VIVEKANANDA COLLEGE

THAKURPUKUR

KOLKATA-700063

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Name of the teacher: ***DR. SARBAPRIYA RAY***

Name of the department: COMMERCE

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DIVIDEND DECISION AND VALUATION OF THE FIRM

DR. SARBAPRIYA RAY

VIVEKANANDA COLLEGE

Under University of Calcutta, Thakurpukur, Kolkata

CHAPTER OBJECTIVES

- Introduction
- Concept and Significance
- Dividend Decision and Valuation of Firms

* Relevance Concept of Dividend

Walter's Approach

Gordon's Approach

* Irrelevance Concept of Dividend

Residual Approach

Modigliani & Miller Approach

§ Lets Sum Up

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Introduction

Corporate dividend policy deals with the firm's decision about how much of its earnings to pay out to its equity shareholders in cash dividend. Since earnings paid out to equity shareholders are not available for financing new investments, the corporate dividend policy decisions is intertwined with corporate financial policy.

The term dividend refers to those profits of a company which is distributed by company among its shareholders. It is the reward of the shareholders for investments made by them in the shares of the company. A company may have preference share capital as well as equity share capital and dividends may be paid on both types of capital. The investors are interested in earning the maximum return on their investments and to maximize their wealth on the other hand, a company needs to provide funds to finance its long-term growth. If a company pays out as dividend most of what it earns, then for Business requirements and further expansion it will

have to depend upon outside resources such as issue of debt or a new shares. Dividend policy of a firm, thus affects both long-term financing and wealth of shareholders.

Concept and Significance

The dividend decision is one of the three basic decisions which a financial manager may be required to take, the other two being the investment decisions and the financing decisions. In each period any earning that remains after satisfying obligations to the creditors, the government and the preference shareholders can either be retained or paid out as dividends or bifurcated between retained earnings and dividends. The retained earnings can then be invested in assets which will help the firm to increase or at least maintain its present rate of growth.

In dividend decision, a financial manager is concerned to decide one or more of the following:

- Should the profits be ploughed back to finance the investment decisions?
- Whether any dividend be paid? If yes, how much dividend be paid?
- When these dividend be paid? Interim or final.
- In what form the dividend be paid? Cash dividend or Bonus shares.

All these decisions are inter-related and have bearing on the future growth plans of firm. If a firm pays dividend it affects the cash flow position of the firm but earns the goodwill among investors who therefore may be willing to provide additional funds for financing of investment plans of firm. On the other hand, the profits which are not distributed as dividends become an easily available source of funds at no explicit costs.

However, in case of ploughing back of profits, the firm may loose the goodwill and confidence of the investors and may also defy the standards set by other firms. Therefore, in taking dividend decision, the financial manager has to consider and analyze various factors. Every aspects of dividend decision is to be critically evaluated. The most important of these considerations is to decide as to what portion of profit should be distributed which is also known as ***dividend payout ratio*****.**

Dividend Decision and Valuation of Firms

The value of the firm can be maximized if the shareholders wealth is maximized. There are conflicting views regarding the impact of dividend decision on valuation of the firm.

According to one school of thought, dividend decision does not affect shareholders wealth and hence the valuation of firm. On other hand, according to other school of thought dividend decision materially affects the shareholders wealth and also valuation of the firm. We have discussed below the views of two schools of thought under two groups:

1. The Relevance Concept of Dividend a Theory of Relevance.
2. The Irrelevance Concept of Dividend or Theory of Irrelevance.

The Relevance Concept of Dividend

The advocates of this school of thought include Myron Gordon, James Walter and Richardson. According to them dividends communicate information to the investors about the firm's profitability and hence dividend decision becomes relevant. Those firms which pay higher dividends will have greater value as compared to those which do not pay dividends or have a lower dividend pay out ratio. It holds that dividend decisions affect value of the firm.

We have examined below two theories representing this notion: (i) Walter's Approach and (ii) Gordon's Approach.

(i) Walter's Approach: Prof. Walter's model is based on the relationship between the firms (a) return on investment i.e. r and (b) the cost of capital or required rate of return i.e. k.

