UTHM
Universiti Tun Hussein Onn Malaysia

UNIVERSITI TUN HUSSEIN ONN MALAYSIA

FINAL EXAMINATION
SEMESTER II
SESSION 2017/2018

COURSE NAME   :   INVESTMENT ANALYSIS

COURSE CODE   :   BWA 30503

PROGRAMME CODE   :   BWA

EXAMINATION DATE   :   JUNE / JULY 2018

DURATION   :   3 HOURS

INSTRUCTION   :   ANSWER **ALL** QUESTIONS

THIS QUESTION PAPER CONSISTS OF **SIX (6)** PAGES

Q1 (a) Suppose a company pays a dividend at the end of each year. Let D_t denote a dividend to be paid t years from now, and let P_0 represent the present value of the future dividend stream. Also, let k denote the appropriate risk-adjusted discount rate. Using the dividend discount model, the present value of a share of this company's stock is measured as this sum of discounted future dividends:

$$P_0 = \frac{D_1}{(1+k)} + \frac{D_2}{(1+k)^2} + \frac{D_3}{(1+k)^3} + \cdots + \frac{D_T}{(1+k)^T}.$$

Calculate the present value P_0 if D_1 = RM10, D_2 = RM20 and D_3 = RM30 with the discount rate k = 10 percent.

(5 marks)

(b) Assume the firm will pay dividends that grow at the constant rate g forever. In this constant perpetual growth model, stock prices are calculated using the following formula:

$$P_0 = \frac{D_0(1+g)}{k-g}, \ g < k.$$

Suppose dividends for a particular company are projected to grow at 4 percent forever. Calculate the value of the stock if the discount rate is 9 percent and the current dividend is RM10.

(4 marks)

(c) A two-stage dividend growth model assumes that a firm will initially grow at a rate g_1 during a first stage of growth lasting T years and thereafter grow at a rate g_2 during a perpetual second stage of growth. The formula for the two-stage dividend growth model is stated as follows:

$$P_0 = \frac{D_0(1+g_1)}{k-g_1}\left[1-\left(\frac{1+g_1}{1+k}\right)^T\right] + \left(\frac{1+g_1}{1+k}\right)^T\left[\frac{D_0(1+g_2)}{k-g_2}\right].$$

Suppose a firm has a current dividend of RM2, and dividends are expected to grow at the rate of 20 percent for 5 years, and thereafter grow at the rate of 5 percent. With a discount rate of k = 10 percent, calculate the value of the stock.

(11 marks)

2

Q2 (a) Suppose that a company has come up with the following dividend forecasts for the next three years as shown in **Table Q2(a)**.

Table Q2 (a): Dividend Forecasts

Year	Expected Dividend (in RM)
1	1.10
2	2.90
3	3.50

After the third year, the dividend will grow at a constant rate of 5 percent per year and the required return is 10 percent.

(i) Calculate the price in Year 3.

(2 marks)

(ii) Show that the present value of the stock is RM61.25.

(6 marks)

(b) Chain Reaction, Inc., has been growing at a phenomenal rate of 30 percent per year because of its rapid expansion and explosive sales. It is believed that this growth rate will last for three more years and that the rate will then drop to 10 percent per year. Chain Reaction's situation is an example of supernormal growth. It is unlikely that a 30 percent growth rate can be sustained for any extended length of time. Given that total dividends just paid were RM5 million, and the required return is 20 percent.

(i) Calculate the total dividends over the supernormal growth period in order to value the equity in this company.

(3 marks)

(ii) Obtain the total value of the stock if the growth rate then remains at 10 percent indefinitely.

(9 marks)

Q3   (a)   A firm's sustainable growth rate is equal to its return on equity (ROE) times its retention ratio, given by

$$\text{Sustainable growth rate} = \text{ROE} \times \text{Retention ration}$$
$$= \text{ROE} \times (1 - \text{Payout ratio})$$

In 2017, American Electric Power (AEP) had a return on equity (ROE) of 10.17 percent, earning per share (EPS) of RM2.25, and paid dividends of RM1.56.

   (i)   Calculate the AEP's sustainable growth rate.

(5 marks)

   (ii)   Assuming a discount rate of 6.7 percent, find the value of AEP's stock.

(3 marks)

(b)   A price ratio analysis for Intel Corporation (INTC) based on 2017 information is summarized in **Table Q3 (b)**.

Table Q3 (b): Price Ratio Analysis

	Earnings	Cash Flow	Sales
Five-year average price ratio	25.8	11.2	3.9
Current value per share (RM)	1.99	2.42	2.99
Growth rate (%)	7.8	4.2	3.3

   (i)   Calculate the expected stock price based on earnings per share

(4 marks)

   (ii)   Calculate the expected stock price based on cash flow per share

(4 marks)

   (iii)   Calculate the expected stock price based on sales per share.

(4 marks)

Q4   (a)   You want to buy 1,000 shares of Pfizer (PFE) at a price of RM24 per share. You put up RM18,000 and borrow the rest.

(i)   Provide the account balance sheet for the detail.

(6 marks)

(ii)   Calculate the margin.

(2 marks)

(b)   You shorted 5,000 shares of a particular stock at a price of RM30 per share. The initial margin is 50 percent and the maintenance margin is 40 percent.

(i)   Calculate the initial margin deposit.

(2 marks)

(ii)   Express the margin in term of the critical price P^*.

(6 marks)

(iii)   Determine the price per share subject to a margin call.

(4 marks)

Q5   (a)   If an interest rate quoted on a bank discount basis for a particular money market instrument, then the price of the instrument is calculated as follows:

$$\text{Current price} = \text{Face value} \times \left(1 - \frac{\text{Days to maturity}}{360} \times \text{Discount yield}\right).$$

Suppose a banker's acceptance has a face value of RM1 million that will be paid in 90 days. The interest rate, quoted on discount basis, is 5 percent.

(i)   Calculate the current price of the acceptance.

(3 marks)

(ii)   Determine the amount of the discount of the acceptance.

(2 marks)

(b)   A bank discount yield is converted to a bond equivalent yield using the following formula:

$$\text{Bond equivalent yield} = \frac{365 \times \text{Discount yield}}{360 - \text{Days to maturity} \times \text{Discount yield}}.$$

Suppose a money market instrument with 60 days to maturity has a quoted ask price of 99.

(i)   Calculate the discount yield.

(4 marks)

(ii)   Obtain the bond equivalent yield.

(4 marks)

(iii)   Find the effective annual return.

(7 marks)

– END OF QUESTIONS –