

## Chapter 5

### Multiple-Choice Questions

1. D
2. B
3. C
4. A
5. D
6. C
7. A
8. A
9. C
10. B (See Errata\* below)

\* Errata: The semi-annual coupon rate should be 8%, the yield to maturity rate should be 5%.

10. A 25-year bond comes with an 8% semi-annual coupon and RM1,000 par value. The yield to maturity is 5% per annum. What is the current price of the bond?

- A. RM 1,422.82
- B. **RM 1,425.43**
- C. RM 1,547.68
- D. RM 2,559.93

**Working: Use the Bond formula**

$$\text{Bond price, } P = \frac{C}{(1+i)} + \frac{C}{(1+i)^2} + \frac{C}{(1+i)^3} + \dots + \frac{C}{(1+i)^n} + \frac{M}{(1+i)^n}$$

Substitute:  $n = 25 \times 2 = 50$      $PMT = (8\% \times 1,000)/2 = 40$      $i = 5/2 = 2.5\%$      $FV = 1000$   
Solve for  $PV = 1425.43$

### Short-Answer Questions

#### Question 1

Suggested answers include:

- Book value is a cumulative value comprising total share outstanding amounts and retained earnings. AS such this measure is usually positive.
- If the EPS is negative, P/E will be negative and cannot be used for share valuation as share price cannot be negative.
- Being a cumulative measure, P/B is more stable as compared to P/E or P/S.
- Any other relevant answer.

#### Question 2

Perdana Bhd:

$$\text{HPR} = \frac{((\text{End Share Price} - \text{Beginning Share Price}) + \text{Dividends})}{\text{Beginning Share Price}} \times 100$$

$$\text{HPR}_{\text{Perdana}} = [(4.55 - 3.70) + (2 \times 0.50)/3.70] \times 100 = 50\%$$

Annualised HPR =  $[1 + \text{HPR}]^{1/n} - 1$

$$\text{Annualised HPR}_{\text{Perdana}} = (1 + 0.5)^{1/2} - 1 = 0.2247 \text{ or } 22.47\%$$

Draco Bhd:

$$\text{HPR}_{\text{Draco}} = [(7.60 - 5.50) + (3 \times 0.75)/5.50] \times 100 = 79\%$$

$$\text{Annualised HPR}_{\text{Perdana}} = (1 + 0.79)^{1/5} - 1 = 0.1235 \text{ or } 12.35\%$$

### Question 3

Retail investors would generally invest in bonds through unit trusts and exchange traded funds in Malaysia. However, they may indirectly participate in the bond market through their contributions in retirement funds and insurance policies.

#### Advantages of bond investments

- Bond investment provide fixed income through coupon payments. As such they are suitable for investors with low risk tolerance and retirees.
- Bonds are more predictable than share. The face value of bonds are repayable at maturity. As such, the price of bonds tend to revert to their pay value at maturity.
- The interest rates on bond investments are usually higher than fixed deposit accounts in banks.
- Independently rated bonds (by rating agencies such as RAM, MARC, S&P and/or Moody's) promote more confidence on the credit risk of the bonds.
- Any other relevant answer.

#### Disadvantages of bond investments

- The risk that the company issuing the bonds may not do well or in the worst case go bankrupt and default on their coupon payments and/or repayment at maturity.
- For individual investors, there may be additional costs associated with investing through a unit trust for instance management fees, sales commissions etc. Also, they have only indirect "control" over their bond holdings.
- The low yield and long-term nature of bond investment relative to shares equate to missed opportunities for investors.
- Unlike investment in shares, bonds have a maturity date where the face value is repaid. This limits the longer term growth potential of bonds.
- Any other relevant answer.