According to Prof. Walter, If r>k i.e. if the firm earns a higher rate of return on its investment than the required rate of return, the firm should retain the earnings. Such firms are termed as growth firm's and the optimum pay-out would be zero which would maximize value of shares.

In case of declining firms which do not have profitable investments i.e. where r<k, the shareholder would stand to gain if the firm distributes it earnings. For such firms, the optimum payout would be 100% and the firms should distribute the entire earnings as dividend.

In case of normal firms where r=k the dividend policy will not affect the market value of shares as the shareholders will get the same return from the firm as expected by them. For such firms, there is no optimum dividend payout and value of firm would not change with the change in dividend rate.

Assumptions of Walter's model

(i) The firm has a very long life.

(ii) Earnings and dividends do not change while determining the value.

(iii) The Internal rate of return (r) and the cost of capital (k) of the firm are constant.

(iv) The investments of the firm are financed through retained earnings only and the firm does not use external sources of funds.

Walter's formula for determining the value of share

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

Where P = Market price per share

E-D=Retained earnings per share

D = Dividend per share

r = internal rate of return

E = earnings per share

k_e = Cost of equity capital.

Criticism of Walter's Model

Walter's model has been criticized on account of various assumptions made by Prof Walter in formulating his hypothesis.

(i) The basic assumption that investments are financed through retained earnings only is seldom true in real world. Firms do raise fund by external financing.

(ii) The internal rate of return i.e. r also does not remain constant. As a matter of fact, with increased investment the rate of return also changes.

(iii) The assumption that cost of capital (k) will remain constant also does not hold good. As a firm's risk pattern does not remain constant, it is not proper to assume that (k) will always remain constant.

(ii) Gordon's Approach : Another theory which contends that dividends are relevant is Gordon's model. This model which opines that dividend policy of a firm affects its value is based on following assumptions:-

1.The firm is an all equity firm. No external financing is used and investment programmes are financed exclusively by retained earnings.

2. r and k_e are constant.

3. The firm has perpetual life.

4. The retention ratio, once decided upon, is constant. Thus, the growth rate, (g=br) is also constant.

5. $k_e > br$

Gordon argues that the investors do have a preference for current dividends and there is a direct relationship between the dividend policy and the market value of share. He has built the model on basic premise that investors are basically risk averse and they evaluate the future dividend/capital gains as a risky and uncertain proposition. Investors are certain of receiving incomes from dividend than from future capital gains. The incremental risk associated with capital gains implies a higher required rate of return for discounting the capital gains than for discounting the current dividends. In other words, an investor values current dividends more highly than an expected future capital gain.

Hence, the "bird-in-hand" argument of this model suggests that dividend policy is relevant, as investors prefer current dividends as against the future uncertain capital gains. When investors are certain about their returns they discount the firm's earnings at lower rate and therefore placing a higher value for share and that of firm. So, the investors require a higher rate of return as retention rate increases and this would adversely affect share price.

Symbolically: -

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

where P = Market price of equity share

E = Earnings per share of firm.

b = Retention Ratio (1 – payout ratio)

r = Rate of Return on Investment of the firm.

K_e = Cost of equity share capital.

br = g i.e. growth rate of firm.

The Irrelevance Concept of Dividend

The other school of thought on dividend policy and valuation of the firm argues that what a firm pays as dividends to share holders is irrelevant and the shareholders are indifferent about receiving current dividend in future. The advocates of this school of thought argue that dividend policy has no effect on market price of share. Two theories have been discussed here to focus on irrelevance of dividend policy for valuation of the firm which are as follows:

1. Residual's Theory of Dividend

According to this theory, dividend decision has no effect on the wealth of shareholders or the prices of the shares and hence it is irrelevant so far as valuation of firm is concerned. This theory regards dividend decision merely as a part of financing decision because earnings available may be retained in the business for re-investment. But if the funds are not required in the business they may be distributed as dividends. Thus, the decision to pay dividend or retain the earnings may be taken as residual decision. This theory assumes that investors do not differentiate between dividends and retentions by firm. Their basic desire is to earn higher return on their investment. In case the firm has profitable opportunities giving higher rate of return than cost of retained earnings, the investors would be content with the firm retaining the earnings to finance the same. However, if the firm is not in a position to find profitable investment opportunities, the investors would prefer to receive the earnings in the form of dividends. Thus, a firm should retain earnings if it has profitable investment opportunities otherwise it should pay them as dividends.

