CHAPTER - 6

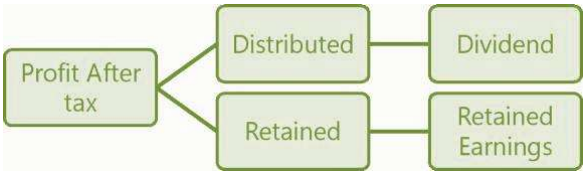
Dividend Decisions

1. MEANING OF DIVIDEND

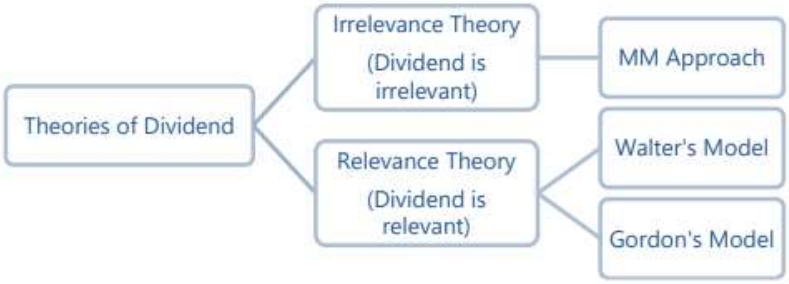
Dividend is that part of Profit After Tax (PAT) which is **distributed to the shareholders** of the company. Further, the profit earned by a company after paying taxes can be used for:

(i) Distribution of dividend, or

(ii) Retaining as surplus for future growth



2. THEORIES OF DIVIDEND



2.1 DIVIDEND'S IRRELEVANCE THEORY

MODIGLIANI and MILLER (MM) HYPOTHESIS:

- Modigliani - Miller theory was proposed by Franco Modigliani and Merton Miller in 1961.
- MM approach is in support of the irrelevance of dividends i.e. firm's dividend policy has no effect on either the price of a firm's stock or its cost of capital.

According to MM hypothesis

- Market value of equity shares of a firm depends solely on its earning power and is not influenced by the manner in which its earnings are split between dividends and retained earnings.
- Market value of equity shares is not affected by dividend size.

Assumptions of MM Hypothesis

MM hypothesis is based on the following assumptions:

- **Perfect capital markets:** The firm operates in a market in which all investors are rational and information is freely available to all.
- **No taxes:** There are no taxes or no tax discrimination between dividend income and capital appreciation (capital gain). It means there is no difference in taxation of dividend income or capital gain. This assumption is necessary for the universal applicability of the theory, since the tax rates may be different in different countries.
- **Fixed investment policy:** It is necessary to assume that all investment should be financed through equity only, since implication after using debt as a source of finance may be difficult to understand. Further, the impact will be different in different cases.
- **No floatation or transaction cost:** Similarly, these costs may differ from country to country or market to market.
- **Risk of uncertainty does not exist.** Investors are able to forecast future prices and dividend with

certainty and one discount rate is appropriate for all securities and all time periods.

Situations under MM Hypothesis

Keeping in mind assumptions under MM Hypothesis, firms may have three possible situations regarding the payment of dividend as follows:

1. **Firm pays cash dividends from Reserve & Surplus:** In this situation, the shareholders receive cash (dividend) from the firm, thereby, reducing the cash balance of the firm. There is only transfer of asset (cash) from one pocket to another pocket of the shareholders with no net gain or loss. So, payment of cash dividend will not affect the value of the firm.
2. **Firm pays cash dividends from new issue of shares:** If the firm does not have sufficient cash available for dividend, it will issue new shares and therefore will use the amount received for the payment of dividend. Here, shareholders receive cash (dividend) but suffer an equal amount of capital loss due to dilution of control over the assets of the company and dilution in earning per share. With the increase in the total number of shares, earning per share will also reduce. Thus, there is no change in the wealth of shareholders.
3. **Firm does not pay any dividend:** When the firm doesn't pay any dividend, but shareholder want to receive cash, then shareholder may sell part of his/her shareholding in market. Therefore, the cash received in the hands of the shareholder may be known as "home-made dividend". In this situation also, the shareholder receives cash (capital receipt) but lose in the form of capital loss due to dilution of control over the assets of the company among the existing and new shareholders. Hence, there will be no gain or loss and the value of the firm will remain unchanged.

