rights price per share. [4]
- (ii) Calculate the value of rights. [2]
- (Total:20 marks)
5. (a) Bursa Malaysia Berhad uses the call market system to determine the matching prices. State **three** trading rules of the call market system. [6]
- (b) Shares are normally traded on Bursa Malaysia Berhad in specific amounts called board lots.
- (i) How many shares does one board lot represent? [1]
- (ii) What is the term used to describe any amount in excess of, or less than, a board lot? [1]

- (c) State **four** regulatory bodies that supervise and manage the Malaysian securities industry. [4]
- (d) Answer the following questions in relation to the Securities Industry Act 1983:
- (i) When is false trading deemed to be created? [4]
- (ii) State **two** circumstances which give rise to specific confidential information. [2]
- (e) What is the Central Depository System? [2]
- (Total:20 marks)

## OUTLINE ANSWERS

The comments given in the boxes below indicate the areas of weaknesses the examiners have identified and their advice to future candidates.

### Part A

#### Question 1

- Candidates could not compute the basic valuation ratios of stocks.
- Candidates were unable to distinguish between general obligation bonds and revenue bonds.

1. (a) Determinants of a warrant premium (any **five**):
- Remaining warrant life.
  - Leverage value.
  - Price volatility.
  - Dividend yield.
  - Interest rates.
  - Dilution.
- (b) (i) Book value per share  
= Shareholders' fund / Number of ordinary shares outstanding  
= RM60,000,000/80,000,000  
= RM0.75
- (ii) Gross dividend per share  
= (RM20,000,000 x 20%) / 80,000,000  
= RM0.05
- Dividend yield  
= Gross dividend per share / Market price x 100%  
= RM0.05/RM1.50 x 100%  
= 3.3%
- (iii) Earnings per share  
= Net profit after tax / Number of ordinary shares outstanding  
= RM20,000,000/80,000,000  
= RM0.25
- (iv) P/E ratio  
= Market price per share/Earnings per share  
= RM1.50/RM0.25 = 6x
- (c) Privileges entitled to an ordinary shareholder of a company:
- Company's profit by way of dividend entitlements.
  - Reserves of the company by way of bonus issues.
  - Increase his investment in the company by way of acquiring more ordinary shares and/or through rights issues and conversion entitlements, such as convertible loan stocks or warrants.
- (d) General obligation bonds are bonds that are backed by the full faith and credit of the issuer. Interest payment to bondholders is sourced from tax collected from residents of a state, country, city or other political entity.

Revenue bonds are bonds issued to finance a project. Revenue generated by the project is used to repay the principal and interest due to bondholders.

## Part B

### Question 2

- Candidates could not compute and interpret basic portfolio returns.
- Candidates were unable to calculate expected return of portfolio and the required rate of return using the Capital Asset Pricing Model.
- Candidates did not understand the concept of a security market line.

2. (a) (i) Expected return of Portfolio 1:  
 $E(R_1) = 0.3 (10\%) + 0.4 (20\%) + 0.3 (5\%) = \underline{12.5\%}$
- Expected return of Portfolio 2:  
 $E(R_2) = 0.25 (7\%) + 0.45 (10\%) + 0.3 (15\%) = \underline{10.8\%}$
- (ii) Required rate of return of Portfolio 1,  $k_1$   
 $= \text{Risk free rate} + \beta_1(\text{Risk premium}_1 - \text{Risk free rate})$   
 $= 5\% + 3 (8\% - 5\%)$   
 $= \underline{14\%}$
- Required rate of return of Portfolio 2,  $k_2$   
 $= \text{Risk free rate} + \beta_2(\text{Risk premium}_2 - \text{Risk free rate})$   
 $= 5\% + 0.7 (10\% - 5\%)$   
 $= \underline{8.5\%}$
- (iii) Portfolio 2, because the expected rate of return of 10.8% is higher than its required rate of return of 8.5%.
- (b) Beta  
 $= \text{Covariance of stock returns to market returns} / \text{variance of market returns}$   
 $= 3/2 = \underline{1.5}$
- (c) (i) The slope of an SML can change because of a change in the attitudes of the investors towards risk – they want either a higher or lower rates of return for the same risk. It implies a change in the risk premiums.
- (ii) The parallel shift of the SML occurs due to change in market conditions such as “ease” or “tightness” of money or a change in the expected rate of inflation.
- (d) Fundamental analysis aims to arrive at the real (intrinsic) value of a stock. It involves the analysis of a company’s future values, e.g. business and earnings prospects, dividend payments and asset values.
- Technical analysis involves the examination of past market data, such as prices and volume of trading, which lead to an estimate of future price. A technical analyst ignores the fundamental factors and is only concerned with the forces of demand and supply for the stock.

