Chapter wise Test (2004)
Leverage

Instructions

- All questions are compulsory.
- Test Duration will be 45 Minutes, starting from 11:00 AM to 11:45 AM
- 5 minutes reading time will be provided before 11, i.e. question paper will be shared by 10:55 AM.
- Share your scanned answer sheets by 11:50 on below link https://forms.gle/wLRZWiTvMELNpCeC6

1. [5 Marks] A&R Ltd. is a large-cap multinational company listed in BSE in India with a face value of Rs. 100 per share. The company is expected to grow @ 15% p.a. for next four years then 5% for an indefinite period. The shareholders expect 20% return on their share investments. Company paid Rs. 120 as dividend per share for the current Financial Year. The shares of the company traded at an average price of Rs. 3,122 on last day. FIND out the intrinsic value per share and state whether shares are overpriced or underpriced.

Solution

As per Dividend discount model, the price of share is calculated as follows:

$$P=\frac{D_1}{(1+K_e)^1}+\frac{D_2}{(1+K_e)^2}+\frac{D_3}{(1+K_e)^3}+\frac{D_4}{(1+K_e)^4}+\frac{D_5}{(K_e-g)}\times\frac{1}{(1+K_e)^5}$$

Where,

P = Price per share

K_e = Required rate of return on equity

g = Growth rate

$$P=\frac{₹120x1.15}{(1+0.2)^1}+\frac{₹138x1.15}{(1+0.2)^2}+\frac{₹158.7x1.15}{(1+0.2)^3}+\frac{₹182.5x1.15}{(1+0.2)^4}+\frac{₹209.88x1.05}{(0.2-0.05)^1}\times\frac{1}{(1+0.2)^5}$$

P= 115 + 110.2 + 105.6 + 101.2 + 590.42 = ₹ 1,022.42

Intrinsic value of share is ₹ 1,022.42 as compared to latest market price of ₹ 3,122. Market price of a share is overpriced by ₹ 2,099.58.

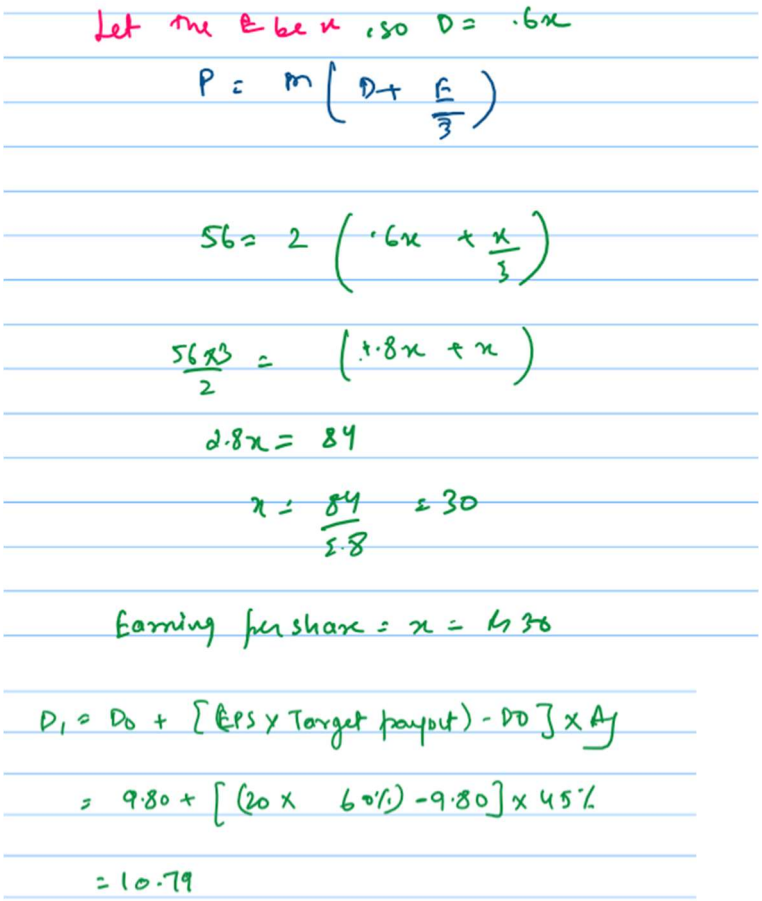
2. [5 Marks] a) Compute EPS according to Graham & Dodd approach from the given information:

Market price	Rs. 56
Dividend pay-out ratio	60%
Multiplier	2

b) Given the last year's dividend is Rs. 9.80, speed of adjustment is 45%, target payout ratio is 60% and EPS for the current year Rs. 20. Calculate current year's dividend using Linter's model.

