

DP09

Investment

9 OCTOBER 2003

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) Briefly describe the following types of unit trust funds:
- (i) Balanced funds [2]
 - (ii) Growth funds [2]
 - (iii) Index funds [2]
- (b) Briefly describe the following types of bonds:
- (i) Convertible bonds [2]
 - (ii) Junk bonds [2]
 - (iii) Subordinated bonds [2]
- (c) State whether you “**Agree**” or “**Disagree**” with the following statements. Briefly explain why you agree or disagree.
- (i) Existing shareholders cannot dispose their rights entitlement to other people. [2]
 - (ii) After an offer for sale, a public listed company’s number of issued shares outstanding will increase. [2]
 - (iii) An issue of warrants by a public listed company will eventually result in enlarging the company’s number of issued shares outstanding. [2]
 - (iv) Preference shareholders are only entitled to a fixed dividend payment after dividends are paid to ordinary shareholders. [2]
- (Total:20 marks)

PART B

ANSWER ALL QUESTIONS

2. (a) You are given the following data (assume the conversion of warrants to shares is one to one):

Instrument	Yield-to-Maturity
US T-bills	5.0%
Malaysian Government T-bills	6.0%
Corporate bond rated A	7.0%
Corporate bond rated BBB	8.0%

Item	Newipo Bhd	Oldipo Bhd
Beta	1.5x	0.8x
Current dividend (D_0)	5sen	55sen
Current earnings (E_0)	10sen	70sen
Expected dividend growth rate per annum next three years	45%	4%
Expected dividend growth rate per annum after three years	5%	4%
Required rate of return on the market	12%	12%

- (i) Based on the information above and the Capital Asset Pricing Model, calculate the required rate of return for Oldipo Bhd. [2]
- (ii) Based on the information above and the Infinite Period Dividend Discount Model, calculate the intrinsic value for Oldipo Bhd. [4]
- (iii) Newipo Bhd is expected to grow rapidly for the next three years as shown in the table above. Your manager wants you to also use the Infinite Period Dividend Discount Model to calculate the intrinsic value of Newipo Bhd but you do not agree with her.
- If you do not use the Infinite Period Dividend Discount Model, which Dividend Discount Model would you use to calculate the intrinsic value of Newipo Bhd? Briefly explain why. [2]
- (iv) As a fund manager, you have just purchased Newipo Bhd for your portfolio and you are hoping to dispose its shares in three years' time. By then, the stock's beta is expected to have declined to 1.0x.
- Calculate the expected fair price or intrinsic value of Newipo Bhd in three years' time. Show your workings. [7]
- (v) The Infinite Period Dividend Discount Model is mathematically related to the expected price/earnings (P/E) ratio.
- If you expect Oldipo Bhd's current earnings per share of 70sen to grow by 4%, calculate the expected P/E ratio. Show your workings. [3]
- (vi) (aa) Based on the data provided in the tables above and the Capital Asset Pricing Model, which stock would you expect to have a higher risk premium? [1]
- (bb) Using the Capital Asset Pricing Model, calculate the risk premium for Newipo Bhd. [1]
- (Total:20 marks)
3. (a) List **five** actions available to a shareholder in a rights issue, other than "doing nothing". [5]
- (b) HIJ Bhd's 3:5 bonus issue and 2:5 rights issue at RM2.50 a share have just been approved. The bonus issue is not entitled to the rights issue and vice versa. The last traded cum-price of HIJ Bhd was RM5.00 a share.
- (i) Calculate the theoretical ex-rights price of HIJ Bhd. [2]
- (ii) Calculate the value of rights. [2]
- (iii) Calculate the adjustment factor arising from the bonus issue and rights issue. Show your workings. [1]
- (c) List **five** ways in which a call option can be used. [5]
- (d) Using options, describe how the following strategies are employed:
- (i) A straddle [2]
- (ii) A strip [2]
- (e) Draw a diagram of a put option with an exercise price of RM8.00 at expiration. [1]
- (Total:20 marks)

4. (a) You are a fixed income analyst in the Investment Department of a bank. You hold the view that interest rates are going to decline and the yield curve is going to flatten over the next few weeks, that is:

- A 1-year 8% coupon government bond's yield-to-maturity is expected to decrease from 3.50% to 3.30%.
- A 5-year 5% coupon government bond's yield-to-maturity is expected to decrease from 4.50% to 4.00%.
- A 10-year 4% coupon government bond's yield-to-maturity is expected to decrease from 6.00% to 4.75%.

