

# KATWA COLLEGE

## DEPARTMENT OF COMMERCE

### Semester VI

#### Study materials on Fundamentals of Financial Management (CC-13)

#### Topic - Dividend Decision

The dividend decision involves the choice between distributing the earnings belonging to the shareholders and their retention to the company. While designing the dividend policy a number of factors to be taken into consideration.

#### Definition of Dividend:

Dividend refers to that portion of company's net earnings which is distributed among its shareholders. It is paid by the company out of its profits or reserves available for this purpose. The decision regarding payment of dividend is taken by the company in the Board's Meeting and is generally confirmed by the Annual General Meeting (AGM) of the company.

#### Classification of Dividend:

Dividends can be classified according to:

#### A) Sources:

##### i) Retained Earnings

##### ii) Current Profits

As per section 205 of the Companies Act, 1956 that no dividend can be declared or paid except out of current profits or past undistributed profits or both after providing current year's or past year's depreciation.

#### B) Medium:

i) **Cash Dividend:** If the company has adequate cash balance, generally, it pays dividend to its shareholders in cash is called cash dividend.

ii) **Share dividend/Stock dividend/Bonus dividend:** Share dividend is paid out in the form of additional shares to the equity shareholders instead of paying cash dividend is called share dividend /Stock dividend/Bonus dividend.

C) **Regularity (Time):** Stock dividend/Bonus dividend:

i) **Interim Dividend:** A dividend which is declared by Directors in between two Annual General Meetings of a company is called interim dividend.

ii) **Annual Dividend:** It is known as final dividend and is declared after finalization of accounts.

#### **DIVIDEND POLICY:**

The term 'dividend policy' implies the policy associated with determination of the proportion of earnings that should be distributed to the shareholders as dividend. This policy, is, therefore, concerned with the proper allocation of earnings of the company between dividends and retained earnings.

#### **DETERMINANTS OF DIVIDEND POLICY:**

A number of factors to be considered for designing dividend policy. These are as follows:

i) **Fund needs of the company:** An important factor influencing its dividend policy of a company is its requirements of funds in near future.

ii) **Liquidity:** The liquidity of a company is a prime consideration in many dividend decisions. as dividends entail a cash outflow, the greater the liquidity of a company, the greater is its dividend paying capability.

iii) **Ability to raise external finances:** If a company has the ability to raise external finances, it may be relatively flexible. The greater the degree of flexibility, the greater is the ability to pay its cash dividend.

iv) **Shareholder preference:** If most of the preference shareholders prefer capital gain to current dividend the company can establish a conservative dividend policy. Otherwise, the company adopts liberal dividend policy if shareholders preference is reverse.

v) **Difference between cost of external equity and cost of retained earnings:** When cost of external equity is higher than that of retained earnings, the company may have a tendency to rely more on retained earnings.

vi) **Control:** In some cases the existing shareholders are more interested in retaining control over the company. Internal financing by way of retained earnings leads to no dilution of control.

vi) **Taxation:** When the tax rate on capital gain is lower than that of regular dividend income, shareholders may prefer capital gains to dividend income. In this case, the company should prefer a conservative dividend policy.

### PRACTICAL CONSIDERATIONS

A number of questions to be answered by the company while designing a long-term dividend policy. These are as follows:

- i) What are the preferences of the shareholders? Do they want dividend income or capital gains?
- ii) How much should be paid as dividends? What are the constraints on paying dividends?
- iii) What are the financial needs of the company?
- iv) Should the company follow a stable dividend policy?
- v) What should be the form of dividends?

It is not easy to answer these questions. A number of factors to be evaluated to analyze each of the questions to evolve a long-term dividend policy of the firm.

Among these questions the most important factor is stability of dividend. It refers the steadiness or variability of the stream of dividend declared by the firm over years. Generally, the coefficient of variability of stream of dividends is considered in order to measure the stability of dividends. It can be expressed as

$$C.V = \frac{\delta_d}{\mu_d}$$

Where 
$$\delta_d = \sqrt{\frac{(d_t - \mu_d)^2}{n}}$$

$$\mu_d = \frac{\sum d_t}{n}$$

$d_t$  = dividend payments in period t

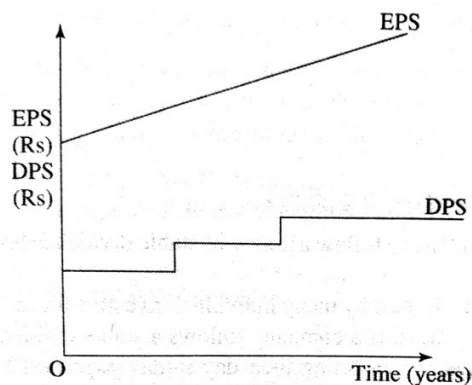
$\delta_d$  ,  $\mu_d$  are the Standard deviation and Mean of stream of dividends respectively.

