

## Dividend Policy and Firm Valuation

### 5.1. DIVIDEND POLICY

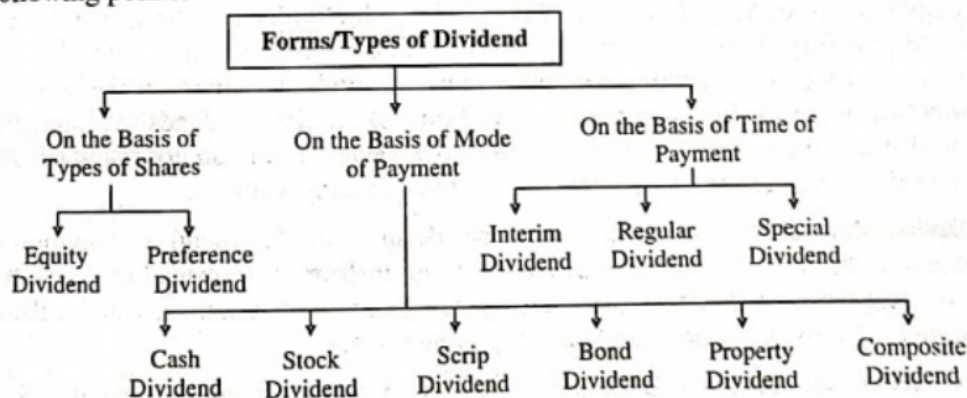
#### 5.1.1. Meaning and Definition of Dividend

The term dividend denotes that part of company's balance of profit (after the execution of its 'Retained Earning'), which is available for equal distribution amongst the shareholders (investors) of the company. Dividends are a form of incentive to the shareholders for having invested in the company's shares. This is the return out of the profit made by a company during a year, for its shareholders (beneficiaries).

According to the Institute of Chartered Accountant of India, "A dividend is a distribution to shareholders out of profits or reserves available for this purpose".

#### 5.1.2. Forms/Types of Dividend

Dividends may be classified into different categories on the basis of various parameters, e.g. 'Profit Dividends' are the dividends paid out of the profit in the normal conduct of business, and 'Liquidation Dividends' are those which are paid out of the capital of a company. Other categories of dividends and the underlying parameters are described in the following points:



##### i) On the Basis of Types of Shares

i) **Equity Dividend:** Dividends distributed to the equity shareholders of a company are known as equity dividends. Their quantum and timing is decided on the recommendation of Board of Directors. Rate of equity dividends are not fixed (unlike in the case of dividends on preference shares, which are fixed) and depends upon the profit earned by the company during a particular year and the company's need of funds in future.

ii) **Preference Dividend:** Preference Dividends, as the nomenclature indicates, are the dividends distributed amongst the preference shareholders. The rate of preference dividend is fixed (pre-decided) and does not depend upon the profits earned by a company during a particular year. However, the decision with regard to the distribution of preference dividends is taken on the basis of the recommendation of the Board of Directors.

If the Board of Directors believes it to be fit, they recommend a higher rate on preference dividends; although, they do not have the power to reduce the pre-decided rate of interest on preference dividends. Dividend payment to preference shareholders gets primacy over the dividend payment to equity shareholders; in fact dividend payment on equity shares is considered only after the payment of dividends on preference shares.



## 2) On the Basis of Modes of Payment

- i) **Cash Dividend:** The decision regarding declaration of dividends is taken in a Board Meeting, wherein the voting and consideration on the subject takes place amongst the Board of Directors (BoD). After the declaration, the payment is not immediate, as the process of transfer of stock between the holders takes time and an up-to-date list of stockholders is required for the purpose. This is precisely the reason the dates for following activities are fixed in advance:
- a) Date of the meeting of Board of Directors for the declaration of dividend.
  - b) Date of the closure of record for shareholder's register.
  - c) Date of the payment on which cheques are mailed to the shareholders.

Thus, during the Annual General Meeting, the recommendation of BoD is approved by the shareholders and the process of "declaration of cash dividends" is finished. A declared cash dividend is part of shareholder's equity (and not a liability of the company), as decision in the matter may be reversed.

On Treasury Stocks, no cash payments are made.

- ii) **Bonus Share/Stock Dividend:** Sometimes, when the profits made by a company are substantial, it may decide to retain a part thereof by capitalising and retaining it in the business perpetually by issuing stock dividends (additional or bonus stocks/shares *in lieu* of cash) to the existing stockholders. Under this process, assets distribution is not involved and each shareholder's interest in the company remains unchanged. The total shareholder's equity also remains unaffected. Stock dividend is beneficial for a company as it has a positive effect on its 'Liquidity Management', due to absence of cash-outflow. Shareholders also stand to gain, as there is an increase in the number of shares in proportion to the shares held by them without any payment.
- iii) **Scrip Dividend:** In a situation, where in a company is:
- a) Suffering from a temporary liquidity crunch, and
  - b) Has an adequate level of retained earnings.

It may decide to issue 'Scrip Dividends' *in lieu* of 'Cash Dividends'. 'Scrip Dividends' may be issued either as 'Promissory Notes' (which may be discounted before its 'due date') or 'Ordinary Shares'. Issue of 'Scrip Dividends' may result in increase in the number of shares of the company, but there will be no increase in the value of the company. Issue of 'Scrip dividends' is, sometimes, opted by a company due to temporary liquidity problems. However, investors do not favour this type of dividend, as it may lead to reduction in the market value of the company's shares.

- iv) **Bond Dividends:** 'Bond Dividends' may be defined as 'dividend distribution that is paid to shareholders in the form of a bond or debenture (debt instruments) instead of cash'. It has fixed rate of interest for long duration. Issue of 'Bond Dividends' is opted by a company under the same situation as that of issue of 'Scrip Dividends', and have the same impact.
- v) **Property Dividend:** 'Property Dividend' is an alternative to 'Cash Dividend', 'Scrip Dividend' or 'Bond Dividend'. It is rather an uncommon payout structure, in which there is transfer of non-monetary asset between a company and its shareholders on a non-reciprocal basis. The non-monetary asset may be in the form of:
- a) Inventory of the company,
  - b) Shares of a subsidiary company, and
  - c) Real estate (land or building), etc.

The dividend is recorded at the market/fair value of the asset provided. This mode of payout is employed by a company, when it does not want to dilute its existing share position or when it suffers from liquidity problems.

- vi) **Composite Dividend:** When dividend payment involves two or more types mentioned in the foregoing paragraphs, it is known as 'Composite Dividend'. For example, a company may decide to distribute dividend partly in the form of cash and partly in other forms, i.e., scrip, bond or property.

## 3) On the Basis of Time of Payment

- i) **Interim Dividend:** Dividend is normally declared in the Annual General Meeting (AGM) of a company after the finalisation of the balance sheet at the end of a financial year. However, at times the dividend is declared and paid before the finalisation of the balance sheet or before AGM of a company. Such dividend is



rightly termed as 'Interim Dividend' and is paid when the Management/Board of the company has reasons to believe that the company has already earned enough profits and at the year end the level of profit would be maintained or increased. At times the projections of a company's profitability may prove to be wrong; as such the Management needs to be extra cautious in declaring the interim dividend.

Interim Dividend is declared by the Board and paid before the approval of Annual General Meeting of a company. Subsequently, when the AGM takes place and final dividend is declared in the normal course, the amount of Interim Dividend, already paid, is adjusted and approval of 'Interim Dividend' is also granted spontaneously. Interim Dividend is something like a part of dividend paid in advance.

- ii) **Regular Dividend:** The dividend declared in the Annual General Meeting, in the normal course of business, is known as 'Regular Dividend'. Regular Dividend is declared and paid after the finalisation of a company's balance sheet every year.
- iii) **Special Dividend:** A well-founded 'Dividend Policy' needs to be framed with a provision to ensure that frequency in change of the dividend rate is kept at the minimum from year to year and the level of profitability is not same every year. Even during a year of huge profit, the company may consider declaring a 'Special Dividend' instead of declaring an extraordinary rate of dividend for that particular year.

This would check the expectation of shareholders to get a high rate of dividend during the subsequent years. Declaration of 'Special Dividend' by a company express to its shareholders that this is a 'One-Time' affair and may not necessarily be repeated during succeeding years.

### 5.1.3. Meaning and Definition of Dividend Policy

The vision of a company regarding the part (amount) of profit (remaining after the retained earnings are kept aside) to be declared as dividend, is referred to as its 'Dividend Policy'. Dividend Policy of a company is developed and implemented through its 'Board of Directors'. It defines the pattern of dividend declarations to be followed in the long-term.

According to Weston and Brigham, "Dividend policy determines the division of earnings between payments to shareholders and retained earnings".

