DIVIDEND POLICY

Content

- What is Dividend ?

- What is Dividend Policy ?

- Theories of Dividend Policy

    Irrelevance Theories of Dividend

        Residual Theory of Dividend

        Modigliani and Miller Approach

    Relevance Theories of Dividend

        Walter's Model

        Gordon's Model

Dividend

◦ Dividend refers to that portion of profit which is distributed among the owners or shareholders of the firm. The finance manager has to take few decisions which are inter – related like investment, financing and dividend decisions. Dividend decision is related to the shareholder's share in the profits of the company.

Dividend Policy

◦ A dividend policy can be defined as the dividend distribution guidelines provided by the board of directors of a company. It sets the parameter for delivering returns to the equity shareholders, on the capital invested by them in the business.

◦ While taking such decisions, the company has to maintain a proper balance between its debt and equity composition.

Theories of Dividend Policy

Irrelevance Theories

Residual Theory

Modigliani and Miller Approach

Relevance Theories

Walter's Model

Gordon's Model

Theories of Dividend policy

1. Irrelevance Theory : According to irrelevance theory dividend policy do not affect value of firm, thus it is called irrelevance theory.

    Residual Theory

    Modigliani & Miller Approach (MM Approach)

2. Relevance Theory : According to relevance theory dividend policy affects value of firm, thus it is called relevance theory.

    Walter's Model

    Gordon's Model

Irrelevance Theories

Residual Theory

◦ According to this theory, dividend policy has no effect on the wealth of the shareholders or prices of the shares and hence it is irrelevant so far as the valuation of the firm is concerned. This theory regards dividend policy merely as a part of financial decision because the earnings available may be retained in the business for reinvestment. But if the funds are not required in the business they may be distributed as dividend. Thus, the decision to pay dividends or retain the earnings may be taken as residual decision.

Assumption

- The assumption of this theory is that raising financing from external sources involves higher cost. This can be explained with the help of example.

- Suppose, A Ltd wants to raise Rs 10,00,000 additional funds to finance an investment project and its floatation cost is Rs 1,00,000. A Ltd has to raise Rs 11,00,000 from issue of shares so that the net proceed with the company remains Rs 10,00,000 after paying floatation cost of Rs 1,00,000. It means that the issue of new capital is more expensive than financing the project through retained earnings. The dividend will be paid only after using available profits for investment needs. This referred as Residual Theory of dividend.

Modigliani and Miller Approach

◦ Modigliani-Miller have argued that firm's dividend policy is irrelevant to the value of the firm.

◦ According to this approach, the market price of a share is dependent on the earnings of the firm on its investment and not on the dividend paid by it. Earnings of the firm which affect its value, further depends upon the investment opportunities available to it.

Assumption

- Perfect Capital Markets - This theory believes in the existence of 'perfect capital markets'. It assumes that all the investors are rational, they have access to free information, there are no flotation or transaction costs and no large investor to influence the market price of the share.

- No Taxes - There is no existence of taxes. Alternatively, both dividends and capital gains are taxed at the same rate.

- Fixed Investment Policy - The company does not change its existing investment policy. It means whatever may be the dividend payment, the company will make investment as it has already decided upon. If the company is going to pay more amount of dividend, then it will more equity shares and vice versa.

- No Risk of Uncertainty - All the investors are certain about the future market prices and the dividends. This means that the same discount rate is applicable for all types of stocks in all time periods.

- Investor is indifferent between dividend income and capital gain income - It is assumed that investor is indifferent between dividend income and capital gain income. It means if he requires total return of Rs. 500, he may get Rs. 200 dividend income and Rs. 300 as capital gain income or reverse, in either of the case he gets equal satisfaction.

Formula of Modigliani and Miller Approach

$$P_0 = \frac{1}{(1+k_e)} \times (D_1 + P_1) \text{ or } \frac{(D_1+P_1)}{1+k_e} \qquad (\text{i})$$

P_0 = Current market price of the share.

K_e = Cost of equity capital.

D_1 = Expected dividend at the end of the year.

P_1 = Expected price of the share at the end of year one.

- If the company has 'r' number of shares outstanding then the market value of the firm will be:

$$rP_0 = \frac{1}{(1+ke} \times rD_1 + rP_1 \qquad\qquad (\text{ii})$$

- If the firm decided to issue 's' number of additional equity shares at expected price P_1 then the total additional amount raised through issue of equity shares would be sP_1 and equal to:

- sP1 = Total investment required – Retained earnings used for investment.

$$= sP_1 = I - (E - rD_1) = I - E + rD_1$$

- Where I = Total investment required.

- E = Earning of a firm.