Under the Residuals theory, the firm would treat the dividend decision in three steps:

- Determining the level of capital expenditures which is determined by the investment opportunities.
- Using the optimal financing mix, find out the amount of equity financing need to support the capital expenditure in step (i) above
- As the cost of retained earnings k_r is less than the cost of new equity capital, the retained earnings would be used to meet the equity portions financing in step (ii) above. If available profits are more than this need, then the surplus may be distributed as dividends of shareholder. As far as the required equity financing is in excess of the amount of profits available, no dividends would be paid to the shareholders.

Hence, in residual theory the dividend policy is influenced by (i) the company's investment opportunities and (ii) the availability of internally generated funds, where dividends are paid only after all acceptable investment proposals have been financed. The dividend policy is totally passive in nature and has no direct influence on the market price of the share.

2. Modigliani and Miller Approach (MM Model)

Modigliani and Miller have expressed in the most comprehensive manner in support of theory of irrelevance. They maintain that dividend policy has no effect on market prices of shares and the value of firm is determined by earning capacity of the firm or its investment policy. As observed by M.M, "Under conditions of perfect capital markets, rational investors, absence of tax discrimination between dividend income and capital appreciation, given the firm's investment policy, its dividend policy may have no influence on the market price of shares". Even, the splitting of earnings between retentions and dividends does not affect value of firm.

Assumptions of MM Hypothesis

(1) There are perfect capital markets.

(2) Investors behave rationally.

(3) Information about company is available to all without any cost.

(4) There are no floatation and transaction costs.

(5) The firm has a rigid investment policy.

(6) No investor is large enough to effect the market price of shares.

(7) There are either no taxes or there are no differences in tax rates applicable to dividends and capital gains.

The Argument of MM

The argument given by MM in support of their hypothesis is that whatever increase in value of the firm results from payment of dividend, will be exactly off set by achieve in market price of shares because of external financing and there will be no change in total wealth of the shareholders. For example, if a company, having investment opportunities distributes all its earnings among the shareholders, it will have to raise additional funds from external sources. This will result in increase in number of shares or payment of interest charges, resulting in fall in earnings per share in future. Thus whatever a shareholder gains on account of dividend payment is neutralized completely by the fall in the market price of shares due to decline in expected future earnings per share. To be more specific, the market price of share in beginning of period is equal to present value of dividends paid at end of period plus the market price of shares at end of period plus the market price of shares at end of the period. This can be put in form of following formula:-

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

where

P_O = Market price per share at beginning of period.

D_1 = Dividend to be received at end of period.

P_1 = Market price per share at end of period.

K_e = Cost of equity capital.

The value of P_1 can be derived by above equation as under.

The MM Hypothesis can be explained in another form also presuming that investment required by the firm on account of payment of dividends is financed out of the new issue of equity shares.

In such a case, the number of shares to be issued can be computed with the help of the following equation:

Further, the value of the firm can be ascertained with the help of the following formula:

$$nP_0 = V(Value of the firm) = \frac{(n+m)P - I + E}{1 + k_e}$$

where,

m = number of shares to be issued.

I = Investment required.

E = Total earnings of the firm during the period.

P_1 = Market price per share at the end of the period.

Ke = Cost of equity capital.

n = number of shares outstanding at the beginning of the period.

D_1 = Dividend to be paid at the end of the period.

nP_O = Value of the firm.

This equation shows that dividends have no effect on the value of the firm when external financing is used. Given the firm's investment decision, the firm has two alternatives, it can retain its earnings to finance the investments or it can distribute the earnings to the shareholders as dividends and can arise an equal amount externally. If the second alternative is preferred, it would involve **arbitrage process**. Arbitrage refers to entering simultaneously into two

transactions which exactly balance or completely offset each other. Payment of dividends is associated with raising funds through other means of financing. The effect of dividend payment on shareholder's wealth will be exactly offset by the effect of raising additional share capital. When dividends are paid to the shareholder, the market price of the shares will increase. But the issue of additional block of shares will cause a decline in the terminal value of shares. The market price before and after the payment of the dividend would be identical. This theory thus signifies that investors are indifferent about dividends and capital gains. Their principal aim is to earn higher on investment. If a firm has investment opportunities at hand promising higher rate of return than cost of capital, investor will be inclined more towards retention. However, if the expected return is likely to be less than what it would cost, they would be least interested in reinvestment of income. Modigiliani and Miller are of the opinion that value of a firm is determined by earning potentiality and investment policy and never by dividend decision.