Now analyzing both situations i.e. when dividends are (i) not paid and (ii) paid.

i) If dividends are not paid, then the total no. of equity shares will remain same as no new shares are issued.

Market price per share (P_1) $= P_o (1+ K_e) - D_1$

$= 10 (1+ 0.10) - 0 = ₹ 11$

Value of Firm = ₹ 11 x 2,00,000 shares = ₹ 22,00,000

ii) As the company strictly follows the no borrowing policy, then to pay the dividend of ₹ 3 per share, it will have to issue new shares to finance the dividend payment as no retained earnings is available.

Market price per share (P1) $= Po (1+ K_e) - D_1$

$= 10 (1+ 0.10) - 3 = ₹ 8$

Market price per share (P_1) $= P_o (1+ K_e) – D_1$

$= 10 (1+ 0.10) – 3 = ₹ 8$

$$\text{No. of new shares to be issued} = \frac{\text{Funds required (i.e. total dividend to be paid)}}{P_1}$$

$$= \frac{2,00,000 \text{ shares} \times ₹ 3}{₹ 8} = 75,000 \text{ shares}$$

Thus, it can be seen from the above example that the value of the firm remains the same in either case.

MM hypothesis is primarily based on the arbitrage argument. Through the arbitrage process, MM hypothesis discusses how the value of the firm remains same whether the firm pays dividend or not. Here, market price of shares can be calculated as follows:

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

Where,

P_o = Price in the beginning of the period

P_1 = Price at the end of the period

D_1 = Dividend at the end of the period

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

As per MM hypothesis, the value of firm will remain unchanged due to dividend decision. This can be computed with the help of the following formula:

$$V_f \text{ or } nP_0 = \frac{(n+\Delta n)P_1 - I + E}{(1+K_e)}$$

Where,

V_f = Value of firm in the beginning of the period
n = Number of shares in the beginning of the period
Δn = Number of shares issued to raise the funds required
I = Amount required for investment
E = Total earnings during the period

For Understanding purpose:

$$P_0 = \frac{P_1 + D_1}{1+K_e}$$

The above equation is for one share. Let's multiply it with n i.e. existing number of shares on both sides:

$$nP_0 = \frac{nP_1 + nD_1}{1+K_e}$$

Further, retained earnings could be represented with the help of following:

$$\text{Retained earnings} = E - nD_1$$

Δn i.e. number of shares issued to raise the funds required can be represented as follows:

$$\Delta n = \frac{\text{Funds required}}{\text{Price at end } (P_1)} = \frac{I - (E - nD_1)}{P_1}$$

$$\text{Or, } \Delta nP_1 = I - (E - nD_1)$$

Now putting value of ΔnP_1 in the equation:

$$nP_0 = \frac{nD_1 + (nP_1 + \Delta nP_1) - [I - (E - nD_1)]}{1 + K_e}$$

$$nP_0 = \frac{nD_1 + (n + \Delta n)P_1 - I + E - nD_1}{1 + K_e}$$

$$nP_0 = \frac{(n + \Delta n)P_1 - I + E}{(1 + K_e)}$$

Advantages of MM Hypothesis

1. This model is **logically consistent.**
2. It provides a **satisfactory framework** on dividend policy with the concept of Arbitrage process.

