

# Capital Structure and Value of Firm: Net Income Approach

## Abstract

Every organization requires appropriate funds to run its business smoothly. The required funds may be raised either short-term sources or long-term sources or combination of both. Capital structure is the proportion of all types of capital viz. equity, debt, preference etc. and is a part of financial structure which includes both short-term and long-term sources of funds. The capital structure decision affects financial risk and, hence the value of the firm. Optimum Capital Structure is that capital structure at that level of debt—equity proportion where the market value per share is maximum and the cost of capital is minimum. It is difficult to define ideal capital structure as it varies business to business and firm to firm. Development of capital structure theory begins with the theory of Miller and Modigliani. This paper is an attempt to explain the Net income approach developed by Durand which clarify that there is a positive relationship between leverage and value of firm and negative relationship between leverage and overall cost of capital. With the judicious mixture of debt and equity, a firm can evolve an optimum capital structure which will be one at which the value of firm in highest and overall cost of capital is lowest.

**Keywords:** Leverage, Value of Firm, Capital Structure, Financial Structure, Cost of Capital, Operating Profit, Optimum Capital Structure, Net Proceeds, Earning Before Interest And Tax.

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## Introduction

Finance is the life blood of any business, as circulation of blood is essential in the human body for maintaining life likewise finance is very essential not only to establish the business but also to ensure survival, growth and smooth functioning of the business. It is oil of wheels, the marrow of the bones, the blood in the veins and the spirit of all trade. So it is also termed as universal lubricant which keeps the business dynamic. Organization is a group of employee working together consciously towards the organization's goal. The goal of traditional organization is to maximize profit but modern organizations which are raising funds by issue of equity shares is to maximize shareholder's wealth which is possible only when the organization is able to maximize net profits. All employees who are in the decision making process have to take decisions that help maximize shareholders' wealth.

Financial management is concerned mainly with procuring funds in the most economical and prudent manner, deploying these funds in most profitable way in a given risk situation, planning future operations and controlling current and future performances. It is an integral part of overall management and not a totally independent area. Finance has emerged as a distinct area of study during second half of the twentieth century. The evolution of finance function as a discipline can be divided into different phases:

### The Traditional Phase

Initially finance was a part of economics and no separate attention was paid to finance. In this phase the finance manager was concerned with record keeping, preparing different report, and managing cash. This phase lasted for about four decade i.e up to 1940.

### Transitional Phase

It begun around the early 1940s and continued up to early 1950s. The nature of financial management in this phase is almost similar to that of earlier phase but more emphasis was given to the day-to-day i.e working capital problems faced by the finance managers. Capital budgeting technique was developed in this phase. In fact this phase was an extension of the traditional phase.

**The Modern Phase**

This phase was begun in mid 1950s, in which the scope of finance function has widened further and includes not only the measures of procuring funds at episodic events but also the optimum utilization through data based analytical decision making. Theory of Portfolio Management and Theory of Leverage and Valuation of Firm remained two significant contributions in this phase.

**Capital Structure**

Every organization requires appropriate funds to run its business smoothly. The required funds may be raised either short-term sources or long-term sources or combination of both, so as to equip itself with an appropriate combination of fixed assets and current assets. Current assets to a considerable extent are financed with the help of short-term sources. The net positive current assets are financed by long-term sources. Hence long-term sources of funds are required to finance for both long term assets and net working capital which is called positive current assets. Having estimated total funds requirements of an enterprise and examined the potentiality of different sources of financing and their utility to a company, a finance manager has to decide about the norms of financing their requirements and their relative proportion in total capitalization so as to maximize the value of the company. Such type of decisions is collectively designated as capital structure decisions.

Capital structure is the proportion of all types of capital viz. equity, debt, preference etc. which is synonymously used as financing mix. It is also referred as the degree of debts in the financing or capital of a business firm. Capital structure is a part of financial structure which refers to the left hand side of the balance sheet as represented by total liabilities consisting of current liabilities, long-term debts, and preference share and equity share capital. The financial structure therefore includes both short-term and long-term sources of funds.

Financial Structure = Total Liabilities

or

Financial Structure = Capital Structure + Current Liabilities

Capital Structure = Total Assets – Current Liabilities

**Value of Firm**

The value of firm depends on the earnings of the firm/Company and the earnings of the firm depend upon the investment decisions of the firm. The earnings of the firm are capitalized at a rate equal to the cost of capital in order to find out the value of the firm. Thus the value of the firm depends two basic factor i.e., the earnings of the firm and the cost of capital. The operational profit i.e. EBIT is divided among three main claimants (i) the debt holders who receive their share in the form of interest (ii) the Government which receives its share in the form of taxes and (iii) the shareholders who receive the residual. So, the EBIT is a pool which is to be divided among the three claimants. The investment decisions of the firm determine the size of the EBIT pool while the capital structure mix determines the way it is to be sliced. Therefore, total value of the firm is the sum of

its value to the debt holders and to its shareholders and is determined by the amount of EBIT going to them respectively. The investment decision can therefore, increase the value of the firm by increasing the size of the EBIT whereas the capital structure mix can affect the value only by reducing the share of the EBIT going to the Government in the form of taxes.