### Question 4

$$\text{Required return from equity } (r_e) = r_f + \beta (r_m - r_f) = 3 + 2.5 (7-3) = 13\%$$

P\* = PV of non constant dividends + PV of Terminal value at time t

$$= \frac{D_1}{(1+r_e)^1} + \frac{D_2}{(1+r_e)^2} + \frac{D_3}{(1+r_e)^3} + \dots + \frac{D_{t+1}}{(r_e-g)} / (1+r_e)^t$$

Dividend Last Year (RM)	0.55			
Required rate of return ( $r_e$ )	13%			
	Year			
	1	2	3	4
Growth rate	15%	10%	8.0%	4%
Dividend (RM)	0.63	0.70	0.75	0.78
Discount factor = $1/(1+r_e)^t$	0.8929	0.7972	0.7118	0.6355
Present value of dividends	0.56	0.55	0.53	0.50
Terminal value				8.68
Present value of terminal value			6.18	
	0.56	0.55	6.72	
<b>Intrinsic price of Sejat Bhd (RM)</b>	<b>7.83</b>			

Since the intrinsic value of RM7.83 is greater than the current share price of RM 5.78, this would lead to a buy recommendation.

### Question 5

Tabitha should consider the following qualitative factors:

- She should consider her risk profile. Sejati Berhad has a double-digit growth rate and the company beta is greater than 1. This makes Sejati Berhad a growth company with higher than normal risk. This may not be so suitable if she is considering an investment for retirement.
- The ability to pay dividends hinges on the ability to achieve the projected growth rates. This may not suit the objective of having stable income for retirement.
- The wide range between the lowest and highest share price indicates that Sejati Berhad's share price can be very volatile/uncertain.
- Due to Tabitha's lack of experience in the share market, she should perhaps consider other shares that offer a more stable dividend/income potential rather than uncertain capital gains.
- Any other relevant answer.

#### Question 6

- Investor: An individual who holds an investment for a long period of time usually in excess of one year.
- Speculator: An individual who routinely buys and then sells stocks within a short period of time, also known as traders.

#### Question 7

	Working	Number of Shares	Share Price	RM
Before corporate exercises		3,000,000	5.60	16,800,000
Rights issue (3 for 10)	= 3/10 x 3,000,000	900,000	3.50	3,150,000
Bonus issue (1 for 3)	= 1/3 x 3,000,000	1,000,000		
		4,900,000		19,950,000
		(X)		(Y)
Theoretical price per share	= (Y)/(X)	4.071428571		

#### Question 8

This is a discount bond as the current price is lower than the par value.

$$\text{Bond Price} = \frac{C}{(1+i)} + \frac{C}{(1+i)^2} + \dots + \frac{C}{(1+i)^n} + \frac{M}{(1+i)^n}$$

Substitute :

$$\text{Bond Price} = \text{RM}878.86 \quad C = 0.06 \times 1000 = \text{RM } 60 \quad M = \text{RM}1,000 \quad n = 7 \quad \text{Solve for } i$$

If you use a financial calculator: Use END Mode

$$\text{PV} = -878.86 \quad \text{PMT} = 60 \quad \text{FV} = 1,000 \quad n = 7 \quad \text{Solve for } i$$

Answer = The yield to maturity = 8.35%

#### Question 9

$$\begin{aligned} \text{P/E of FTSE KLCI} &= 18 \\ \text{Elano Bhd's P/E} &= 18 \times 1.15 = 20.7 \end{aligned}$$

$$\begin{aligned} \text{Current EPS} &= \text{RM } 0.65 \\ \text{Estimated EPS in 2019} &= 0.65 \times 1.1 = \text{RM}0.715 \end{aligned}$$

$$\begin{aligned} \text{Expected share price in 2019} &= \text{P/E} \times \text{Estimated EPS in 2019} \\ &= 20.7 \times 0.715 = \text{RM}14.80 \end{aligned}$$

## Discussion Questions

### Question 1

	Fundamental Analysis	Technical Analysis
Focus	<ul style="list-style-type: none"> <li>▪ Analysis of financial statements and information on future plans of the company</li> <li>▪ Key drivers of company growth.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Share price trends and trading volume charts.</li> <li>▪ Belief that all information including fundamental factors have been reflected in the share prices</li> </ul>
Period of analysis	<ul style="list-style-type: none"> <li>▪ Long term</li> <li>▪ Usually more than 5 years</li> </ul>	<ul style="list-style-type: none"> <li>▪ Short term</li> <li>▪ Can range from months, weeks, days or even hours</li> </ul>
Concept	<ul style="list-style-type: none"> <li>▪ The true value of the share is reflected in the intrinsic value of shares in the long run.</li> <li>▪ To achieve value, investors need to be patient -&gt; Value investing.</li> <li>▪ Buy and hold strategy.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Speculative</li> <li>▪ Focus on short term profit taking</li> <li>▪ Trading rather than investment focus</li> </ul>

### Question 2

The similarities between buying shares on margin and share trading are that short-term investment techniques that are very speculative.