Limitations of MM Hypothesis

1. Validity of various **assumptions is questionable.**
2. This model **may not be valid under uncertainty.**

PROBLEM : 1

AB Engineering Ltd. belongs to a risk class for which the capitalization rate is 10%. It currently has outstanding 10,000 shares selling at ₹ 100 each. The firm is contemplating the declaration of a dividend of '5 share at the end of the current financial year. It expects to have a net income of ₹ 1,00,000 and has a proposal for making new investments of ₹ 2,00,000. CALCULATE the value of the firm when dividends (i) are not paid (ii) are paid. (Study Material)

SOLUTION : 1

CASE 1: Value of the firm when dividends are not paid.

Step 1 : Calculate price at the end of the period

K_e= -10%, P_0= 100, D_1= 0

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

$$100 = \frac{P_1 + 0}{1 + 0.10} \quad » \quad P_1 = 110$$

Step 2: Calculation of funds required for investment

Earning	₹ 1,00,000
Dividend distributed	Nil
Fund available for investment	₹ 1,00,000
Total Investment	₹ 2,00,000
Balance Funds required	₹ 2,00,000 - ₹ 1,00,000 = ₹ 1,00,000

Step 3 : Calculation of No. of shares required to be issued for balance funds

$$\text{No. of shares} = \frac{\text{Funds required}}{\text{Price at end}(P_1)}$$

$$\Delta n = \frac{1,00,000}{110}$$

Step 4: Calculation of value of firm

$$nP_o = \frac{(n + \Delta n)P_1 - I + E}{1 + K_e}$$

$$nP_o = \frac{\left(10,000 + \frac{₹\,1,00,000}{₹\,110}\right) \times ₹\,110 - ₹\,2,00,000 + ₹\,1,00,000}{(1 + 0.10)}$$

$$= ₹\,10,00,000$$

CASE 2 : Value of the firm when dividends are paid.

Step 1: Calculate price at the end of the period

$K_e = 10\%, \quad P_0 = 100, \quad D_1 = 5$

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

$$100 = \frac{P_1 + 5}{1 + 0.10} \quad » \quad P_1 = 105$$

Step 2: Calculation of funds required for investment

Earning	₹ 1,00,000
Dividend distributed	₹ 50,000
Fund available for investment	₹ 50,000
Total Investment	₹ 2,00,000
Balance Funds required	₹ 2,00,000 - ₹ 50,000 = ₹ 1,50,000

Step 3: Calculation of No. of shares required to be issued for balance fund

$$\text{No. of shares} = \frac{\text{Funds required}}{\text{Price at end}(P_1)}$$

$$\Delta n = \frac{₹\,1,50,000}{₹\,105}$$

Step 4: Calculation of value of firm

$$nP_o = \frac{(n+\Delta n)P_1 - I + E}{1+K_e}$$

$$nP_0 = \frac{\left(10,000 + \frac{₹1,50,000}{₹105}\right) \times ₹105 - ₹2,00,000 + ₹1,00,000}{(1+0.10)}$$

$$= ₹10,00,000$$

Thus, it can be seen from the above illustration that the value of the firm remains the same in either case.

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2.2 DIVIDEND'S RELEVANCE THEORY

1. WALTER'S MODEL

Assumptions of Walter's Model

Walter's approach is based on the following assumptions:

- All investment proposals of the firm are to be financed **through retained earnings** only.
- **'r'** rate of return & **'Ke'** cost of capital are constant.
- **Perfect capital markets:** The firm operates in a market in which all investors are rational and information is freely available to all.
- **No taxes or no tax discrimination** between dividend income and capital appreciation (capital gain). It means there is no difference in taxation of dividend income or capital gain. This assumption is necessary for the universal applicability of the theory, since, the tax rates may be different in different countries.
- **No floatation or transaction cost:** Similarly, these costs may differ country to country or market to market.
- The firm has **perpetual life**

The relationship between dividend and share price based on Walter's formula is shown below:

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

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

The above formula is given by Prof. James E. Walter which shows how dividend can be used to maximise the wealth of equity holders.

A close study of the formula indicates that Professor Walter emphasises two factors which influence the market price of a share which are:

1. Dividend per share
2. Relationship between Internal Rate of Return (IRR) and Cost of capital (K_e) [i.e.Market capitalization rate]

If the internal return of retained earnings is higher than market capitalization rate, the value of ordinary shares would be high even if dividends are low.