The 'Dividend Policy' of a company needs to be framed by its management in such a way that the net earnings are split into 'Retained Earnings' and 'Dividends' in an appropriate manner.

This framed policy should also meet both the objectives of:

- 1) Business growth, and
- 2) Maximisation of wealth for its shareholders.

The decision of breaking the 'Net Profit' (post-tax) into two parts, viz.:

- 1) Retaining in the business for the growth of the company, and
- 2) Distributing to shareholders as 'Dividend',

It is a crucial one, having long-term impact on the future prospects of the company. This decision is of paramount importance. It is taken, keeping in view certain parameters like:

- 1) Market value of the company's shares,
- 2) Trend of profitability,
- 3) Taxation angle, and
- 4) Use of funds in a profitable way.

The two observations associated with the dividend policy decisions are:

- 1) What percentage of 'Net Profit' needs to be distributed as dividend, and
- 2) Whether a consistent and stable growth rate of the company's dividends is required to be maintained.

### 5.1.4. Nature of Dividend Policy

The Dividend Policy of a company entails following characteristics:

- 1) **Close Relationship with Retained Earnings:** There is a close relationship between the 'Dividend Policy' of a company and its policy on 'Retained Earnings'; these are the two 'end products' of a company's 'Net Profits' in a given year.



- 2) **Impact of 'Dividend Policy' on Future Financial Decisions:** 'Dividend Policy' of a company has the capacity to impact other future financial decisions to be taken by the company. Dividend distribution to the shareholders results in the reduction of liquidity strength of a company. It may have to seek funds from other external sources to that extent, the cost of which may be more, when compared with the cost of 'Retained earnings'. At times, the management of a company decides distributing dividends, when better investment avenues are lacking.
- 3) **Impact on Shares:** 'Dividend Policy' of a company is of extreme significance as it has wide-ranging effects; it directly impacts:
  - i) Market price of the shares,
  - ii) Liquidity position,
  - iii) Financing decisions,
  - iv) Growth rate of the business,
  - v) Maximisation of shareholder's wealth, etc.

From the shareholder's perspective, current dividends get precedence over future dividends or capital gains due to lack of maturity and instability in the market. The effect of current rate of dividend on the share price is visible in the market immediately in the form of increase or decrease in the share price (high rate of dividends leads to the increase, whereas low rate of dividends leads to decrease). Better share price and a high rate of dividend results in the 'maximisation of shareholders' wealth.

- 4) **Optimal Dividend Policy:** Keeping in view the consequences of 'Dividend Policy' of a company, it is very crucial for a company to develop an appropriate 'Dividend Policy' in a rational manner taking into consideration all the necessary inputs and ensuring that fluctuation in dividend payment is kept at the minimum over a long period of time. Maximisation of shareholder's wealth needs to be the prime objective.

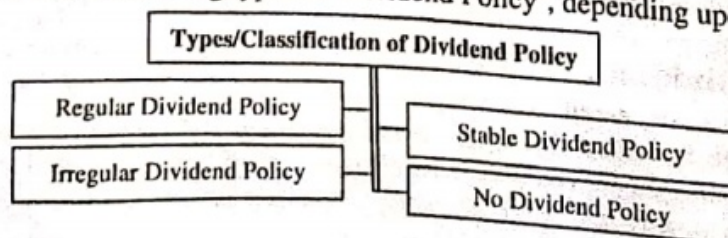
### 5.1.5. Essentials of Sound Dividend Policy

Dividend policy decisions are strategic and long-term in nature. Their purpose is to achieve shareholder's wealth maximisation. Various factors such as investors' preference and financial condition of the firm are used for making these decisions. Dividend may be disbursed in cash. Stock dividends are paid when the company has excess reserves. Following are the main characteristics of a good dividend policy:

- 1) **Distribution of Dividend in Cash:** Cash dividends are considered superior to dividends payable through bonds, scrip or assets. Indian Companies Act forbids the payment of dividend other than in cash. The only exception is made in the case of bonus shares.
- 2) **Initial Lower Dividend:** During the early stage of business, it is advisable to declare low dividend so as to retain larger portion of profits for the purpose of internal financing. This helps in providing a cheaper source of finance for expansion and development of the business and also makes the foundation of the company financially sound.
- 3) **Gradual Increase in Dividend:** The company may see an increase in its income with growth in the business. The shareholders may want to share such increased income. In such cases, the firm should increase the dividend rate to avoid the possibility of shareholder's dissatisfaction. The firm may also choose to pay interim dividends.
- 4) **Stability:** The firm should endeavour to keep its dividend rates stable, avoiding excessive fluctuation. For maintaining stability, the firm should bring about slow and gradual change in its dividend rates. Wild fluctuation in dividend rate may increase the possibility of speculation.
- 5) **Dividend Out of Earned Profits:** Only earned profits should be used for declaring profits. Before declaring any dividend, existing losses should be written off and only remainder of the profits should be used for dividend purpose. The firm should also comply with all the related government regulations.

### 5.1.6. Types/Classification of Dividend Policy

A company may adopt one of the following types of 'Dividend Policy', depending upon the suitability:





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- 1) **Regular Dividend Policy:** A company having a steady stream of income may prefer this category of 'Dividend Policy'. It means payment of dividends on a regular basis, even if the rate of dividend is low. In other words, the focus is on the regularity of dividend payout rather than on its rate. It suits the investors, who are:
- Retired persons, and
  - Persons belonging to low income group.

#### Merits of Regular Dividend Policy

Merits of a regular dividend policy are as follows:

- As it ensures regularity of dividend payments, the confidence level of the shareholders and faith of investors is high.
  - It sends a positive signal in the market, resulting in the stabilisation of the market value of the company's shares.
  - Goodwill of the company in the market is maintained.
  - The company's shareholders are recipients of regular flow of income.
- 2) **Stable Dividend Policy:** This category of dividend policy ensures regular payment of a fixed percentage out of a company's annual income to its shareholders. It has three sub-categories:
- Constant Dividend per Share:** Under this sub-category, a 'Reserve Fund' is created to take care of payment of fixed dividends to the shareholders even during a year when the company is inadequate to generate revenue. Companies having stable annual income find this policy suitable.
  - Constant Payout Ratio:** In this sub-category, a fixed percentage of a company's annual earning is paid to the shareholders as dividend.
  - Stable Plus Extra Dividend:** Low rate of dividend per share is paid to the shareholders on a regular basis. However, in the year of higher profit plus extra dividend is paid.

#### Merits of Stable Dividend Policy

Merits of stable dividend policy are as follows:

- It facilitates building-up of confidence amongst the investors.
  - Market value of a company's shares is stabilised.
  - Goodwill of a company's shares continues to remain positive.
  - Shareholders of the company get a regular stream of income.
- 3) **Irregular Dividend Policy:** As the name itself suggests under this type of policy, a company does not pay dividends to its shareholders on a regular basis, because of certain reasons, some of which are as follows:
- Annual revenue generation by a company may be unpredictable.
  - A company may be facing liquidity crisis.
  - A company may be scared of giving regular payouts, due to certain reasons of the company.
  - The business carried out by a company may not be a success or profitable.
- 4) **No Dividend Policy:** At times, a company may like to keep its entire net profit as 'Retained Earnings' to be utilised for its business growth or for meeting its working capital needs.

### 5.1.7. Determinants/Factors Affecting Dividend Decision

The guiding factors in determination of a particular 'Dividend Policy' to be adopted by a company are as follows:

- 1) **Legal Bounding:** This is the foremost deciding factor responsible for a company adopting a specific 'Dividend Policy', which needs to be compliant with various statutory provisions, especially those contained in the Companies Act, 1956. These provisions relate to distribution and payment of dividends and include following:
  - Protection of interest of the creditors (outsiders).
  - Providing for the depreciation on the company's fixed and tangible assets.
  - Dividends are not distributed from capital funds.
  - Payment of preference dividend needs to get precedence over the payment of ordinary dividends.
- 2) **Size of the Earnings:** Earning of a business organisation is the basis for deciding the upper limit of dividends to be distributed amongst the shareholders. If the earning of a company is adequate and stable, it is capable to forecast future earnings, and the percentage of its dividends declared would be at a higher level. An optimum dividend policy should look upon the quantum and type of a company's earning over a long period of time.



- 3) **Investment Opportunities and Shareholder's Preferences:** Management of a company needs to develop a 'Dividend Policy', which must be able to maintain a balance between:
- Shareholders expectations with regard to rate of dividend, and
  - Utilisation of retained earnings for investment in available profitable avenues.