**Optimum Capital Structure**

Capital structure plays a pivotal role in decision making and value of firm, so it is argued that what is the optimum capital structure. Is there any norms forming the optimum capital structure? This is the pertinent question that lies before the finance manager of any firm as in the financing decision the job of a financial manager is to come out with an optimum capital structure. Optimum Capital Structure is that capital structure at that level of debt—equity proportion where the market value per share is maximum and the cost of capital is minimum. It is difficult to define ideal capital structure as it varies from business to business and firm to firm. A company's capital structure is a function of the nature of its business and how risky the particular business is there a matter of business judgment. The optimum capital structure keeps a balance between share capital and debt. Construction of optimum capital structure is very important for a firm, since the firm's value depends on the capital structure. Hence, the finance manager should develop an appropriate capital structure which is helpful to maximize shareholders' wealth. Capital structure policy involves a choice between risk and expected return and the optimal capital structure strikes a balance between these risks and returns and thus examines the price of the stock. Those companies, who don't design their capital structure in a preplanned way, realize difficulties in raising funds on favorable terms in long run to finance its development plans.

**Review of Literature**

Review of literature helps a researcher to be familiar with the emerging trends on the one hand and start some mental thinking on the other. It helps in finding fertile theoretical background, clear concepts, an idea of developing trends in research methodology, data processing, reporting pattern. Besides answering many a 'what' 'when' 'why' and 'how' these are helpful in distilling worthwhile result.

Reddy, Sudarsana, G.<sup>1</sup> in his book 'Financial Management-Principles and Practice' focuses on the challenges of managing finance in different contexts. It stated that management of finance of individual and of business organizations has become too complex and challenging so one should understand and implement set principles and practices of managing finance. It is divided into nine parts and comprising 29 chapters. Part V of this book deals with financing decision including capital structure and value of firm. In this chapter he clearly explained the importance of optimum capital structure for any company and also describes the importance of EBIT-EPS analysis in establishing optimum capital structure.

Rustagi, R.P.<sup>2</sup> in his book entitled "Financial Management- Theory, Concepts and Problems" is an admirable attempt at presenting the conceptual

framework of financial management. This book is an easy way to understand financial management to apply the theoretical concepts to real life problems being faced by financial managers. Especially noteworthy is the fifth part of this book, which deals with financing decision including capital structure and value of firm. In this chapter he raised the various problems relating to financing decision like- What is the relationship between financing mix, cost of capital and value of firm, Is there an optimal capital structure, Can the value of the firm be maximized etc. and also provided solution of these problems with examples.

Dhankar, S. Raj and Boora Ajit, S<sup>3</sup>: in his study "Cost of Capital, Optimal Capital Structure, and value of Firm: An empirical Study of Indian Companies" explained that nowadays the role of a finance manager has become far more important than fund raiser. The finance manager is expected to maximize the economic welfare of the owners which is represented by the market value of firm. They raised a question whether changes in capital structure affect the value of firm or not. For conducting the study, a sample of 26 widely held Indian private sector companies from top 300 large scale companies was taken. This study revealed that no significant relationship was found between changes in capital structure and the value of a firm at the micro level as value of firm is affected by a multiplicity of factor and capital structure is just one of them.

Chowdhury, Anup and Chowdhury Suman Pal<sup>4</sup>: in his study " Impact of Capital structure on firm's value: Evidence from Bangladesh: focused on Modigliani & Miller approach regarding capital structure theory. This study is an attempt to test the influence of debt-equity structure on the value of share given different sizes, industries and growth opportunities with the companies incorporated in Dhaka Stock Exchange and Chittagong Stock Exchange. It is based on secondary data of public listed companies in the above stock exchanges. The study revealed that maximizing the wealth of shareholders requires a perfect combination of debt and equity, whereas cost of capital has negative correlation in the decision and it has to be as low as possible.

Lawal, Adedoyin Isola<sup>5</sup>: "Capital Structure and the value of firm: evidence from Nigeria Banking Industry" is a study of relationship between the capital structure of a firm and its value which was started from Modigliani and Miller theory of capital structure and value of firm. It explained that capital structure decision is significant as it affects the costs of capital and the market value of firm. A firm that has no debt in its capital structure is referred to an unlevered firm, whereas a firm that has debt in its capital structure is referred as levered firm. This study is based on secondary data of 15 public owned commercial banks in Nigeria during 2007-2012. After using the regression analysis the study revealed that debt plays a significant role in maximizing the value of firm, while cost of capital have a minimum contribution towards magnifying the value of the banking firm.

