CHAPTER-1 INTRODUCTION TO ECONOMIC VALUE ADDED

1.1 INTRODUCTION
When we recite any book on financial management, the first chapter will introduce us to the detail that the objective of monetary verdicts is to create highest capital employees (owners & lenders) wealth and subsequently pretty the assessment of the firm. This goal can be attained by preparation, decision making and controlling over the capital which is employed.

Financing pronouncements are answerable for implementing revealed deeds and relate to the financing array of the firm. It comprises in deciding as to when, where and how to procure the funds to meet the firm's venture necessities. Different springs of finance have different returns with different degree of jeopardy. Hence it becomes imperious to resolve as to how much finance is to be raised and from which sources.

Primarily, there are two main sources of finance; one is the retained reserves (equity) and second is the lent funds (liability). Owned funds are the shareholders' levies on which dividend are paid. Dividend recompense be contingent upon the viability of the company and is not obligatory. There is no pledge complex in the shareholders’ funds. On the other hand, borrowed investments encompass fixed promises; their reimbursements are tenable by a charge created on the resources and interest payments are mandatory regardless of the profits or losses of the company. Hence, it increases the pecuniary risk of the company. So the corporate administrator should effort to preserve the assortment of debt and equity at a level, which would result in determined reappearance with adaptable risk. Such a mix of capital structure is known as "optimal capital structure".

A prime capital edifice can be measured as that particular mishmash of
debt, preference and equity capitals at which the company's cost of capital is at its minimum or otherwise, the price and capital of the company is at its extreme. Hence the neutral is to regulate a debt-equity mix, which would lead to determined marketplace price of equity share. This would callous minimization of the cost of capital. In the other word, the main objective is to retain the cost of finance at the minimum with maximum application of funds, in order to maximize the returns.

Various measures like Earning per Share (EPS), Return on Assets (ROA), and Return on Capital Employed (ROCE) etc. have been used to assess the recital of the corporate in operation of the funds. The problem with these routine measures is that there is nonexistence a proper yardstick for assessment. The shareholders necessitate at least a lowest rate of return that the above cited concert measures overlook.

Just earning profit is not enough, a business should earn sufficient profit to cover its cost of capital and create surplus to grow. Stated simply, any profit earned over and above the cost of capital is Economic Value Added.

The term ‘Economic Value Added (EVA)’ is a registered trademark of Stern Stewart & Co. of New York City (USA). Bennett Stewart in his book, “The Quest for Value”, used the term EVA with a symbol ™ as super script, which is the normal practice of referring to any registered trademark whenever the term is used. Thus EVA is actually Stern Stewart & Co.’s trademark for a specific method of calculating economic profit. “The Quest for Value” was published in 1991. Peter Drucker claimed that he discussed EVA in 1964 in his book, “Managing for Results”. It cannot be denied; however, without going into argument as to who invented EVA first that the concept became popular only after Stern Stewart & Co. marketed it.

Over the past numerous ages, an alternate concert measure called
Economic Value Added (EVA) has been gaining reception in the World. EVA is demarcated as the surplus of a company's after tax net functionning turnover over the mandatory minimum rate of return which stockholders could get by investing in other sanctuaries of analogous risk. It is the financial enactment measure that detentions the true economic return of a company. As it is experiential the capital edifice is one of the important influences that should be taken into account in order to realize peak capital employee's wealth and Economic Value Added is a tool for recognizing whether the controlling of the company has twisted such wealth or has ruined it.

1.1.1 Techniques/Measurements of performance evaluation

Profit after Tax (PAT) is the net profit earned by the company after deducting all expenses like interest, depreciation and tax.

Earning/Profit before Interest after Tax (EBIAT) a financial measure that is an indicator of a company's operating performance. EBIAT, which is equivalent to after-tax EBIT, measures a company's profitability without taking into account the capital structure.

Return on Investment (ROI) is a performance measure used to evaluate the efficiency of an investment or to compare the efficiency of a number of different investments.

Return on Equity (ROE) the amount of net income returned as a percentage of shareholders equity. Return on equity measures a corporation's profitability by revealing how much profit a company generates with the money shareholders have invested.
Return on Equity = Net Income/Shareholder's Equity

Return on Assets (ROA) an indicator of how profitable a company is relative to its total assets. ROA gives an idea as to how efficient management is at using its assets to generate earnings. Calculated by dividing a company's annual earnings by its total assets, ROA is displayed as a percentage. Sometimes this is referred to as "return on investment".

