

MBA (Business Economics) II Semester

Paper- Financial Management (203)

UNIT- II Topic- Capital Structure and its theories

Meaning and Concept of Capital Structure

The term 'structure' means the arrangement of the various parts. So capital structure means the arrangement of capital from different sources so that the long-term funds needed for the business are raised.

Thus, capital structure refers to the proportions or combinations of equity share capital, preference share capital, debentures, long-term loans, retained earnings and other long-term sources of funds in the total amount of capital which a firm should raise to run its business.

The capital structure is the particular combination of debt and equity used by a company to finance its overall operations and growth. Debt comes in the form of bond issues or loans, while equity may come in the form of common stock, preferred stock, or retained earnings. Short-term debt such as working capital requirements is also considered to be part of the capital structure.

Few definitions of capital structure given by some financial experts

“Capital structure of a company refers to the make-up of its capitalisation and it includes all long-term capital resources viz., loans, reserves, shares and bonds.”—**Gerstenberg**.

“Capital structure is the combination of debt and equity securities that comprise a firm's financing of its assets.”—**John J. Hampton**.

“Capital structure refers to the mix of long-term sources of funds, such as, debentures, long-term debts, preference share capital and equity share capital including reserves and surplus.”—**I. M. Pandey**.

Importance of Capital Structure

The importance or significance of Capital Structure:

1. Increase in value of the firm:

A sound capital structure of a company helps to increase the market price of shares and securities which, in turn, lead to increase in the value of the firm.

2. Utilisation of available funds:

A good capital structure enables a business enterprise to utilise the available funds fully. A properly designed capital structure ensures the determination of the financial requirements of the firm and raises the funds in such proportions from various sources for their best possible utilisation. A sound capital structure protects the business enterprise from over-capitalisation and under-capitalisation.

3. Maximisation of return:

A sound capital structure enables management to increase the profits of a company in the form of higher return to the equity shareholders i.e., increase in earnings per share. This can be done by the mechanism of trading on equity i.e., it refers to increase in the proportion of debt capital in the capital structure which is the cheapest source of capital. If the rate of return on capital employed (i.e., shareholders' fund + long-term borrowings) exceeds the fixed rate of interest paid to debt-holders, the company is said to be trading on equity.

4. Minimisation of cost of capital:

A sound capital structure of any business enterprise maximises shareholders' wealth through minimisation of the overall cost of capital. This can also be done by incorporating long-term debt capital in the capital structure as the cost of debt capital is lower than the cost of equity or preference share capital since the interest on debt is tax deductible.

5. Solvency or liquidity position:

A sound capital structure never allows a business enterprise to go for too much raising of debt capital because, at the time of poor earning, the solvency is disturbed for compulsory payment of interest to the debt-supplier.

6. Flexibility:

A sound capital structure provides a room for expansion or reduction of debt capital so that, according to changing conditions, adjustment of capital can be made.

7. Undisturbed controlling:

A good capital structure does not allow the equity shareholders control on business to be diluted.

8. Minimisation of financial risk:

If debt component increases in the capital structure of a company, the financial risk (i.e., payment of fixed interest charges and repayment of principal amount of debt in time) will also increase. A sound capital structure protects a business enterprise from such financial risk through a judicious mix of debt and equity in the capital structure.

Factors Determining Capital Structure

The following factors influence the capital structure decisions:

1. Risk of cash insolvency:

Risk of cash insolvency arises due to failure to pay fixed interest liabilities. Generally, the higher proportion of debt in capital structure compels the company to pay higher rate of interest on debt irrespective of the fact that the fund is available or not. The non-payment of interest charges and principal amount in time call for liquidation of the company.

The sudden withdrawal of debt funds from the company can cause cash insolvency. This risk factor has an important bearing in determining the capital structure of a company and it can be avoided if the project is financed by issues equity share capital.

2. Risk in variation of earnings:

The higher the debt content in the capital structure of a company, the higher will be the risk of variation in the expected earnings available to equity shareholders. If return on investment on total capital employed (i.e., shareholders' fund plus long-term debt) exceeds the interest rate, the shareholders get a higher return.