If a good number of profitable projects are on the horizon of a company, logically preference should be given to the retention of earnings over the dividend payout. However, the shareholders interest with regard to the better rate of dividend and capital gains also needs to be protected. The financial status and the tax slab of a shareholder is the determinant of his/her preference. As the rate of capital gains is lower than the rate of dividend tax, preference of a financially sound shareholder would be for capital gains as against dividends. All these aspects need to be taken into account while formulating an ideal/optimal dividend policy.

- 4) **Liquidity Position:** As dividend payout to the shareholders involves cash outflow; it is necessary at the time of formulating a 'Dividend Policy' to make a provision for the liquidity status prevailing in the company. A company facing liquidity constraint may not be able to declare dividend payout at a better rate, even if it would have earned well. Therefore, need to have cash funds/liquidity is given top position in the company and hence it may not prefer to pay cash dividend to its shareholders.
- 5) **Company Intention towards Control:** A company's preference to depend upon the 'retained earnings' for its business growth, expansion or diversification may be appreciated, if the underlying logic is properly understood. Raising funds (for the above purposes) from other source than the retained earnings like floating additional shares would result in dilution of the control over the company. Further, debenture issue would increase the chances of fluctuation in the company's earnings, which may not be considered in the favour of existing shareholders. A company's intention to continue having control over its affairs would result in a decision to reduce the rate of dividend and increase in the retained earnings.
- 6) **State of Capital Market and Access to it:** In case the liquidity position of a country's capital market is good, and a company's earnings are high, the company may consider raising funds through the capital market, rather than using its retained earnings for the same, provided the market is easily accessible for the company. The result under the above situation, company would follow a 'liberal dividend policy' (i.e., the dividend rate will be higher). However, in the absence of any of the above conditions, viz.:
- Adequate liquidity in the capital market,
  - Company's earnings being at a comfortable level, and
  - Easy access for the company to the capital market,

The company is likely to follow a 'conservative dividend policy' (i.e. the dividend rate will be lower).

- 7) **Contractual Restrictions:** When a company borrows funds from external sources, certain restrictive clauses may be imposed by the lenders. Such clauses / conditions are laid down in the loan documents by the lenders in order to protect their interests. Such restrictive clauses, sometimes, may relate to dividend distribution. These clauses need to be kept in view at the time of framing the 'dividend policy' of a company, so as to ensure that the loans are not recalled by the creditors on account of breach of any of the restrictive clauses.
- 8) **Profit Rate and Stability of Earnings:** A company's investment in high-yielding instruments would fetch huge profit for the company. Such a company would be in a position to pay better rate of dividend, when compared with a company having investment in low-yielding instruments, which in turn would result in poor profit and pay poor rate of dividend. Another factor influencing the dividend paying capability of a company relates to stability of its earning. Stable earning of a company would enable it to forecast its future earnings and thereby pay a higher rate of dividend. On the other hand, a company with unstable earnings would not be in a position to project its future earnings and thereby may be compelled to have a higher level of retained earnings, resulting in payment of lower rate of dividend.
- 9) **Inflation:** Every year due to inflation, the cost of replacing fixed assets increases and as per the accounting practice and the depreciation policy of a company, assets are depreciated year after year at the book value. The accumulated depreciation fund is supposed to meet the rising cost of replacement of such obsolete assets. However, when inflation rate is high, the depreciation fund may not be sufficient to meet the replacement cost. In such a situation, the management of a company may be compelled to reduce the rate of dividend, in order to maintain the financial health of the company.



In brief, each company needs to have its 'Dividend Policy' framed according to the conditions under which it would declare a high rate of dividend and also the conditions which would compel it to reduce the rate of dividend for its shareholders. While framing a 'dividend policy', the broad parameters should be taken into account in a judicious manner.

### 5.1.8. Importance of Dividend Policy

Importance of the 'Dividend Policy' can be summarised as following:

- 1) An optimal 'Dividend Policy' can maintain a balance between the business growth (retained earnings) and maximisation of its shareholder's wealth (dividend payment).
- 2) It is a decisive force in shaping the market value of a company.
- 3) Rate of dividend payout symbolises a company's competence to do business effectively and generate revenues. Professional analysts use the rate of dividend as a tool to assess the inherent value of shares. 'Dividend Yields' is one of the inputs to compute 'Beta (measure of the volatility) of a stock'. While computing the value of a stock also, dividends have significant role.
- 4) Decision regarding dividend payment may impact a company's external financing plans in an indirect manner. Payment of dividends at a higher rate would result in shrinking of internal funds for reinvestment through share/bond issues, bringing about changes in its capital structure as well as cost of capital.
- 5) Maintaining a balance between the objective of 'maximisation of shareholder's wealth' and the decision relating to long-term financing (distribution of dividends due to lack of better investment avenues) is one of the most important goal of 'Dividend Policy'.
- 6) Market value of the share price is impacted in a negative manner if the rate of dividend distributed by a company is low.
- 7) An adequate level of 'Retained Earnings' is necessary for a company with a view to focus on improvement in its financial health, implementation of its growth, expansion, modernisation, diversification plans, etc.

In short, 'Dividend Policy' of a company is quite significant as it is capable of influencing the financial health, fund management, liquidity status and growth of the company on one hand and 'maximisation of investor's wealth' on the other.

### 5.1.9. Constraints/Limitations of Dividend Decision

The various constraints of dividend decisions are as follows:

- 1) **Information Signalling:** The management cannot disclose any information of the company to the investors. Due to this, communication gap arises between management and shareholders and this will increase the price of stock which is less than under the conditions of information symmetry.  
In the signalling theory, the firms take actions which cannot be easily done by the firms which do not have any promising projects. Paying more dividends is one such action. The increase in dividends shows the market that the firm is in the position of earning prospects which will help to maintain the higher dividend for future. It will lead to buoying effect on stock prices and will also have the positive sign for the market.  
In the same way, decrease in the dividends shows the negative signal to the market as the firms is not able to decrease the dividends. Thus, these actions will decrease the stock prices. The practical evidence about the market reaction can be seen with the increase and decrease in the dividend which depends on the situation.
- 2) **Clientele Effect:** The investors have different types of demand. There are some which require more dividends while other wants more capital gains or the other requires the balance of both dividend income and capital gains. As the time passes the investors invest in the firm which offer the dividend policy as per their requirements. The clientele effect refers to the preference of the investors of the company according to the demand. The presence of a clientele effects suggest that:
  - i) Firm will get investors according to their demand; and
  - ii) The firm cannot change its regular dividend policy.
- 3) **Cost of Capital:** This helps to decide whether the distribution of capital is to be done or not. The Board will estimate the profits which the firm assumes to acquire ( $R_a$ ) to the rupee profits that the shareholders will assume to earn outside ( $R_c$ ), i.e.,  $R_a/R_c$ . The firm will distribute the dividend if the ratio is less than one and the firm will distribute dividend if the dividend is more.



- 4) **Objectives Realisation:** The dividend policy formulated by the firm should follow the objective of the firm of shareholder's wealth maximisation which consists of current rate of dividend. It is also consider for the formulation of dividend.
- 5) **Shareholders' Members:** These members are also get affected by the dividend policy. The company with low pay-out with heavy re-investment attracts more shareholders involved in capital gains instead of current income. The investors who prefer current income invest in the company with high dividend pay-out. The working of shareholder groups acts as the major issue for the manager for framing dividend policy.
- 6) **Usage of Corporate Earnings:** The funds which are not used are distributed in the form of dividend distribution. The dividend policy influences the shareholder's wealth by changing the dividend pay-out ratio. The financial manager takes the decision to give the corporate earnings or not for declaring the dividend policy.

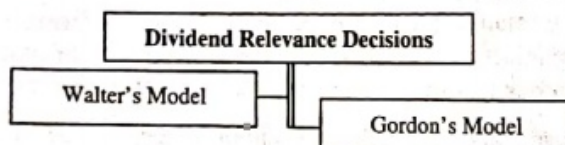
The given issues are the part of dividend policy formulation. These affect the financial structure, the flow of funds liquidity, stock prices and the shareholders' satisfaction. Hence, the management requires implementing the high degree discriminative decisions in the formulation of sound dividend pattern.

## 5.2. DIVIDEND MODEL AND FIRM VALUATION

Maximisation of a company's value is closely linked (in direct proportion) to maximisation of its shareholder's wealth. The opinions regarding effect of dividend decision of a company on its valuation differ, and at times contradictory, from one expert to another. Supporters of 'one school of thought' are of the view that a company's dividend decision is relevant and influences to a great extent, the shareholder's wealth and therefore, the valuation of the company (relevance theory of dividends). However, the supporters of 'another school of thought' hold the opinion that company dividend decision is irrelevant, when a company's shareholder's wealth remains unaffected by its dividend decision (irrelevance theory of dividends). The theory of relevance is supported by **Prof. Walter** and **Prof. Gordon** and the theory of irrelevance is propounded by **Modigliani** and **Miller**. Both these theories are discussed in detail in the following points.