### Significance of the Study

Value of an enterprise is dependent upon expected earnings stream and capitalization rate or cost of capital. Therefore, if capital structure is to influence value of the firm, it must do so by operating either on expected earnings or on the cost of capital or both. Owing to tax deductibility of interest payments, recourse to debt financing generally reduces the firm's tax liability and thereby increases the share of EBIT going to equity. However, increased leverage reduces commercial flexibility and increase the probability of financial distress. The management has, therefore, to choose that pattern of capital structure in which the given level of debt minimizes overall cost of capital, maximizes earnings available to owners and maximizes total value of the firm. To achieve this objective one has to take a number of decision, the most important being the investment, financing and dividend decision. Do changes in capital structure affect the value of a firm? This question has been puzzling the minds of both the finance manager and academicians for the last five decade, especially since the publication of path breaking article by Miller and Modigliani. This paper is a humble attempt to examine whether the financing decision affects the value of firm or not.

### Objective of Study

1. To study the concept of capital structure and its importance to a firm.
2. To study the concept of optimum capital structure.
3. To study the concept of value of firm.
4. To study the Net Income Approach.

### Research Methodology

The proposed study is descriptive in nature so descriptive-analytical research methodology is used. The major portion of this study is consulted from the scholarly books of eminent authorities on this topic and research papers and articles published by the scholars. The following formula is used to explain the NI approach:

1. Overall Cost of Capital ( $K_0$ ) =  $\frac{\text{Earning before interest and tax}}{\text{Total value of firm}}$
2. Total Value of Firm ( $V$ ) =  $\text{Market value of equity share} + \text{Market value of debt}$
3. Cost of Capital of Debenture ( $K_d$ ) =  $\frac{\text{Annual interest on debenture}}{\text{Net Proceeds}}$
4. Cost of capital of Equity Share ( $K_e$ ) =  $\frac{\text{DPS or EPS}}{\text{Net Proceed per share}}$

### Capital Structure Theories

The finance manager of every firm seeks to achieve optimum capital structure as it affects the value of firm or share price either by increasing expected earnings (amount available to equity share capital not operating profit) or reducing the overall cost of capital. The relationship between the leverage and the value of firm has been expressed in different ways. Some argue that if other things remain the same, increase in financial leverage i.e debt, increases the value of firm and vice versa. They are the followers of relevant theory. Others opine that there is no relationship between leverage and value of firm. They are the followers of irrelevant theory. On the other hand some others also believe that use of

debt in capital structure shows a mix impact on value of firm i.e. use of debt in capital structure has a positive impact on the value of firm up to a certain level and after that level have a negative impact on value of firm. They are the followers of mixed theory. Franco Modigliani and Merton Miller were the first to present a formal model on relationship of capital structure with value of firm. In their seminal paper (1958, & 1963) they explained that under the assumption of perfect condition, 100% payout ratio, constant cost of capital, no tax and equivalent risk class, value of firm is independent of its capital structure. Stiglitz, Smith, Krause, Litzenberger, Baron and Scott were the main names of the follower of MM Model at that time but David Durand and Solomon criticized this model. Since then different opinion has been given by different authorities regarding the relationship between leverage i.e. debt and value of the firm. The following are the main theories of capital structure:

1. Modigliani and Miller Approach (Irrelevant )
2. Net Income Approach (Relevant)
3. Net Operating Income Approach (Irrelevant)
4. Traditional Approach (Mixed)

To study the relationship between leverage i.e debt and value of firm, the following assumptions are generally made:

1. Firms use only two sources of funds i.e perpetual debt and equity.
2. There is no corporate or personal tax.
3. The dividend payout ratio is 100%.
4. The firms' total assets are given and there would be no change in it.
5. The firms' operating profit is given and is not expected to grow.
6. The firms' total financing remain constant.
7. The business risk remains constant and independent.
8. The investors have the same subjective probability distribution of expected operating profits of the firm.