### Question 3

- Candidates did not know how to derive the operating profit and total asset figures from the information given.
- Candidates did not know the composition of ratios that are involved in the calculation of ROE using the DuPont System.

3. (a) (i) Operating profit margin  
= Earnings before interest and tax/Sales  
= (Profit before tax + Interest expense)/Sales  
= (500,000 + 600,000)/4,000,000  
= 0.275 = 27.5%
- (ii) Total asset  
= Ordinary equity + Total liabilities  
= 3,500,000 + 1,000,000 = 4,500,000
- Total asset turnover  
= Sales/Total asset  
= 4,000,000/4,500,000  
= 0.89
- (iii) Interest expense rate  
= Interest expense/ Total asset  
= 600,000/4,500,000  
= 0.13
- (iv) Financial leverage multiplier  
= Total asset/Equity  
= 4,500,000/3,500,000  
= 1.29
- (v) ROE  
= [(Operating margin x asset turnover) – Interest expense rate] \* Financial leverage multiplier \* Tax retention rate  
= (0.275\*0.89–0.13)\*1.29\*0.72  
= 0.1065 = 10.65%
- (b) (i) Intrinsic value of call option of Stock A  
= Max (Stock price – Exercise price, 0)  
= RM5 – RM4  
= RM1
- (ii) Intrinsic value of Put Option of Stock B  
= Max (Exercise price – Stock price, 0)  
However, the put option is out-of-the-money because its market price is more than the exercise price of the put.  
Therefore, the intrinsic value is 0.
- (iii) Long the call option of Stock A; exercise the option; sell stock A and make a riskless profit of RM0.50.
- (c) (i) Liquidity preference theory / Liquidity performance theory.  
(ii) Market segmentation theory.  
(iii) Expectations theory.

#### Question 4

- Candidates could not apply the IPDDM to derive the value of a stock.
- Candidates did not know the principles behind the calculation of the P/E and dividend payout ratios using the Earnings Multiplier Model.

4. (a) Three key assumptions used of the Infinite Period Dividend Discount Model:
- Dividends grow at a constant rate.
  - The constant growth rate will continue for an infinite period.
  - The required rate of return is greater than the infinite growth rate.
- (b) (i) Required rate of return of Stock M,  $k$   
= Risk free rate +  $\beta$ ( Risk premium – Risk free rate)  
= 5% + 0.8(9%-5%)  
= 8.2%
- (ii) Value of Stock M,  $V_M$   
=  $D_1 / (k-g)$   
=  $D_0 (1+0.05) / (k-g)$   
= [RM0.1(1.05)] / (8.2% - 5%)  
= RM3.28
- (iii) (aa) Expected P/E ratio of Stock M  
=  $(D_1/E_1) / (k-g)$   
=  $[(0.105 / \{0.2 (1.05)\})] / (8.2\% - 5\%)$   
= 15.63x
- (bb) Dividend payout ratio of Stock M  
=  $(D_1/E_1) =$  50%
- (c) A put option can be used:
- as a means of speculation in a declining market.
  - by producers and users hedging a falling market.
  - to average existing short positions in a rising market.
  - to protect long futures positions.
  - to protect uncovered options which are existing.
- (d) (i) 4 existing shares at RM2 per share → RM8.00  
1 right issue at RM1 per share → RM1.00  
5 shares worth → RM9.00
- Theoretical ex-rights price =  $RM9.00/5$   
= RM1.80
- (ii) Ex-rights per share → RM1.80  
Less: Subscription price → RM1.00  
Value of rights → RM0.80

### Question 5

- Candidates did not know the trading rules of the call market system.
- Candidates did not know the number of shares represented by one board lot.

5. (a) Three trading rules of the call market system
- The match price of a stock is the price at which most number of shares can be executed.
  - Where there is more than one price at which the most number of shares can be executed, the price closest to the last traded price shall be the matching price.
  - All buy orders above, and sell orders quoted below, the matching prices are executed at the matching price.
- (b) (i) 1 board lot represents 100 shares
- (ii) Special lots or odd lots describes any amount in excess of, or less than, the board lots
- (c) **Four** regulatory bodies that supervise and manage the Malaysian Securities Industries:
- Securities Commission.
  - Companies Commission of Malaysia, formerly know as the Registrar of Companies.
  - Foreign Investment Committee.
  - Bursa Malaysia.
- (d) (i) False trading is deemed to be create if:
- A transaction of buy/sell any securities is effected and it does not involve any change in the beneficial ownership of the shares.
  - An offer to sell and purchase any securities at a specified price which is substantially the same as the first-mentioned price.
- (ii) Two types of specific confidential information:
- A possible takeover bid.
  - The possibility of the company entering into a substantial commercial transaction with another corporation.
- (e) The Central Depository System is a computerised clearing and settlement system for the Malaysian stock market. It replaces the physical holding and moving of scrips.