Lesson 15

Theories of Dividend Policy: Irrelevance Approach

Objectives of the lesson

After studying this lesson, students will be able to:

- Understand irrelevance of dividend argument,
- Describe Residual theory of dividend, and
- Learn crux of the MM theory of dividend.

1.0 Irrelevance of Dividend Policy

This school of thought argues that what a firm pays as dividends to shareholders is irrelevant and the shareholders are indifferent about receiving current dividends or receiving capital gains in future. The advocates of this school of thought argue that the dividend policy has no effect on the market price of a share. The shareholders do not differentiate between the present dividend and future capital gains. They are basically interested in higher returns either earned by the firm by reinvesting profits in profitable investment opportunities or earned by them by making investment of dividend income.

The underlying intuition for the dividend irrelevance proposition is simple: Firms that pay more dividends offer less price appreciation but provide the same total return to shareholders, given the risk characteristics of the firm. The investors should be indifferent of receiving their returns in the form of current dividends or in the form of price increase in the market. The conclusion that dividends are not relevant is based on two pre-conditions: (i) investment and financing decisions have already been made and that these decisions will not be altered by the amount of dividends payment, and (ii) perfect capital market is there in which an investor can buy and sell the shares without any transaction cost and that the companies can issue shares without any flotation cost. There are two theories arguing irrelevance of dividend. These are: (i) Residuals theory of dividends, and Modigliani and Miller theory of dividends.

2.0 Residuals Theory of Dividends

This theory is based on the assumption that either the external financing is not available to the firm or if available, cannot be used due to its excessive costs for financing the profitable investment opportunities of the firm. Therefore, the firm finances its investment decisions by retaining profits. The quantum of profits to be distributed is a balancing figure and thus depends on what portions of profits are to be retained. If a firm has sufficient profitable investment opportunities, then the wealth of the shareholders will be maximized by retaining profits and reinvesting them in the financing of investment opportunities either by reducing dividends or even by paying no dividend to the shareholders. If a firm has no such investment opportunity, then the profits may be distributed among the shareholders.

However, it may be noted that the flotation cost associated with a new offering may be as much as 10 percent of the issue size. Thus, if a firm chooses to issue securities than retaining profits, a larger amount of the issue is required to receive the net amount of the investment. For example, if Rs. 50, 00,000 is needed to finance the proposed investment and the flotation cost is 20%, the firm will be required to make an issue of Rs. 55, 55,000 approximately, so that the net proceeds with the company are Rs. 50, 00,000.

This means that the new capital will be more expensive than the capital raised by retention of earnings. In effect, the flotation cost eliminates the indifference between financing by internal capital (i.e.. retention) and new issue. Given the flotation cost, dividends would be paid only if profits are not completely used for investment purposes i.e., only when the firm has some residual earnings after the financing of new investments. This is referred to as the Residuals Theory of dividends.

Thus, a firm does not decide as to how much dividends be paid rather it decides as to how much profits should be retained. The profits not required to be retained may be distributed as dividends. Therefore, dividend decision is a passive decision. The dividends are a distribution of residual profits after retaining sufficient profit for financing the available opportunities. Under the Residuals Theory, the firm would treat the dividend decision in three steps:

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

In the Residuals theory, the dividends policy is influenced by (i) the company's investment opportunities, and (ii) the availability of internally generated funds, where dividends are paid only after all acceptable investment proposals have been financed. The dividend policy is totally passive in nature and has no direct influence on the market price of the share. So, the Residuals Theory treats the dividend as a passive decision determined by the availability of profitable investments. Consequently, the dividends may fluctuate from one year to another depending upon the investment opportunity. But the shareholders do not show any concern to the fluctuations in dividends as they are compensated for reduction in dividends or no dividends at all by future capital gains. The market price of the share is still taken as the present value of all future dividends and the pattern of these dividends does not matter.

