
DIVIDEND POLICY DECISION

- **FORMS OF DIVIDEND PAYMENT**
 - **SIGNIFICANCE OF DIVIDEND POLICY IN FINANCIAL DECISION**
 - **VARIABLES INFLUENCING DIVIDEND DECISION**
 - **WALTER'S MODEL**
 - **GORDAN'S MODEL**
 - **MODIGLIANI-MILLER'S MODEL**
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DIVIDEND

Dividend is that part of the profits of a company which is distributed amongst its shareholders.

According to ICAI, "Dividend is a distribution to shareholders out of profits or reserves available for this purpose."

- **FORMS OF DIVIDENDS**

- **The usual practice is to pay dividends in cash.**
 - **Other option is payment of the bonus shares or stock dividend.**
 - **Cash Dividends**
 - **Bonus Shares (Stock Dividend).**
 - **Stock Splits (Share Splits)**
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Cash Dividend

Most companies pay dividends in cash. Sometimes cash dividend may be supplemented by a bonus issue (stock dividend). A company should have enough cash in its bank a/c when cash dividends are declared. If the company does not have enough bank balance at the time of paying cash dividend, arrangement should be made to borrow funds.

When the company follows a stable dividend policy, it should prepare a cash budget for the coming period to indicate the necessary funds, which would be needed to meet the regular dividend payments of the company. It is relatively difficult to make cash planning anticipation of dividend needs when an unstable policy is followed.

The cash a/c & the reserves a/c of a company will be reduced when the cash dividend is paid. Thus, both the total assets and the net worth of the company are reduced when the cash dividend is distributed. The MP of the share drops in most cases by the amount of the cash dividend distributed.

Bonus Shares

An issue of bonus share represents a distribution of shares in addition to the cash dividend (known as stock dividend in the U.S.A.) to the existing shareholders. This has the effect of increasing the number of outstanding shares of the company.

The shares are distributed proportionately. Thus, a shareholder retains his proportionate ownership of the company. For example, if a shareholder owns 100 shares at the time when a 10 per cent (i.e., 1: 10) bonus issue is made, he will receive 10 additional shares. The declaration of the bonus shares will increase the paid-up share capital and reduce the reserves and surplus of the company. The total net worth is not affected by the bonus issue. In fact, a bonus issue represents a recapitalization of the owners' equity portion, i.e., the reserves and surplus. It is merely an accounting transfer from reserves and surplus to paid-up capital.

Advantages of Bonus Shares

- **Prima facie the bonus shares do not affect the wealth of the shareholders. In practice, however, it carries certain advantages both to shareholders and the company.**
 - **The following are advantages of the bonus shares to Shareholders:**
 - **Tax benefit.**
 - **Indication of higher future profits.**
 - **Future dividend may increase.**
 - **Psychological value.**
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Stock Splits

It is a method to increase the number of outstanding shares through a proportional reduction in the par value of shares. A share split affects only the par value and the number of outstanding shares, while the shareholder's total funds remains unaltered.

Regular Dividend

By dividend we mean regular dividend paid annually, proposed by the board of directors and approved by the shareholders in general meeting. It is also known as final dividend because it is usually paid after the finalization of accounts. It is generally paid in cash as a percentage of paid up capital, say 10 % or 15 % of the capital. Sometimes, it is paid per share. No dividend is paid on calls in advance or calls in arrears. The company is, however, authorized to make provisions in the Articles prohibiting the payment of dividend on shares having calls in arrears.

Interim Dividend

If Articles so permit, the directors may decide to pay dividend at any time between the two Annual General Meeting before finalizing the accounts. It is generally declared and paid when company has earned heavy profits or abnormal profits during the year and directors wish to pay the profits to shareholders. Such payment of dividend in between the two AGM before finalizing the accounts is called Interim Dividend. No Interim Dividend can be declared or paid unless depreciation for the full year (not proportionately) has been provided for. It is, thus, an extra dividend paid during the year requiring no need of approval of the AGM. It is paid in cash.

Stock-Dividend

Companies, not having good cash position, generally pay dividend in the form of shares by capitalizing the profits of current year and of past years. Such shares are issued instead of paying dividend in cash and called 'Bonus Shares'. Basically there is no change in the equity of shareholders. Certain guidelines have been used by the company Law Board in respect of Bonus Shares.