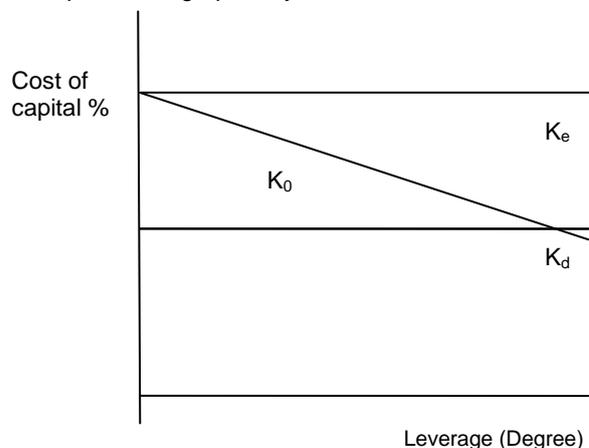
### Net Income Approach

This approach was developed by David Durand in 1963. This is the simplest approach showing the relationship between leverage and value of the firm. According to this approach there is a positive relationship between debt and value of firm and negative relationship between debt and overall cost of capital. If debt increases the value of firm will also increase and overall cost of capital will decrease and vice versa. This approach is based on the following additional assumptions:

1. Cost of debt is less than cost of equity.
2. Cost of debt and cost of equity remain constant.
3. Capital requirement of the firm is given and remain constant.

This approach starts with the argument that change in financial mix of a firm will lead to change in overall cost of capital as well as change in total value of firm. Increasing use of debt in capital structure, which is cheaper in cost, will result in magnified returns available to equity shareholders. Increased in equity shareholders' return will increase the total value of equity and thus total value of firm will also

increase. On the other hand if debt is reduced in capital structure the overall cost of capital will increase and thus value of equity as well as total value of firm will also decreased. This relationship can be presented graphically as under:



The above figure shows that cost of capital of debenture ( $K_d$ ) and cost of capital of equity ( $K_e$ ) are constant for all level of leverages. As the financial leverage increases overall cost of capital will decrease as cost of capital of debt is less than cost of equity capital and this result in the increase of value of firm. It is important that as the debt proportion increases  $K_0$  will approach to  $K_e$  but  $K_0$  will never touch  $K_d$  as we cannot assume a 100% debt firm. Some elements of equity must be there. However if a firm is 100% equity than  $K_0$  will be equal to  $K_e$ .

The NI approach can be illustrated by the following example:

Example: A Ltd expected annual net operating income (EBIT) is Rs. 100000. Company has raised 10% debentures of Rs. 400000. The company's equity capital cost is 12.5%. Determine the value of firm and cost of capital.

Solution:

Earning Before Interest and Tax (EBIT)	100000
Less: Debenture Interest (400000 × 10%)	40000
Earning Available to Equity Shareholders (Net Income)	60000
Equity Capital Cost ( $K_e$ )	.125
Market Value of Equity (Net Income/ $K_e$ )	480000
Market Value of Debt	400000
Total Value of Firm (V): (480000+400000)	880000
Overall Cost of Capital % ( $K_0$ ) : (EBIT/V)	11.36

In order to examine the effect of change in financial mix on total value of firm and overall cost of capital, if we assume that the company increases debt by Rs. 100000 and uses this proceeds to repurchases equity shares, than cost of capital and value of firm of the company will be as under:

Earning Before Interest and Tax (EBIT)	100000
Less: Debenture Interest (500000 × 10%)	50000
Earning Available to Equity Shareholders (Net Income)	50000
Equity Capital Cost ( $K_e$ )	.125
Market Value of Equity (Net Income/ $K_e$ )	400000
Market Value of Debt	500000

Total Value of Firm (V): (480000+400000)	900000
Overall Cost of Capital % ( $K_o$ ) : (EBIT/V)	11.11

Thus the use of additional debt has caused the total value of firm to increase and overall cost of capital to decrease. On the other hand if we assume that the company reduces debt by Rs. 100000 by issue of equity shares of the same amount, than the overall cost of capital and total value of the company will be as under:

Earning Before Interest and Tax (EBIT)	100000
Less: Debenture Interest (300000 × 10%)	30000
Earning Available to equity shareholders (Net Income)	70000
Equity Capital Cost ( $K_e$ )	.125
Market value of equity (Net Income/ $K_e$ )	560000
Market Value of Debt	300000
Total value of firm (V): (480000+400000)	860000
Overall cost of capital % ( $K_o$ ) : (EBIT/V)	11.62

Thus it is clear that the decrease in leverage has increased the overall cost of capital and reduced total value of the firm.

#### Conclusion

Capital structure represents the proportionate relationship between debt and equity instruments on the capital outlay of a firm. Capital structure decision of a firm do influence its shareholders return and risk which in turn influences its market value and value of firm. Net Income Approach clarifies that financial leverage is an important variable to the capital structure of a firm. This approach is based on the argument that debt can be substituted for equity by issuing new debt and retiring existing equity. Decision about optimizing the capital structure of the firm, no matter if it is a small business or a global corporation, has always been an important issue for the management but the existence of an optimum capital structure that leads to maximum market value and minimum cost of capital is not accepted unequivocally. With the judicious mixture of

debt and equity, a firm can evolve an optimum capital structure which will be one at which the value of firm in highest and overall cost of capital is lowest.

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