For example, a firm paying a dividend of Rs. 3 per share and having a capitalization rate of 15 percent will have a market price of Rs. 20 (i.e., Rs. 3/0.15). If it has 20,000 equity shares outstanding then the total value of the firm is Rs. 4, 00,000 (i.e., Rs. 20x20,000). The total earnings of the firm (presuming 100 percent dividend payout) are Rs. 3x20, 000 = Rs. 60,000. Now, suppose that the firm has investment opportunity of Rs. 40, 000, so it retains Rs. 40,000 out of available profits of Rs. 60,000 and distributes only Rs. 20,000 among the shareholders at the rate of Rs. 1 per share. However, the profit available during next year would be Rs. 60,000 + the profits generated by new investment of I Rs. 40,000, say Rs. 10,000.

Now, the shareholder will receive a dividend Rs. 1 per share in current year but next year onward the dividends per share will be Rs. 3.50 per share as follows:

Existing profits (Expected to be maintained)	Rs. 60,000
Increase in Profit due to new investment	Rs. 10,000
Total profits	Rs. 70,000
No. of shares	20,000
Dividend per share	Rs. 3.50

This expected increase in dividends from Rs. 3 to Rs. 3.50 will affect the market price of the share which will be the present value of all dividends i.e., the current year dividend + Future dividend. So,

$$\text{New Price} = \frac{D_1}{1 + K_e} + \left(\frac{D_2}{K_e} \text{ X } \frac{1}{1 + K_e}\right)$$

$$\text{New Price} = \frac{1}{1.15} + \left(\frac{3.50}{0.15} \text{ X } \frac{1}{1.15}\right) = \text{Rs. } 21.15$$

So, the market price of the share is expected to increase from Rs. 20 to Rs. 21.15 when the firm has retained profits and reinvests them in the profitable investment opportunity. But, what about the incomes of the shareholders? A shareholder might be more interested in maintaining his income rather than the investment opportunity undertaken by the firm out of retained earnings. Say, a shareholder is having 2,000 shares of this firm and is getting a dividend of Rs. 6,000 per annum (i.e., 2,000xRs. 3). What will be his future dividend income if the profits have been retained by the firm to finance investment opportunity of Rs. 40,000? In this case, his total income would be

Dividend in Year 1 (2,000 X Re. 1) = Rs. 2,000 and dividend thereafter (2,000 X Rs. 3.50) = Rs. 7,000 per annum. Now, the shareholder is having a decrease in income of Rs. 4,000 (i.e., Rs. 6,000-2,000). However, thereafter his income will increase by Rs. 1,000 per annum (i.e., R'S. 7,000-6,000). Suppose, he wants to maintain his cash flows in the form of dividend income of Rs. 6,000 even during year 1, then he can sell off some shares to get the cash flow of Rs. 4,000 (so that he has total cash inflow of Rs. 6,000 in year 1 also). Number of shares to be sold for this purpose can be ascertained as follows:

Share price at the end of the year 1	3.50/0.15 = Rs. 23.33
Amount required	Rs. 4,000
So, Number of shares to be sold (4,000/23.33)	172

By selling 172 shares at a price of Rs. 23.33, he will be able to generate Rs. 4,000 and thus, will maintain his cash flow of Rs. 6,000 in year 1. The dividend for the year 2 and thereafter will be (2,000-172) X 3.50 = Rs. 6,398.

As a result of new investment taken up by the firm in year lout of retained earnings, the position of the shareholder may be summed up as follows:

- He is able to maintain his cash flows of Rs. 6,000 in year 1, and
- His income in year 2 and thereafter will increase from Rs. 6,000 to Rs. 6,398. This increase of Rs. 398 reflects the benefits of the new projects taken up by the firm out of retained earnings.

3.0 Modigliani and Miller Approach

The Residuals theory of dividends tends to imply that the dividends are irrelevant and the value of the firm is independent of its dividend policy. The irrelevance of dividend policy for valuation of the firm has been most comprehensively presented by Modigliani and Miller (MM). They have argued that the market price of a share is affected by the earnings of the firm and is not influenced by the pattern of income distribution. The dividend policy is immaterial and is of no consequence to the value of the firm. What matters, on the other hand, is the investment decisions which determine the earnings of the firm and thus affect the value of the firm. They argue that subject to a number of assumptions, the way a firm splits its earnings between dividends and retained earnings has no effect on the value of the firm.