Scrip Dividend

Scrip dividends are used when earnings justify a dividend, but the cash position of the company is temporarily weak. So, shareholders are issued shares and debentures of other companies. Such payment of dividend is called Scrip Dividend. Shareholders generally do not like such dividend because the shares or debentures, so paid are worthless for the shareholders as directors would use only such investment is which were not. Such dividend was allowed before passing of the Companies (Amendment) Act 1960, but thereafter this unhealthy practice was stopped.

Bond Dividends

In rare instances, dividends are paid in the form of debentures or bonds or notes for a long-term period. The effect of such dividend is the same as that of paying dividend in scrips. The shareholders become the secured creditors is the bonds has a lien on assets.

Property Dividend

Sometimes, dividend is paid in the form of asset instead of payment of dividend in cash. The distribution of dividend is made whenever the asset is no longer required in the business such as investment or stock of finished goods.

But, it is, however, important to note that in India, distribution of dividend is permissible in the form of cash or bonus shares only. Distribution of dividend in any other form is not allowed.

SIGNIFICANCE OF STABILITY OF DIVIDEND

- **Desire for current income.**
 - **Sign of financial stability of the company.**
 - **Requirement of institutional investors.**
 - **Investors confidence in the company**
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FACTORS AFFECTING DIVIDEND POLICY

1. External Factors

- General State of Economy
- State of Capital Market
- Legal Restrictions
- Contractual Restrictions

2. Internal Factors

- Desire of the Shareholders
- Financial Needs of the Company
- Nature of earnings
- Desire to retain the control of management
- Liquidity position

Dividend Payout Ratio

A major aspect of the DP of a firm is its DPR, i.e., the % share of the net earnings distributed to the SHs as dividend. The DPR of a firm should be determined with reference to 2 objectives :

- Maximizing the wealth of the SHs, &
 - Providing sufficient funds to finance growth.
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These two objectives are inter-related. Given the obj. of wealth maximization, the firm's dividend policy , i.e., D/P ratio should be one which can maximize the wealth of its owners in a long run. In practice, SHs have preference for dividend because of uncertainty & imperfect capital markets. Therefore, the payment of dividend can be expected to affect the price of share.

General State of Economy

- In case of uncertain economic and business conditions, the management may like to retain whole or large part of earnings to build up reserves to absorb future shocks.
- In the period of depression the management may also retain a large part of its earnings to preserve the firm's liquidity position.
- In periods of prosperity the management may not be liberal in dividend payments because of availability of larger profitable investment opportunities.
- In periods of inflation, the management may retain large portion of earnings to finance replacement of obsolete machines.

State of Capital Market

Another factor which affects the DP is the extent to which the firm has access to the CM. In case the firm has easy access to CM either because it is financially strong or large in size, it can follow a liberal dividend policy. However, if a firm has limited access to CM, it is likely to adopt low DPR & is likely to rely on retained earnings as a source of financing their investment.

- Favourable Market: liberal dividend policy.
- Unfavourable market: Conservative dividend policy.

Inflation

Inflation is another factor which affects the firm's dividend policy. With rising prices, funds generated from depreciation may be inadequate to replace the obsolete machinery. Thus the firm should rely upon retained earnings to make up the shortfall.

Legal Restrictions

- Companies Act has laid down various restrictions regarding the declaration of dividend:
- Dividends can only be paid out of:
 - Current or past profits of the company.
 - Money provided by the State/ Central Government in pursuance of the guarantee given by the Government.
- Payment of dividend out of capital is illegal.
- A company cannot declare dividends unless:
 - It has provided for present as well as all arrears of depreciation.
 - Certain percentage of net profits has been transferred to the reserve of the company.
- Past accumulated profits can be used for declaration of dividends only as per the rules framed by the Central Government

Contractual Restrictions

Lenders sometimes may put restrictions on the dividend payments to protect their interests (especially when the firm is experiencing liquidity problems)

Example:

A loan agreement that the firm shall not declare any dividend so long as the liquidity ratio is less than 1:1. The firm will not pay dividend more than 20% so long as it does not clear the loan.