Criticism of MM Approach

MM Hypothesis has been criticized on account of various unrealistic assumptions as given below.

1. Perfect capital markets does not exist in reality.
2. Information about company is not available to all persons.
3. The firms have to incur floatation costs which issuing securities.
4. Taxes do exit and there is normally different tax treatment for dividends and capital gains.
5. The firms do not follow rigid investment policy.
6. The investors have to pay brokerage, fees etc. which doing any transaction.
7. Shareholders may prefer current income as compared to further gains.

DIVIDEND POLICY IN PRACTICE

The main consideration in determining the dividend policy is the objective of maximization of wealth of shareholders. Thus, a firm should retain earnings if it has profitable

opportunities, giving a higher rate of return than cost of retained earnings, otherwise it should pay them as dividends. It implies that a firm should treat retained earnings as the active decision variable, and dividends as the passive residual.

In actual practice, however, we find that most firms determine the amount of dividends first, as an active decision variable, and the residue constitutes the retained earnings. In fact, there is no choice with the companies between paying dividends and not paying dividends. Most of the companies believe that by following a stable dividend policy with a high pay out ratio, they can maximize the market value of shares. Moreover, the image of such companies also improved on the market and the investors also favour such companies. The firms following this policy, can thus successfully approach the market for raising additional funds for future expansion and growth, as and when required. It has therefore, been rightly said that theoretically retained earnings should be treated as the active decision variable and dividends as passive residual but practice does not conform to this in most cases.

Problem:1

The earning available to equity shareholders of Aishi Ltd is Rs 20,00,000.The number of equity shares are 1,00,000.The cost of capital is 10%.Average rate of return on investment is 15%.Compute the market price per share as per Walter's model if D/P ratio is(i.e dividend pay-out ratio)(i)0%(ii)20%(iii)50%(iv)100%

Solution:

According to Walter's model

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

Where P = Market price per share

E-D=Retained earnings per share

D = Dividend per share=DPS

r = internal rate of return

E = earnings per share=EPS

k_e = Cost of equity capital.

Here,EPS= $\frac{\text{Rs}20,00,000}{1,00,0000}$

=Rs20; r =15%, i.e =015; k_e =10% i.e 0.10; D= D/P ratio x EPS

	(i) D/P ratio=0% i.e D=0	(ii) D/P ratio=20% i.e D= Rs.4	(iii) D/P ratio=50% i.e D= Rs.10	(iv) D/P ratio=100% i.e D= Rs.20
MPS(Rs.)	$\frac{0+\frac{0.15}{0.10}(20-0)}{0.10}$ =300	$\frac{4+\frac{0.15}{0.10}(20-4)}{0.10}$ =280	$\frac{10+\frac{0.15}{0.10}(20-10)}{0.10}$ =250	$\frac{20+\frac{0.15}{0.10}(20-20)}{0.10}$ =200

Problem:2:

The following data are available for Ishika Ltd.

Earnings per share:Rs 8;Rate of return on investment:16%;Rate of return required by shareholders:12%.

If Gordon's basic valuation formula holds, what will be price per share when the dividend pay-out ratiois (i) 25%(ii)60%.

Solution: According to Gordon's model, the market value of share is equal to the present value of future stream of dividend,Symbolically,

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

where P = Market price of equity share

E = Earnings per share of firm.

b = Retention Ratio (1 – payout ratio)

r = Rate of Return on Investment of the firm.

K_e = Cost of equity share capital.

br = g i.e. growth rate of firm.