The formula for return on assets is: Net Income/Total Assets

Earnings per Share (EPS) The portion of a company's profit allocated to each outstanding share of common stock. Earnings per share serve as an indicator of a company's profitability. Calculated as: Net Income - Dividends on Preferred Stock/Average Outstanding Shares

Net Profit Margin (NPM) a ratio of profitability calculated as net income divided by revenues, or net profits divided by sales.

MVA A calculation that shows the difference between the market value of a company and the capital contributed by investors (both bondholders and shareholders) In other words, it is the sum of all capital claims held against the company plus the market value of debt and equity.

Calculated as: MVA = company’s Market Value – Invested Capital

EVA A measure of a company's financial performance based on the residual wealth calculated
by deducting cost of capital from its operating profit (adjusted for taxes on a cash basis). (Also referred to as "economic profit")

The formula for calculating EVA is as follows: $EVA = NOPAT - (Capital \times Cost\ of\ Capital)$

### 1.1.2 EVA vs. Other Financial Performance Measurements

Those in favour of using EVA as a performance measure argue that it is superior to other performance measures for the four following reasons: it is nearer to the real cash flows of the business entity; it is easy to calculate and understand; it has a higher correlation to the market value of the firm and it aligns the goals of management with the interests of the shareholders. EVA is superior to conventional measures such as Return on Investment (ROI), Return on Equity (ROE), and Return on Assets (ROA) because these calculations are based on accounting figures. Using Generally Accepted Accounting Principles (GAAP), the assets in the balance sheet are carried based on historical costs while, with the exception of depreciation, revenues and expenses are recognized as either a profit or a loss at their current value. Due to this inaccuracy in the calculation of the value of assets, the rates of return do not accurately determine the actual return on a given investment. As such, the rate of return is usually lower in the first few years and higher in the latter years. However, if the value of the mix of assets is close to the current value of the assets, the distortion will not be as significant as when the value of the assets is far below the current value. Most companies rarely have the needed asset mix to make these accounting measures accurate; therefore, they cannot be regarded as true indications of the performance of the company.
1.1.3 EVA vs. rate of return

EVA is much better than ROI (RONA, ROCE, ROIC) as a controlling tool and as a Performance measure due to two important reasons,

1. Increase in ROI is not necessarily good for shareholders i.e. maximizing ROI cannot be set as a target.
2. EVA is more practical and understandable than ROI as an absolute and income statement.

1.1.4 EVA and Net Present Value (NPV)

It is widely tested that the value of a firm is given by the present value of future stream of free cash flows. Cash flow is the value driver. Of course, cash flow also depends on certain operating value drivers. The NPV method of measuring firm value is used by Rappaport (1986) in defining shareholder value of a firm. EVA proponents claim that the firm value can be measured by discounting future EVAs instead of future cash flows. A question may naturally arise - will the firm value differ under EVA and cash flow approaches? As Table 1 illustrates, the life-time value of the firm would be the same in the EVA method of valuation as in the NPV method.

EVA is better because it is an annual measure as well as a life-time measure. NPV only measures the life-time value of a firm. NPV or cash flow-based method cannot return a reliable annual performance measure. A firm with high growth potential would show negative annual cash flows in the years of growth due to heavy investments. NPV method deducts the entire investments made for future growth in one year and thereby reports a negative cash flow figure for high-growth firms. EVA, on the other hand, deducts only a capital charge on such investments from NOPAT. Also, it may be difficult to project future cash flows on the basis of past negative cash flows. EVA measure would deduct a capital charge
on massive investments made by the dotcom firm in initial years and hence would return a more reliable annual performance. Thus, new economy firms may be better valued with EVA.

1.1.5 EVA and Market Value Added: Relationship

Market Value Added measures the difference between the market value of the firm (Debt and Equity) and the amount of Capital invested. Equivalently, MVA equals the present value of future expected EVA®. Firms that trade at premiums to invested Capital have positive MVA, while those trading below invested Capital have negative MVA. Stern Stewart & Co. has compiled MVA Rankings ¹ to tally wealth creation across the universe of publicly traded firms.

EVA theory simply emphasizes that earning a return greater than the cost of capital increases the value of a company and earning less than the cost of capital decreases the value. Stewart (1991) has introduced another measure of shareholder value called Market Value Added (MVA). MVA tells us how much value the market adds over the book value of invested capital. MVA, therefore, denotes the confidence of the capital market on the performance of a company.