Smaller the Coefficient of Variation (C.V), higher is the stability of dividend. Stability of dividend can be expressed in three different ways;

- i) Constant dividend per share or fixed dividend rate;
- ii) Constant dividend payout;
- iii) Constant dividend per share plus extra dividend (Premium)

**i) Constant dividend per share or fixed dividend rate;**

As per this form, a company follows the policy of paying a fixed amount per share every year as dividend irrespective of fluctuation of earnings. This policy does not imply that dividend per share will never be increased. When the earnings of the company increase quite significantly, the dividend per share or dividend rate generally goes up. Under this policy, the relationship between EPS and DPS is graphically shown below:

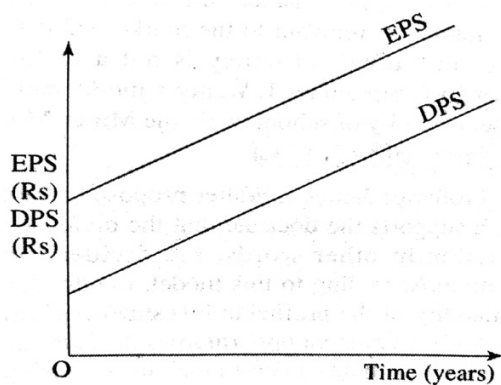


**Constant dividend policy per share**

In this figure, horizontal axis represents time and the vertical axis represents EPS and DPS. This figure shows constant dividend per share policy. It reveals that EPS increases at a constant rate with the passage of time which results in an upward rising straight line. However DPS remains constant up to a certain period. Then it increases up to a particular point of time and after that again it remains constant up to a particular point of time. Thus DPS follows a step- movement with the passage of time. This policy can easily be adopted by a company when its levels of earnings are stable. However, if the level of earnings of a company fluctuates widely, the company can follow this policy by maintaining 'dividend equalization reserves' in surplus years.

### ii) Constant dividend - payout;

If a company follows this policy, it pays a fixed percentage of earnings a dividend every year to the shareholders. If a company follows a 40% payout ratio, then 40% of each rupee earnings will be paid out as dividend. Under this policy no dividend is paid in the year when the company suffers a loss. Under this policy, the relationship between EPS and DPS is graphically shown below:



Constant dividend payout policy

In this figure, horizontal axis represents time and the vertical axis represents EPS and DPS. In this figure, it reveals that both EPS and DPS increase at constant rate with the passage of time. In other words, the rate of increase in DPS and that in EPS are the same. If this policy is adopted by a company, its liquidity will not be hampered because as this policy dividends are paid out only when the company earns profit. That is no earnings, no dividends.

### iii) Constant dividend per share plus extra dividend (Premium)

Under this policy, a company pays a minimum dividend per share to the shareholders and in the years of prosperity an extra dividend per share is paid over and above the minimum dividend per share. This policy enables a company to reduce the possibility of failing to meet its dividend obligation.

## DIVIDEND THEORIES

There is no unique dividend policy is prescribed by the academicians and on this issue they are divided into two schools of thought. One school of thought considers the extent of earnings distributed as dividend among equity shareholders as relevant to the market value of the equity shares. The other school of thought argues that dividend policy is not a factor influencing the market value of the equity shares. In the former category there two models proposed by Prof. James E. Walter and Myron Gordon. In the latter category Miller and Modigliani advocates their model.

## WALTER'S MODEL

Prof. James Walter advocated this model in 1963. According to this model dividend policy of a firm influences its equity share valuation. If the firm has adequate number of profitable investment opportunities the firm should not pay any cash dividend. On the other hand, if the firm has no profitable investment opportunity, all earnings should be paid out as dividends to its shareholders.

This model is based on the following assumptions:

- i) The firm finances all investments through retained earnings. No debt or new equity share is issued by the company.
- ii) The firm's IRR( $r$ ) remains constant.
- iii) The cost of capital of the firm ( $k$ ) remains constant.
- iv) As IRR( $r$ ) and  $k$  are constant, the business risk associated with the firm remains unchanged.
- v) All earnings are either distributed as dividend or reinvested internally immediately.
- vi) Initial EPS (Earning per share) and DPS (Dividend per share) never change.
- vii) The firm has infinite life.