Assumptions of the MM Approach: The MM approach to irrelevance of dividend is based on the following assumptions:

- The capital markets are perfect and the investors behave rationally.
- All information are freely available to all the investors.
- There is no transaction cost and no time lag.
- Securities are divisible and can be split into any fraction. No investor can affect the market price.
- There are no taxes and no flotation cost.
- The firm has a defined investment policy and the future profits are known with certainty. The implication is that the investment decisions are unaffected by the dividend decision and operating cash flows are same no matter which dividend policy is adopted.

Under these assumptions firm's cost of equity is as predictable and certain as its cost of debt.

$$\text{Ke} = \frac{\text{Dividend} + \text{Capital Gain / Loss)}}{\text{Share Price}}$$

$$\text{Or, Ke} = \frac{D_t + (P_1 - P_0)}{P_0}$$

Here: Ke = Cost of equity D_t = Dividend paid on equity after time t; P_1 = Market price of share at time t; P_0 = market price of share at time 0 or purchase price of equity.

Under the above assumptions cost of equity is equal to the internal rate of return (r) generated by utilization of equity capital.

$$\text{Ke} = r$$

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

$$P_0 = \frac{D_t + P_t}{1 + r}; \text{ or } P_0 = \frac{D_t + P_t}{1 + \text{Ke}}$$

Value of Firm (V) = No. of shares outstanding, (n) x Value per share (Po), and
Value of Firm (V) = n X Po

$$V = \frac{n(D_t + P_t)}{1 + K}; \text{ or } V = \frac{nD_t + nP_t}{1 + \text{Ke}}$$

We know that generated earnings are to be split up to finance firms' investments and dividend payments.

If firm has to finance both its investments and dividend payments, then it may hiwe to raise additional funds, as generated profits may not be sufficient enough. Keeping this in view, MM next added a new element to their model and that was, 'A firm can raise fresh capital externally, if needed, to finance its investments and dividend payments'. Under the assumption of perfect and riskless market raising fresh external equity is as good as raising external debt.

Say if 'm' number of shares are issued in time (t) at price P_t, then total amount of new equity issued will be equal to total investments made by the firm at time t, less the retained earnings as shown by the following equation:

$$mP_t = I_t - (X_t - nD_t)$$

Here: I_t = Total Investments; X_t = Total Net Profits; nD_t = Total Dividend Paid

Here, the Value of the firm can be written as:

$$nP_0 = \frac{nD_t + nP_t + mP_t - mP_t}{1 + K}$$

$$\text{Or, } nP_0 = \frac{nD_t + (n+m)P_t - mP_t}{1+K}$$

$$\text{Or, } nP_0 = \frac{nD_t + (n+m)P_t - [I_t - (X_t - nD_t)]}{1+K}$$

$$\text{Or, } nP_0 = \frac{(n+m)P_t - I_t - X_t}{1+K}$$

The final equation does not contain the element of dividend payment, hence we can clearly state that the value of the firm (V) is independent of dividend payment function of the firm. Thus a given firm may decide upon its dividend policy in three possible ways. As discussed below we can clearly see that in all the three situations the value of the firm is not affected by its dividend payout ratio.

1. Situation 1: The firm decides to abstain from paying dividends: Here the value of equity will continue to be same in the absence of dividend transaction. The shareholders will either

   - Wait for the period when the firm will pay dividends or
   - Sell their shares for cash.

   In the later condition the shareholder receives cash against the shares he sells and simultaneously he loses his ownership in the firm proportionate to the amount of holdings he sells. So the total value of the shareowner will remain same both before and after the sale of his shares.