EVA is useful in performance evaluation because it allows dissecting a company's market value into known and unknown (expected)

¹ [http://www.sternstewart.com/?content=proprietary&p=mva](http://www.sternstewart.com/?content=proprietary&p=mva)
components. The present value of future stream of EVAs actually has two components - present value of current EVA and present value of expected EVA improvements over the current level. The first component coupled with current book value of equity is called Current Operational Value (COV) and the second component is called Future Growth Value (FGV). As market value of a firm is essentially futuristic, it largely depends on FGV of a firm. FGV, in turn, depends on continuous EVA improvement. If a company just maintains EVA (without any improvement), its NOPAT will provide a cost-of-capital return on current operational value and no return on FGV, Hence, EVA improvement is a precondition for growth in market value.

1.2 ECONOMIC VALUE ADDED: CONCEPT AND FEATURES

Economic Value Added is a measure of economic profit. It is calculated as the difference between the Net Operating Profit after Tax and the opportunity cost of invested Capital. This opportunity cost is determined by the weighted average cost of Debt and Equity Capital ("WACC") and the amount of Capital employed.²

\[
EVA = NOPAT - WACC \times \text{Capital Employed.}
\]

Where, NOPAT means Net Operating Profit before Interest and after Tax. WACC represents Weighted Average Cost of Capital

² http://www.sternstewart.com/?content=proprietary&p=eva
Capital Employed = Net Block + Trading Investment + Net Current Assets.

It is free from subjective assumption that needs to be adopted while identifying profit and cost of capital. Cost of equity is derived on the basis of Capital Assets Pricing Model (CAPM).

The founders of EVA traditionally use CAPM. Under CAPM Cost of Equity (Ke) is given by the following

\[
Ke = Rf + \beta (Rm - Rf)
\]

Where, \(Rf\) = Risk free return.

\(Rm\) = Market expected Rate of Return

\(\beta\) = Risk Co-efficient.

Both market return and Beta are highly volatile, and if annual market return and yearly beta of a company are chosen for finding cost of equity, abnormally high or low market related cost of equity may be obtained. To avoid this difficulty, one may apply “Long run approach”.

While deriving EVA it becomes necessary to make certain accounting adjustments, which are required only for corporate reporting purposes. It is sometimes alleged that EVA talks too much about the shareholders’ value added rather than focusing on the interest of all stakeholders. But EVA is a powerful performance measurement tool and it is argued that if a company is able to serve its shareholders then it can better serve all other stakeholders also.
<table>
<thead>
<tr>
<th>Performance Measure</th>
<th>Return</th>
<th>Capital Employed</th>
<th>Cost of Capital Employed</th>
<th>Computation Includes</th>
<th>Equation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Profit</td>
<td>YES</td>
<td>NO</td>
<td>NO</td>
<td>The Net Profit Earned by the Company After Deducting all Expenses Like Interest, Depreciation and Tax</td>
<td></td>
</tr>
</tbody>
</table>
| EPS                 | YES    | YES              | NO                      | \[
\text{NET INCOME-DIV. ON PREF. SHARES} / \text{AVG. OUTSTANDING SHARES}
\] |
| ROCE                | YES    | YES              | NO                      | \[
\frac{\text{PROBIT}}{\text{CE}} \times 100
\] |
| ROE                 | YES    | YES              | NO                      | \[
\frac{\text{NET INCOME}}{\text{SHAREHOLDER’S EQUITY}}
\] |
| EBIAT               | YES    | YES              | NO                      | Equivalent to After-Tax EBIT |
| ROI                 | YES    | YES              | YES                     | \[
\frac{\text{(NET PROFIT / INVESTMENT)}}{100}
\] |
| ROA                 | YES    | YES              | NO                      | \[
\frac{\text{NET PROFIT AFTER TAX}}{\text{AVERAGE TOTAL ASSETS}} \times 100
\] |
| MVA                 | NO     | YES              | NO                      | \[
\text{COMPANY’S MARKET VALUE – INVESTED CAPITAL}
\] |
| EVA                 | YES    | YES              | YES                     | \[
\text{NET OPERATING PROFIT AFTER TAXES (NOPAT) – (CAPITAL} \times \text{COST OF CAPITAL}\]
\] |
1.3 PURPOSE OF THE STUDY

The basic leitmotif of the study is knitted about the capital construction and financial conclusions made by an association and its effect on the company's affluence in the form of EVA. The reasons for inventiveness this study is given below:

- **Relationship between Economic Value Added and Capital Structure:**
  
  We have faith in that the capital structure affects the Economic Value Added and thus shareholder's wealth. The modification in the capital erection reasons surge or reduction in cost of capital and so on the Economic Value Added of the firm. Therefore, assumption out the correlation between these causes assisted by facts and annotations would assistance for decision making progression.