If you believe strongly in your view, which government bond would you purchase? Briefly explain why. [4]

(b) State **six** advantages of convertible bonds. [6]

(c) You are given the following data on **six** different bonds, all of which have a face value of RM100:

Bond	A	B	C	D	E	F
Price (RM)	114.37	75.87	106.21	82.30	101.23	92.81
Coupon (%)	8.5%	0%	8.5%	0%	8.5%	0%
Yield-to-maturity (%)	5.20%	5.60%	6.20%	6.60%	7.20%	7.60%
Tenure (years)	5	5	3	3	1	1
Rating	AAA	AA	AAA	AA	AAA	AA

(i) You have just purchased Bond D in year 2003 for RM82.30. Based on the above table and assuming that the yield curve remains unchanged over the next two years, what do you expect the price of Bond D to be in the year 2005? Briefly explain why. [2]

(ii) Bond A has just had its credit rating cut from AAA to AA. Would you expect its price to increase, decrease or remain unchanged? Briefly explain why. [2]

(iii) What is the shape of the yield curve that can be inferred from the bonds in the above table? Briefly explain why. [2]

(iv) Your analyst tells you that he wants to sell some five-year bonds because he expects interest rates to rise substantially over the next few weeks. Given the above table, choose one bond you would sell. Briefly explain your decision. [2]

(v) Briefly explain why the yield-to-maturity of Bond A is lower than Bond B. [2]
(Total:20 marks)

5. (a) Various departments, subsidiaries and affiliate companies manage the day-to-day operations of the Kuala Lumpur Stock Exchange.

List **five** of these companies. [5]

(b) List and describe the roles of **four** regulatory bodies which supervise and manage the Malaysian securities industries. [8]

(c) Briefly describe **two** circumstances under which false trading takes place. [2]

(d) List the **five** main objectives of Malaysian Central Depository Sdn Bhd. [5]
(Total:20 marks)

OUTLINE ANSWERS

Question 1

Some candidates were not able to describe what balanced funds, index funds, subordinated bonds are. There were also candidates who did not realise that an issue of warrants will eventually result in an enlarged share capital base. The other parts of the question were well answered.

1. (a) (i) **Balanced Funds** generally have a three-part investment objective, namely (i) to conserve the investors' initial principal, (ii) to pay current income and (iii) to promote long-term growth of both this principal and income.
- (ii) **Growth Funds** invest in the common stocks of well-established companies. Their primary aim is to increase the value of their investments rather than a flow of dividend payments.
- (iii) **Index Funds** are security portfolios that are designed to duplicate the composition and performance of the selected market indices.
- (b) (i) **Convertible bonds** give the bondholders the option to convert the bonds into the issuer's common stock.
- (ii) **Junk bonds** are high-risk high yield bonds. They are issued in connection with mergers, companies with high debt to repay.
- (iii) Holders of **subordinated bonds** have a claim on assets of the company only after it has satisfied the claims of all senior secured bond and debenture holders.
- (c) (i) **Disagree**. Existing shareholders may either take up the new rights shares offered or dispose their rights entitlement to other people.
- (ii) **Disagree**. An offer for sale comes from existing shareholders. A company's number of issued shares outstanding will not increase.
- (iii) **Agree**. The equity of a company may be increased by conversion of debt equities, warrants to ordinary shares.
- (iv) **Disagree**. Preference shareholders are entitled to a fixed dividend payment before payment of dividends to ordinary shareholders.

Question 2

- Candidates had difficulties attempting this question which covered the area of valuation of equities, and risk and return.
- Although many candidates were able to calculate a required rate of return, some could not calculate an intrinsic value for a stock, which is the next step.
- Candidates were also unable to demonstrate how the Infinite Period Dividend Discount Model is mathematically linked to the expected P/E ratio.
- A few candidates showed weak mathematical foundation, as they were unable to correctly derive the answer although they had the correct formula to solve the question.