### 5.2.1. Dividend Relevance Decisions

There are two models of the dividend relevance decisions:



### 5.2.2. Walter's Model

**Professor Walter** (1963) proposed a model which maintains that the 'Dividend Policy' of a company is relevant and applicable in ascertaining its net-worth. According to this model, the dividends received by the shareholders of a company are reinvested by them onwards to have higher rate of returns. From the company's perspective, the cost of dividends paid to the shareholders is considered as 'Opportunity Cost' or the 'Cost of Capital' ( $K_e$ ) of the company. Had the dividends been not paid to the shareholders, it (dividend amount) could have been used as capital by the company. The choice of appropriate dividend policy affected the value of the firm.

In another scenario, a company decides not to pay dividends to its shareholders, and instead invests the amount of dividends in some remunerative avenues to earn better rate of returns ( $r$ ). The value of ' $r$ ' has to be necessarily more than or atleast equal to ' $K_e$ ', only then the returns earned by the company by investing elsewhere would be considered profitable as compared with the situation where the dividends were paid.

The relationship between ' $r$ ' and ' $K_e$ ' is very significant as it forms the basis on which the dividend policy of a company needs to be formulated. According to the Walter's model, if  $r < K_e$ , then the company may decide in favour of distributing the profits in the form of dividends to the shareholders. On the other hand if  $r > K_e$ , then the investment opportunities would yield better earnings for the company and thus, the company may decide investing the retained earnings, instead of paying dividends to its shareholders.



### Assumptions of Walter's Model

3.2.1. Certain presumptions which form the basis of Walter's model, are mentioned as below:

- 1) **Internal Financing:** Investment is made by the company out of the retained earnings exclusively, issue of fresh equity or debt instruments are not involved.
- 2) **Constant Return and Cost of Capital:** The rate of return on the investment is made by the company ( $r$ ) and the cost of capital ( $K_e$ ) remains unchanged.
- 3) **Cent Per cent Payout or Retention:** The entire earning is either used for distribution of dividends amongst the shareholders or reinvested internally in a prompt manner.
- 4) **Constant EPS and DPS:** Under the Walter's Model, the value of Earning Per Share (EPS) and Dividend Per Share (DPS) may be changed in order to establish results, but there is a presumption that the value of EPS or DPS would remain unchanged. However, the initial earnings and dividends do not undergo any change.
- 5) **Infinite Time:** The life of the company is very long or infinite.

### Walter's Formula for Determining the Value of a Share

3.2.2. For arriving at the market price of a share, Prof. Walter had evolved the following formula:

$$\text{Market price per share (P)} = \frac{D + r(E - D) / K_e}{K_e} \quad \text{or} \quad P = \frac{D}{K_e} + \frac{r(E - D) / K_e}{K_e}$$

Where, P = Market price per share;  
D = Dividend per share;  
r = Internal rate of return  
E = Earnings per share; and  
 $K_e$  = Cost of equity capital

Based on the relationship between Internal Rate ( $r$ ) and Cost of Capital ( $K_e$ ), the companies may be of following three types:

- 1) Growth-Oriented Companies (having ' $r > K_e$ ')  
2) Normal Companies (having ' $r = K_e$ '), and  
3) Decline-Oriented Companies (having ' $r < K_e$ ')  
The three types of companies given above are described as follows:

- 1) **Growth-Oriented Companies:** Such companies have 'Internal Rate' more than the 'Opportunity Cost of Capital' ( $r > K_e$ ). These companies tend to grow fast, as they are able to grab better investment opportunities, which provide them more yields than the 'Opportunity Cost or Cost of capital'. Their net-worth in terms of 'Market Value per Share' may be maximised if they have a policy of diverting the entire 'retained earnings' to internal investment without bothering for dividend payout to its shareholders. This means, for a 'Growth Oriented Company' the optimum payout ratio would be zero. In the above formula, an increase in 'P' (Market price per share) would be followed by a decrease in pay-out ratio.
- 2) **Normal Companies:** Such companies have 'Internal Rate' equal to the 'Opportunity Cost of Capital' ( $r = K_e$ ). Their growth is neither too fast nor too slow, as they have limited ability to explore better investment opportunities (having yielded more than the 'Opportunity Cost or Cost of Capital'). In Walter's Model, for such normal companies with ' $r = K_e$ ', the dividend policy has no impact on the 'Market Value per Share'. Therefore, the concept of 'Optimum Payout Ratio' is also lacking under this category of companies. The dividend policy of a normal company is in no way different from the other.
- 3) **Decline-Oriented Companies:** Such companies have 'Internal Rate' less than the 'Opportunity Cost or Cost of Capital' ( $r < K_e$ ). They tend to grow rather in a slow manner, as they do not get a chance to invest in lucrative options for their retained earnings. Their net-worth in terms of 'Market Value per Share' may be maximised if the 'retained earning' is kept at zero or in other words, the entire net profit is distributed amongst the shareholders as dividend. The 'Optimum Payout Ratio' of such companies is 100%.

In brief, following strategy needs to be adopted under the given situation:

- 1) Entire earnings to be retained and invested in high-yielding instruments, when  $r > K_e$ , and  
2) Entire earnings to be distributed as dividend amongst the shareholders, when  $r < K_e$ .



**Example 1:** The following information relate to ABC, Ltd. earning per share ₹9; internal rate of return 18%, cost of capital 12%, payout ratio 33.33%. Calculate the market price under the Walter's model.

**Solution:** According to Walter's Model,

$$\text{Market price per share (P)} = \frac{D + r(E - D) / K_e}{K_e}$$

Where,

Internal rate of return (r) = 18%

Earnings per share (E) = ₹9

Cost of equity capital ( $K_e$ ) = 12%

Dividend Payout Ratio (D/P Ratio) = 33.33%

Dividend per share (D) = ₹3

So,  $D = E \times \text{D/P Ratio} = ₹9 \times 33.33\% = ₹3$

$$\text{Market price per share (P)} = \frac{3 + .18(9 - 3) / .12}{.12} = ₹100$$

Thus, Market price per share under Walter's Model is ₹100.

**Example 2:** Given the following information about ZED Ltd., show the effect of the dividend policy on the market price of its shares, using the Walter's model:

Equity capitalisation rate ( $K_e$ ) = 12%

Earnings per share (E) = ₹8

Assumed return on investments (r) are as follows:

1)  $r = 15\%$

2)  $r = 10\%$

**Solution:** To show the effect of the different dividend policies on the share value of the firm for the three levels of r let us consider the Dividend Payout (D/P) ratios of zero, 25%, 50%, 75% and 100%.

$$\text{Market price per share (P)} = \frac{D + r(E - D) / K_e}{K_e}$$

1)  $r > K_e$  ( $r = 15\%$ ,  $K_e = 12\%$ )

i) If Dividend payout ratio (D/P Ratio) = 0

$$\begin{aligned} \text{Dividend per share (D)} &= \text{Earnings per share (E)} \times \text{D/P Ratio} \\ &= 8 \times 0 = 0 \end{aligned}$$

$$\text{Market price per share (P)} = \frac{0 + 0.15(8 - 0) / 0.12}{0.12} = ₹83$$

Thus, Market price per share (P) is ₹83, when D/P ratio is 0%.

ii) If Dividend payout ratio (D/P Ratio) = 25%

$$\begin{aligned} \text{Dividend per share (D)} &= \text{Earnings per share (E)} \times \text{D/P Ratio} \\ &= 8 \times .25 = ₹2 \end{aligned}$$

$$\text{Market price per share (P)} = \frac{2 + 0.15(8 - 2) / 0.12}{0.12} = ₹79$$

Thus, Market price per share (P) is ₹79, when D/P ratio is 25%.

iii) If Dividend payout ratio (D/P Ratio) = 50%

$$\begin{aligned} \text{Dividend per share (D)} &= \text{Earnings per share (E)} \times \text{D/P Ratio} \\ &= 8 \times .50 = ₹4 \end{aligned}$$

$$\text{Market price per share (P)} = \frac{4 + 0.15(8 - 4) / 0.12}{0.12} = ₹75$$

Thus, Market price per share (P) is ₹75, when D/P ratio is 50%.



- iv) If Dividend payout ratio (D/P ratio) = 75%  
 Dividend per share (D) = Earnings per share (E) × D/P Ratio  
 $= 8 \times .75 = ₹6$

$$\text{Market price per share (P)} = \frac{6 + 0.15(8 - 6)/0.12}{0.12} = ₹71$$

Thus, Market price per share (P) is ₹71, when D/P ratio is 75%.