- Equation (ii) can also be written as follows:

$$rP_0 = \frac{1}{(1+k\ )} \times (rD_1 + rP_1 + sP_1 - sP_1) \qquad\qquad (\text{iii})$$

$$rP_0 = \frac{1}{(1+k_e} \times [rD_1 + (r + s)P_1 - sP_1] \qquad\qquad (\text{iv})$$

- Now, putting the value of sP_1 in the equation (iv) we have:

$$rP_0 = \frac{1}{1+k_e} \times rD_1 + (r + s)P_1 - I + E - rD_1] \qquad\qquad (\text{v})$$

- And finally $\qquad rP_0 = \frac{1}{(1+ k_e} \times [(r + s)P_1 - I + E] \qquad\qquad (\text{vi})$

Illustration

- Ghajini Ltd. Currently has 10,00,000 equity shares outstanding. Current market price per share is Rs 100.the net income for the current year is Rs 3,00,00,000 and investment budget is Rs 4,00,00,000. Cost of equity is 10%. The company is contemplating declaration of dividends @ Rs 5 per share. Assuming MM approach.

- i) Calculate market price per share if dividend is declared and if it is not declared.

- ii) How many equity share are to be issued under both the options.

- **Solution: i) Calculation of market price of share as per MM approach**

$$P_0 = \frac{(D_1 + P_1)}{(1 + k_e)} \qquad = \qquad P_1 \qquad = P_0 (1 + k_e) - D_1$$

P_0 = Current market price of the share = Rs 100

D_1 = Expected dividend at the end of year one = Rs 5

k_e = Cost of equity = 10%

P_1 = Expected price of the share at the end of year one = ?

- a) When dividend is Declared:

$$P_1 = 100 \times (1 + 0.10) - 5 \qquad = \quad 110 - 5 \quad = \text{Rs } 105$$

- b) When dividend is not declared:

$$P_1 = 100 \times (1 + 0.10) - 0 \qquad = 110 - 0 \quad = \text{Rs } 110$$

- ii) Calculation of No. of additional equity shares to be issued:

$$s = \frac{Amount\ to\ be\ raised}{Expected\ price\ of\ equity\ share} = \frac{I-(E-rD_1)}{P_1}$$

- Where, s = No. of additional equity shares to be issued.

- I = Total investment required = 4,00,00,000

- E = Earnings of a company. = 3,00,00,000

- r = No. of existing shares outstanding. = 10,00,000

- P_1 = Expected price.

- D_1 = Expected dividend.

- a) When dividend is declared:

$$s = \frac{4,00,00,000 - (3,00,00,000 - 1,00,000 \times 5)}{105} = 1,42,857\ shares$$

- b) When dividend is not declared:

$$s = \frac{4,00,00,000 - (3,00,00,000 - 1,00,000 \times 0)}{110} = 90,909\ shares$$

Relevance Theories

Walter's Model

- According to Walter's Model, value of the firm depends upon firm's earning level, dividend payout, constant reinvestment rate and the shareholder's expected rate of return.

- The model suggests that dividend policy of the company depends upon the fact that whether firm has got good investment opportunities or not. If the firm does not have enough investment opportunities then it will pay the dividend otherwise it will retain the money.

- If the firm pays dividend then shareholder's invest the dividend income to get further return. The expected return on reinvestment of dividend income by shareholders is called the opportunity cost to the firm or the cost of capital (k_e) of the firm. On the other hand, if dividend is not paid then the firm will reinvest the retained earning for its future growth. The expected rate of return on reinvestment of retained earning is called rate of return (r).

Assumption

- Internal Financing: All the investments are financed by the firm through retained earnings. In other words, retained earnings are the only source of finance. This means that the company does not rely upon external funds like debt or new equity capital.

- Constant IRR and Cost of Capital: The internal rate of return (r) and the cost of capital (k) of the firm are constant. The business risks remain same for all the investment decisions.

- Constant EPS and DPS: Beginning earnings and dividends of the firm never change. Though different values of EPS and DPS may be used in the model, but they are assumed to remain constant while determining a value.

- 100% Retention or Pay-out: All the earnings of the company are either reinvested internally or distributed as dividends.

- Infinite Life: The company has an infinite or a very long life.

Formula of Walter's Model

$$P = \frac{D}{k_e} + \frac{\left(\frac{r}{k_e}\right)(E - D)}{k_e} \qquad \text{or} \qquad \frac{D + \left(\frac{r}{k_e}\right)(E - D)}{k_e}$$

- P = Market price of equity share.
- D = Dividend per share.
- E = Earning per share.
- r = Rate of return on investment of the firm.
- k_e = Cost of equity share capital.
- Hence, Value of firm = N × P
- Where, N = No. of outstanding equity shares.

Illustration

○ Following are the details of three companies X Ltd., Y Ltd. and Z Ltd.

X Ltd.	Y Ltd.	Z Ltd.
r = 20% k_e = 15% E = Rs 8	r = 15% k_e = 15% E = Rs 8	r = 10% k_e = 15% E = Rs 8

○ Calculate the value of an equity share of each of these companies applying Walter's Model when D/P ratio is (a) 40% (b) 70% (c) 90%.