2. (a) (i) The required rate of return for Oldipo Bhd
 - k = Risk free rate + Risk premium
 - k = M'sian Govt T-Bill + Beta x (Market return – Risk free rate)
 - k = 6.0% + 0.8 x (12.0% – 6.0%)
 - k = 10.8%

$$\begin{aligned}
 \text{(ii)} \quad V &= D_1 \div (k - g), \text{ where } D_1 = D_0 (1 + g) \\
 &= [55.0\text{sen} \times (1 + 0.04)] \div (10.8\% - 4\%) \\
 &= 57.2\text{sen} \div 6.8\% \\
 &= \text{RM}8.41
 \end{aligned}$$

(iii) A Multiple-Year Holding Period Dividend Discount Model would be most appropriate for this stock.

(iv) In three years' time, Newipo Bhd dividends would have grown substantially. We are able to calculate the value of Newipo Bhd in Year 3 as dividends are projected to grow at a constant rate. Hence, to work out the value of Newipo Bhd in Year 3, we can use the Infinite Period Dividend Discount Model. The calculation is as follows:

$$\begin{aligned}
 D_4 &= D_0 \times (1.45)^3 \times (1.05) \\
 &= 5.0 \text{ sen} \times (1.45)^3 \times (1.05) \\
 &= 16.0 \text{ sen}
 \end{aligned}$$

The required rate of return for Newipo Bhd is as follows:

$$\begin{aligned}
 k &= \text{Risk free rate} + \text{Risk premium} \\
 &= \text{M'sian Govt T-Bill} + \text{Beta} \times (\text{Market return} - \text{Risk free rate}) \\
 &= 6.0\% + 1.0 \times (12.0\% - 6.0\%) \\
 &= 12.0\%
 \end{aligned}$$

$$\begin{aligned}
 V_3 &= D_4 \div (k - g) \\
 &= 16.0 \text{ sen} \div (12.0\% - 5\%) \\
 &= \text{RM}2.29
 \end{aligned}$$

(v) Assuming the Infinite Period Dividend Discount Model holds for Oldipo Bhd, then the following relationship holds:

$$\begin{aligned}
 P/E &= \frac{D_1 / E_1}{(k - g)} \\
 &= \frac{57.20\text{sen} / 72.80\text{sen}}{(10.8\% - 4.0\%)} \\
 &= 0.79 \div (6.8\%)
 \end{aligned}$$

$$P/E = 11.55x$$

(vi) (aa) Newipo

$$\begin{aligned}
 \text{(bb)} \quad &\text{According to CAPM, risk premium for Newipo} \\
 &= \text{Beta} \times (\text{market return} - \text{Risk free rate}) \\
 &= 1.5 \times (12.0\% - 6.0\%) \\
 &= 9.0\%
 \end{aligned}$$

Question 3

- Part (a) required candidates to list the actions available to a shareholder during a rights issue, but many candidates were unable to distinguish between the shares and the rights entitlement.
- In the area of options, many did not understand how a “saddle” and a “strip” are used.

3. (a)
- Subscribe fully to the rights entitlement.
 - Sell the rights entitlements.

- Sell part of the rights entitlements to raise enough cash to pay for his remaining rights entitlements.
- Sell some share ex-rights to pay for the rights entitlements.
- Sell all existing shares cum rights.

(b)	(i)	5 existing shares at RM5.00 per share	RM25.00
		3 bonus issue	RM 0.00
		2 rights issue at RM2.50 per share	<u>RM 5.00</u>
		10 shares worth	<u>RM30.00</u>
		Theoretical ex-rights price	$RM30.00 \div 10 \text{ shares} = RM3.00 \text{ per share}$

(ii) Value of rights calculation:

Ex-rights per share	RM3.00
Less: subscription price	<u>RM2.50</u>
Value of rights	<u>RM0.50</u>

(iii) Adjustment factor = $\frac{\text{Theoretical ex-rights price}}{\text{Last traded cum-rights price}}$

= $\frac{3.00}{5.00}$

= 0.60

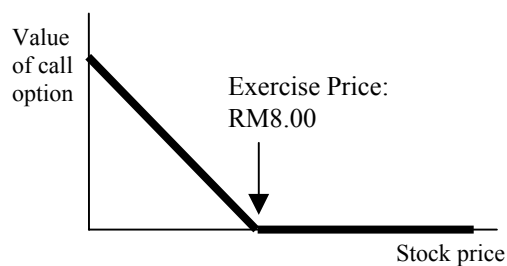
(d) A call option can be used

- as a means of speculating in a rising market.
- for hedging in a rising market.
- to substitute an existing long futures position.
- to average an existing long position in a declining market.
- to protect futures position.

