Chapter 1

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MEANING OF ECONOMIC VALUE ADDED

The onset of globalization and liberalization of the Indian economy over that last 15 years, has resulted in shift of the corporate goals from Socio-Economic focus to an increasing shareholders value. So, the present day required the metrix, which helps to judge or measure organizational progress and achieve the organizational strategic goals. Although there are few traditional performance metrix like Balance Sheet measures which express the rate of return, shareholders profit and earnings per share. Another performance metrix is market driven measures which express the market capitalization, price earnings ratio etc. But there are certain deficiency because Balance Sheet based measures shows only notional profits but not real profit and market driven measures are prone to volatility of the bourses. The requirement is for mix and match measure that can factor in a market’s assessment of a company’s value. So, economic value added (EVA) is a measure of corporate performance that differs from most others by including a charge against profit for the cost of all these capital of a company employs. Economic Value Added (EVA) is more than just a measure of performance. It is the framework for a complete financial management and incentive compensation system that can guide every decision.
Economic Value Added (EVA) is the measure of company’s true profitability and a strategy for creating and shareholders wealth. It is a vital measure of total productivity, which reflects all the dimensions by which the management can increase value. EVA is an estimate of true economic profit of the amount by which earning exceeds or fall short of required minimum rate of return, investors can get by investing in other securities of comparable risk. It is the net operating profit minus the appropriate charges for the opportunity cost of capital invested in a organization. The onset of globalization and liberalization of Indian economic has resulted shareholders value. In the present day required some managerial technique, which helps to measure organizational progress and achieve the organizational strategic goals. Under this model, the business can be divided into small units and each manager is held responsible for their respective units. Based on the performance of the manager, management may divest that business which have constantly negative EVA and invest these in positive EVA projects. It judge the top-level manager responsibility and control the cost of capital. It is closely related to net present value and corporate finance theory. EVA is one managerial technique which improve the working live of everyone in an organization by making them far active and that can helps to produce more wealth to shareholders and customers.
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 TM 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 invested EVA first that the concept became popular only after Stern Stewart & Co. marketed it.

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.

Traditionally the methods of measurement of corporate performance are many. Common base used are : Net Profit Margin (NPM), Operating Profit Margin (OPM), Return on Investment (ROI), Return on Net Worth (RONW) etc. Profit After Tax (PAT) is an indicator of the surplus generated using total funds. ROI is still recognized as the most popular yardstick of profitability measurement.
However, the traditionally used profit indicators are ineffective parameters in explaining whether the reported profit covers the cost of capital. Old profit concept fails to indicate clear surplus.

The basic proposition is that the Return on Capital Employed should be greater than the Cost of Capital (i.e. \( \text{ROCE} > K_0 \)).

Capital Employed highlights long term capital and cost of capital represents weighted average cost of capital.

Traditionally, Profit After Tax is shown in the Profit and Loss Account to indicate the profit available to the shareholders, both preference and equity. Ability to maintain dividend is not a test of profit adequacy. Ability to generate Economic Value Added is the only test of profit adequacy. Any surplus generated from operating activities over and above the cost of capital is termed as EVA.

It is a new measure of corporate surplus that should be shared by the employees, management and shareholders. EVA focuses on clear surplus in contradiction to the traditionally used profit availability to the shareholders. It is used by companies as a performance indicator and also as a basis for executive compensation. Surplus should be derived by deducting cost of capital from profit before interest but after tax.
EVA = NOPAT - WACC × Capital Employed

where, NOPAT means Net Operating Profit before Interest and after Tax

WACC represents Weighted Average Cost of Capital.

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 \(K_e\) is given by the following:

\[ K_r = R_f + \beta (R_m - R_f) \]

where, \(R_f\) = Risk free return

\(R_m\) = Market expected rate of return

\(\beta\) = Risk coefficient

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 many 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.

It is now well settled that the aim of every business entity should be to maximize shareholders wealth by enhancing the firm’s value and all the activities of a firm should be directed to achieve this objective. Various theories of firm conceptualize a firm in various ways and provide an understanding of factors that contribute to the success of a firm.