2. Situation 2: The firm decides to pay dividends: Here the value of the share of the owners increases as they receive cash dividends. But simultaneously their stake or ownership in the firm decreases as the value of their assets decreases. Assets include fixed assets and current assets. Current assets comprise of cash earnings from which dividends are paid. As the dividends are paid out, cash earnings decrease, thus decreasing the current assets, and hence decreasing the total assets of the firm. Shareholders are the owners of the firm i.e., they are the owners of the total assets the firm holds. As the value of the assets decreases their claim on assets also decreases thus the total value of the shareholders remains same both before and after dividend payments.

3. Situation 3: The firm decides to pay dividends but does not have sufficient cash to pay it out: In this case the firm issues new shares to raise additional funds for meeting its requirements. Existing shareholders receive dividends thus increasing the value of their shares but simultaneously their stake or ownership in the firm decreases as the value of their assets (due to decrease in current assets) decreases. New shareholders pay cash to subscribe to the shares issued by the firm. They part with cash and in return get ownership claim in the firm.

Thus, ultimately the total value of the shareholders both old and new remains same both before and after dividend payments.

Under M & M's assumptions of perfect capital market, raising new equity is as good as raising debt or a mix of the two. So, if we assume that the firm raises additional capital by issuing debt or a mix of debt and equity, the divided irrelevance model remains same.

Even the Value equation of firm derived above does not have the element of dividend. Thus the present value of future dividend receipts remains unaffected by changes in Dividend Policy.

$$V = \frac{(n + m)P_t - I_t - X_t}{1 + K}$$

Practically we see that in real world situations large dividend changes affects the value of equity in Capital market like large increase in Dividends result in large increase in share price of equity. Similarly, decrease in dividend causes decrease in share value. Such changes in equity value are not due to dividend policy but due to the Informational Content of dividends. Dividend changes create an environment base for changes in equity value. But they do not cause these changes. When dividend policy of the company changes, hidden information is provided to the market regarding future dividend receipts and capital gain (loss). These results in increase (decrease) of share price of equity traded in the stock market.

Increase in dividends is taken as positive sign causing investors to increase the share price as they prefer current dividends to future dividends. This appreciation in share price results in capital gain to SHs selling them. Similarly, decrease in dividends-is taken as negative sign i.e., causing investors to decrease share price. This Depreciation in share price causes capital loss to SHs selling such stock. .

M & M model further states that a second factor exists which affect the value of shares. It is called, "Clientele Effect". A firm attracts a body of investors who prefer the payment pattern, degree and stability of dividends provided by the different firms. Different investor groups prefer and agree with different individual dividend policies of different firms. Say an investor group that prefers continuous and stable dividends, as a source of income will hold the equity stock of firm paying constant dividends.

Investor group preferring capital gain would hold shocks of growing firms (where r > k, such firms invest their earnings in profitable invest giving a handsome return to its owners) which pay unstable, fluctuating but high dividends. In such a case shareholders falling in high tax bracket tend to prefer the option of having lower tax liability. In such case they will hold stock of a firm offering high tax benefit through their Dividend Policy.

Criticism of M & M's Model of Dividend Irrelevance: The "M & M model of dividend irrelevance was criticized on many points:

- Most investors prefer dividends to Capital gain OR future dividends. When dividends are not paid in the immediate period, they are retained by the firm and invested in profitable investments. However, such future cash inflows/benefits contain an element of risk and uncertainty under certain market imperfections. Thus growth cannot be predicted with certainty for equity earnings; hence degree and timing of capital gain may become vague and uncertain. So, most investors prefer current dividend to future dividends.
- Taxes: Tax structure affects personal choice of investors regarding dividend payment of different firms. Sometimes investors face different tax slabs like different tax liability of dividend income and different tax liability on capital gain. Thus the personal choice of investor differs greatly under different tax structure, different tax policy. Thus, Dividends are relevant in real imperfect world where investor perceive and determine the value of firm in accordance with firm's dividend policy change.

In brief we can summarize the M & M Model as follows:

- Value of firm / value of equity is determined by the earnings of the firm and risk structure of its investments and other assets, and not by its dividend decisions.
- If value of firm/equity is affected by dividend policy then it is only due to: (1) Informational content of dividend policy (2) Clientele effect existing with the firm.