On the other hand, if interest rate exceeds return on investment, the shareholders may not get any return at all.

3. Cost of capital:

Cost of capital means cost of raising the capital from different sources of funds. It is the price paid for using the capital. A business enterprise should generate enough revenue to meet its cost of capital and finance its future growth. The finance manager should consider the cost of each source of fund while designing the capital structure of a company.

4. Control:

The consideration of retaining control of the business is an important factor in capital structure decisions. If the existing equity shareholders do not like to dilute the control, they may prefer debt capital to equity capital, as former has no voting rights.

5. Trading on equity:

The use of fixed interest bearing securities along with owner's equity as sources of finance is known as trading on equity. It is an arrangement by which the company aims at increasing the return on equity shares by the use of fixed interest bearing securities (i.e., debenture, preference shares etc.).

If the existing capital structure of the company consists mainly of the equity shares, the return on equity shares can be increased by using borrowed capital. This is so because the interest paid on debentures is a deductible expenditure for income tax assessment and the after-tax cost of debenture becomes very low.

Any excess earnings over cost of debt will be added up to the equity shareholders. If the rate of return on total capital employed exceeds the rate of interest on debt capital or rate of dividend on preference share capital, the company is said to be trading on equity.

6. Government policies:

Capital structure is influenced by Government policies, rules and regulations of SEBI and lending policies of financial institutions which change the financial pattern of the company totally. Monetary and fiscal policies of the Government will also affect the capital structure decisions.

7. Size of the company:

Availability of funds is greatly influenced by the size of company. A small company finds it difficult to raise debt capital. The terms of debentures and long-term loans are less favourable to such enterprises. Small companies have to depend more on the equity shares and retained earnings.

On the other hand, large companies issue various types of securities despite the fact that they pay less interest because investors consider large companies less risky.

8. Needs of the investors:

While deciding capital structure the financial conditions and psychology of different types of investors will have to be kept in mind. For example, a poor or middle class investor may only be able to invest in equity or preference shares which are usually of small denominations, only a financially sound investor can afford to invest in debentures of higher denominations.

A cautious investor who wants his capital to grow will prefer equity shares.

9. Flexibility:

The capital structures of a company should be such that it can raise funds as and when required. Flexibility provides room for expansion, both in terms of lower impact on cost and with no significant rise in risk profile.

10. Period of finance:

The period for which finance is needed also influences the capital structure. When funds are needed for long-term (say 10 years), it should be raised by issuing debentures or preference shares. Funds should be raised by the issue of equity shares when it is needed permanently.

11. Nature of business:

It has great influence in the capital structure of the business, companies having stable and certain earnings prefer debentures or preference shares and companies having no assured income depends on internal resources.

12. Legal requirements:

The finance manager should comply with the legal provisions while designing the capital structure of a company.

13. Purpose of financing:

Capital structure of a company is also affected by the purpose of financing. If the funds are required for manufacturing purposes, the company may procure it from the issue of long-term sources. When the funds are required for non-manufacturing purposes i.e., welfare facilities to workers, like school, hospital etc. the company may procure it from internal sources.

14. Corporate taxation:

When corporate income is subject to taxes, debt financing is favourable. This is so because the dividend payable on equity share capital and preference share capital are not deductible for tax purposes, whereas interest paid on debt is deductible from income and reduces a firm's tax liabilities. The tax saving on interest charges reduces the cost of debt funds.

Moreover, a company has to pay tax on the amount distributed as dividend to the equity shareholders. Due to this, total earnings available for both debt holders and stockholders is more when debt capital is used in capital structure. Therefore, if the corporate tax rate is high enough, it is prudent to raise capital by issuing debentures or taking long-term loans from financial institutions.

15. Cash inflows:

The selection of capital structure is also affected by the capacity of the business to generate cash inflows. It analyses solvency position and the ability of the company to meet its charges.

16. Provision for future:

The provision for future requirement of capital is also to be considered while planning the capital structure of a company.