The neo classical view of the firm envisages a business entity as decision-maker based on the supply and demand of both input and output market. Organizational theory view addresses aspects of a firm ignored by neo-classical economics. Disposing of the notion of the firm as a singular decision-maker and recognizing the firm as a complex organization encompassing multiple individuals, organization theory analyses the internal structure of the firm and the relationships between
its constitute units and departments. The best explanation that has revolutionized the way we look at the business entity is given by Richard Coase who defined the business entity from a Transaction cost view. It explains the existence of the firm with respect to the reduction in costs of contractual arrangements between the buyers and sellers of productive resources. One can say that the ability of the firm to continue to be competitive for generating surplus depends on its ability to reduce transaction costs between the buyers and sellers of the productive resources. The network view argues that the business entity once formed is not an isolated instance but a part of a social network, which can be defined as a set of nodes (e.g., persons, organizations) linked by a set of social relationships (e.g., friendship, transfer of funds, overlapping membership) of a specified type (Laumann, Galaskiewicz, and Marsden; 1978:458). In other words, an organization’s productivity is determined less by its internal resources than by the set of resources that it can mobilize through its contracts. The more such contracts the firm has, the better it is ‘plugged in’ to the key task and influence processes of the industry, and the stronger is its strategic advantage (Madhavan, Balaji, John, 1998). The Agency view and Stewardship view, which are two opposite views regarding the conflict of interests between the various agencies involved in the management of the firm. Agency theory argues
that unless managers are monitored constantly they act in self-interest, which might be at variance with interests of residual claimants most importantly those of shareholders. This variance can be reduced only through the added costs of monitoring or designing appropriate incentive structure (Jensen and Mackling, 1976). On the other hand, the stewardship theory argues that managers interest lie in the well being of the organization and they are at variance with other stakeholders only when the manager’s position is threatened due to environmental threats like mergers, acquisitions and takeovers (Donaldson, 1990). The resource-based view argues that the firm is bundle of tangible and intangible resources and an organization’s success is dependent upon the efficient deployment of these resources to their best advantage (Grant 1991). The knowledge based view argues that the firm is a institution that creates an environment under which multiple individuals can integrate their specialist knowledge with low incentives designed to foster co-ordination between individual specialist, thus avoiding the problems of opportunism associated with high incentives directly related to knowledge transaction (Grant, 1996).

The theories, taken together, explain that the success of the business entity in maximizing the firm-value. Depends on the effectiveness of integrating interests of the firms stakeholders and
managers by designing suitable incentive scheme; by improving productivity of resources in the face of uncertainties, by efficient networking with other institutions and social agents; and by reducing transaction costs. This examines the effectiveness of Economic Value Added (EVA) in improving the performance of the firm as a whole and also as a measure of performance.

THE APPROACH OF ECONOMIC VALUE ADDED

Different investments have always some average return:

- The average return is easily achievable.
- Therefore, it is not wise to accept lower returns.
- Losing a part of average return is losing capital.
- Equity has also some alternative return.

The company generates a positive result only after it has earned more than the average return (on the other hand, earning a “zero-result” is completely acceptable achievement if calculated this way).

Computation of EVA

Operationally defined, EVA is the difference between the net operating profits after taxes (NOPAT) and capital charge i.e., cost of capital employed or the product of capital employed with the differences
between the Return on Capital Employed (ROCE) and the Cost of Capital Employed (COCE).

1. NOPAT refers to quantum of net operating profit remained in the business after the payment of taxes but before interest. Addition and subtraction of non-operating income and expenses to the net profit figure and making certain other adjustments for turning accounting profits into economic profits is also advocated. To convert, the GAAP earning into EVA, Stern Stewart had identified about 164 potential adjustments to GAAP. But due to diverse accounting disclosure practices adopted in India and abroad following are the adjustments being felt quite sufficient Indian context to convert the accounting profit, also known as GAAP earnings, into economic profit or EVA e.g.,

- Research and development,
- Accounting for acquisitions,
- Depreciation,
- Goodwill,
- Non-interest bearing current liabilities (NIBCLs),
- Revaluation Reserve etc.
Any change in the accounting adjustments will yield a different EVA number. The diagram clearly exhibits all the potential EVAs as running along a spectrum:

True EVA

Basic

Disclosed EVA

Tailored EVA

True EVA: The most theoretically correct and accurate measure of economic profit, calculated with all relevant adjustments to accounting data and using the precise cost of capital for each business unit in a company.