- v) If Dividend payout ratio (D/P ratio) = 100%  
 Dividend per share (D) = Earnings per share (E) × D/P Ratio  
 $= 8 \times 1.00 = ₹8$

$$\text{Market price per share (P)} = \frac{8 + 0.15(8 - 8)/0.12}{0.12} = ₹67$$

Thus, Market price per share (P) is ₹67, when D/P ratio is 100%.

**Interpretation:** From the above calculations it can be observed that when the return on investment is greater than the cost of capital, there is an inverse relation between the value of the share and the payout ratio. Thus, the value of ZED Ltd. is the highest when the D/P ratio is zero ( $P = ₹83$ ) and this goes on declining as the D/P ratio increases. Hence, the optimum dividend policy for a growth firm is a zero dividend payout ratio.

- 2)  $r < K_e$  ( $r = 10\%$ ,  $K_e = 12\%$ )

- i) If Dividend payout ratio (D/P ratio) = 0%  
 Dividend per share (D) = Earnings per share (E) × D/P Ratio  
 $= 8 \times 0 = 0$

$$\text{Market price per share (P)} = \frac{0 + 0.10(8 - 0)/0.12}{0.12} = ₹56$$

Thus, Market price per share (P) is ₹56, when D/P ratio is 0%.

- ii) If Dividend payout ratio (D/P ratio) = 25%  
 Dividend per share (D) = Earnings per share (E) × D/P Ratio  
 $= 8 \times .25 = ₹2$

$$\text{Market price per share (P)} = \frac{2 + 0.10(8 - 2)/0.12}{0.12} = ₹58$$

Thus, Market price per share (P) is ₹58, when D/P ratio is 25%.

- iii) If Dividend payout ratio (D/P ratio) = 50%  
 Dividend per share (D) = Earnings per share (E) × D/P Ratio  
 $= 8 \times .50 = ₹4$

$$\text{Market price per share (P)} = \frac{4 + 0.10(8 - 4)/0.12}{0.12} = ₹61$$

Thus, Market price per share (P) is ₹61, when D/P ratio is 50%.

- iv) If Dividend payout ratio (D/P ratio) = 75%  
 Dividend per share (D) = Earnings per share (E) × D/P Ratio  
 $= 8 \times .75 = ₹6$

$$\text{Market price per share (P)} = \frac{6 + 0.10(8 - 6)/0.12}{0.12} = ₹64$$

Thus, Market price per share (P) is ₹64, when D/P ratio is 75%.



- v) If Dividend payout ratio (D/P ratio) = 100%

$$\text{Dividend per share (D)} = \text{Earnings per share (E)} \times \text{D/P Ratio} \\ = 8 \times 1.00 = ₹8$$

$$\text{Market price per share (P)} = \frac{8 + 0.10(8 - 8)/0.12}{0.12} = ₹67$$

Thus, Market price per share (P) is ₹67, when D/P ratio is 100%.

**Interpretation:** When the return on investment is less than the cost of equity capital, calculations reveal that the firm's value will enhance as the D/P ratio increases. Due to this positive correlation between the share price and the dividend payout ratio, firms which have their returns on investment less than the cost of equity capital should prefer a higher dividend payout ratio in order to maximize the share value.

### 5.2.2.3. Criticisms of Walter's Model

Various presumptions made by Professor Walter in his model have invited severe criticism, as they are more hypothetical in nature and less practical in reality. Some are described below:

- 1) **No External Financing:** To assume that all the investments made by a company are out of 'retained earnings' is not realistic. In practice, it is an appropriate combination of the 'retained earnings' and 'external sources of funds'.
- 2) **Constant Return ('r'):** The model postulates that the internal rate of return, i.e., 'r', remains unchanged. However, it is not true; 'rate of return' is a variable component and changes with the change in the level of investment.
- 3) **Constant Opportunity Cost or Cost of Capital ( $K_e$ ):** The basic nature of 'Opportunity Cost of Capital' is variable. Therefore the assumption of it being constant may not be correct. Risk pattern of a company keeps on changing and so does its 'opportunity cost or cost of capital ( $K_e$ )'.

### 5.2.3. Gordon's Model

This model postulated by Myron Gordon (1963) and John Lintner (1962) independently, and is also referred to as 'Bird in Hand' theory. This theory is made from the phrase "A bird in the hand is worth two in the bush". Where 'a bird in the hand' is used for dividends and the "bush" is used for capital gains. This theory says that investor prefers to have fixed dividend as compare to getting capital gains from the investment in stock. According to this model, rate of dividend distribution is relevant in establishing the market value of a company. The 'Stock Valuation Model' of Gordon states that value of a company's cost of equity financing is determined by:

- 1) The rate of dividend payout, the company is expected to give to its shareholders as also its (rate of dividend) annual growth rate, and
- 2) Current market price of its share.

This model states that dividend is relevant and it affects the value of the firm which is explained by the help of few assumptions.

#### 5.2.3.1. Assumptions of Gordon's Model

Following presumptions have been made in the Gordon's model:

- 1) **All-Equity Company:** The Company's sources of raising funds are restricted to the equity capital exclusively and it is free from the burden of debt.
- 2) **No External Financing:** No external financing is available to the company. Only retained earnings would be used for:
  - i) Investment,
  - ii) Financing expansion or diversification plan of the company.

Thus, 'dividend and investment' policies are also contradicted in Gordon's model, exactly like Walter's model.



- 3) **Constant Rate of Return (r):** Company's internal rate of return (r) remains constant, in total disregard of the diminishing marginal efficiency of investment.
- 4) **Constant Cost of Capital ( $K_e$ ):** The constant cost of capital (appropriate discount rate  $K_e$ ) for the company overlooks the impact of variation in the company's risk perception and its effect on  $K_e$ .
- 5) **Perpetual Earnings:** The Company as well as its sources of earnings are perpetual.
- 6) **No Taxes:** Total absence of Corporate Taxes.
- 7) **Constant Retention Ratio:** The 'Retention Ratio' 'b' (or the percentage of earnings retained) once determined continues to be the same, which results in the growth rate, ('g' = 'br') being constant eternally.
- 8) **Cost of Capital Greater than Growth Rate:** The cost of capital (appropriate discount rate  $K_e$ ) is presumed to be more than the growth rate ( $K_e > br = g$ ). If this presumption is not met, it is difficult to arrive at significant value for the share.

### 5.2.3.2. Gordon's Formula for Determining the Value of a Share

As per the Gordon's 'Stock Valuation Model', the market value of a company's share is equal to the present value of future stream of dividends to be received by a shareholder of the company.

Following formula would make it more explicit:

$$\text{Price of share (P)} = \frac{E(1 - b)}{K_e - br} \quad \text{or} \quad \frac{D_1}{K_e - g} \quad \text{or} \quad \frac{rA(1 - b)}{K_e - br}$$

Where,

P = Price of share

E = Earning per share

b = Retention ratio or percentage of earnings retained

(1 - b) = D/P ratio = percentage of earnings distributed as dividends

$K_e$  = Capitalisation rate/cost of capital

r = Rate of return earned on investments

br = g = Growth rate i.e., rate of return investment of an all equity firm.

$D_1$  = Expected dividend

A = Investment per share

In case Earning per share is not given in the question required following formula is used:

$$\text{Earning per Share (E)} = \frac{\text{Net Income}}{\text{Number of Outstanding Shares}}$$

**Example 3:** G limited has invested ₹500 lakhs in assets. There are 50 lakhs shares outstanding. The par value per share is ₹10. It earns a rate of 15% on its investment and has a policy of retaining 50% of earnings. If the appropriate discount rate of the company is 10%, what is the price of its shares using the Gordon's model? What will happen to the price of the share if the company has a dividend payout (D/P) ratio of 80% or 20%?

**Solution: Gordon's Share Valuation Model**

$$\text{Price of share (P)} = \frac{E(1 - b)}{K_e - br}$$



Where,

Rate of return on investments ( $r$ ) = 15%

Cost of capital ( $K_e$ ) = 10%

$$\text{Earning per share (E)} = \frac{\text{Net Income}}{\text{Number of Outstanding Shares}} = \frac{500 \times 15\%}{50} = \frac{75}{50} = 1.5$$

1) If Dividend payout ratio (D/P ratio) = 50%

Retention ratio ( $b$ ) = 100% - 50% = 50%

Growth rate ( $br$ ) = Retention ratio  $\times$  Rate of return on investments  
 $= 0.50 \times 0.15 = 0.075$

$$\text{Price of share (P)} = \frac{1.5(1 - 0.50)}{0.10 - 0.075} = \frac{0.75}{0.025} = ₹30$$

Thus, Price of share (P) is ₹30, when D/P ratio is 50%.