- **Long-term and Strategic business policies and decisions:**
  
  The significant goal and detached of organization of any business is to produce highest capital employees (owners & lenders) wealth and therefore augmenting the value of the firm. These goals can be accomplished by planning, decision making and controlling which would be governed by on the capital edifice and capital controls. Thus the triumph or calamity of company basically is contingent on the carefulness of these decisions. So this study would benefit to invent out the understanding of EVA to capital construction and finding out the motives of the companies which have prospered and explanations of the companies which have failed. These outcomes may lead to certain comprehensive ideologies of strategic trade dogmata.

- **To introduce EVA as a performance measure which has highest correlation with Market Value Added:**
  
  Because financiers are attentive to recognize the condition of capitalized company, so they are beholding for suitable recital measure for this
persistence. Here we gage the capability of EVA in assessment with other traditional processes as needles to extant the real company’s wealth. He is going to familiarize EVA to the executives and stakeholders as concert quantity which has complex degree of approval and clearness to show the company place in generating wealth or ending it.

1.4 OBJECTIVES OF THE STUDY

The explicit objectives of the study are as follows:

- To investigate changes in ROI and other traditional tools of measurement of selected companies over time, compare the results there of.
- To examine changes in EVA of nominated companies concluded phase, compare the EVA between the companies and to categorize foremost aspects, which have triggered alterations in EVA
- To commence a judgement between ROI and EVA in order to find out whether they transformation in the same method over time or not
- To make recommendations and endorsements established on the results of the study.

1.5 HYPOTHESES

Keeping in assessment the outcomes of the numerous associated examination studies on EVA and conforming to the purposes of the contemporary study, the following hypotheses have been articulated and tested:

1. There is a trend for Pharmaceuticals, Cement Industry, Chemical Engineering, Textile Industry power Industry to go in for debt capital during the years 2004 to 2013.

2. There is an accumulative trend for EVA of Pharmaceuticals, Cement Industry, Chemical Engineering, Textile Industry, power industry during the period of the study.
3. There is an eloquent relationship between capital structure and Economic Value Added (EVA).

1.6 SCOPE OF THE STUDY

➢ Data for study: The study would be created on the issued financial reports of the companies and all the evidence circulated in financial rumors would be taken in to contemplation while doing the examination.

➢ Period for study: The financial conclusions are long-term conclusions. They replicate the long-term tactics of the companies. Therefore the financial statement of at least 10 years would be taken into attention for reviewing the capital erection and economic value added.

This part discussed era under study are enlightened.

1.6.1 Population:
The study covers Indian Pharmaceuticals, Cement Industry, Chemical Engineering, Textile Industry and Power Industry Firms which are listed in Bombay Stock Exchange.

As per the statistical reports of Centre for Monitoring Indian Economy (CMIE), Pharmaceuticals, Cement Industry, Chemical Engineering, Textile Industry, Power Industry have the highest growth rate of Capital Employed, Net Worth, and Gross Fixed Assets among trade industries in India for the period of 2004 -2014. This is the cogent cause to select Pharmaceuticals, Cement Industry, Chemical Engineering, Textile Industry and Power Industry in order to scrutinize inferences of EVA in Indian Commerce.

1.6.2 Period of the Study:
The financial ages, 2004 to 2013, have been taken for the determination of the study. So the financial data for at least 10 years has been occupied into contemplation for studying the relation between capital structure and
economic value added and analysis the hypotheses.

1.7 METHODOLOGY OF THE STUDY

This segment enlightens the methodology embraced for the perseverance of the study. The extent of population, approaches used for collection of data, and statistical approaches used for testing of hypotheses are conversed.

1.7.1 Sample of the Study:
The firms in the population were selected, based on the following standards:

1) Pharmaceuticals, Cement Industry, Chemical Engineering, Textile Industry, and Electricity Generation and Electricity Generation firms which have been listed on Bombay Stock Exchange (BSE) in or before 2005;

2) They must be prevailing in BSE till the financial year 2014;

3) They should not have negative values for average functioning income throughout the period of the study.