Basic EVA: The EVA which we would get using unadjusted GAAP operating profits and the GAAP balance sheet. It is an improvement on regular accounting earnings as it recognizes that equity capital has a cost.

Disclosed EVA: The EVA which is computed by making about a dozen standard adjustments to publicly available accounting data. It is
much better than basic EVA but not as good as it should be for internal management etc.

Tailored EVA: The EVA peculiar to the organisation structure, business mix, strategy and accounting policies of each company.

2. WACC is the weighted average of cost of debt ($k_i$), cost of equity ($k_e$) and cost of preference capital ($k_p$), if any, with weights equivalent to the proportion of each in the total capital, i.e.,

$$WACC = \frac{k_e \times \frac{s}{v} + k_i \times \frac{b}{v} + k_p \times \frac{p}{v}}{v}$$

where

$k_e =$ Cost of equity

$k_i =$ Effective cost of debt i.e., $k_d (1 - t)$,

$k_d =$ Unadjusted cost of debt,

$k_p =$ Cost of preference capital,

$v =$ Total value of business,

$s =$ Value of equity capital,

$b =$ Value of debts,
\[ p = \text{Value of preference capital}, \]

\[ k_i \text{ refers to the average rate of interest the company pays for its debt obligation i.e., company’s effective debt cost of taken by measuring interest paid against borrowings and then adjusting it for taxes.} \]

\[ k_p \text{ is the discount rate that equates the present value of after tax interest payment cash outflows to current market value of the Preference Share Capital } k_e, \text{ Cost of equity can be calculated opting for a number of theories e.g.,} \]

- Capital Asset Pricing Model (CAPM)
- Bond Yield plus Risk Premium Approach
- Earnings Price (E/P) Approach
- Realised Yield Approach
- Dividend Capitalisation Approach

Under CAPM cost of capital is expressed as

\[ K_e = r_f + \beta (r_m - r_f) \]

\( r_f \) represents the most secure return that can be achieved and in Indian context, it represents current yields available in long-term government bonds.
β refers to the sensitivity of the approach to calculation of cost of equity capital differs from country to country depending on their distinct disclosure and reporting practices and other environmental conditions.

3. Capital Employed (CE) is the next element required for calculating EVA and can be calculated through the assets side or the liabilities side of a balance sheet.

From the assets side of the balance sheet:

\[ CE = \text{Current Assets} - \text{Non interest bearing current liabilities (i.e., Net Working Capital + Net Fixed Assets)} \]

From the liability side of the balance sheet:

\[ CE = \text{Interest bearing debt (short term as well as long term)} + \text{Net Worth} - \text{any non-operating assets} \]

The mechanism of EVA is every simple. Applying the above mentioned methodology if the result is positive, the firm in question has created value over the period and if the EVA is negative, it will be termed as a value destroyer. A company having consistently high EVA implies that it has been successful in creating value for the business. It has effectively utilized the resources in the most profitable use. On the
other hand, a company having oscillating EVA or consistently negative EVA indicates that there is something wrong with the Company.

OBJECTIVES OF ECONOMIC VALUE ADDED

A paramount objective of management should be the creation of value for the firm. Thus, it is essential in strategic planning to manage the firm’s resources with an objective of increasing the firm’s market value.\(^1\) From an EVA perspective, the ultimate success of a firm is not measured only by its capacity to grow its sales, produce profits, or generate cash from its operations, but whether the firm’s activities are creating value for its owners (Ehrbar 1998). According to economic theory, a firm is creating value if the net present value of all its investments is positive.\(^2\) Quite simply, EVA is a measure that enables managers to see whether they are earning an appropriate return on the capital under their control. It is a measure of profit less the cost of capital employed and is the one measure that properly accounts for all the complex trade-offs, often between the income statement and balance sheet, in creating value (Pettit 2000).\(^3\)

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The EVA metric is not only a measure of financial performance but should serve as the centerpiece of a strategy development and implementation process. Putting value based management into practice, however, has been found to be more complicated than some of its proponents suggest found a number of characteristics associated with the successful implementation of value based management (VBM). Successful VBM companies keep the technical accounting aspects of EVA simple, making very few changes to their accounting practices. They invest time and effort in identifying and assessing the operational factors, or value drivers, that have the greatest influence on the creation of economic profit. These firms integrate their entire system into a single process including the continual monitoring and alignment of compensation to performance. And, perhaps equally important, successful firms institute broad based VBM training so that all front line employees and managers understand the concept of value creation and their role in the process.