2) If Dividend payout ratio (D/P ratio) = 80%

Retention ratio ( $b$ ) = 100% - 80% = 20%

Growth rate ( $br$ ) = Retention ratio  $\times$  Rate of return on investments  
 $= 0.20 \times 0.15 = 0.03$

$$\text{Price of share (P)} = \frac{1.5(1 - 0.20)}{0.10 - 0.03} = \frac{1.20}{0.07} = ₹17.14$$

Thus, Price of share (P) is ₹17.14, when D/P ratio is 80%.

3) If Dividend payout ratio (D/P ratio) = 20%

Retention ratio ( $b$ ) = 100% - 20% = 80%

Growth rate ( $br$ ) = Retention ratio  $\times$  Rate of return on investments  
 $= 0.80 \times 0.15 = 0.12$

$$\text{Price of share (P)} = P = \frac{1.5(1 - 0.80)}{0.10 - 0.12} = \frac{0.3}{-0.02} = -₹15$$

Thus, Price of share (P) is -15, when D/P ratio is 20%.

**Note:** ' $K_e$ ' and ' $r$ ' remain constant and will not change due to retention policies of firm and uncertainty of earnings. If these factors are allowed to be changed, the negative share price does not exist.

**Example 4:** If  $K_e = 11\%$  and  $E = ₹15$ , calculate the stock value of XYZ Ltd. for:

1)  $r = 12\%$

2)  $r = 11\%$

3)  $r = 10\%$

For the various levels of the dividend payout (D/P) ratios.

D/P Ratio (1 - b)	Retention Ratio
i) 10%	90%
ii) 20%	80%

**Solution:**

$$\text{Price of share (P)} = \frac{E(1 - b)}{K_e - br}$$



$$1) r > K_e (r = 12\%, K_e = 11\%)$$

$$i) \text{ If Dividend payout ratio (D/P ratio)} = 10\%$$

$$\text{Retention ratio (b)} = 100\% - 10\% = 90\%$$

$$\begin{aligned} \text{Growth rate (br)} &= \text{Retention ratio} \times \text{Rate of return on investments} \\ &= 0.90 \times 0.12 = 0.108 \end{aligned}$$

$$\text{Price of share (P)} = \frac{15(1 - 0.9)}{0.11 - 0.108} = ₹ 750$$

Thus, Price of share (P) is ₹750, when D/P ratio is 10%.

$$ii) \text{ If Dividend payout ratio (D/P ratio)} = 20\%$$

$$\text{Retention ratio (b)} = 100\% - 20\% = 80\%$$

$$\begin{aligned} \text{Growth rate (br)} &= \text{Retention ratio} \times \text{Rate of return on investments} \\ &= 0.80 \times 0.12 = 0.096 \end{aligned}$$

$$\text{Price of share (P)} = \frac{15(1 - 0.8)}{0.11 - 0.096} = ₹ 214.28$$

Thus, Price of share (P) is ₹214.28, when D/P ratio is 20%.

$$2) r = K_e (r = 11\%, K_e = 11\%)$$

$$i) \text{ If Dividend payout ratio (D/P ratio)} = 10\%$$

$$\text{Retention ratio (b)} = 100\% - 10\% = 90\%$$

$$\begin{aligned} \text{Growth rate (br)} &= \text{Retention ratio} \times \text{Rate of return on investments} \\ &= 0.90 \times 0.11 = 0.099 \end{aligned}$$

$$\text{Price of share (P)} = \frac{15(1 - 0.9)}{0.11 - 0.099} = ₹ 136.36$$

Thus, Price of share (P) is ₹136.36, when D/P ratio is 10%.

$$ii) \text{ If Dividend payout ratio (D/P ratio)} = 20\%$$

$$\text{Retention ratio (b)} = 100\% - 20\% = 80\%$$

$$\begin{aligned} \text{Growth rate (br)} &= \text{Retention ratio} \times \text{Rate of return on investments} \\ &= 0.80 \times 0.11 = 0.088 \end{aligned}$$

$$\text{Price of share (P)} = \frac{15(1 - 0.8)}{0.11 - 0.088} = ₹ 136.36$$

Thus, Price of share (P) is ₹136.36, when D/P ratio is 20%.

$$3) r < K_e (r = 10\%, K_e = 11\%)$$

$$i) \text{ If Dividend payout ratio (D/P ratio)} = 10\%$$

$$\text{Retention ratio (b)} = 100\% - 10\% = 90\%$$

$$\begin{aligned} \text{Growth rate (br)} &= \text{Retention ratio} \times \text{Rate of return on investments} \\ &= 0.90 \times 0.10 = 0.09 \end{aligned}$$

$$\text{Price of share (P)} = \frac{15(1 - 0.9)}{0.11 - 0.09} = ₹ 75$$

Thus, Price of share (P) is ₹75, when D/P ratio is 10%.

$$ii) \text{ If Dividend payout ratio (D/P ratio)} = 20\%$$

$$\text{Retention ratio (b)} = 100\% - 20\% = 80\%$$



$$\begin{aligned}\text{Growth rate (br)} &= \text{Retention ratio} \times \text{Rate of return on investments} \\ &= 0.80 \times 0.10 = 0.08\end{aligned}$$

$$\text{Price of share (P)} = \frac{15(1 - 0.8)}{0.11 - 0.08} = ₹100$$

Thus, Price of share (P) is ₹100, when D/P ratio is 20%.

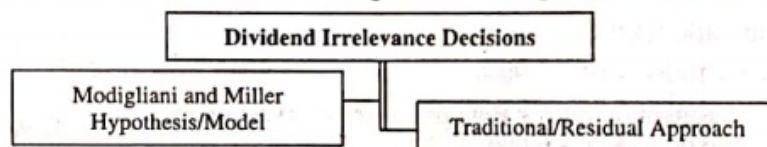
The above example explains the relevance of dividends as given by the Gordon's Model. In the given three situations, the firm's share value is positively correlated with the pay-out ratio when  $r < K_e$  and decreases with an increase in the payout ratio when  $r > K_e$ . Thus, firms with a rate of return greater than the cost of capital should have a higher retention ratio and those firms which have a rate of return less than the cost of capital should have a lower retention ratio. The dividend policy of firms which have a rate of return equal to the cost of capital will, however, not have any impact on its share value.

### 5.2.3.3. Criticism of Gordon's Model

The assumption of Gordon Model has resemblance to Walter model. The concluding essence of the Gordon's Model and Walter's Model about dividend policy are more or less the same. This may be due to the similar presumptions underlying both the models. That is why the limitations prevailing under the 'Walter Model' also exist in the 'Gordon Model'.

### 5.2.4. Dividend Irrelevance Decisions

Proponents of Irrelevance theory of dividends hold the view that a company's valuation remains unaffected by its dividend decision. There are two models in this regard. Following are the two models of irrelevance:



### 5.2.5. Modigliani and Miller Hypothesis/Model

The genesis of Dividend Irrelevance Theory of Modigliani and Miller may be traced back to the 'Capital Irrelevance Model' advocated by them in a paper published in 1958. Under the above model, a view was held that the capital framework of a company has no relevance as far as its future outlook is concerned. The above paper was followed by another paper published in 1961, wherein they came up with an entirely innovative idea, according to which the investors need not bother about the payment/non-payment of dividends from a company, in which they have an investment (of course subject to certain presumptions). Under the MM Model, a view was held that for the investors the 'dividends' and 'capital gains' are nothing but the 'returns' on their investment. The value of a company, therefore, hinges upon its earning, which is the outcome of its:

- 1) Investment policy/decisions, and
- 2) Overall performance of the industry, in which the company is engaged.

Dividend policy of a company has got nothing to do with its valuation. The information, an investor is required to have about a company, for taking an investment decision relates to the company's investment policy and performance of that particular industry.

The theory further elaborates as to why an investor needs to be indifferent with regard to the dividend payouts. According to this model, the investors may have their own cash-inflow information system in respect to the stocks held by them, as per their cash requirements irrespective of the fact whether the stocks held by them bring dividend or not. In case an investor has dividend paying share in its portfolio and he does not have the use of money at that time, the dividend proceeds would be reinvested in some shares (of same company or some other company). Similarly, if an investor of a non-dividend paying company needs cash, he can sell a part of his stock holdings.

#### 5.2.5.1. Assumptions of Modigliani and Miller Model

There are certain assumptions (mentioned below), on which MM model of irrelevance is based:

- 1) **Perfect Capital Markets:** A company manages its business in a perfect capital market\*.
  - \* A perfect capital market involves:
    - i) Behaviour of investors needs to be reasonable and logical.