Subsequently, the above population that consists of 30 companies in Pharmaceuticals, Cement Industry, Chemical Engineering, Textile Industry, and Electricity Generation and Electricity Generation has been used for the study.

1.7.2 Collection of Data:

Three kinds of data and evidence have been composed which are as follows:


3) Required financial data for the calculation of EVA and ROI.

Some historical data for Pharmaceuticals, Cement Industry, Chemical
Engineering, Textile Industry and Power Industry and selected companies have been collected from "Research, Statistics & Publication Department" and also "Library" of Bombay Stock Exchange (BSE).

The required financial data of the firms, for the purpose of the study has been obtained from Bombay Stock Exchange Official Directory, Bombay Stock Exchange Corporate Compendium, Center for Monitoring Indian Economy products (particularly Prowess database), companies' websites and the other Internet websites. In addition the various Annual Reports of the Companies were duly referred to, in order to accumulate the missing data from the above mentioned sources. For last part of data collection several libraries of different Institutes and Colleges have been visited which are mentioned in Chapter (V) in details.

1.7.3 Analysis of Data:

The objective of this section is to view the capital structure pattern followed by the Indian Pharmaceuticals, Cement Industry, Chemical Engineering, Textile Industry, Power Industry companies and also to recognize the created amount of economic value added by those companies in the period of 2004 to 2013.

The analysis is carried out in terms of financial indicators which are three in number:

1) ROI (Return on Investment)
2) Economic Value Added
3) EVA to Capital Employed Ratio

The ratios (i) and (ii) indicate the direction of changes in capital structure practices and the last two indicators present a picture of the corporate performance to create wealth. All these ratios are calculated on a year to year basis for the companies.

To study the capital structure and EVA trends, we have computed the descriptive statistical values such as mean, median, variance, standard
deviation, minimum, maximum and range of each ratio, for each firm and also for each year, by using SPSS package. Various charts show the above descriptions of capital structure and economic value added ratios. Moreover, in order to review of Capital Structure and EVA changes over the time, generalized estimating equations regression model has been fitted.

In this case Generalized Estimating Equations (GEE) population-averaged model was done by using statistical software SYSTAT and GRETL.

1.8 LIMITATIONS OF THE STUDY

1) Whole study would be undertaken only on the basis of published financial reports, published articles related to the topics, information available on CMIE products, Internet etc. No survey would be undertaken and no primary data would be collected for the research.

2) The present study is based on the data collected from Pharmaceuticals, Cement Industry, Chemical Engineering, Textile Industry, Power Industry, so its result may not be applicable to other Indian industries.

1.9 CHAPTERIZATION

➢ CHAPTER-I: INTRODUCTION

In this section, the overall structure of the study has been existing. The introduction of the topic, purpose, objectives, hypotheses, scope and methodology of the study has been explained in brief.

➢ CHAPTER-II: STUDY OF PREVIOUS LITERATURE

This chapter highlights the review of earlier literature regarding Economic Value Added. The relevant literature has been studied from various articles published in numerous journals and in specific books on the subject.
CHAPTER-III: HISTORY OF PHARMACEUTICALS, CEMENT, CHEMICAL ENGINEERING, TEXTILE, POWER INDUSTRY

History of the Pharmaceuticals, Cement Industry, Chemical Engineering, Textile Industry and Power Industry of the world and in India has been highlighted in this chapter. The present position of this Industry in the world and in India has been studied. The scope of the Pharmaceuticals, Cement Industry, Chemical Engineering, Textile Industry and Power Industry in the near future has also been explained.

CHAPTER-IV: METHODOLOGY

This chapter explains the methodology adopted for the purpose of the study. The size of population, method s used for collection of data, statistical methods used for finding the correlations and finally testing of hypotheses has been discussed exhaustively.

CHAPTER-V: RESULTS OF THE STUDY /OBSERVATIONS, DISCUSSIONS AND CONCLUSIONS:

Various Tables and Charts have been prepared on the basis of the numerous data gathered. Findings of the various Statistical Tests have presented in this chapter. After interpretations of the findings, major conclusions have been made in this chapter.

CHAPTER - VI: SUMMARY AND RECOMMENDATIONS

This chapter deals with the summary of the Thesis, suggestions and areas open for further research. Based on the analysis, some important recommendations have been made which if noted could be useful.