EVA is not without its limitations. A major limitation is its over-reliance on historical, financial measures such as profit margin, asset turnover, cost of money, and level of capital invested in the firm.

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5. www.wikipedia.org
Recent research has shown that these lagging, financially oriented measures are not necessarily indicative of future performance.

SIGNIFICANCE OF ECONOMIC VALUE ADDED

Economic Value Added (EVA) is an accounting-based measure of operating performance. It thereby has close parallels with two sets of alternative performance measures. The first set consists of closely related, value-based measures and includes, most notably, the Stern Stewart measure of Market Value-Added or MVA. Stern Stewart calculates MVA “…by adding the capital taken in by a company during its lifetime through securities offerings, loans, and retained earnings, [making] some EVA-like adjustments (such as capitalising and amortising R&D expenditures), and subtracting the total from the current value of the company’s stock and debt.”

The main distinguishing feature of MVA is that it is largely a cumulative measure and therefore communicates the market’s present verdicts on the net present value (NPV) of all the firms’ past, current and contemplated capital investment projects. However, in contrast to MVA, EVA is a measure that focuses on firm performance over a specific period. It therefore has a similar time perspective to the

second set of firm performance measures; namely, earnings before extraordinary items (EBEI), net cash flow from operations (NCF) and residual income (RI).

Starting with EBEI as the most basic indicator of firm value we have:

$$EBEI = NCF + ACC$$  ...(1)

where EBEI is the sum of net cash flow from operations (NCF) and accruals (ACC). ACC is defined as total accruals relating to operating activities and is composed of depreciation, amortisation, changes in non-cash current assets, changes in current liabilities, and changes in the non-current portion of deferred taxes.

Net operating profit after tax (NOPAT) is a closely related indicator of current and future firm performance and is calculated by adding after-tax interest expense (ATI) to EBEI (1):

$$NOPAT = EBEI + ATI = NCF + ACC + ATI$$  ...(2)

As indicated, the most significant difference between EBEI (1) and NOPAT (2) is that the latter separates operating activities from financing activities by including the after-tax effect of debt financing (interest expense). As a measure of operating profit, no allowance is therefore
made in (2) for the financing activities (both debt and equity) of the firm. One measure that does is residual income (RI) where operating performance is reduced by a net charge for the cost of all debt and equity capital employed:

$$ RI = NOPAT - (WACC \times CAP) = NCF + ACC + ATI - CC \quad ...(3) $$

where WACC is an estimate of the firm’s weighted average cost of capital, and capital (CAP) is defined as assets (net of depreciation) invested in going-concern operating activities, or equivalently, contributed and retained debt and equity capital, at the beginning of the period. The product of the firm’s WACC and the amount of contributed capital thereby forms a capital charge (CC) against which NOPAT is reduced to reflect the return required by the providers of debt and equity capital. A positive (negative) RI indicates profits in surplus (deficit) of that required by the suppliers of debt and equity capital and is associated with an increase (decrease) in shareholder wealth.

The primary point of departure for EVA from RI (3) is the adjusting of both NOPAT and CAP for purported ‘distortions’ in the accounting model of performance. EVA-type adjustments are made to both accounting measures of operating profits (NOPAT), and accounting measures of capital (CAP). EVA® thereby reflects adjustments to GAAP
in terms of both operating and financing activities. Simplifying, EVA is thus determined by:

\[ EVA = NCF + ACC + ATI - CC + ADJ \] 

...(4)

where the total EVA accounting adjustment (ADJ) is the net figure of adjustments to NOPAT (NCF + ACC + ATI) less the adjustment to capital in determining CC (WACC × CAP).