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- ii) It should have transparency, i.e., any information searched for should be easily available.
  - iii) There should not be a transaction/floatation cost.
  - iv) No single investor should be big enough to influence the price of a share.
- 2) **No Taxes:** Taxes are either non-existent or the tax rates applicable to 'Capital Gains' and 'Dividends' are the same. For an investor, value of a rupee received as dividend payout should not be different from the value of a rupee received as capital gain.
  - 3) **Fixed Investment Policy:** Every company has a fixed long-term 'Investment Policy'.
  - 4) **No Risk:** There are no elements of underlying risks regarding uncertainty.

### 5.2.5.2. Modigliani and Miller Formula for Determining the Value of a Share

The following formula is used to determine the market price of a share:

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

Where,  $P_0$  = Market price per share at the beginning of the period, or prevailing market price of a share

$D_1$  = Dividend to be received at the end of the period

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

$K_e$  = Cost of equity capital or rate of capitalisation

The value of  $P_1$  can be derived by the above equation as under:

$$P_1 = P_0 (1 + K_e) - D_1$$

There is another way of explaining MM hypothesis:

It is presumed that investment requirements of a company on account of dividend payouts are financed out of the fresh issue of equity shares.

Following formula may be applied to calculate the number of shares required to be issued by the company:

$$m = \frac{I - (E - nD_1)}{P_1}$$

Further, the company's value may be obtained with the help of the following formula:

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

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

$K_e$  = 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

$nP_0$  = Value of the firm

**Example 5:** ABC Ltd. has a capital of ₹10 lacs in equity shares of ₹100 each. The shares are currently quoted at par. The company proposes declaration of a dividend of ₹10 per share at the end of the current financial year. The capitalisation rate for the risk class to which the company belongs is 12%.

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

- 1) A dividend is declared?
- 2) A dividend is not declared?

Assuming that the company pays the dividend and has net profits of ₹5,00,000 and makes new investment of ₹10 lacs during the period, how many new shares must be issued. Use the MM Model.



**Solution:****1) Number of shares to be issued when a dividend is declared (₹10 per share)**

- i) Price of the share at the end of the current financial year:

$$P_1 = P_0(1 + K_e) - D_1$$

Where,

Market price per share at the beginning of the period ( $P_0$ ) = ₹100Dividend to be received at the end of the period ( $D_1$ ) = ₹10 per shareCost of equity capital ( $K_e$ ) = 12% or .12

$$\text{Market price per share at the end of the period } (P_1) = 100(1 + 0.12) - 10 = 100(1.12) - 10 = ₹102$$

- ii) Number of shares to be issued:

$$m = \frac{I - (E - nD_1)}{P_1}$$

Where,

Investment required ( $I$ ) = 10,00,000Total earnings of the firm during the period ( $E$ ) = 5,00,000

Number of shares outstanding at the beginning of the period ( $n$ ) =  $10,00,000 \div 100$   
 = 10,000 outstanding shares

Dividend to be received at the end of the period ( $D_1$ ) = ₹10Market price per share at the end of the period ( $P_1$ ) = ₹102

$$\begin{aligned} \text{Number of shares to be issued } (m) &= \frac{10,00,000 - (5,00,000 - 10,000 \times 10)}{102} \\ &= \frac{10,00,000 - (4,00,000)}{102} \\ &= \frac{6,00,000}{102} = 5882 \text{ shares} \end{aligned}$$

**2) Number of shares to be issued when a dividend is not declared**

- i) Price of the share at the end of the current financial year:

$$P_1 = P_0(1 + K_e) - D_1$$

Where,

Market price per share at the beginning of the period ( $P_0$ ) = ₹100Dividend to be received at the end of the period ( $D_1$ ) = 0Cost of equity capital ( $K_e$ ) = 12% or .12

$$\text{Market price per share at the end of the period } (P_1) = 100(1 + 0.12) - 0 = 100(1.12) = ₹112$$

- ii) Number of shares to be issued:

$$m = \frac{I - (E - nD_1)}{P_1}$$

Where,

Investment required ( $I$ ) = 10,00,000Total earnings of the firm during the period ( $E$ ) = 5,00,000

Number of shares outstanding at the beginning of the period ( $n$ ) =  $10,00,000 \div 100$   
 = 10,000 outstanding shares



Dividend to be received at the end of the period ( $D_1$ ) = 0  
 Market price per share at the end of the period ( $P_1$ ) = ₹112

$$\text{Number of shares to be issued (m)} = \frac{10,00,000 - (5,00,000 - 0)}{112} \\ = \frac{5,00,000}{112} = 4464 \text{ shares.}$$

**Example 6:** PQR Ltd. has a capital of ₹10,00,000 in equity shares of ₹100 each. The shares are currently quoted at par. The company proposes declaration of a dividend of ₹10 per share. The capitalisation rate for the risk class to which the company belongs is 12%. What will be the market price of the shares at the end of the year, if:

- 1) No dividend is declared, and
- 2) 10% dividend is declared?

Assuming that the company pays the dividend and has net profits of ₹5,00,000 and makes new investments of ₹10,00,000 during the period, how many new shares must be issued? Use the MM model.

**Solution:** Under M.M. Model, the following formula is used to ascertain the market price of Equity Shares:

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

Where, Prevailing market price of a share, i.e., ₹100 in this case. (quoted at Par) ( $P_0$ ) = ₹100

Market Price of a share at the end of period one ( $P_1$ ) = ?

Dividend to be received at the end of period one ( $D_1$ ) = ₹10

Cost of Equity Capital ( $K_e$ ) = 12%

**1) If No Dividend is Declared:**

$$100 = \frac{1}{1 + 0.12} \times P_1$$

$$P_1 = 100 \times 1.12 = ₹112$$

The market price of the equity share at the end of the year would be ₹112.

**2) If Dividend is Declared**

$$100 = \frac{1}{1 + 0.12} \times (10 + P_1)$$

$$100 = \frac{10 + P_1}{1.12}$$

$$112 = 10 + P_1$$

$$P_1 = 112 - 10 = ₹102$$

The market price of the equity share at the end of the year would be ₹102.

**3) New Shares to be Issued under MM Model:**

$$m = \frac{I - (E - nD_1)}{P_1}$$

Where, Investment Required ( $I$ ) = ₹10,00,000

Total Earnings of the Firm ( $E$ ) = ₹5,00,000

Shares Including Dividend =  $10,000 \times 10$

Market Price of Share ( $P_1$ ) = ₹102



$$m = \frac{10,00,000 - [5,00,000 - (10,000 \times 10)]}{102} = \frac{10,00,000 - [5,00,000 - 1,00,000]}{102}$$

$$= \frac{10,00,000 - 4,00,000}{102} = 5,883 \text{ Shares}$$

**Example 7:** Proponent Ltd. had 50,000 equity shares of ₹10 each outstanding as on 1<sup>st</sup> April. The shares are being quoted at par in the market. The Company proposes to pay a dividend of ₹2 per share for current financial year. It belongs to a risk class where appropriate capitalisation rate is 15%.

Using Modigliani-Miller Model and assuming no taxes. Ascertain price of Company's share as it is likely to prevail at the end of the year when:

- 1) Dividend is declared.
- 2) No dividend is declared.

Also find out number of new equity shares, the company must issue to meet its investment needs of ₹2,00,000, assuming net income of ₹1,10,000 and assuming that the dividend is paid.

**Solution: Calculation of Market Price of Equity Shares:**

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

Where, Prevailing Market Price of a Share ( $P_0$ ) = ₹10

Market Price of a share at the end of Period One ( $P_1$ ) = ?

Dividend to be Received at the end of Period One ( $D_1$ ) = 2

Cost of Equity Capital ( $K_e$ ) = 0.15

- 1) **If Dividend is Declared:**

$$10 = \frac{(2 + P_1)}{1 + 0.15}$$

$$11.5 = 2 + P_1$$

$$\therefore P_1 = 11.5 - 2 = ₹9.5$$

The market price of the equity share at the end of the year would be ₹9.5

- 2) **If No Dividend is Declared:**

$$10 = \frac{P_1}{1 + 0.15}$$

$$\therefore P_1 = 10 \times 1.15 = ₹11.5$$

The market price of the equity share at the end of the year would be ₹11.5

- 3) **New Shares to be Issued under MM Model:**

$$m = \frac{I - (E - nD_1)}{P_1}$$

Where, Investment Required ( $I$ ) = ₹2,00,000

Total Earnings of the Firm ( $E$ ) = ₹1,10,000

Shares Including Dividend ( $nD_1$ ) = 50,000 × 2

Market Price of Share ( $P_1$ ) = 9.5

$$\therefore m = \frac{2,00,000 - [1,10,000 - (50,000 \times 2)]}{9.5} = \frac{2,00,000 - (1,10,000 - 1,00,000)}{9.5}$$

$$= \frac{2,00,000 - 1,00,000}{9.5} = \frac{1,00,000}{9.5} = 20,000 \text{ shares}$$



**Example 8:** ABC Ltd. belongs to a risk class for which the appropriate capitalisation rate is 10%. It currently has outstanding 5,000 shares selling at ₹100 each. The firm is contemplating the declaration of dividend of ₹6 per share at the end of the current financial year. The company expects to have a net income of ₹50,000 and has a proposal for making new investments of ₹1,00,000. Show that under the MM hypothesis, the payment of dividend does not affect the value of the firm.

