

**SOS POLITICAL SCIENCE AND PUBLIC ADMINISTRATION**

**MBA FA 202**

**SUBJECT NAME: FUNDAMENTALS OF FINANCIAL MANAGEMENT**

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**UNIT-V**

**TOPIC NAME: M M HYPOTHESIS**

# MM HYPOTHESIS

# MODIGLIANI AND MILLER (MM) HYPOTHESIS

The irrelevance of dividends is provided by the MM Hypothesis.

MM maintains that dividend policy has no effect on the share prices of the firm.

What matters, according to them, is the investment policy through which the firm can increase its earnings and thereby the value of the firm given the investment decision of the firm, the dividend decision - splitting the earnings into packages of retentions and dividends - is a matter of detail and does not matter..

## ASSUMPTIONS

❖ Perfect capital markets, in which all investors are rational. Information is available to all free of cost, there are no transaction costs, securities are infinitely divisible; no investor is large enough to influence the market price of securities, there are no floatation costs.

❖ There are no taxes. Alternatively, there are no differences in tax rate applicable to capital gains and dividends.

## ASSUMPTIONS

- ❖ A firm has a given investment policy which does not change. The operational implication of this assumption is that financing of new investment out of retained earnings will not change the business risk complexion of the firm and therefore, no change in the required rate of return.
- ❖ There is a perfect certainty by every investor as to future investments and profits of the firm. In other words, investors are able to forecast future prices and dividends with certainty. This assumption is dropped by MM later.

## CRUX OF THE ARGUMENT

The crux of the MM position on the irrelevance of dividend is the arbitrage argument.

**Arbitrage** refers to entering simultaneously into two transactions, which balance each other.

The two transactions involve the payment of dividend on one side and raising external funds either through the sale of new shares or to raise loans – to finance investment programmes.

## CRUX OF THE ARGUMENT

❖ Suppose a firm has some investment opportunity, it has two alternatives

(1) **it can retain its earnings to finance the investment or**

(2) **distribute the dividend to the shareholders and raise an equal amount externally through sale of new shares.**

❖ In case, the firm selects the second alternative, arbitrage process is involved in that the payment of dividends is associated with raising of funds through other means of financing.



## CRUX OF THE ARGUMENT

- ❖ The arbitrage process also implies that the total market value plus current dividends of two firms, which are alike in all respects except Dividend Payout Ratio, will be identical.
- ❖ The individual shareholder can retain and invest his own earnings.
- ❖ With dividends being irrelevant, a firm's cost of capital would be independent of its Dividend Payout Ratio.
- ❖ Finally, the arbitrage process will ensure that under conditions of uncertainty also the dividend policy is irrelevant.



## MM HYPOTHESIS PROOF

# STEP 1

*In the first step, the market value of a share in the beginning of the period is equal to the present value of dividend paid at the end of the period plus the market price of the share at the end of the period.*

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

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where,

$P_0$  = The prevailing market price of a share

$K_e$  = The cost of equity capital

$D_1$  = the dividend to be paid at the end of the period one

$P_1$  = The market price of a share at the end of period one with no external financing

## MM HYPOTHESIS PROOF

# STEP 2

Assuming no external financing, the total capitalized value of the firm would be simply the number of shares ( $n$ ) times the price of each share ( $P_0$ ).

$$nP_0 = \frac{1}{(1 + K_e)} (nD_1 + nP_1) \longrightarrow \textcircled{2}$$

## MM HYPOTHESIS PROOF

# STEP 3

If the firm's internal sources of financing its investment opportunities fall short of the funds required, and  $\Delta n$  is the number of new shares issued at the end of year 1 at price of  $P_1$ , eq. (1) can be written as:

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

$$nP_0 = \frac{1}{(1 + k_e)} [(nD_1 + (n + \Delta n)P_1 - \Delta nP_1)] \longrightarrow \textcircled{3}$$

where  $n$  = Number of shares outstanding at the beginning of the period, and

$\Delta n$  = Change in the number of shares outstanding during the period/Additional shares issued

## MM HYPOTHESIS PROOF

# STEP 4

If the firm were to finance all investment proposals, the total amount raised through new shares issued would be given in Eq. 4.

$$\Delta nP_1 = I - (E -$$

$$nD_1)$$

$$\text{or } \Delta nP_1 = I - E +$$

$$nD_1$$

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where

$\Delta nP_1$  = Amount obtained from the sale of new shares of finance capital budget,

$I$  = Total amount requirement of capital budget,

$E$  = Earnings of the firm during the period,

$nD_1$  = Total dividends paid, and

$(E - nD_1)$  = Retained earnings

**According to Equation 4, whatever investment needs are not financed by retained earnings, must be financed through the sale of additional equity shares.**

## MM HYPOTHESIS PROOF

# STEP 5

If we substitute Eq.4 into Eq.3 we derive Eq.5.

$$nP_0 = \frac{1}{(1+k_e)} [nD_1 + (n + \Delta n)P_1 - (I - E + nD_1)] \longrightarrow \text{5}$$

$$nP_0 = \frac{\cancel{nD_1} + (n + \Delta n)p_1 - I + E - \cancel{nD_1}}{(1+k_e)}$$

$$nP_0 = \frac{(n + \Delta n)P_1 - I + E}{(1+k_e)} \longrightarrow \text{6}$$

## *MM HYPOTHESIS PROOF*

# STEP 6

**Conclusion** Since dividends ( $D$ ) are not found in Eq. 6, Modigliani and Miller conclude that dividends do not count and that dividend policy has no effect on the share price.

## MM HYPOTHESIS EXAMPLE

- **Example:** *The capitalization rate of A Ltd. is **12%**. The company has outstanding shares to the extent of **25,000 shares** selling @ **Rs. 100** each. Assume, the net income anticipated for the current financial year of **Rs. 3,50,000**. A Ltd. plans to declare a dividend of **Rs.3 per share**. The company has investment plans for new project of **Rs. 5,00,000**. Show that under the MM Model, the dividend payment does not affect the value of the firm.*



**THANK YOU**