However, if the internal return within the business is lower than what the market expects, the value of the share would be low.

In such a case, shareholders would prefer a higher dividend so that they can utilise the funds so obtained elsewhere in more profitable opportunities.

Walter's Model explains why market prices of shares of growing companies are high even though the

dividend paid out is low. It also explains why the market price of shares of certain companies which pay higher dividends and retain very low profits is also high.

IRR, Ke and optimum payout

As we know that Walter's approach considers two factors, following can be concluded from this model:

Company	Condition of r vs K_e	Correlation between Size of Dividend and Market Price of share	Optimum dividend payout ratio
Growth	$r > K_e$	Negative	Zero
Constant	$r = K_e$	No correlation	Every payout ratio is optimum
Decline	$r < K_e$	Positive	100%

- **Growth Oriented Company:** In this condition, a company is able to invest/utilize the fund in a better manner. Therefore, shareholders can accept low dividend because their value of share would be higher.
- **Declining Company:** In this condition, a company is not in a position to cover the cost of capital. Therefore, shareholders would prefer a higher dividend so that they can utilize their funds elsewhere in more profitable opportunities.

Advantages of Walter's Model

1. The formula is **simple to understand** and easy to compute.
2. It can envisage **different possible market prices** in different situations and considers internal rate of return, market capitalisation rate and dividend payout ratio in the determination of market value of shares.

Limitations of Walter's Model

- The formula **does not consider all the factors** affecting dividend policy and share prices. Moreover, determination of market capitalisation rate is difficult.
- Further, the formula **ignores such factors as taxation,** various legal and contractual obligations, management policy and attitude towards dividend policy and so on.

PROBLEM : 2

XYZ Ltd. earns ₹10/ share. Capitalization rate and return on investment are 10% and 12% respectively.
DETERMINE the optimum dividend payout ratio and the price of the share at the payout.(Study Material)

SOLUTION : 2

Since r > Ke , the optimum dividend pay-out ratio would 'Zero' (i.e. D = 0),

Accordingly, value of a share:

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

$$P = \frac{0 + \frac{0.12}{0.10}(10 - 0)}{0.10} = ₹120$$

The optimality of the above payout ratio can be proved by using 25%, 50%, 75% and 100% as pay- out ratio:

At 25% pay-out ratio

At 25% pay-out ratio

$$P = \frac{2.5 + \frac{0.12}{0.10}(10 - 2.5)}{0.10} = ₹\ 115$$

At 50% pay-out ratio

$$P = \frac{5 + \frac{0.12}{0.10}(10 - 5)}{0.10} = ₹\ 110$$

At 75% pay-out ratio

$$P = \frac{7.5 + \frac{0.12}{0.10}(10 - 7.5)}{0.10} = ₹\ 105$$

At 100% pay-out ratio

$$P = \frac{10 + \frac{0.12}{0.10}(10 - 10)}{0.10} = ₹\ 100$$

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GORDON'S MODEL

According to Gordon's model, dividend is relevant and dividend policy of a company affects its value.

Assumptions of Gordon's Model

This model is based on the following assumptions:

- Firm is an all equity firm i.e. **no debt.**
- **IRR will remain constant,** because change in IRR will change the growth rate and consequently the value will be affected. Hence this assumption is necessary.
- **K_e will remains constant,** because change in discount rate will affect the present value.
- **Retention ratio** (b), once decide upon, is **constant** i.e. constant dividend payout ratio will be followed.
- **Growth rate** (g = br) is also **constant**, since retention ratio and IRR will remain unchanged and growth, which is the function of these two variable will remain unaffected.
- **$K_e > g$,** this assumption is necessary and based on the principles of series of sum of geometric progression for 'n' number of years.
- All investment proposals of the firm are to be **financed through retained earnings** only.