The differences are:

- Buying shares on margin involves an investor borrowing part of the money usually from his/her broker or bank and using the amount to buy more shares of a particular share. The hope is to make a gain on the share and use the proceeds to settle the loan and interest on the short term borrowing (usually not more than year). Banks provide share margin trading account secured by either the customers fixed deposit or shares.
- Short selling involves the selling of shares that the investor has been borrowed from a brokerage firm and then must replace the borrowed shares with shares purchased (hopefully at a lower price than the price when the shares are sold) at a later date. The risk is that if the share price rises and the investor is forced to purchase at a higher price than the shares previously sold, he/she will make a substantial loss.

Possible reasons that short selling rules are more restrictive

- Short selling involves selling an asset that technically does not belong to the investor. Usually there is no collateral involved. The length of time to recover any potential losses is also very short.
- Buying on margin essentially taking a secured short term loan from a bank/broker and is secured by shares. The banks margin of financing will be less than 100%. The investor incurs a liability.
- Any other relevant answer

**Question 3**

**Advantages of Dollar Cost Averaging**

- If shares are purchased over an extended period → less likely that all your funds will be invested right before a market crash
- As shares will be purchased at regular intervals/routinely, there is no need to time the market
- Forces investment discipline
- As compared to a lump sum investment, where the share price will be tied to a specific price, this method will average out the cost per share and may be suitable for investors with lower risk tolerance.
- While the investor may not make the highest profit, he/she would also not make the worst losses.
- Any other relevant answer.

**Disadvantages of Dollar Cost Averaging**

- The share price trend tends to rise in price over time, the sooner one invests, and the higher would be the potential capital gains. In this case, a lump sum investment would generate higher profit.
- Would incur higher transaction costs compared with Buy and Hold Strategy.
- Not always profitable – e.g. if the share price decreases over extended periods without signs of recovery. May require longer time to recoup unrealized losses.
- Any other relevant answer.

**Question 4**

	<b>Early years (Up to mid 30s)</b>	<b>Middle years (Mid 30s-late 40s)</b>	<b>Leading to retirement (Late 40s-retirement)</b>	<b>Retirement years (50+ years)</b>
<b>Your goals</b>	Get started	Build and Invest	Consolidate for the future	Income and security
<b>Investment life stage</b>	- Build emergency funds - Set short term financial goals  - Start investing	- Increase savings - Focus on short and medium term financial goals - Focus on savings strategy	- Maximize investments - Focus on medium term	- Retirement income - Focus on short and medium term financial goals
<b>Concerns</b>	- Savings  - Short term obligations	- Family commitments  - Mortgage  - Children's education - Managing investments	- Retirement Planning  - Maximizing investment returns	- Adequacy of retirement income
<b>Investment strategies</b>	- Long term - Growth	- Diversification - Growth- Equity investments	- Diversification - Reduce high risk investments	- Conservative assets

**Case Study**

**Question 1**

- Farid and Hani are in their late 30s and early 40s with school going children.
  - Their concerns will be settling their mortgage, car loans, providing for their children’s education and retirement planning.
  - Their investment plan should include elements of income (to meet their expenses) as well as moderate growth (to build their children’s education and retirement fund).
  - The risk profile should be moderate. They should adopt a invest and build strategy.
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Question 2