(e) (i) A straddle is a combination of a put and call option on the same stock with the same expiration date and exercise price. It is used when the underlying stock is highly volatile and may go either up or down.

(ii) A strip is a combination of two puts and a call on the same security, again with the same expiration date and exercise price.

(f)



Question 4

- Very few candidates could answer part (a) which required candidates to explain their choices among short- and long-dated bonds in an environment of declining interest rate environment.
 - Candidates were also unable to explain how events like the passage of time and a cut in credit rating affected bond prices.
 - Candidates must know how interest rates affect bond prices, i.e. a large cut in interest rates should result in a large jump in bond prices, and vice-versa. Candidates should also put more emphasis on the topic of bonds as it is an expanding segment of the capital market.
4. (a) When interest rates go down then prices of bonds go up. The larger the decline in interest rates, the larger the capital gains for the bond. In this case, the 10-year government bond is expected to decline the sharpest, i.e. from 6.00% to 4.75% hence resulting in the largest capital gains. Choose the 10-year government bond.
- (b) Advantages of convertible bonds:
- The issuer often gets a lower interest rate on its debt.
 - The convertible bond represents potential common stock and is desirable for an issuer, which eventually needs equity capital but not before the new investment begins generating earnings.
 - If the company performs well, the bondholders will be able to gain by converting their bonds into more valuable common stock.
 - Convertible bonds have upside potential of a common stock.
 - Convertible bonds have downside protection of a bond.
 - Convertible bonds usually have higher current yields than the underlying common stock.
- (c) (i) Assuming that the yield curve does not change, the 3-year bond becomes a 1-year bond which means that the price should be about RM92.81.
- (ii) Since the credit rating has been cut, its yield-to-maturity should rise and its price should **decrease**.
- (iii) Given that the longer the tenure, the lower the YTM, one can infer that it is a declining yield curve.
- (iv) Choose Bond B as it is a zero coupon bond which means that it has a large part of its yield-to-maturity in the form of capital gains or losses.
- (vi) Bond A has a AAA rating compared to Bond B which has a AA rating.

Question 5

This was a generally well-answered question.

5. (a)
- Securities Clearing Automated Network Services Sdn Bhd
 - Malaysian Central Depository Sdn Bhd
 - KLSE-Bernama Real-Time Information Services Sdn Bhd
 - KLSE Chilong Systems Sdn Bhd
 - Research Institute of Investment Analysis Malaysia
- (b)
- **Securities Commission** provides the regulation and advice to the Minister of Finance on all matters relating to securities and futures contracts industries.
 - **The Registrar of Companies** administers the Companies Act 1965, and the relevant provisions of the Securities Industries Act 1983.
 - **The Kuala Lumpur Stock Exchange** is a self-regulatory organisation. It governs the conduct of its members in securities dealing. It is also responsible for the surveillance of the market place and the enforcement of its Listing Requirements.

- **Foreign Investment Committee** implements the Governments guidelines on regulation of acquisition of assets or interests, merger or takeovers of companies and businesses.
- (c)
- A buy or sell transaction is effected which does not involve any change in 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.
- (d)
- The main objectives of the Malaysian Central Depository Sdn Bhd are as follows:
- to establish and operate a system for the central handling of securities, whether or not they are listed on any stock exchange.
 - to increase the capacity of clearing and settlement of securities.
 - to reduce the costs and risks of settlement of securities.
 - to enhance the liquidity and efficiency of the Malaysian capital market.
 - to promote Malaysia's competitiveness by complying with the latest international standards for settlement and clearing of securities.