17. EBIT-EPS analysis:

If the level of EBIT is low from HPS point of view, equity is preferable to debt. If the EBIT is high from EPS point of view, debt financing is preferable to equity. If ROI is less than the interest on debt, debt financing decreases ROE. When the ROI is more than the interest on debt, debt financing increases ROE.

Theories of Capital Structure

The following points will highlight the top four theories of capital structure.

Capital Structure Theory # 1. Net Income (NI) Approach

According to NI approach a firm may increase the total value of the firm by lowering its cost of capital.

When cost of capital is lowest and the value of the firm is greatest, we call it the optimum capital structure for the firm and, at this point, the market price per share is maximised.

The same is possible continuously by lowering its cost of capital by the use of debt capital. In other words, using more debt capital with a corresponding reduction in cost of capital, the value of the firm will increase.

The same is possible only when:

(i) Cost of Debt (K_d) is less than Cost of Equity (K_e);

(ii) There are no taxes; and

(iii) The use of debt does not change the risk perception of the investors since the degree of leverage is increased to that extent.

Since the amount of debt in the capital structure increases, weighted average cost of capital decreases which leads to increase the total value of the firm. So, the increased amount of debt with constant amount of cost of equity and cost of debt will highlight the earnings of the shareholders.

It is interesting to note the NI approach can also be graphically presented as under (with the help of the above illustration):

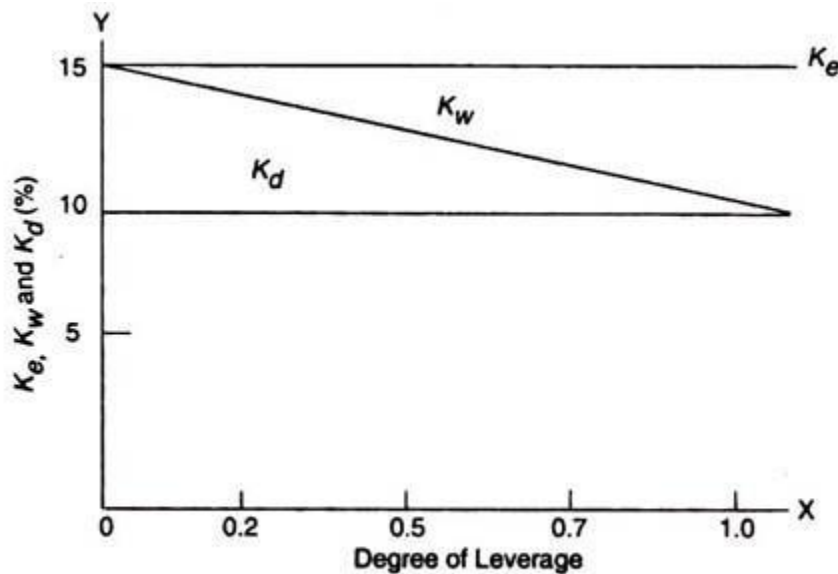


Fig. 2.1 : Behaviour of K_e , K_w and K_d as per Net Income Approach

The degree of leverage is plotted along the X-axis whereas K_e , K_w and K_d are on the Y-axis. It reveals that when the cheaper debt capital in the capital structure is proportionately increased, the weighted average cost of capital, K_w , decreases and consequently the cost of debt is K_d .

Thus, it is needless to say that the optimal capital structure is the minimum cost of capital if financial leverage is one; in other words, the maximum application of debt capital.

The value of the firm (V) will also be the maximum at this point.

Capital Structure Theory # 2. Net Operating Income (NOI) Approach

Now we want to highlight the Net Operating Income (NOI) Approach which was advocated by David Durand based on certain assumptions.

They are:

- (i) The overall capitalisation rate of the firm K_w is constant for all degree of leverages;

(ii) Net operating income is capitalised at an overall capitalisation rate in order to have the total market value of the firm.