<b>Cashflow statement for Farid and Hani's household for the year ended 31 December 2021</b>		
	Monthly	Yearly
<b>Take home pay</b>		
Farid		150,000
Hani		55,000
<i>Total</i>		<b>205,000</b>
<b>Expenses</b>		
Food	4,000	48,000
Dining out	500	6,000
Utilities	800	9,600
Credit card	1,500	18,000
Children's expenses	2,000	24,000
House maintenance	500	6,000
Clothing		3,500
Travelling		20,000
Books		2,500
Satellite TV	200	2,400
Internet	199	2,388
Farid's personal expenses	700	8,400
Hani's personal expenses	500	6,000
Club membership	500	6,000
Housing loan	1,703	20,436
Car loan	890	10,680
Insurance premiums		5,600
<i>Total expenses</i>		<b>199,504</b>
<i>Surplus/(Deficit)</i>		<b>5,496</b>

Recommendations for Farid and Hani include:

- The cashflow statement shows a surplus but lack of savings.
- They should use their fixed deposit to settle their current outstanding credit card debt of RM8,600 in full,
- Recommended emergency fund
  - 3 months living expenses =  $3/12 \times 199,504 = \text{RM}49,876$
  - 6 months living expenses =  $6/12 \times 199,504 = \text{RM}99,752$
  - They are still short in terms of emergency funds
- Total savings and fixed deposit =  $40,000 + 6,500 = \text{RM}46,500$
- Farid and Hani should practice savings at least 10% to 15% every month for emergencies from now on.

Question 3

Asset	Amount	Weight	Rate of return	Weighted average
Farid's EPF	180,000	0.5950	5.5%	3.27%
Hani's EPF	32,000	0.1058	5.5%	0.58%
Unit trusts	25,000	0.0826	6.0%	0.50%
Life insurance surrender value	8,000	0.0264	0.0%	0.00%
Gold jewellery	11,000	0.0364	5.6%	0.20%
Fixed deposits	40,000	0.1322	3.2%	0.42%
Savings account	6,500	0.0215	1.5%	0.03%
<b>Total</b>	<b>302,500</b>	<b>1.0000</b>		<b>5.01%</b>

- The house they are staying in is not an investment as it does not generate any rental and they are unlikely to sell it for capital gains.
- The car is also not an "investment"
- EPF and life insurance cash values cannot be used for current living expenses.
- The weighted average rate of return of 5.01% is rather low.
- They should consider making more investments in income and growth shares and/or unit trust.
- Any other relevant suggestions.

Question 4

	Tuition fees	Living expenses	Current cost/year	Course duration (years)	Total cost	No. of years to course start	Future value
Idris	22,500	25,000	47,500	4	190,000	8	260,028
Daud	23,333	25,000	48,333	3	145,000	10	214,635

Since Farid has bought education insurance to defray some of these costs:

Idris's education funding shortfall =  $260,028 - 50,000 = \text{RM } 210,028$

Daud's education funding shortfall =  $214,635 - 50,000 = \text{RM } 164,635$

Assume investments are made on the END of every month → Use the Annuity formula

Inflation adjusted inflation rate ( $i_a$ ) =  $(7 - 4)(1+0.04) = 2.885\%$  per annum

For Idris:

$FV = 210,028$     $n = 8$     $i = 2.885$     $PV = 0$

Solve for PMT =  $\text{RM}23,716/\text{year}$  or  $\text{RM}1,976.33$  per month

For Daud:

$FV = 164,635$     $n = 10$     $i = 2.885$     $PV = 0$

Solve for PMT =  $\text{RM}14,438/\text{year}$  or  $\text{RM}1,203.17$  per month

Total estimated monthly investments required for education funding  
 =  $1,976.33 + 1,203.17 = \text{RM}3,179.50$

### Question 5

Suggested answers include:

- As per the previous questions, he needs to increase his weighted average required rate of return.
- Consider contributing to Tabung SSPN to be eligible for tax relief of RM6,000 per annum besides eligible to obtain PTPTN education loans at lower interest rate.
- Farid should explore opportunities for his children to qualify for scholarships from third parties (e.g. universities, private institutions, companies), which may reduce the costs further.
- Consider doing courses from institutions that are cheaper.
- Any other relevant answer.