Desire of the Shareholders

- **Though the directors decide the rate of dividend, it is always at the interest of the shareholders. Shareholders expect two types of returns:**
 - [i] Capital Gains: i.e., an increase in the market value of shares.**
 - [ii] Dividends: regular return on their investment.**
 - **Cautious investors look for dividends because,**
 - [i] It reduces uncertainty (capital gains are uncertain).**
 - [ii] Indication of financial strength of the company.**
 - [iii] Need for income: Some invest in shares so as to get regular income to meet their living expenses.**
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Financial Needs of the Company

If the company has profitable projects and it is costly to raise funds, it may decide to retain the earnings.

Nature of earnings

A company which has stable earnings can afford to have an higher divided payout ratio

Desire to retain the control of management

Additional public issue of share will dilute the control of management.

Liquidity position

Payment of dividend results in cash outflow. A company may have adequate earning but it may not have sufficient funds to pay dividends.

Stability of Earnings

The nature of business has an important bearing on the dividend policy. Industrial units having stability of earnings may formulate a more consistent dividend policy than those having an uneven flow of incomes because they can predict easily their savings and earnings. Usually, enterprises dealing in necessities suffer less from oscillating earnings than those dealing in luxuries or fancy goods.

The investors usually favours a stable dividend. The term 'dividend stability' refers to a consistency or lack of variability in the dividend stream or a certain amount of dividend regularly.

- **Constant dividend per share**
 - **Constant / stable dividend payment ratio**
 - **Constant DPS plus extra dividend**
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Age of corporation

Age of the corporation counts much in deciding the dividend policy. A newly established company may require much of its earnings for expansion and plant improvement and may adopt a rigid dividend policy while, on the other hand, an older company can formulate a clear cut and more consistent policy regarding dividend.

Liquidity of Funds

Availability of cash and sound financial position is also an important factor in dividend decisions. A dividend represents a cash outflow, the greater the funds and the liquidity of the firm the better the ability to pay dividend. The liquidity of a firm depends very much on the investment and financial decisions of the firm which in turn determines the rate of expansion and the manner of financing. If cash position is weak, stock dividend will be distributed and if cash position is good, company can distribute the cash dividend.

Extent of share Distribution

Nature of ownership also affects the dividend decisions. A closely held company is likely to get the assent of the shareholders for the suspension of dividend or for following a conservative dividend policy.

On the other hand, a company having a good number of shareholders widely distributed and forming low or medium income group, would face a great difficulty in securing such assent because they will emphasize to distribute higher dividend.

Needs for Additional Capital

Companies retain a part of their profits for strengthening their financial position. The income may be conserved for meeting the increased requirements of working capital or of future expansion. Small companies usually find difficulties in raising finance for their needs of increased working capital for expansion programmes. They having no other alternative, use their ploughed back profits. Thus, such Companies distribute dividend at low rates and retain a big part of profits.

Trade Cycles

Business cycles also exercise influence upon dividend Policy. Dividend policy is adjusted according to the business oscillations. During the boom, prudent management creates food reserves for contingencies which follow the inflationary period. Higher rates of dividend can be used as a tool for marketing the securities in an otherwise depressed market. The financial solvency can be proved and maintained by the companies in dull years if the adequate reserves have been built up.

Government Policies

The earnings capacity of the enterprise is widely affected by the change in fiscal, industrial, labour, control and other government policies. Sometimes government restricts the distribution of dividend beyond a certain percentage in a particular industry or in all spheres of business activity as was done in emergency. The dividend policy has to be modified or formulated accordingly in those enterprises.

Taxation Policy

High taxation reduces the earnings of the companies and consequently the rate of dividend is lowered down. Sometimes government levies Dividend tax on distribution of dividend beyond a certain limit. It also affects the capital formation. In India, dividends beyond 10 % of paid-up capital are subject to dividend tax at 7.5 %.

Legal Requirements

In deciding on the dividend, the directors take the legal requirements too into consideration. In order to protect the interests of creditors and outsiders, the Companies Act 1956 prescribes certain guidelines in respect of the distribution and payment of dividend. Moreover, a company is required to provide for depreciation on its fixed and tangible assets before declaring dividend on shares. It proposes that Dividend should not be distributed out of capital, in any case. Likewise, contractual obligation should also be fulfilled, for example, payment of dividend on preference shares in priority over ordinary dividend.

Past dividend Rates

While formulating the Dividend Policy, the directors must keep in mind the dividend paid in past years. The current rate should be around the average past rate. If it has been abnormally increased the shares will be subjected to speculation. In a new concern, the company should consider the dividend policy of the rival organization.