Thus, the value of the firm, V, is ascertained at overall cost of capital (K_w):

$$V = \text{EBIT}/K_w \text{ (since both are constant and independent of leverage)}$$

(iii) The market value of the debt is then subtracted from the total market value in order to get the market value of equity.

$$S = V - T$$

(iv) As the Cost of Debt is constant, the cost of equity will be

$$K_e = \text{EBIT} - I/S$$

The NOI Approach can be illustrated with the help of the following diagram:

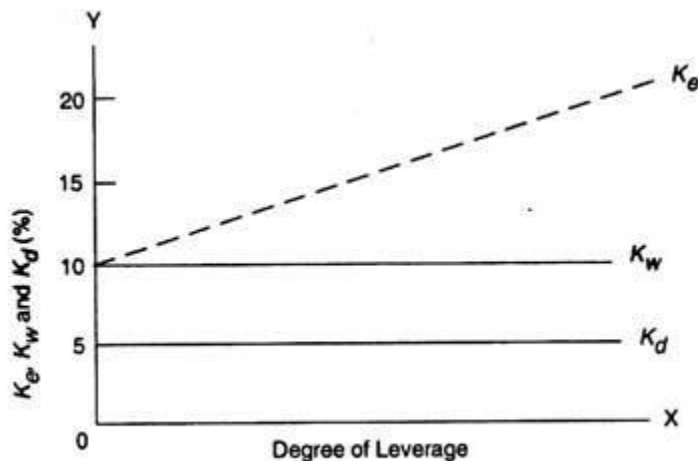


Fig. 2.2 : Behaviours of K_e , K_w and K_d under Net Operating Income Approach

Under this approach, the most significant assumption is that the K_w is constant irrespective of the degree of leverage. The segregation of debt and equity is not important here and the market capitalises the value of the firm as a whole.

Thus, an increase in the use of apparently cheaper debt funds is offset exactly by the corresponding increase in the equity- capitalisation rate. So, the weighted average Cost of Capital K_w and K_d remain unchanged for all degrees of leverage. Needless to mention here that, as the firm increases its degree of leverage, it becomes more risky proposition and investors are to make some sacrifice by having a low P/E ratio.

Capital Structure Theory # 3. Traditional Theory Approach

It is accepted by all that the judicious use of debt will increase the value of the firm and reduce the cost of capital. So, the optimum capital structure is the point at which the value of the firm is highest and the cost of capital is at its lowest point. Practically, this approach encompasses all the ground between the Net Income Approach and the Net Operating Income Approach, i.e., it may be called Intermediate Approach.

The traditional approach explains that up to a certain point, debt-equity mix will cause the market value of the firm to rise and the cost of capital to decline. But after attaining the optimum level, any additional debt will cause to decrease the market value and to increase the cost of capital.

In other words, after attaining the optimum level, any additional debt taken will offset the use of cheaper debt capital since the average cost of capital will increase along with a corresponding increase in the average cost of debt capital.

Thus, the basic proposition of this approach is:

- (a) The cost of debt capital, K_d , remains constant more or less up to a certain level and thereafter rises.
- (b) The cost of equity capital K_e , remains constant more or less or rises gradually up to a certain level and thereafter increases rapidly.
- (c) The average cost of capital, K_w , decreases up to a certain level remains unchanged more or less and thereafter rises after attaining a certain level.

The traditional approach can graphically be represented under taking the data from the previous illustration:

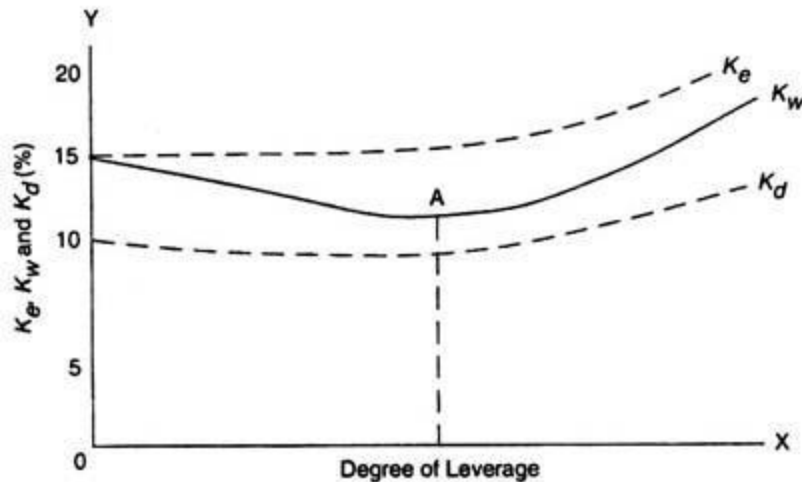


Fig. 2.3 : Behaviour of K_e , K_w and K_d under Traditional Approach

It is found from the above that the average cost curve is U-shaped. That is, at this stage the cost of capital would be minimum which is expressed by the letter 'A' in the graph. If we draw a perpendicular to the X-axis, the same will indicate the optimum capital structure for the firm.

Thus, the traditional position implies that the cost of capital is not independent of the capital structure of the firm and that there is an optimal capital structure. At that optimal structure, the marginal real cost of debt (explicit and implicit) is the same as the marginal real cost of equity in equilibrium.

For degree of leverage before that point, the marginal real cost of debt is less than that of equity beyond that point the marginal real cost of debt exceeds that of equity.

Variations on the Traditional Theory:

This theory underlines between the Net Income Approach and the Net Operating Income Approach. Thus, there are some distinct variations in this theory. Some followers of the traditional school of thought suggest that K_e does not practically rise till some critical conditions arise. Only after attaining that level the investors apprehend the increasing financial risk and penalise the market price of the shares. This variation expresses that a firm can have lower cost of capital with the initial use of leverage significantly.

This variation in Traditional Approach is depicted as:

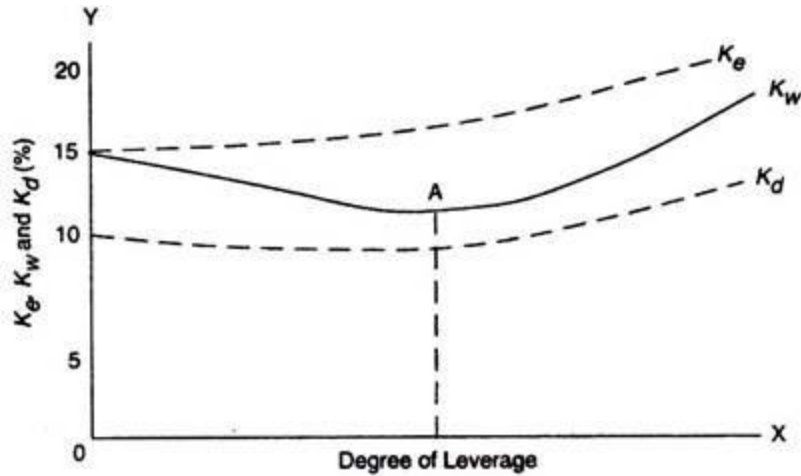


Fig. 2.4 : Behaviour of K_e , K_w and K_d under variation of Traditional Approach (when K_e constant at first)

Other followers e.g., Solomon, are of opinion the K_e is being saucer-shaped along with a horizontal middle range. It explains that optimum capital structure has a range where the cost of capital is rather minimised and where the total value of the firm is maximised. Under the circumstances a change in leverage has, practically, no effect on the total firm's value. So, this approach grants some sort of variation in the optimal capital structure for various firms under debt-equity mix.

Such variation can be depicted in the form of graphical representation:

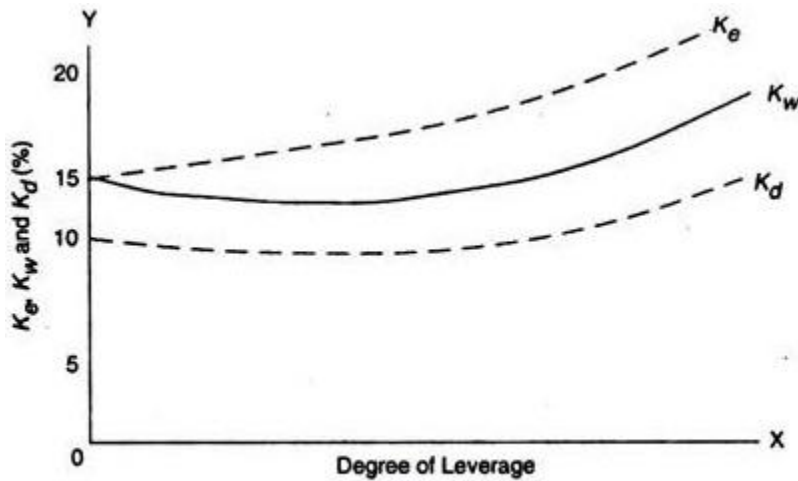


Fig. 2.5 : Behaviour of K_e , K_w and K_d under Saucer-Shaped K_e Curve of Traditional Approach

Capital Structure Theory # 4. Modigliani-Miller (M-M) Approach

Modigliani-Miller' (MM) advocated that the relationship between the cost of capital, capital structure and the valuation of the firm should be explained by NOI (Net Operating Income Approach) by making an attack on the Traditional Approach.

The Net Operating Income Approach, supplies proper justification for the irrelevance of the capital structure. In Income Approach, supplies proper justification for the irrelevance of the capital structure.

In this context, MM support the NOI approach on the principle that the cost of capital is not dependent on the degree of leverage irrespective of the debt-equity mix. In the words, according to their thesis, the total market value of the firm and the cost of capital are independent of the capital structure.

They advocated that the weighted average cost of capital does not make any change with a proportionate change in debt-equity mix in the total capital structure of the firm.

The same can be shown with the help of the following diagram:

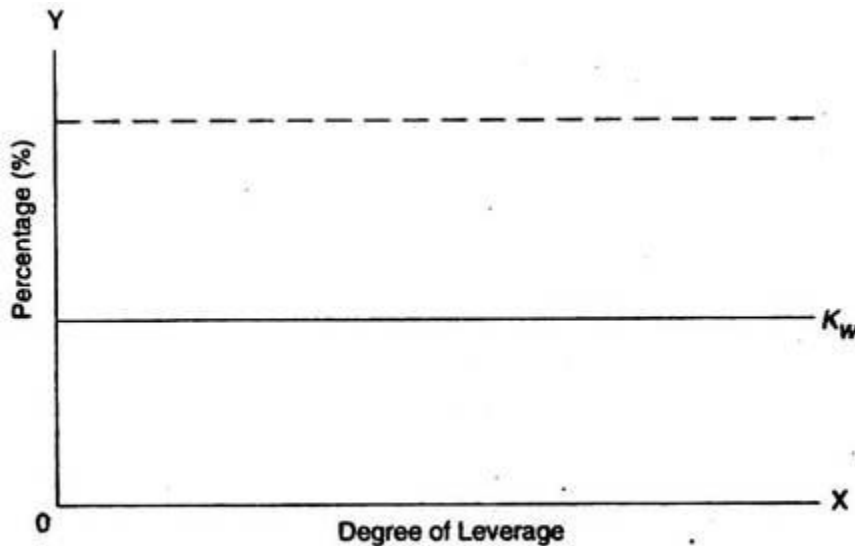


Fig. 2.6 ; The figure shows that the weighted average cost of capital does not make any change (MM hypothesis proposition)

Proposition:

The following propositions outline the MM argument about the relationship between cost of capital, capital structure and the total value of the firm:

(i) The cost of capital and the total market value of the firm are independent of its capital structure. The cost of capital is equal to the capitalisation rate of equity stream of operating earnings for its class, and the market is determined by capitalising its expected return at an appropriate rate of discount for its risk class.

(ii) The second proposition includes that the expected yield on a share is equal to the appropriate capitalisation rate of a pure equity stream for that class, together with a premium for financial risk equal to the difference between the pure-equity capitalisation rate (K_e) and yield on debt (K_d). In short, increased K_e is offset exactly by the use of cheaper debt.

(iii) The cut-off point for investment is always the capitalisation rate which is completely independent and unaffected by the securities that are invested.

Assumptions:

The MM proposition is based on the following assumptions:

(a) Existence of Perfect Capital Market It includes:

- (i) There is no transaction cost;
- (ii) Flotation costs are neglected;
- (iii) No investor can affect the market price of shares;
- (iv) Information is available to all without cost;
- (v) Investors are free to purchase and sale securities.