EVA AS A MEASURE OF PROFITABILITY

Investors measure overall performance of a firm as a whole to decide whether to invest in the firm, to continue with the firm or to exit from it. In order to achieve goal congruence, managers’ compensation is often linked with the performance of the responsibility centers and also with firm-performance. Therefore, selection of the right measure is critical to the success of a firm. To measure performance of a firm, we need a simple method for correctly measuring value created/enhanced by it in a given time frame. All the current metric tradeoff between the precision in measuring the value and its cost of measurement. In other words, each method takes into consideration the degree of complexities in quantifying the underlying measure. Two more complex is the process, the more is the level of subjectivity and cost in measuring the performance of the firm. There is a continuous endeavour to develop a
single measure that captures the overall performance, yet it is easy to calculate.

Each metric of performance claims its superiority over others. Performance of a firm is usually measured with reference to its past record and the performance of other firms with comparable risk profile. The various performance metrix currently is use are based on the return on investment generated by the business entity. Therefore to reach a meaningful conclusion, returns generated by the firm in a particular year should be compared with returns generated by assets with similar risk profit (cross sectional analysis). Similarly return on investment for the current period should be compared with returns generated in past (time series analysis). A firm creates value if it is able to generated return higher than its cost of capital. Cost of capital is the weighted average cost of capital and debt (WACC).

The performance of a firm gets reflected on the valuation by the capital market. Market valuation reflects investor’s perception about the current performance of the firm and also their expectation on its future performance. They build their expectations on the estimated growth of the business in terms of return on capital. This results in an incongruence between current performance and the value of the firm. Therefore any
metric of performance, to be effective, should be able to not only capture the current performance but also should be able to incorporate the direction and magnitude of future growth. Therefore, the robustness of a measure is borne out by the degree of correlation the particular metric has with respect to the market valuation. Perfect correlation is impossible because as shown by empirical researchers, fundamentals of a company cannot fully explain its capitalization other factors such as speculative activities, market sentiments, and macro-economic factors influence movement in share prices. However, the superiority of a performance metric over others lies in providing better information to investors.

**IMPLICATION OF EVA**

This does not imply that increasing EVA is bad from a corporate finance standpoint. In fact, given a choice between delivering a “below expectation” EVA and no EVA at all, the firm should deliver the “below-expectation” EVA.

It does suggest that the correlation between increasing year-to-year EVA and market value will be weaker for firms with high anticipated growth (and excess returns) than for firms with low or no anticipated growth.
It does suggest also that “investment strategies” based upon EVA have to be carefully constructed, especially for firms where there is an expectation built into prices of “high” surplus returns.

EVA AND MARKET VALUE

Economic and Market Value is a performance measure developed by Stern Stewart & Co that attempts to measure the true economic profit produced by a company. It is frequently also referred to as “economic profit”, and provides a measurement of a company’s economic success (or failure) over a period of time. Such a metric is useful for investors who wish to determine how well a company has produced value for its investors, and it can be compared against the company’s peers for a quick analysis of how well the company is operating in its industry.  

Economic profit can be calculated by taking a company’s net after-tax operating profit and subtracting from it the product of the company’s invested capital multiplied by its percentage cost of capital. For example, if a fictional firm, Cory’s Tequila Company (CTC), has 2005 net after-tax operating profits of $200,000 and invested capital of $2 million at an average cost of 8.5%, then CTC’s economic profit

would be computed as $200,000 - ($2 million \times 8.5\%) = $30,000. This $30,000 represents an amount equal to 1.5\% of CTC’s invested capital, providing a standardized measure for the wealth the company generated over and above its cost of capital during the year.

Market Value Added (MVA), on the other hand, is simply the difference between the current total market value of a company and the capital contributed by investors (including both shareholders and bondholders). MVA is not a performance metric like EVA, but instead is a wealth metric, measuring the level of value a company has accumulated over time. As a company performs well over time, it will retain earnings. This will improve the book value of the company’s shares, and investors will likely bid up the prices of those shares in expectation of future earnings, causing the company’s market value to rise. As this occurs, the difference between the company’s market value and the capital contributed by investors (its MVA) represents the excess price tag the market assigns to the company as a result of its past operating successes.

LIMITATIONS OF EVA

EVA also has its critics. The biggest limitation is that the only major publicly-available sample evidence on the evidence of EVA
adoption on firm performance is an in-house study conducted by Stern Stewart and except that there are only a number of single-firm or industry field studies.