Ability to Borrow

Well established and large firms have better access to the capital market than the new Companies and may borrow funds from the external sources if there arises any need. Such Companies may have a better dividend pay-out ratio. Whereas smaller firms have to depend on their internal sources and therefore they will have to built up good reserves by reducing the dividend pay out ratio for meeting any obligation requiring heavy funds.

Policy of Control

Policy of control is another determining factor is so far as dividends are concerned. If the directors want to have control on company, they would not like to add new shareholders and therefore, declare a dividend at low rate. Because by adding new shareholders they fear dilution of control and diversion of policies and programmes of the existing management. So they prefer to meet the needs through retained earning. If the directors do not bother about the control of affairs they will follow a liberal dividend policy. Thus control is an influencing factor in framing the dividend policy.

Repayments of Loan

A company having loan indebtedness are vowed to a high rate of retention earnings, unless one other arrangements are made for the redemption of debt on maturity. It will naturally lower down the rate of dividend. Sometimes, the lenders (mostly institutional lenders) put restrictions on the dividend distribution still such time their loan is outstanding. Formal loan contracts generally provide a certain standard of liquidity and solvency to be maintained. Management is bound to hour such restrictions and to limit the rate of dividend payout.

Time for Payment of Dividend

When should the dividend be paid is another consideration. Payment of dividend means outflow of cash. It is, therefore, desirable to distribute dividend at a time when is least needed by the company because there are peak times as well as lean periods of expenditure. Wise management should plan the payment of dividend in such a manner that there is no cash outflow at a time when the undertaking is already in need of urgent finances.

Regularity & stability in Dividend Payment

Dividends should be paid regularly because each investor is interested in the regular payment of dividend. The management should, in spite of regular payment of dividend, consider that the rate of dividend should be all the most constant. For this purpose sometimes companies maintain dividend equalization Fund.

Prof. James E Walter Model

Walter argues that the choice of dividend policies always affect the value of the enterprise. The model clearly shows the importance of the relationships between the firm's IRR i.e., r and its COC i.e., K in determining the dividend policy that will maximise the wealth of the shareholders.

Assumptions

1. **Internal Financing** : RE represents the only source of financing the firm, i.e., debt or new equity is not issued.
 2. **Constant Return and Cost of Capital** : IRR (r) & COC
 3. (k) of the firm will remain constant.
 4. **100% Payout or Retention** : All earnings are either distributed as dividend or reinvested internally.
 5. **Constant EPS and DIV** : Beginning earnings and dividend never change. The value of the EPS and DPS may be changed in the model to determine results, but any given value of EPS or dividend are assumed to remain constant forever in determining the given value.
 6. **Infinite Time** : A firm has perpetuity or a very long life.
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Valuation Formula :

Market price per share is the sum of the present value of the infinite stream of constant dividends and present value of the infinite stream of capital gains.

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

Where,

P = Market price per share,

D = DPS, E = EPS, r = IRR = Actual Cap. Rate

Ke = COC = Cap rate + normal Cap rate



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

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$$P = \frac{4 + \frac{.25}{.20} (10 - 4)}{.20}$$

P = Rs. 57.5

GROWTH FIRM ($r > k$)NORMAL FIRM ($r = k$)DECLINING FIRM ($r < k$)

Dividend = Rs.0

$$P = \frac{0 + \frac{.15}{.10} (10 - 0)}{.10} = \text{Rs. } 150$$

$$P = \frac{0 + \frac{.10}{.10} (10 - 0)}{.10} = \text{Rs. } 100$$

$$P = \frac{0 + \frac{.08}{.10} (10 - 0)}{.10} = \text{Rs. } 80$$

Dividend = Rs.4

$$P = \frac{4 + \frac{.15}{.10} (10 - 4)}{.10} = \text{Rs. } 130$$

$$P = \frac{4 + \frac{.10}{.10} (10 - 4)}{.10} = \text{Rs. } 100$$

$$P = \frac{4 + \frac{.08}{.10} (10 - 4)}{.10} = \text{Rs. } 88$$

Dividend = Rs.8

$$P = \frac{8 + \frac{.15}{.10} (10 - 8)}{.10} = \text{Rs. } 110$$

$$P = \frac{8 + \frac{.10}{.10} (10 - 8)}{.10} = \text{Rs. } 100$$

$$P = \frac{8 + \frac{.08}{.10} (10 - 8)}{.10} = \text{Rs. } 96$$

Dividend = Rs.10

$$P = \frac{10 + \frac{.15}{.10} (10 - 10)}{.10} = \text{Rs. } 100$$

$$P = \frac{10 + \frac{.10}{.10} (10 - 10)}{.10} = \text{Rs. } 100$$

$$P = \frac{10 + \frac{.08}{.10} (10 - 10)}{.10} = \text{Rs. } 100$$

Growth Firm ($r > k$)