Solution

a)



3. [5 Marks] Rex Ltd has 20 lakh equity shares outstanding at the start of the accounting year 2023. The existing market price per share is Rs. 300. Expected dividend is Rs. 20 per share. The rate of capitalization appropriate to the risk class to which the company belongs is 20%.
   - CALCULATE the market price per share when expected dividends are: (a) declared, and (b) not declared, based on the Miller – Modigliani approach.
   - CALCULATE number of shares to be issued by the company at the end of the accounting year on the assumption that the net income for the year is Rs. 5 crore; investment budget is Rs. 8 crores, when (a) Dividends are declared, and (b) Dividends are not declared.
   - PROVE that the market value of the shares at the end of the accounting year will remain unchanged irrespective of whether (a) Dividends are declared, or (ii) Dividends are not declared.

   WHAT is the implied growth rate in dividends as per Gordon's model, if expected dividend payment is considered imminent?

Solution

(a) (i) Calculation of market price per share

According to Miller – Modigliani (MM) Approach:

$$P_o = \frac{P_1 + D_1}{1 + K_e}$$

Where,

Existing market price (P_o) = ₹ 300

Expected dividend per share (D_1) = ₹ 20

Capitalization rate (k_e) = 0.20 Market price at year end (P_1) = ?

a. If expected dividends are declared, then

300=(P1+20)/(1+0.2)

300 x 1.2 = P1+20

P1= 340

b. If expected dividends are not declared, then

300=(P1+0)/(1+0.2)

300 x 1.2 = P1

P1= 360

(ii) Calculation of number of shares to be issued

	(a) Dividends are declared. (₹ lakh)	(b) Dividends are not Declared (₹ lakh)
Net income	500	500
Total dividends	(400)	-
Retained earnings	100	500
Investment budget	800	800
Amount to be raised by new issues	700	300
Relevant market price (₹ per share)	340	360
No. of new shares to be issued (in lakh) (₹ 700 ÷ 340; ₹ 300 ÷ 360)	2.0588	0.8333

(iii) Calculation of market value of the shares

Particulars	(a) Dividends are declared	(b) Dividends are not Declared
Existing shares (in lakhs)	20.00	20.00
New shares (in lakhs)	2.0588	0.8333
Total shares (in lakhs)	22.0588	20.8333
Market price per share (₹)	340	360
Total market value of shares at the end of the year (₹ in lakh)	22.0588 × 340 = 7,500 (approx.)	20.8333 × 360 = 7,500 (approx.)

Hence, it is proved that the total market value of shares remains unchanged irrespective of whether dividends are declared, or not declared.

(iv) P0=D1/(Ke-g)

300 = 20/(0.2-g)

0.2-g = 20/300

0.2-g = 0.0667

G = 0.133333

g = 13.3333%

4. [5 Marks] INFO Ltd is a listed company having share capital of Rs. 2400 Crores of Rs. 5 each.

During the year 2022-23

Dividend distributed	1000%
Expected Annual growth rate in dividend	14%
Expected rate of return on its equity capital	18%

Required:

(a) Calculate price of share applying Gordon's growth Model.

(b) What will be the price of share if the Annual growth rate in dividend is only 10%?

According to Gordon's growth Model, if Internal Rate of Return is 25%, then what should be the optimum dividend payout ratio in case of growing stage of company? Comment.

Solution

In the present situation, the current MPS is as follows:

$$P = \frac{D0\,(1+g)}{Ke-g}$$

Where

P = Market price per share

D0 = current year dividend

g = growth rate of dividends

Ke = cost of equity capital/ expected rate of return

$$P = \frac{50(1+0.14)}{0.18-0.14} = ` 1425$$

(b) The impact of changes in growth rate to 10% on MPS will be as follows:

$$P = \frac{50(1+0.10)}{0.18-0.10} = ` 687.5$$

(c) If Internal rate of return, r = 25% and Ke = 18%

As per Gordon's model, when r > Ke, optimum dividend payout ratio is 'Zero'. When IRR is greater than cost of capital, the price per share increases and dividend pay-out decreases.

5. [5 Marks] The following information is given below in case of Aditya Ltd.:

Earnings per share = Rs. 60

Capitalisation rate = 15%

Return on investment = 25%

Dividend payout ratio = 30%

(i) COMPUTE price per share using Walter's Model.

(ii) WHAT would be optimum dividend payout ratio per share under Gordon's Model.

Solution

(i) As per Walter's Model, Price per share is computed by using the following formula:

$$P = \frac{D + \frac{r}{K_e}(E - D)}{K_e}$$

Where,

P = Market Price of the share.

E = Earnings per share.

D = Dividend per share.

K_e = Cost of equity/ rate of capitalization/ discount rate.

r = Internal rate of return/ return on investment

Applying the above formula, price per share

$$P = \frac{18 + \frac{0.25}{0.15}(60 - 18)}{0.15}$$

$$\text{Or, } P = \frac{18 + 70}{0.15} = ₹\ 586.67$$

(ii) As per Gordon's model, when $r > K_e$, optimum dividend payout ratio is 'Zero'.