The following formula is used by Gordon to find out price per share:

$$P_0 = \frac{E_1(1-b)}{K_e - br}$$

Where,

P_0 = Price per share
E_1 = Earnings per share
b = Retention ratio; (1 - b = Payout ratio)
K_e = Cost of capital
r = IRR
br = Growth rate (g)

According to Gordon's model, when **IRR is greater than cost of capital, the price per share increases and dividend pay-out decreases.** On the other hand, when IRR is lower than the cost of capital, the price per share decreases and dividend pay-out increases.

Following is the conclusion of Gordon's model:

Company	Condition of r vs Ke	Optimum dividend payout ratio
Growth	r > Ke	Zero
Constant	r = Ke	There is no optimum ratio
Declining	r < Ke	100%

PROBLEM : 3

The following figures are collected from the annual report of XYZ Ltd.:

Net Profit	**₹ 30 lakhs**
Outstanding 12% preference shares	**₹ 100 lakhs**
No. of equity shares	**3 lakhs**
Return on Investment	**20%**
Cost of capital i.e. (Ke)	**16%**

CALCULATE price per share using Gordon's Model when dividend pay-out is (i) 25%; 50% and (iii) 100%.

(Study Material)

SOLUTION : 3

	₹ in lakhs
Net Profit	30
Less: Preference dividend	12
Earning for equity shareholders	18
Earning per share	18/3 = ₹ 6.00

Price per share according to Gordon's Model is calculated as follows:

$$P_0 = \frac{E_1(1-b)}{K_e - br}$$

Here, E1 = 6, Ke = 16%

(i) When dividend pay-out is 25%

$$P_0 = \frac{6 \times 0.25}{0.16 - (0.75 \times 0.2)} = \frac{1.5}{0.16 - 0.15} = 150$$

(ii) When dividend pay-out is 50%

$$P_0 = \frac{6 \times 0.5}{0.16 - (0.5 \times 0.2)} = \frac{3}{0.16 - 0.10} = 50$$

(iii) When dividend pay-out is 100%

$$P_0 = \frac{6 \times 1}{0.16 - (0 \times 0.2)} = \frac{6}{0.16} = 37.50$$

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DIVIDEND DISCOUNT MODEL (DDM)

It is a financial model that values shares at the discounted value of the future dividend payments.

Under this model, the price of a share that will be traded is calculated by the PV of all expected future dividend payment discounted by an appropriate risk- adjusted rate.

The dividend discount model price is the intrinsic value of the stock i.e.

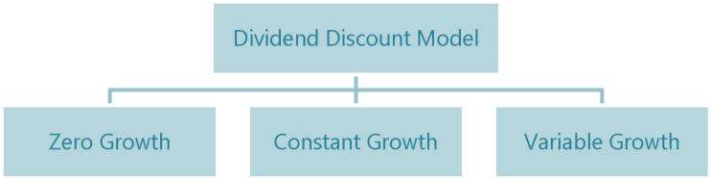
Intrinsic value = Sum of PV of future cash flows

Intrinsic value = Sum of PV of Dividends + PV of Stock Sale Price

$$\text{Stock Intrinsic Value} = \frac{D_1}{(1+K_e)^1} + \frac{D_2}{(1+K_e)^2} + ... + \frac{D_n}{(1+K_e)^n} + \frac{RV_n}{(1+K_e)^n}$$

In the above equation, it is assumed that dividend is paid at the end of each year and that the stock is sold at the end of the nth year.