Growth firms are those which expand rapidly because of ample investment opportunities yielding higher returns than the opportunity COC. These firms are able to reinvest earnings at a rate which is higher than the rate expected by the SHs. They will maximise the value of the shares if they follow a policy of retaining all earnings for investment.

The market value per share for the growth firm is maximum, if it retains 100% earning.

(100% RR)

Normal Firm ($r = k$)

Most of the firms do not have surplus generating investment opportunities, i.e., generating returns higher than the opportunity COC. After having exhausted such profitable opportunities, these firms earn on their investment, a rate of return equal to the COC, i.e., $r = k$.

Thus, for the normal firm, the dividend policy has no effect on the market value per share. There is no unique optimum payout ratio for the normal firm.

Declining Firm ($r < k$)

Some of the firm do not have any profitable investment opportunities to invest the earnings, because they earn less rate of return on their investment than the minimum rate required by the investors.

The Market value of the share of a declining firm may be more when it does not retain earnings at all, i.e., 100% payout.

GROWTH FIRM ($r > k$)NORMAL FIRM ($r = k$)DECLINING FIRM ($r < k$)

Dividend = Rs.4

$$P = \frac{4 + \frac{.20}{.15}(4-4)}{.15} = \text{Rs. } 26.67$$

$$P = \frac{4 + \frac{.15}{.15}(4-4)}{.15} = \text{Rs. } 26.67$$

$$P = \frac{4 + \frac{.10}{.15}(4-4)}{.15} = \text{Rs. } 26.67$$

Dividend = Rs.2

$$P = \frac{2 + \frac{.20}{.15}(4-2)}{.10} = \text{Rs. } 31.10$$

$$P = \frac{2 + \frac{.15}{.15}(4-2)}{.15} = \text{Rs. } 26.67$$

$$P = \frac{2 + \frac{.10}{.15}(4-2)}{.15} = \text{Rs. } 22.2$$

Limitations

1. The firm investments are financed exclusively by retained earnings, i.e., no external financing is used. Thus, the model would be only applicable to an all equity firm.
2. Model assumes that r is constant. This is not realistic assumption, because when investment increases, r also changes.
3. The assumption of constant k_e is also not correct, because the risk complexion of a firm has a direct bearing on it. By assuming k_e to be constant, Walter ignores the effect of risk on the value of the firm.

Myron Gordon's Model

Assumptions

1. The firm is an all equity firm .
2. No External Financing is available. Consequently, retained earnings would be used to finance any expansion.
3. IRR (r) of the firm is constant.
4. Appropriate discount rate k for the firm remains constant, i.e., it ignores the effect of a change in the firm's risk class and its effect on k .
5. The firm and its stream of earnings are perpetual.
6. Corporate taxes do not exist.
7. The retention rate b once decided is constant. Thus the growth rate, i.e., $g = br$ is constant forever.
8. Discount rate is greater than Growth Rate, i.e., $k > g$.

Valuation Formula (Dividend Capitalisation Model)

Market value of a share is equal to the present value of an infinite stream of dividends to be received by shareholders.

$$P = \frac{\text{EPS} (1 - b)}{K - b r}$$

Where,

P_0 = Price per share at the beginning of Year 0.

Y_0 = EPS = EPS at the end of the year.

$1-b$ = Fraction of earnings the firm distributes by the way of dividend. i.e., D/P ratio.

b = Fraction of earnings the firm ploughs back. (Retention rate)

k = RRR by SHs or Cap. Rate or COC

r = ROR earned on investment made by the firm.

br = g (growth rate of earnings and dividend) i.e., growth rate in the r or ROR on investment of an all equity firm.