○ **Solution: Value of an Equity Share as per Walter's Model**

○
$$P = \frac{D}{k_e} + \frac{\left(\frac{r}{k_e}\right)(E-D)}{k_e} \quad \text{or} \quad \frac{D + \left(\frac{r}{k_e}\right)(E-D)}{k_e}$$

Value of Equity Share as per Walter's Model

D/P Ratio	X Ltd.	Y Ltd.	Z Ltd.
	$r = 20\%$ $k_e = 15\%$ $E = Rs\ 8$	$r = 15\%$ $k_e = 15\%$ $E = Rs\ 8$	$r = 10\%$ $k_e = 15\%$ $E = Rs\ 8$
	Market Price of the Share (P)		
40%, D = Rs 3.20	$P = \dfrac{3.20+(\frac{0.20}{0.15}(8-3.20)}{0.15}$ $P = 64.00$	$P = \dfrac{3.20\ (\frac{0.15}{0.15}(8-3.20)}{0.15}$ $P = 53.33$	$P = \dfrac{3.20+(\frac{0.10}{0.15}(8-3.20)}{0.15}$ $P = 42.67$
70%, D = Rs 5.60	$P = \dfrac{5.60+(\frac{0.20}{0.15}(8-5.60)}{0.15}$ $P = 58.67$	$P = \dfrac{5.60+(\frac{0.15}{0.15}(8-5.60)}{0.15}$ $P = 53.33$	$P = \dfrac{5.60+(\frac{0.10}{0.15}(8-5.60)}{0.15}$ $P = 48.00$
90%, D = Rs 7.20	$P = \dfrac{7.20+(\frac{0.20}{0.15}(8-7.20)}{0.15}$ $P = 55.11$	$P = \dfrac{7.20\ (\frac{0.15}{0.15}(8-7.20)}{0.15}$ $P = 53.33$	$P = \dfrac{7.20+(\frac{0.10}{0.15}(8-7.20)}{0.15}$ $P = 51.55$

X Ltd. is a "growth firm" , Where $r > k_e$. Therefore, to maximize the market price, the company needs to retain all its earnings, otherwise its price will decline.

Y Ltd. is a "normal firm", where $r = k_e$. In this case D/P ratio does not have any impact on the value of the firm and it's share price.

Z Ltd. is a "declining firm". The rate of return is less than the cost of capital i.e., $r < k_e$. Therefore, to maximize the market price of the share, the company should distribute all its earnings as dividend. The value of the share is increasing when we increase the payout ratio from 40% to 90%.

Gordon's Model

- According to Gordon's Model, Dividend policy of a firm is relevant and can affect the value of a firm. Like Walter's Model value of the firm under this method also depends upon reinvestment rate (r) and shareholder's expectations (k_e).

- This is based on the premise that the investors are generally risk-aversers and prefer to have current income i.e. dividend. Hence there is a direct relationship between dividend policy and the value of a firm.

Assumption

- No Debt: The model assumes that the company is an all equity company, with no proportion of debt in the capital structure.

- No External Financing: The model assumes that all investment of the company is financed by retained earnings and no external financing is required.

- Constant IRR: The model assumes a constant Internal Rate of Return (r), ignoring the diminishing marginal efficiency of the investment.

- Constant Cost of Capital: The model is based on the assumption of a constant cost of capital (k), implying the business risk of all the investments to be the same.

- Perpetual Earnings: Gordon's model believes in the theory of perpetual earnings for the company.

- Corporate taxes: Corporate taxes are not accounted for in this model.

- Constant Retention Ratio: The model assumes a constant retention ratio (b) once it is decided by the company. Since the growth rate (g) = b*r, the growth rate is also constant by this logic.

- K>g: Gordon's model assumes that the cost of capital (k) > growth rate (g). This is important for obtaining the meaningful value of the company's share.

Formula of Gordon's Model

$$P = \frac{E\,(1-b)}{k_e - br}$$

- P = Market price of equity share.
- E = Earnings per share.
- b = Retention ratio.(1 – payout ratio)
- r = Rate of return on investment.
- k_e = Cost of equity capital.
- br = Growth rate of the firm.
- Hence, value of firm = N × P
- Where, N = No. of outstanding equity shares.

Illustration

- Assuming that cost of equity is 11%; rate of return on investment is 12%; and earning per share is Rs 15.Calculate price per share by 'Gordon Model' if dividend payout ratio is 10% and 30%.

- **Solution:** According to Gordon's Model : $P = \dfrac{E\,(1-b)}{k_e - br}$

- P = Market price of equity share.   E = Earnings per share.

- b = Retention ratio.(1 – payout ratio)   r = Rate of return on investment.

- k_e = Cost of equity capital.   br = Growth rate of the firm.

- When D/P Ratio is 10% $P = \dfrac{15\,(1-0.90)}{0.11-(0.90\times0.12)} = \dfrac{1.5}{0.002} =$ Rs 750

- When D/P Ratio is 30% $P = \dfrac{15(1-0.70)}{0.11-(0.70\times0.12)} = \dfrac{4.5}{0.026} =$ Rs 173.08

References

- Financial Management by Surender Singh

- https://theinvestorsbook.com/dividend-policy.html

- Https://efinancemanagement.com/dividend-decisions/modigliani-miller-theory-on-dividend-policy

- https://efinancemanagement.com/dividend-decisions/gordons-theory-on-dividend-policy