For valuation of equity share his model is based on the following formula:

$$P = \frac{D}{k - g}$$

Where  $P$ = Price per equity share;  $D$ = Dividend per share;  $k$ = Cost of capital; and  $g$ = Expected growth rate of earnings.

Again,  $g=r.b$  Where  $r$ = Internal rate of return (IRR);  $b$ = Retention Ratio (RR)

$$RR = \frac{E - D}{E}$$

$$b = 1 - \frac{DPS}{EPS}$$

RR=Extent of profit not distributed to shareholders and retained for future needs.

As

$$P = \frac{D}{k - g}$$

$$\text{or, } k - g = \frac{D}{P}$$

$$\text{or, } k = g + \frac{D}{P}$$

$$\text{or, } k = \frac{\Delta P}{P} + \frac{D}{P}$$

$$\text{As } g = \frac{\Delta P}{P}$$

$$\Delta P = g.P = b.r.P$$

$$\Delta P = P \left( \frac{E - D}{E} \right) r$$

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

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

$$= \frac{r}{k} (E - D)$$

$$\text{As, } k = \frac{\Delta P}{P} + \frac{D}{P}$$

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

$$= \frac{1}{P} \left[ D + \frac{r(E - D)}{k} \right]$$

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

Let us consider an illustration for showing effects of different dividend policies on valuation of equity shares for the growth firm, normal firm and declining firm.

| Growth firm ( $r > k$ )<br>$r=35\%, k=30\%, E=Rs. 8$                                   | Normal firm ( $r=k$ )<br>$r=30\%, k=30\%, E=Rs. 8$                                  | Declining firm ( $r < k$ )<br>$r=25\%, k=30\%, E=Rs. 8$                            |
|--|---|--|
| If $D=Rs. 8$<br>$P = \frac{Rs.8 + Rs.0 \times 0.35 / 0.30}{0.30}$<br>$= Rs.26.67$      | If $D=Rs. 8$<br>$P = \frac{Rs.8 + Rs.0 \times 0.35 / 0.30}{0.30}$<br>$= Rs.26.67$   | If $D=Rs. 8$<br>$P = \frac{Rs.8 + Rs.0 \times 0.35 / 0.30}{0.30}$<br>$= Rs.26.67$  |
| If $D=Rs. 4$<br>$P = \frac{Rs.4 + Rs.(8-4) \times 0.35 / 0.30}{0.30}$<br>$= Rs. 28.89$ | If $D=Rs. 4$<br>$P = \frac{Rs.4 + (8-4) \times 0.30 / 0.30}{0.30}$<br>$= Rs. 26.67$ | If $D=Rs. 4$<br>$P = \frac{Rs.4 + (8-4) \times 0.25 / 0.30}{0.30}$<br>$= Rs.24.44$ |
| If $D=Rs. 0$<br>$P = \frac{Rs.0 + (8-0) \times 0.35 / 0.30}{0.30}$<br>$= Rs.31.11$     | If $D=Rs. 0$<br>$P = \frac{Rs.0 + (8-0) \times 0.30 / 0.30}{0.30}$<br>$= Rs. 26.67$ | If $D=Rs. 0$<br>$P = \frac{Rs.0 + (8-0) \times 0.25 / 0.30}{0.30}$<br>$= Rs.22.22$ |

The result obtained from the illustration can be generalized as follow:

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

The basic valuation equation of Walter' model can be written as

$$= \frac{D}{k} + \frac{r(E-D)}{k^2}$$

$$\frac{\partial P}{\partial D} = \frac{1}{k} - \frac{r}{k^2} = \frac{k-r}{k^2},$$



$$\text{If, } k = r, \frac{\delta P}{\delta D} = 0$$

It implies that as d increases or decreases P remains the same.

$$\text{If, } k > r, \frac{\delta P}{\delta D} > 0$$

It implies that as d increases, P also increases and vice versa.

$$\text{If, } k < r, \frac{\delta P}{\delta D} < 0$$

It implies that as D increases, P decreases and vice versa. That is there is an inverse relationship between D and P.

### GORDON'S MODEL

Myron Gordon developed this model in 1962. It states that the value of the firm or value of the equity shares is influenced by the dividend policy adopted by it. This model can be used to determine how much earnings should be retained or paid out and also measure its subsequent effect on the value of the firm. This model is based on the following assumptions:

- i) The firm is equity based, that is it has no debt capital.
- ii) Retained earnings are only source of capital.
- iii) The Internal rate of Return (IRR) remains constant.
- iv) The dividend is growing at a constant rate g, where  $g = b \cdot r$ ;

b = Retention ratio

$$b = \left( 1 - \frac{DPS}{EPS} \right) \times 100$$

- v) Cost of capital is constant and it is greater than growth rate (g);  $k > g$  that is  $k > b \cdot r$
- vi) The Retention Ratio once decided upon is constant. Thus, growth rate ( $g = b \cdot r$ ) is constant forever.
- vii) The firm has perpetual life.
- viii) There is no corporate tax.