Brewer, Chandra and Hock (1999) cite the following limitations to EVA:

- EVA does not control for size differences across plants or divisions.
- EVA is based on financial accounting methods that can be manipulated by managers.
- EVA may focus on immediate results which diminishes innovation.
- EVA provides information that is obvious but offers no solutions in the same way as historical financial statement do.

Also, Chandra (2001) identifies the following two limitations of EVA:

- Given the emphasis of EVA on improving business-unit performance, it does not encourage collaborative relationship between business unit managers.
- EVA although a better measure than EPS, PAT and RONW, but it is still not a perfect measure.
Brewer et al. (1999) recommend using other performance measures along with EVA and suggest the balanced scorecard system. Other researchers have noted that EVA does not correlate as strongly with stock returns as its proponents claim. Chen and Dodd (1997) found that, while EVA provides significant information value, other accounting profit measures also provide significant information and should not be discarded in favour of EVA alone. Biddle, Brown and Wallace (1997) found only marginal information content beyond earnings and suggest a greater association of earnings with returns and firm values than EVA, residual income, or cash flow from operations.

Finally, a key criticism of EVA is that it is simply a retreaded model of residual income and that the large number of “equity adjustments” incorporated in the Stern Stewart system may not be necessary (Barfield, 1998; Chen and Dodd, 1997; O’Hanlon and Peasnell, 1998; Young, 1997). The similarity between EVA and residual income is supported by Chen and Dodd (1997) who note that most of the EVA and residual income variables are highly correlated and are almost identical in terms of association to stock return.

POWER : NEED AND IMPORTANCE

For the country’s infrastructure to develop, power plays a vital role. Without power, it is next to impossible to develop the country’s
economy. And not only industries, power have also become a part and parcel of human life. Our day starts from the use of power and ends with its use. If there were no power how will it possible to watch television, to press clothes, draw water from bore, fight the scorching sun in summer?

CURRENT SCENARIO OF THE POWER SECTOR IN INDIA

With the growing demand of power, there is huge potential of investment in the power sector of India. Power sector is in the concurrent list of the Indian Constitution. So it is under the purview of both the central government and the state government. The power sector of India is mainly dominated by the public sector undertakings, though slowly the private sectors are also coming up. The state and the central government generate nearly 90% of power. The private sector is accountable for only 10% generation. The funds of the power sector are fulfilled through budgets and other external borrowings. There has been a significant growth in the power sector in India in the last few years. During 2006-07, the growth rate was only 3.1%. But in the year 2007-08 (up to September, 2007) the growth rate was 7.6%.

Power is derived from various sources in India. These include thermal power, hydropower or hydroelectricity, solar power, biogas energy, wind power etc. The distribution of the power generated is
undertaken by Rural Electrification Corporation for electricity power supply to the rural areas, North Eastern Electric Power Corporation for electricity supply to the North East India regions and the Power Grid Corporation of India Limited for an all India supply of electrical power in India.

Thermal Power in India is mainly generated through coal, gas and oil. India coal power forms a majority share of the source of power supply in India. The electric power in India is generated at various thermal power stations in India. The power generated at these thermal power plants is then distributed all over India through a network of power grid at regional and national levels. The power ministry organization responsible for the thermal power management in India is the National Thermal Power Corporation (NTPC) Ltd..

Hydropower in India is one of the mega power generators in India. Various hydropower projects and hydro power plants have been set up by the ministry of power for generation of hydro power in India. Various dams and reservoirs are constructed on major rivers and the kinetic energy of the flowing water is utilized to generate hydroelectricity. The power generator here is the running water. The hydroelectric power plants and the hydro power generation companies are managed by the National Hydro Electric Power Corporation (NHPC).
Wind Power in India is available in plenty as India witnesses high intensity winds in various regions due to the topographic diversity in India. Efforts have been made to utilize this natural source of energy available free of cost for wind power generation. Huge wind energy farms have been set up by the government for tapping the wind energy by using gigantic windmills and then converting the kinetic energy of the wind into electricity by the use of power converters. The wind power advantages start with the very fact that a wind energy power plant does not require much infrastructure input and the raw material i.e. wind itself is available free of cost.