**Solution:**

1) **Value of the firm when dividends are paid:**

i) Price of the share at the end of the current financial year.

$$P_1 = P_0 (1 + K_e) - D_1$$

Where,

Market price per share at the beginning of the period ( $P_0$ ) = ₹100

Dividend to be received at the end of the period ( $D_1$ ) = ₹6 per share

Cost of equity capital ( $K_e$ ) = 10% or .10

Market price per share at the end of the period ( $P_1$ ) =  $100(1 + .10) - 6 = 100 \times 1.10 - 6 = 110 - 6 = ₹104$

ii) Number of shares to be issued.

$$m = \frac{I - (E - nD_1)}{P_1}$$

Where,

Investment required ( $I$ ) = ₹1,00,000

Total earnings of the firm during the period ( $E$ ) = ₹50,000

Number of shares outstanding at the beginning of the period ( $n$ ) = 5,000 outstanding shares

Dividend to be received at the end of the period ( $D_1$ ) = ₹6

Market price per share at the end of the period ( $P_1$ ) = ₹104

Number of shares to be issued ( $m$ ) =  $\frac{1,00,000 - (50,000 - 5,000 \times 6)}{104}$

$$= \frac{80,000}{104} = 769.23 \text{ shares}$$

iii) Value of the firm

$$\text{Value of the firm}(nP_0) = \frac{(n + m)P_1 - (I - E)}{1 + K_e}$$

Number of shares outstanding at the beginning of the period ( $n$ ) = 5,000

Number of shares to be issued ( $m$ ) = 769.23

Market price per share at the end of the period ( $P_1$ ) = ₹104

Investment required ( $I$ ) = ₹1,00,000

Total earnings of the firm during the period ( $E$ ) = ₹50,000

Cost of equity capital ( $K_e$ ) = 10% or .10

$$= \frac{(5,000 + 769.23) \times 104 - (1,00,000 - 50,000)}{1 + .10}$$

$$= \frac{(5,769.23) \times 104 - (50,000)}{1.10} = \frac{6,00,000 - 50,000}{1.10} = \frac{5,50,000}{1.10} = ₹5,00,000$$

2) **Value of the firm when dividends are not paid:**

i) Price per share at the end of the current financial year.

$$P_1 = P_0 (1 + K_e) - D_1$$



Where,

Market price per share at the beginning of the period ( $P_0$ ) = ₹100

Dividend to be received at the end of the period ( $D_1$ ) = 0

Cost of equity capital ( $K_e$ ) = 10% or .10

Market price per share at the end of the period ( $P_1$ ) =  $100(1+.10) - 0 = 100 \times 1.10 = ₹110$

ii) Number of shares to be issued.

$$m = \frac{I - (E - nD_1)}{P_1}$$

Where,

Investment required ( $I$ ) = ₹1,00,000

Total earnings of the firm during the period ( $E$ ) = ₹50,000

Number of shares outstanding at the beginning of the period ( $n$ ) = 5,000 outstanding shares

Dividend to be received at the end of the period ( $D_1$ ) = 0

Market price per share at the end of the period ( $P_1$ ) = ₹110

$$\text{Number of shares to be issued (m)} = \frac{1,00,000 - (50,000 - 0)}{110} = \frac{50,000}{110} = 454.54 \text{ shares}$$

iii) Value of the firm

$$\text{Value of the firm (nP}_0) = \frac{(n+m)P_1 - (I - E)}{1 + K_e}$$

Number of shares outstanding at the beginning of the period ( $n$ ) = 5,000

Number of shares to be issued ( $m$ ) = 454.54

Market price per share at the end of the period ( $P_1$ ) = ₹110

Investment required ( $I$ ) = ₹1,00,000

Total earnings of the firm during the period ( $E$ ) = ₹50,000

Cost of equity capital ( $K_e$ ) = 10% or .10

$$= \frac{(5,000 + 454.54) \times 110 - (1,00,000 - 50,000)}{1 + .10}$$

$$= \frac{(5,454.54) \times 110 - (50,000)}{1.10} = \frac{6,00,000 - 50,000}{1.10} = \frac{5,50,000}{1.10} = 5,00,000$$

Hence, whether dividends are paid or not, the value of the firm remains the same ₹5,00,000.

### 5.2.5.3. Criticisms of MM Model

The MM model has been under criticisms on account of the following grounds:

- 1) **Tax Differentials:** The presumption under MM approach regarding absence of taxes is not a realistic one. The fact is the dividends received at the investor's end are not taxable, whereas capital gains are taxable. Under the circumstances a shareholder, as a tax saving measure, would prefer to continue having dividends (and avoiding tax payment) rather than booking capital gains (and paying tax thereon).
- 2) **Floatation Cost:** Under MM Model, payment of dividends and raising external funds has been considered on equal basis. This consideration cannot be correct because of the floatation costs involved in raising of external funds. Thus, one rupee of dividend is not replaceable with one rupee raised through external funds. Retention of the earning is, therefore, beneficial for a company.
- 3) **Transaction Costs:** If the transaction costs are not involved, the cost of one rupee of capital value is convertible into one rupee of current income and *vice versa*. It means that in a situation where dividends are not being paid, a shareholder looking for current income may opt to sell a part of his/her stock holdings without paying any transaction cost.

However, in practice, due to the transaction costs are involved, investor's preference is for current dividend rather than retained earnings.



- 4) **Diversification:** If a company decides to retain its earnings (instead of dividend payouts), the shareholders would not be in a position to expand or diversify their portfolios. The investors or shareholders pay higher value to a company which distribute larger amount as current dividend.
- 5) **Uncertainty:** According to MM Model, share prices of the two companies identical in all the respect (other than the dividend policy), would necessarily be the same. However, due to the logic behind 'Bird in Hand' theory this cannot be true.
- 6) **Informational Content of Dividend (Financial Signalling):** Dividend Payout (quantum and frequency) by a company provides vital signals to the market and its existing or prospective investors. Such signals may be positive or negative. Whenever there is a change in the company's dividend policy, the presumption of existing or prospective investors and market also change. The reason behind such move is future expectations with regard to changes in the company's profitability for long-term perspective. A higher payout ratio is indicative of expected higher earnings of the company, whereas a lower payout ratio signals poor earnings of the company in the future.

The 'Dividend Policy' of a company or a change therein is, therefore, very significant because of the vital signals transmitted through it.

### 5.2.6. Traditional/Residual Model

This approach is founded by **Graham and Dodd**. This theory is irrelevant to determine the market value of share. According to the 'Traditional Approach', out of the net profit, enough cash is set aside as 'Retained Earnings', which is used for investment in profitable and viable projects. The residual of 'net profit' of the company is available for distribution amongst the shareholders as 'dividend payouts'. Supporters of this model holds the view that level of dividend payment (higher or lower) is not material in deciding the company's future market value.

Thus, the dividend payouts to the shareholders should never be at the cost of investment in desirable and profitable projects. There is a class of investors, who firmly believe in this approach and they do not bother whether dividend payouts are distributed by a company or not in the present. They are concerned with long-term and brighter future prospects of the company, which ultimately may result in capital appreciation in their holdings and also higher dividend distribution in the years to come.

#### Criticisms of Residual Model

Although there is no practical evidence in support of this approach, it is quite logical and obvious to be convincing. Most of the companies prefer to fulfil their investment and growth strategies before taking a decision to pay dividends to its shareholders.

## 5.3. EXERCISE

### 5.3.1. Theoretical Questions

- 1) What is dividend? What are the forms of dividend?
- 2) What do you mean by dividend policy? Explain the nature of dividend policy.
- 3) State briefly the various types of Dividend Valuation Models.
- 4) Discuss the various determinants of dividend policy in a company.
- 5) Why dividend policy is important for a company?
- 6) Elaborate the Walter's model of dividend with its criticisms.
- 7) What are the assumptions of Walter Model? What is the formula use for determining market price of share by Walter Model?
- 8) Elaborate the Gordon's model of dividend with its criticisms.
- 9) What are assumptions of Gordon Model? What is the formula use for determining market price of share by Gordon Model?
- 10) Elaborate the Modigliani and Miller approach of dividend. Give its assumptions.