There can three possible situations:



(a) Zero growth rates: assumes all dividend paid by a stock remains same. In this case the stock price would be equal to:

$$\text{Stock's intrinsic Value} = \frac{\text{Annual dividend}}{\text{Required rate of return}}$$

$$\text{i.e.} \quad P_0 = \frac{D}{K_e}$$

Where,

D = Annual dividend

K_e = Cost of capital

P_0 = Current Market price of share

(b) Constant Growth Rate (Gordon's Growth Model): The relationship between dividend and share price on the basis of Gordon's formula is:

$$\text{Market price per share (P)} = \frac{D_0(1+g)}{K_e - g}$$

Where

P = Market price per share

D_1 = current year dividend

g = growth rate of dividends

Ke = cost of equity capital/ expected rate of return

Notes:

g = b x r

b = proportion of retained earnings or (1- dividend payout ratio)

PROBLEM : 4

XYZ is a company having share capital of ₹ 10 lakhs of ₹ 10 each. It distributed current dividend of 20% per annum. Annual growth rate in dividend expected is 2%. The expected rate of return on its equity capital is 15%. CALCULATE price of share applying Gordon's growth Model(Study Material)

SOLUTION : 4

$$P = \frac{D_0(1+g)}{K_e - g}$$

$$= \frac{2(1+0.02)}{0.15 - 0.02} = ₹\ 15.69$$

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c) Variable growth rate : Variable-growth rate models (multi-stage growth models) can take many forms, even assuming the growth rate is different for every year. However, the most common form is one that assumes 3 different rates of growth: an initial high rate of growth, a transition to slower growth, and lastly, a sustainable, steady rate of growth. Basically, the constant-growth rate model is extended, with each phase of growth calculated using the constant-growth method but using 3 different growth rates of the 3 phases. The present values of each stage are added together to derive the intrinsic value of the stock. Sometimes, even the capitalization rate, or the required rate of return, may be varied if changes in the rate are projected.

2.3. TRADITIONAL MODEL

1. GRAHAM & DODD MODEL

According to the traditional position expounded by Graham & Dodd, the stock market places considerable weight on dividends than on retained earnings. Their view is expressed quantitatively in the following valuation model:

$$P = m\left(D + \frac{E}{3}\right)$$

Where,

P = Market price per share
D = Dividend per share
E = Earnings per share
m = a multiplier

PROBLEM : 5

The earnings per share of a company is ₹ 30 and dividend payout ratio is 60%. Multiplier is 2. DETERMINE the price per share as per Graham & Dodd model. (Study Material)

SOLUTION : 5

$$\text{Price per share (P)} = m\left(D + \frac{E}{3}\right)$$

$$P = 2\left(30 \times 0.6 + \frac{30}{3}\right)$$

$$P = 2(18 + 10) = ₹\ 56$$

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LINTER'S MODEL

Linter's model has two parameters:

(i) The target payout ratio,

(ii) The spread at which current dividends adjust to the target.

John Linter based his model on a series of interviews which he conducted with corporate managers in the mid 1950's. While developing the model, he considers the following assumptions:

1. **Firm have a long term dividend payout ratio.** They maintain a fixed dividend payout over a long term. Mature companies with stable earnings may have high payouts and growth companies usually have low payouts.
2. **Managers are more concerned with changes in dividends than the absolute amounts of dividends.** A manager may easily decide to pay a dividend of ' 2 per share if last year too it was ' 2 but paying ' 3 dividend if last year dividend was ' 2 is an important financial management decision.
3. **Dividend changes follow changes in long run sustainable earnings.**
4. **Managers are reluctant to affect dividend changes that may have to be reversed.**

Under Linter's model, the current year's dividend is dependent on current year's earnings and last year's dividend.

$$D_1 = D_o + [(EPS \times \text{Target payout}) - D_o] \times Af$$

Where,

D_1 = Dividend in year 1
D_o = Dividend in year 0 (last year dividend)
EPS = Earnings per share
Af = Adjustment factor or Speed of adjustment

PROBLEM : 6

Given the last year's dividend is ₹ 9.80, speed of adjustment of 45%, target payout ratio is 60% and EPS for current year ₹ 20. COMPUTE current year's dividend using Linter's model. (Study Material)

SOLUTION : 6

$D_1 = D_o + [(EPS \times \text{Target payout}) - D0] \times Af$
$D_1 = 9.80 + [(20 \times 60\%) - 9.80] \times 0.45$
$D_1 = 9.80 + 0.99 = ₹10.79$