4.0 Market Imperfections: Market imperfections in real world reveal the importance of dividend policy of any given firm regarding its real time value. The following imperfections of the market strongly recommend the relevance of firm's dividend policy.

- Floatation Costs: It is assumed in M&M Model that when the firm decides to pay dividend and make investments, it acquires some fund from outside to cope up with both the dividend and investment decisions. Under Perfect Capital Market cost of raising equity is same as cost of debt and same as cost of R.E. In practice, however, this does not hold true. Each new issue of security involves a transaction cost and floatation cost. This cost adds to the cost at which the lender agrees to lend funds to the firm.
- Institutional Restrictions: Certain institutions invest in stock of those firms, which pay stable-high-continuous dividends. In that case the firm, no matter what, adopts a stable dividend payment policy to attract such investors. If dividends fluctuate or are retained by the firm then such institutional investors abstain from investing in these firms.
- Financial Performance: Dividend payments are made out of cash earnings of the firm. The Accounting income may show a low cash balance than actual economic income of the firm. So accounting performance of a given firm may give a wrong signal to the investors whereas dividend payments give a strong signal to the investor about the firm's financial condition.

Summary

The residual theory is based on the assumption that either the external financing is not available to the firm or if available, cannot be used due to its excessive costs for financing the profitable investment opportunities of the firm. Therefore, the firm finances its investment decisions by retaining profits. The quantum of profits to be distributed is a balancing figure and thus depends upon what portions of profits are to be retained. If a firm has sufficient profitable investment opportunities, then the wealth of the shareholders will be maximized by retaining profits and reinvesting them in the financing of investment opportunities either by reducing dividends or even by paying no dividend to the shareholders.

The MM model (Modigliani and Miller) states that dividends are irrelevant. Whether the firm goes for dividend payments or not, the individual existing shareholder's wealth does not alter. However, the theory holds good under perfect market conditions and zero tax environments, but real markets are not perfect. There are market imperfections of floatation cost, taxes, agency costs etc. Some imperfections favor higher retention (i.e., internal equity financing) while, other favors low retention i.e., distribution of earnings to shareholders. (They prefer external equity financing).

Review Questions

1. Write a lucid note on Residual Theory of dividend with suitable examples.
2. Critically evaluate MM hypothesis on dividend policy.
3. Discuss the assumptions and the limitations of MM Model.
4. Discuss the information content of dividend payments and its effect on value of firm.
5. How do market imperfections affect the value of a given firm?
6. Write short note on (i) Market imperfections, and (ii) Clientele Effect

Practical Problem on Dividend Policy Decisions

Illustration # 1: A company has 2, 00,000 outstanding shares selling at Rs. 50 each. The firm has net profits of Rs. 20, 00,000 and intends to make new investment of Rs. 40, 00,000 during the current financial year 2020. The cost of capital for the firm is 10%.

Determine the price of its equity at the end of financial year 2020 under the conditions: (a) Dividend is declared; (b) Dividend is not declared; and (c) In case of declaring the dividend how many new shares must be issued to finance dividend payments. In case the dividends are declared, the dividend payable per share will be equal to Rs. 15 per share.

Solution: Price of equity at the end of the current financial year 2010 is:

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

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

(a) The value of P_1 when dividend is declared:

$$P_1 = 50(1 + 0.10) - 15 = 40$$

(b) The value of P_1 when dividend is not declared:

$$P_1 = 50(1 + 0.10) - 0 = 55$$

Thus, the value of shareholders remains same in both the conditions.

- Value of shareholder is Rs. 40 + Rs. 15 = Rs. 55 (Capital Gain + Dividend Receipt)
- Value of shareholder is Rs. 55 (Only Capital Gain, No Dividend Receipt)

(c) Number of Fresh Shares to be issued by the company to finance dividend payments/ Investments is:

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

$$40\ m = 40{,}00{,}000 - (20{,}00{,}000 - 30{,}00{,}000)$$

$$m = \frac{50{,}00{,}000}{40} = 1{,}25{,}000 \text{ Shares}$$