According to Gordon, the market value of each equity share is equal to present value of its expected stream of dividends. Symbolically this can be written as:

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

Where  $P_0$  = Initial price per equity share at  $t=0$ ;

$E_1$  = Earnings per share (EPS) during  $t=1$ ;

$b$  = retention Ratio

$k$  = cost of capital

$g = b.r$

This formula can be derived as follows:

$$P_0 = \frac{D_1}{(1+k)^1} + \frac{D_2}{(1+k)^2} + \frac{D_3}{(1+k)^3} + \dots + \frac{D_\alpha}{(1+k)^\alpha}$$

$$= \sum_{t=1}^{\alpha} \frac{D_t}{(1+k)^t}$$

As the dividend per share grows at a constant rate  $g$ ,

We write,

$$D_1 = D_0(1+g)^1;$$

$$D_2 = D_0(1+g)^2$$

$$D_3 = D_0(1+g)^3$$

And so on.

Putting the value of

$$D_1, D_2, D_3 \dots$$

In the above equation, we have

$$P_0 = \frac{D_0(1+g)^1}{(1+k)^1} + \frac{D_0(1+g)^2}{(1+k)^2} + \frac{D_0(1+g)^3}{(1+k)^3} + \dots + \frac{D_0(1+g)^\alpha}{(1+k)^\alpha}$$

$$= \sum_{t=1}^{\alpha} \frac{D_0(1+g)^t}{(1+k)^t}$$

$$= \frac{D_0(1+g)}{(1+k)} \sum_{t=1}^{\alpha} \frac{D_0(1+g)^{t-1}}{(1+k)^{t-1}}$$

$$= \frac{D_0(1+g)}{(1+k)} \lim_{n \rightarrow \infty} \left[ \frac{1 - \left(\frac{1+g}{1+k}\right)^n}{1 - \left(\frac{1+g}{1+k}\right)} \right]$$

$$\left[ K > g; 0 < \frac{(1+g)}{(1+k)} < 1; \text{As } n \rightarrow \infty; \left(\frac{1+g}{1+k}\right)^n \rightarrow 0 \right]$$

Thus,

$$P_0 = \frac{D_1}{(1+k)} \left[ \frac{1}{1 - \left(\frac{1+g}{1+k}\right)} \right]$$

$$= \frac{D_1}{(1+k)} \times \frac{(1+k)}{1+k-1-g}$$

$$= \frac{D_1}{k-g}$$

$$= \frac{E_1(1-b)}{k-g}$$

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

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

This can be illustrated for normal, growth and declining firm in the following table:

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

| Growth firm ( $r > k$ )   | Normal firm ( $r = k$ )  | Declining firm ( $r < k$ )  |
|---|--|---|
| $r = 30\%$ ; $k = 20\%$ ; $E = \text{Rs. } 10$                                    | $R = 20\%$ ; $k = 20\%$ ; $E = \text{Rs. } 10$                                   | $R = 10\%$ ; $k = 20\%$ ; $E = \text{Rs. } 10$                                      |
| If $b = 0.40$<br>$P = \frac{10(1-0.40)}{0.20-0.40 \times 0.30} = \text{Rs. } 75$  | If $b = 0.40$<br>$P = \frac{10(1-0.40)}{0.20-0.40 \times 0.20} = \text{Rs. } 50$ | If $b = 0.40$<br>$P = \frac{10(1-0.40)}{0.20-0.40 \times 0.10} = \text{Rs. } 37.50$ |
| If $b = 0.60$<br>$P = \frac{10(1-0.60)}{0.20-0.60 \times 0.30} = \text{Rs. } 150$ | If $b = 0.60$<br>$P = \frac{10(1-0.60)}{0.20-0.60 \times 0.20} = \text{Rs. } 50$ | If $b = 0.60$<br>$P = \frac{10(1-0.60)}{0.20-0.60 \times 0.10} = \text{Rs. } 28.57$ |

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

$$\frac{\delta_p}{\delta_b} = \frac{E(r-k)}{(k-b)^2}$$

$$\text{If } r = k, \frac{\delta_p}{\delta_b} = 0$$

That is, if  $b$  increases or decreases value of  $P$  remains unchanged.

$$\text{If } r > k, \frac{\delta_p}{\delta_b} > 0$$

That is, if  $b$  increases  $P$  increases and vice versa (Direct relationship).

$$\text{If } r < k, \frac{\delta_p}{\delta_b} < 0$$

That is, if  $b$  increases  $P$  decreases and vice versa (Inverse relationship).