Solar Power in India is being utilized to generate electricity on smaller scale by setting up massive solar panels and capturing the solar power. Solar power India is also being utilized by the power companies in India to generate solar energy for domestic and small industrial uses.

Nuclear Power in India is generated at huge nuclear power plants and nuclear power stations in India. A nuclear power plant generates the electricity using nuclear energy. All the nuclear power plants in India are managed by the Nuclear Power Corp of India Ltd (NPCL). The electricity from all India nuclear plants is distributed by the NPCL as per the nuclear power project scheme.
Biogas Production in India is still in its infancy stage. Also the number of biogas plants in India is still very low. India being the largest domestic cattle producer has plenty of biogas fuel and thus utilization of the fuel for mass biogas production by setting up more biogas plants in India would solve the power shortage problem to some extend.

Important Power Corporations of India

The Government of India has a vision of providing power to all by 2012. For this it is very much essential that the installed power generation capacity should reach to 2,00,000 MW from the present capacity of 1,14,000 MW. Some of the major Power corporations of India are:

- The Damodar Valley Corporation
- National Thermal Power Corporation
- National Hydro Electric Power Corporation Limited
- Rural Electrification Corporation Limited
- Satluj Jal Vidyut Nigam Ltd
- Power Grid Corporation of India
ABOUT THE PRESENT STUDY

Objectives

The present study has been carried out with the following objectives:

1. To examine whether Power Companies under study has been able to generate value for its shareholders.

2. To compute the performance of Power Companies by applying traditional indicator like ROI and the new corporate performance measure EVA.

3. To examine whether information on EVA leads to better decision by investors.

4. To examine the extent of awareness and adaptability of EVA in Indian Power Companies.

5. To suggest the measures for effective implementation of EVA.

Hypothesis

The present study is based on the following hypothesis:

(i) EVA is not a better technique than traditional method to measure profitability.
(ii) There is no significant difference between the profitability of power companies under study.

(iii) The value created for investors by power companies does not differ significantly.

(iv) There is a positive correlation between profitability and creation of value.

Research Methodology

For the present study, following tools and techniques have been used in the collection, analysis and interpretation of data and informations.

Data Collection: Although some meetings have been organised with power companies officials to collect primary data and information regarding present study but that was not a big contribution and the study is mainly based on secondary data that have been collected from the published annual reports and accounts of Power Companies under study.

After collection of data, consolidated and comparative financial statements have been prepared in tabular manner. Inter-firm and intra-firm comparison have been made to interpret the data with the help of ratio analysis and statistical techniques such as average, standard
deviation, coefficient of variation. The hypothesis has been tested by applying F-test.

Scope of the Study

The present study covered four power-generating companies of India, three public sector companies and one from private sector. This is due to certain limitations and time constraint. This study attempts to obtain an insight into the financial position of the selected power-generating companies in India and to judge their financial strength, profitability and productivity. The study has been covered a period of 5 years from the year 2007-08 to 2011-12.

The present study included the following companies of Power sector:

(a) National Thermal Power Corporation

(b) Rural Electrification Corporation Ltd.

(c) Power Grid Corporation of India

(d) Birla Power Solutions Ltd.

The first three companies are public sector units, whereas the last one is private sector company.
Relevance of the Study

Measurement and analysis of productivity are significant because functioning and analysis of productivity elaborate how technological, social, economic, organizational and geographical variables affect the rest variables. It can help in suggesting the remedies to bridge the gap between the variation in profitability and productivity.

The present study further helps in realizing the extent of productivity achieved at current level. The ratio of output to investment in financial terms, when analysed indicates as to when and to what extent self-financing expansion policies can be implemented which resulted in more productivity benefits for all the sections of the society. More dividend to shareholders, more capital to management, better and reasonable service to consumers, more revenue to government and more wages and salary to employees.

Limitation of the Study

The present study has certain limitations. Foremostly, time constraint which bounded the limits. Reliability and authenticity of the secondary data may affect the results, as it will be simply used for analysis and interpretations. This study is based on a sample, as the population is very large. Therefore, there may be some variations and
shortcomings in the results. It is the human factor that has given the present study this shape, hence, the results may vary. There may be a chance of error.

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