GROWTH FIRM ($r > k$)

NORMAL FIRM ($r = k$)

DECLINING FIRM ($r < k$)

Payout Ratio = 0.4

$$P = \frac{10(1 - .6)}{.10 - (.15)(.6)} = 400 \text{ Rs.}$$

$$P = \frac{10(1 - .6)}{.1 - (.6)(.1)} = \text{Rs. } 100$$

$$P = \frac{10(1 - .6)}{.1 - (.6)(.08)} = \text{Rs. } 76.92$$

Payout Ratio = 0.6

$$P = \frac{10(1 - .4)}{.10 - (.15)(.4)} = \text{Rs. } 150$$

$$P = \frac{10(1 - .4)}{.1 - (.4)(.1)} = \text{Rs. } 100$$

$$P = \frac{10(1 - .4)}{.1 - (.4)(.08)} = \text{Rs. } 88.2$$

Payout Ratio = 0.9

$$P = \frac{10(1 - .10)}{.10 - (.15)(.10)} = \text{Rs. } 105.88$$

$$P = \frac{10(1 - .1)}{.1 - (.1)(.1)} = \text{Rs. } 100$$

$$P = \frac{10(1 - .1)}{.1 - (.1)(.08)} = \text{Rs. } 97.83$$

GROWTH FIRM ($r > k$)

$$P = \frac{4(1 - .25)}{.15 - (.25)(.2)} = \text{Rs. } 30$$

40

$$P = \frac{4(1 - .5)}{.15 - (.50)(.2)} = \text{Rs.}$$

NORMAL FIRM ($r = k$)

$$P = \frac{4(1 - .25)}{.15 - (.25)(.15)} = \text{Rs. } 26.67$$

$$P = \frac{4(1 - .5)}{.15 - (.50)(.15)} = \text{Rs. } 26.67$$

DECLINING FIRM ($r < k$)

$$400 \quad P = \frac{10(1 - .6)}{.10 - (.15)(.6)} = \text{Rs.}$$

$$20 \quad P = \frac{4(1 - .5)}{.15 - (.50)(.10)} = \text{Rs.}$$

Modigliani and Miller

According to M-M, under a perfect market situation, the dividend policy of a firm is irrelevant as it does not affect the value of the firm and wealth of the SHs. They argue that the value of the firm depends on firm's earnings which results from its investment policy. Thus when investment decision of the firm is given, dividend decision – the split of earnings between dividend & REs – is of no significance in determining the value of the firm.

MM hypothesis of irrelevance of dividend is based on the following assumptions :

- 1. The firm operates in perfect CM where investors behave rationally, information is available freely to all & transactions & floatation costs do not exist.**
 - 2. Taxes do not exist or there is no differences in tax rates applicable to capital gains & dividend.**
 - 3. The firm has a fixed investment policy. The financing of new investment out of REs will not change the business risk complexion of a firm, & therefore, no change in the RRR.**
 - 4. Risk of uncertainty does not exist, i.e., investors are able to forecast future prices & dividend with certainty & one discount rate is appropriate for all securities for all time periods.**
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The irrelevance of dividend

MM states that dividend policy has no effect on the share prices of a firm. They say that it is the investment policy of the firm through which firm can increase its earnings & ultimately the value of the firm. Under conditions of perfect CM, rationale investors, absence of tax discrimination between dividend income & capital appreciation given the firm's investment policy, its dividend policy may have no influence on the market price of shares.

The MM arguments of irrelevance of dividend is based on the arbitrage process. It refers to entering simultaneously into 2 transactions which exactly balance or completely off-set each other. In the dividend policy decision, the 2 transactions are-

- Paying dividend, &
- Raising external funds either through the sale of new share (public issue) or raising additional loans to finance investment programme.

Thus, given the investment decision, the firm has 2 alternatives :

1. It can retain its earnings to finance the investment,
 2. Distribute the earnings to the SHs as dividend & raise an equal amount externally through the sale of new shares.
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If the firm selects the 2nd alternative, arbitrage process is involved, because payment of dividend is associated with raising funds through other means of financing (specially issue of shares). The effect of dividend payment on SHs' wealth will exactly be offset by the effect of raising additional share capital.

When the dividends are paid, the market price of the share will increase & with the issue of additional shares, it will fall. Thus, what gained by the investors as a result of increased dividend will be neutralized completely by the reduction in the terminal value of the shares, i.e., the market price before & after the dividend payment would be identical. Due to this, the SHs are indifferent with regards to dividend decision of a firm.