Criticism of Linter's Model

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PROBLEM : 7

The following information is supplied to you:

	₹
Total Earnings	2,00,000
No. of equity shares (of ' 100 each)	20,000
Dividend paid	1,50,000
Price/ Earnings ratio	12.5

Applying Walter's Model:

(i) **ANALYSE whether the company is following an optimal dividend policy.**

(ii) **COMPUTE P/E ratio at which the dividend policy will have no effect on the value of the share.**

(iii) **Will your decision change, if the P/E ratio is 8 instead of 12.5? ANALYSE.**

(Study Material + May 2021 – RTP + Similar Question in Nov. 2021 – MTP – 5 Marks)

SOLUTION : 7

(i) The EPS of the firm is ₹ 10 (i.e.,₹ 2,00,000/ 20,000), r = ₹ 2,00,000/ (20,000 shares x ₹100) = 10%. The P/E Ratio is given at 12.5 and the cost of capital (Ke) may be taken at the inverse of P/E ratio. Therefore, Ke is 8 (i.e., 1/12.5). The firm is distributing total dividends of ₹ 1,50,000 among 20,000 shares, giving a dividend per share of ₹ 7.50. the value of the share as per Walter's model may be found as follows:

$$P = \frac{D + \frac{r}{K_e}(E - D)}{K_e} = \frac{7.5 + \frac{0.1}{0.08}(10 - 7.5)}{0.08} = ₹\ 132.81$$

(ii) The firm has a dividend payout of 75% (i.e., ₹ 1,50,000) out of total earnings of ₹ 2,00,000. Since, the rate of return of the firm (r) is 10% and it is more than the Ke of 8%, therefore, by distributing 75% of earnings, the firm is not following an optimal dividend policy. The optimal dividend policy for the firm would be to pay zero dividend and in such a situation, the market price would be:

$$= \frac{0 + \frac{0.1}{0.08}(10 - 0)}{0.08} = ₹\ 156.25$$

So, theoretically the market price of the share can be increased by adopting a zero payout.

(i) The P/E ratio at which the dividend policy will have no effect on the value of the share is such at which the Ke would be equal to the rate of return (r) of the firm. The Ke would be 10% (= r) at the P/E ratio of 10. Therefore, at the P/E ratio of 10, the dividend policy would have no effect on the value of the share.

(ii) If the P/E is 8 instead of 12.5, then the Ke which is the inverse of P/E ratio, would be 12.5 and in such a situation ke> r and the market price, as per Walter's model would be:

$$P = \frac{D + \frac{r}{K_e}(E - D)}{K_e} = \frac{7.5 + \frac{0.1}{0.125}(10 - 7.5)}{0.125} = ₹\ 76$$

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PROBLEM : 8

A&R Ltd. is a large-cap multinational company listed in BSE in India with a face value of ₹ 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 ₹ 120 as dividend per share for the FY 2020-21. The shares of the company traded at an average price of ₹ 3,122 on last day. FIND out the intrinsic value of per share and state whether shares are overpriced or underpriced. (Study Material)

SOLUTION : 8

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

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

Where,

P = Price per share

K_e = Required rate of return on equity

g = Growth rate

$$P=\frac{₹\ 120\times1.15}{(1+0.2)^1}+\frac{₹\ 138\times1.15}{(1+0.2)^2}+\frac{₹\ 158.7\times1.15}{(1+0.2)^3}+\frac{₹\ 182.5\times1.15}{(1+0.2)^4}+\frac{₹\ 209.88\times1.05}{(0.2-0.05)}\times\frac{1}{(1+0.2)^4}$$

P= 115 + 110.2 + 105.6 + 101.2 + 708.50 = ₹ 1,140.50

Intrinsic value of share is ₹1,140.50 as compared to latest market price of ₹ 3,122. Market price of a share is overpriced by ₹ 1,981.50

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