Here, E=Rs.8; r=16%=0.16; K_e =12%=0.12

(i) If D/P ratio=25%, then b=1- D/P ratio=1-0.25=0.75

b.r=0.75X0.16=0.12

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

$$= \frac{Rs8X\,25\%}{0.12-0.12}0.12 = \infty(undefined)$$

Actually Gordon model is applicable when $K_e > br$

(ii) D/P ratio=1-b=60%, i.e 0.60,therefore, b=0.40

therefore, b.r=0.40X0.16=0.064

$$P = \frac{Rs8X\,60\%}{0.12-0.12} = \frac{Rs4.8}{0.056} = Rs.85.71\,(\text{approx})$$

Problem:3:

SR Ltd currently has 1,00,000 shares. The company needs Rs. 10,00,0000 to finance its new investments. The total earnings of the firm during the current year would be Rs 10,00,000 and Rs. 5,00,0000 would be paid by way of dividends. The market price per share at the end of the current year is expected to be Rs 110. If the cost of capital is 15%, ascertain the present value of a share under the Modigliani-Miller Model.

Solution

Here, $D_1 = \frac{Rs5,00,000}{1,00,000} = Rs5(ecpecteddividendpershare)$

P_1 =MPS at the end of one year

k_e =Cost of capital=15% i.e 0.15

P_0 =Present value of share

Under MM Model , $P_0 = \frac{P_1 + D_1}{1+k_e} = \frac{Rs(110+5)}{(1+0.15)} = \frac{Rs115}{1.15} = Rs100$

Problem:4

CLEAR CUT LTD has a capital of Rs 10,00,0000 in equity shares of Rs 100 each.The shares are currently quoted at par. The company proposes declaration of a dividend of Rs 10 per share at the end of current financial year .The capitalization rate for the risk class to which the company belongs is 12%.

What will be market price of the share at the end of current financial year, if

(i) Dividend is not declared?

(ii) Dividend is declared?

(iii) Assuming that the company pays the dividend and has net profit of Rs 5,00,000 and makes new investment of Rs10 lakhs during the period, how many new shares must be issued? Use MM Model.

Solution:

Here, P_0 =Current market price per share=Rs100

k_e =Cost of equity capital=12%=0.12

D_1 =Expected dividend at the end of one year

P_1 =MPS at the end of one year

According to MM Model,

$$P_0 = \frac{P_1 + D_1}{1 + k_e}; Therefore, P_1 + D_1 = P_0(1 + k_e) \text{ or } P_1 = P_0(1 + k_e) - D_1$$

(i) If dividend is not declared:

$$P_1 = P_0(1 + k_e) - 0 = Rs100(1 + 0.12) = Rs112$$

The MPS at the end of the year is Rs 112.

(ii) If dividend is declared:

$P_1 = P_0(1 + k_e) - D_1$ =Rs 112-Rs 10=Rs102

(iii) Amount required for new financing =1-(Net profit i.e E-n. D_1)

=Rs[10,00,000-(5,00,000-10,000x10)=Rs 6,00,000

Therefore, no of shares to be issued= $\frac{Rs6,00,000}{102} = 5882.35 = (5883(approx)$

Lets Sum Up

- Dividend decision is an important decision, which a financial manager has to take. It refers to that profits of a company which is distributed by company among its shareholders.
- There has been a difference of opinion on the effect of dividend policy on value of firm. Two schools of thought have emerged on relationship between dividend policy and value of firm.
- On one hand Walter model and Gordon model consider dividend as relevant for value of firm as investors prefer current dividend over future dividend.
- On other hand Residuals Approach and MM Model consider dividend is irrelevant for value of firm. The detention of profit for re-investment is important. MM Model have

introduced arbitrage process to prove that value of firm remain same whether firm pays dividend or not.

- Different models market price can be ascertained as :

  Walter's Model

  Gordon Model

  MM Model

QUESTIONS

1 Explain the Modigliani-Miller hypothesis of dividend irrelevance. Does this dividend irrelevance. Does this hypothesis suffer from deficiencies?

2 How far do you agree that dividends are irrelevant?

3 In Walter's Approach, the dividend policy of firm depends on availability of investment opportunity and relationship between firm's internal rate of return and its cost of capital. Discuss what are shortcomings of this view?

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