**Conclusion:** Optimal Dividend Pay Out Ratio:

**I) For Normal firm-- Irrelevant; II) For Growth firm--Nil ; and**

**iii) For Declining firm --100%**

### **MILLER-MODIGLIANI THEORY**

Merton H. Miller and Franco Modigliani (M-M) proposed their theory in 1961. In this model they argued that dividend policy adopted by the firm is irrelevant to the valuation of equity share. Thus, this theory is popularly known as 'dividend Irrelevance' theory. This theory is based on the following assumptions:

- I) The capital markets are perfect. It implies that:
  - a) Free and ready access to all relevant information to all the participants in the market.
  - b) Non-existence of all transaction costs.
  - c) Inability on the part of an individual participant investor to influence the existing market price by his own individual transaction.
  - d) Non-existence of tax-differential between dividend and retained earnings (capital gains).
- II) All investors behave rationally and like to maximize his wealth.
- III) The firm has a fixed investment policy.
- IV) Risk or uncertainty does not exist.

According to M-M theory, the firm has two alternatives:

- a) It can retain its earnings for financing investment, or
- b) It may pay out its earnings to the shareholders as dividend and raise an equal amount by new issue for the financing investment programme.

To prove their argument M-M start with the simple valuation model:

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

Where,  $P_0$  = Market price per share at time  $t=0$

$P_1$  = Market price per share at time  $t=1$

$D_1$  = Dividend per share at time  $t=1$  and  $k$  = cost of capital

As per M-M assumption risk or uncertainty does not exist. Thus, investor can forecast future prices and dividends with certainty and the rate of return ( $r$ ) will be equal to cost of capital ( $k$ ) i.e.  $r=k$ .

The rate of return of one share is expressed as:

$r = (\text{Dividend} + \text{capital gain/loss}) / \text{share price}$

$$r = \frac{D_1 + (P_1 - P_0)}{P_0}$$

$$= \frac{D_1 + P_1 - P_0}{P_0}$$

$$= \frac{D_1 + P_1}{P_0} - \frac{P_0}{P_0}$$

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

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

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

As no external financing is used the value of the firm ( $V$ ) will be equal to the outstanding equity share of the firm at time zero (0). It represents the product of market price per share and the number of equity share.

Mathematically it can be written as  $V = n \cdot P_0$

$$V = \frac{n(D_1 + P_1)}{(1+k)}$$

If  $m$  number of equity shares issued at time  $t_1$  at price  $P_1$  to finance the investment programme, then,

$$\begin{aligned} V = n \cdot p_0 &= \frac{n(D_1 + P) + mP_1 - mP_1}{(1+k)} \\ &= \frac{nD_1 + (n+m)P_1 - mP_1}{(1+k)} \end{aligned}$$

Again we write,

$$mP_1 = I - (E - nD_1)$$

$I$  = Total requirement of fund at time  $t_1$ ,  $E$  = net earnings at  $t_1$

From the above equation 1 we write,

$$\begin{aligned} V &= \frac{nD_1 + (n+m)P_1 - I + E - nD_1}{(1+k)} \\ &= \frac{(n+m)P_1 - I + E}{1+k} \end{aligned}$$

As  $D_1$  is not found in the above equation and  $I$ ,  $E$ ,  $k$  and  $(n+m) \cdot P_1$  are independent of  $D_1$ , M-M reach the conclusion that "Dividend Policy" is irrelevant of the value of the firm.

#### LIMITATIONS:

This theory has several limitations. Some of these are as follows:

- i) Assumption of perfect capital market is quite unrealistic.
- ii) Assumption of non-existence of transaction cost is also unreal in national or global situation.

iii) Assumption of non-existence of tax-differential is not correct Individual investor may have choice of dividend and capital gain depending on the tax structure of the country.

iv) In case of uncertainty, validity of this approach faces some questions. Dividend policy resolves the uncertainty in the minds of the investors and that is why they prefer dividends to capital gain.

v) M-M assumed that investment policy is fixed. But it is rational to invest up to the point where IRR is equal to cost of capital. But in the real world situation, the firm's investment policy may be subject to certain constraints, self imposed or market imposed.

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