(b) Homogeneous Risk Class/Equivalent Risk Class:

It means that the expected yield/return have the identical risk factor i.e., business risk is equal among all firms having equivalent operational condition.

(c) Homogeneous Expectation:

All the investors should have identical estimate about the future rate of earnings of each firm.

(d) The Dividend pay-out Ratio is 100%:

It means that the firm must distribute all its earnings in the form of dividend among the shareholders/investors, and

(e) Taxes do not exist:

That is, there will be no corporate tax effect (although this was removed at a subsequent date).

Interpretation of MM Hypothesis:

The MM Hypothesis reveals that if more debt is included in the capital structure of a firm, the same will not increase its value as the benefits of cheaper debt capital are exactly set-off by the corresponding increase in the cost of equity, although debt capital is less expensive than the equity capital. So, according to MM, the total value of a firm is absolutely unaffected by the capital structure (debt-equity mix) when corporate tax is ignored.

Proof of MM Hypothesis—The Arbitrage Mechanism:

MM have suggested an arbitrage mechanism in order to prove their argument. They argued that if two firms differ only in two points viz. (i) the process of financing, and (ii) their total market value, the shareholders/investors will dispose-off share of the over-valued firm and will purchase the share of under-valued firms.

Naturally, this process will be going on till both attain the same market value. As such, as soon as the firms will reach the identical position, the average cost of capital and the value of the firm will be equal. So, total value of the firm (V) and Average Cost of Capital, (K_w) are independent.

Criticisms of the MM Hypothesis:

We have seen (while discussing MM Hypothesis) that MM Hypothesis is based on some assumptions. There are some authorities who do not recognise such assumptions as they are quite unrealistic, viz. the assumption of perfect capital market.

We also know that most significant element in this approach is the arbitrage process forming the behavioural foundation of the MM Hypothesis. As the imperfect market exists, the arbitrage process will be of no use and as such, the discrepancy will arise between the market value of the unlevered and levered firms.

The shortcomings for which arbitrage process fails to bring the equilibrium condition are:

(i) Existence of Transaction Cost:

The arbitrage process is affected by the transaction cost. While buying securities, this cost is involved in the form of brokerage or commission etc. for which extra amount is to be paid which increases the cost price of the shares and requires a greater amount although the return is same. As such, the levered firm will enjoy a higher market value than the unlevered firm.

(ii) Assumption of borrowing and lending by the firms and the individual at the same rate of interest:

The above proposition that the firms and the individuals can borrow or lend at the same rate of interest, does not hold good in reality. Since a firm holds more assets and credit reputation in the open market in comparison with an individual, the former will always enjoy a better position than the latter.

As such, cost of borrowing will be higher in case of an individual than a firm. As a result, the market value of both the firms will not be equal.

(iii) Institutional Restriction:

The arbitrage process is retarded by the institutional investors e.g., Life Insurance Corporation of India, Commercial Banks; Unit Trust of India etc., i.e., they do not encourage personal leverage. At present these institutional investors dominate the capital market.

(iv) “Personal or home-made leverage” is not the perfect substitute for “corporate leverage.”:

MM hypothesis assumes that “personal leverage” is a perfect substitute for “corporate leverage” which is not true as we know that a firm may have a limited liability whereas there is unlimited liability in case of individuals. For this purpose, both of them have different footing in the capital market.

(v) Incorporation of Corporate Taxes:

If corporate taxes are considered (which should be taken into consideration) the MM approach will be unable to discuss the relationship between the value of the firm and the financing decision. For example, we know that interest charges are deducted from profit available for dividend, i.e., it is tax deductible.

In other words, the cost of borrowing funds is comparatively less than the contractual rate of interest which allows the firm regarding tax advantage. Ultimately, the benefit is being enjoyed by the equity-holders and debt-holders.

According to some critics the arguments which were advocated by MM, are not valued in the practical world. We know that cost of capital and the value of the firm are practically the product of financial leverage.