
MM MODEL: DIVIDENT IS IRRELEVANT (DIVIDEND POLICY IS IRRELEVANT IT DOES NOT AFFECT THE VALUE OF THE FIRM)

1ST of all let's have an overview of the assumptions of MM Model:-

- 1) Markets are perfectly competitive. So that no investor can affect the market
- 2) Rational investors.
- 3) No taxes.
- 4) Investment opportunities are known with certainty.
- 5) No transaction cost, no flotation cost is there.
- 6) Securities may be purchase or sell in fraction.
- 7) No restriction on short selling.
- 8) Corporate dividends and home dividends are substitute.
- 9) No risk: - uncertainties do not exist, i.e. investors are able to forecast future prices and dividends with certainty.
- 10) One discount rate is applicable for all securities and for all time periods. ($R=K$).

Since MM Model assumes that there are no taxes. So due to this assumption there is no difference between capital gain income and dividend income i.e. it does not matter to the investor whether he is getting return as dividend or retained earnings.

$$\text{So Required Rate of Return } (R_e) = \frac{\text{Dividend} + \text{Capital Gain}}{\text{Price}}$$

$$\text{So } R_e = \frac{D_1 + (P_1 - P_0)}{P_0}$$

Where

D_1 = Dividend to be Received

$P_1 - P_0$ = Capital Gain

Now by adding 1 in both the side of the equation and solving this we will get

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

Explanation: This formula can be easily derived as explained in above however we can simply understand this.

As per this model we are investing P_0 today and wants to earn R_e so value of our investment after one year = $P_0(1+R)^1$ and this amount is represented by D_1+P_1 so present value of this amount at a discounting rate equal to R_e is equal to our investment to day i.e. P_0

Now moving forward, by multiplying the above equation with number of outstanding shares (n) we will get value of the firm.

$$\text{Value of Firm (V)} = nP_0 = \frac{n(D_1 + P_1)}{1 + R_e} = \frac{nD_1 + nP_1}{1 + R_e}$$

Now come to the assumption that future investment opportunities are known with certainty. Based on this assumption we may proceed as:-

Notations

Future Investment Requirement = I

Earning for the period = E

Total dividend to be paid = nD_1

So retained earning = $E - nD_1$

Now

Equation may be drafted as:

$$\text{fund required} = I - [E - nD_1]$$

So the fund required may be raised by issuing "m" number of shares at price = P_1

Redrafting the above formula:- $mP_1 = I - [E - nD_1]$

Note: "m" may be zero or negative, if zero, no shares is required to be issued, if negative, such number of shares is required to be buyback at a price = P_1

By modifying the above formula we will get

$$nD_1 = mP_1 - I + E$$

Now by putting this in the formula for value of the firm instead of nD_1 we will get

$$\text{Value of Firm (V)} = nP_0 = \frac{nP_1 + mP_1 - I + E}{1 + R_e} = \frac{P_1(n+m) - I + E}{1 + R_e}$$

This proves that Dividend is irrelevant for the valuation of firm.

Thanks, ☺