PROOF OF MM HYPOTHESIS

Step – 1 : The MP of the share in the beginning of the period is equal to the PV of the dividend payment at the end of the period plus the MP of the share at end of the period.

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

Where, P_0 = Present MP of the share,

K_e = Cost of equity capital,

D_1 = Dividend at the end of the year 1,

P_1 = MP of the share at the end of the year.

Step – 2 : Assuming no external financing, the total capitalised value of the firm would be simply the number of shares times the price of each share :

$$nPo = \frac{1}{(1 + Ke)} (nD1 + nP1) \quad (2)$$

Where, n = number of shares

Po = price of the share

Step – 3 : If the firm's internal sources of financing its investment opportunities fall short of the funds required and Δn or m is the number of new shares issued at the end of one year at the price of P_1 , the equation 2 can be :

$$nP_0 = \frac{1}{1 + K_e} [nD_1 + (n + \Delta n) P_1 - nP_1] \quad \text{--- (3)}$$

Where,

n = number of outstanding shares at the beginning of the year &

$\Delta n = m$ = change in the number of shares outstanding during the period

Above equation implies that the value of the firm is a capitalised value of the dividend to be received during the period plus the value of the number of shares outstanding at the end of the period considering any newly issued shares less the value of the newly issued shares.

Step – 4 : If the firm is to finance all investment proposals, the total amount of new shares issued would be :

$$\Delta nP1 = I - [E - nD1] \text{ ----- (4)}$$

Where,

$\Delta nP1$ = amount obtained from the sale of new shares to finance capital budget,

I = total amount requirement of capital budget,

E = earnings of the firm during the period,

$nD1$ = total dividend paid &

$E - nD1$ = retained earnings

Equation 4 states that whatever investment are not financed by retained earnings must be financed through the sale of additional equity shares.

Step – 5 : If we substitute equation 4 into equation 3, we derive :

$$nPo = \frac{1}{1+Ke} [nD1 + (n+\Delta n)P1-(I-E-nD1)]$$

Solving the equation, we get :

$$nPo = \frac{nD1 + (n+\Delta n) P1-I+E-nD1}{1 + Ke} \quad \text{----- (5)}$$

Since dividend are not found in equation 5, Mm concludes that dividend do not count and that dividend policy has no effect on the share price.

How to solve example by MM approach

Step-1: Calculation of market value of share at the end of the year.

$$P_0 = \frac{D_1 + P_1}{1 + K_e} \quad (\text{Find out } P_1)$$

Step-2 : Calculation of amount required for new financing.

$$\Delta n P_1 = I - [E - n D_1]$$

Step-3: Calculation of number of shares to be issued.

$$\Delta n = \frac{\Delta n P_1}{P_1}$$

Step-4: Calculation of the value of the firm.

$$n P_0 = \frac{(n + \Delta n) P_1 - I + E}{1 + K_e}$$

Div is paid = Re.1

Div is not paid = 0

Step-1: Calculation of market value of share at the end of the year.

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

$$20 = \frac{1 + P_1}{1 + .10} = 22 - 1 = 21$$

$$20 = \frac{0 + P_1}{1 + .10} = 22$$

Step-2 : Calculation of amount required for new financing.

$$\Delta n P_1 = I - [E - n D_1]$$

$$= 680000 - [150000 - 100000]$$

$$= 630000$$

$$= 680000 - [150000 - 0]$$

$$= 530000$$

Step-3: Calculation of number of shares to be issued.

$$\Delta n = \frac{\Delta n P_1}{P_1}$$

$$\Delta n = \frac{630000}{21} = 30000$$

$$\Delta n = \frac{530000}{22} = 24090.9$$

Step-4: Calculation of the value of the firm.

$$n P_0 = \frac{(n + \Delta n) P_1 - I + E}{1 + K_e}$$

$$= \frac{(100000 + 30000) 21 - 680000 + 150000}{1 + .10}$$

$$= \frac{(100000 + 24090) 22 - 680000 + 150000}{1 + .10}$$

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- **Market Imperfections**
 - **Tax Differential – Low Payout Clientele**
 - **Flotation Cost**
 - **Transaction and Agency Cost**
 - **Information Asymmetry**
 - **Diversification**
 - **Uncertainty – High Payout Clientele**
 - **Desire for Steady Income**
 - **No or Low Tax on Dividends**
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