# A COMPARATIVE STUDY OF EVA AND MVA OF POWER SECTOR COMPANIES IN INDIA

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**Abstract** *In today's business world, shareholders' wealth maximization is very important. The survival of any company is not possible without wealth generation for its shareholders. Many companies consider equity capital as free cost of capital but this approach is not relevant in the modern business world because equity is a costlier source than other sources of finance. Economic Value Added (EVA) helps to calculate the true profitability of the company by considering the cost of equity. EVA concept has been given by Stern Stewart and Co. The company has given 160 adjustments in GAAP (General Accepted Accounting Practices) rules for the calculations of true economic profit. In the study three adjustments have been made for the calculation of economic profit. Economic value added is an important performance metric; and Market Value Added (MVA) is the wealth metric of economic value added and is positively linked with it. Power sector companies have been taken under consideration for this study. In this study it has been found that Indian Oil Corporation Ltd. is the most wealth creating company and Reliance Power is the most wealth destroying company for the year 2009-2011. The reason for negative economic value added is high cost of equity.*

**Keyword:** *Power Sector Companies, Ranking*

## INTRODUCTION

Maximization of shareholders' value has become the new corporate performance standard in India. Any company which gives less return to its shareholders is considered as low performing company. In a country like India where capital is still costly, the corporate management would try to get a maximum profit for every single penny of investment. EVA means economic value added, in another words addition in the returns of shareholder. EVA is the difference between a company's profit and the full cost of its capital. A company should not only seek to make profit from its business but it should also make enough profit to cover the cost of its capital, including the equity invested by shareholders, for its survival. Idea of EVA has been given by Stern Stewart and Co, a New York based global financial consultant. Most of the companies consider the returns but not the entire cost. Only the cost of debt and cost of preference shares are considered, but the equity cost is not considered, whereas equity share capital is also the cost which has to be considered. Most of the companies and shareholders believe in traditional measures like return on equity and return on assets etc., but these methods are not capable enough to express the true profitability of a company because they don't consider the equity as a cost. Management considers equity as a cost free capital. In this situation shareholders' returns are manipulative. Equity is a costly source of finance. In this paper the EVA calculation of power sector companies has been done. In this paper MVA (Market value added) of the companies under consideration is also calculated. Market value added is considered as a good measure for financial performance of the company. It is a related measure of economic value added. MVA is the difference between a company's fair market value, as reflected primarily in its stock price, and the economic book value of capital employed. Promoting MVA, Stern Stewart has focused on the true goal of CEOs - to create wealth for shareholders.

## OBJECTIVE OF THE STUDY

1. To identify the companies which have cited the use of EVA in their annual reports for the period (2009-11)
2. To calculate the important metric of financial performance i.e. EVA and MVA of power sector companies listed in NSE under the head of CNX energy for the year (2009-11).
3. To rank the companies on the basis of EVA and MVA generated/ lost for the year (2009-11).
4. Compare EVA and MVA of the companies under consideration for the period (2009-11).
5. To measure the correlation between EVA and MVA of the sample companies for the period (2009-11)
6. To check the trend of EVA and MVA by taking year 2009 as base for year (2010-2011)

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## REVIEW OF LITERATURE

Rupert (1997), in his paper, has linked up economic value added of a company with the incentive of the shareholder. Economic value added can be calculated after deducting cost of capital from net operating profit after tax. There is criticism against the adjustment which has been made in calculation of EVA, asking a large number of adjustments to make the resultant figures as close to a cash basis as possible. Adjustments should be considered which increase the right information content for the shareholder.

Eharbar (1999) in his study "Wealth created by the CEO", studied with the help of MVA**.** MVA is the difference between the total market value of a company and the capital contributed by shareholders and lenders. In other words, it is the difference between cash in and cash out. The study told about the ranking of CEO on the basis of MVA during their job period.

Goldberg (1999) opines that corporate decision making power has been decentralized to the manager from shareholders of the company. In this environment economic value added is an effective tool to check the performance of the managers in respect of shareholders' value generation. In economic value added calculation, adjustment given by Stern Stewart has been made in net operating profit after tax, and this adjusted NOPAT has been deducted from cost of capital to know whether the value of the company is generated or lost by the managers. There are adjustment related problems with EVA but still it is a popular system to increase the efficiency of the managers.

Turvey et al. (2000) in this study on 17 publically traded company in Canadian food processing has examined the management logic that has popularized EVA is so logical and fundamental to common practices in corporate finance that there is resistance to dismissing EVA as a valued paradigm. Rather, we suggest that market volatility and other factors mask the short-run increments to shareholders' wealth from EVA-implemented strategies.

The study by Louis (2002) is all about economic value added and market value added. Economic value added can be calculated with the help of NOPAT and cost of capital, and MVA has been calculated with the help of total market value of the company and total capital supplied. The study has been done on two healthcare companies. EVA is a measure of managerial effectiveness in a given year and MVA is a measure of managerial effectiveness since the firm has started. Once healthcare financial managers understand the rationale and potential uses of these measures, they may find these more helpful for measuring an organization's economic profit than accounting profitability measures.

Stephen andand Roush (2002) mentioned that in early 1990, market value added was considered as a good measure for financial performance of the company. It is a related measure of economic value added. MVA is the difference between a company's fair market value, as reflected primarily in its stock price, and the economic book value of capital employed. But if there is high MVA it does not mean that the company's share will perform better in share market. This is because all relevant information is fully factored into the current share price if the market is semi-strong. Promoting MVA, Stern Stewart has focused on the true goal of CEOs - to create wealth for shareholders. But there are drawbacks. Rather than maximizing MVA, CEOs should seek to maximize the orthodox risk-adjusted abnormal return. This is what interests shareholders and measures wealth creation in a competitive capital market.

Berry (2003) opines that investor capital is not a free-of-cost capital. Economic value added is a better tool to calculate the performance of the company. He linked it with the performance of the mangers. For calculation of economic value added cost of capital has been deducted from NOPAT. The paper highlighted that the source of finance of capital is not free that's why the company has to generate a positive economic value added.

Lloyd (2005) his paper describes how to use economic value added as benchmark for setting prices and other policies of market, while there is absence of normal benchmarking mechanism. The study is based on Airways Corporation of New Zealand. The goal in these supplementary statements was to achieve an EVA result equal to zero over time. Economic value has been calculated by deducting cost of capital from net operating income. After doing adequate adjustments this economic value added approach differs from the conventional control mechanisms of direct price control or limitations on the return on assets.

Sharma and Kumar (2010) in their paper study the existing literature with the time gap of eight year to check the gap of study on economic value added. EVA can be calculated with the help of NOPAT and cost of capital. In this paper, 112 papers are taken in to consideration, which shows different reasons to calculate economic value added. Mojtaba and Zadollah (2012) mention that EVA and MVA are better metrics than traditional one due to consideration of cost of equity also in their calculations. The correlation study between EVA and MVA shows that these two metrics are positively correlated with each other.

## RESEARCH METHODOLOGY

The study is based on the EVA and MVA calculation of power sector companies. Stern Steward, father of EVA, has given 160 adjustments to calculate economic profit. In present study on economic value added, three adjustments have been taken.

## Sample Size

All power sector companies listed under NSE CNX energy are taken for calculating the performance.

## Methodology

According to Stewart, EVA is a residual return measure that subtracts the cost of invested capital from NOPAT. It is the simplest form and can be calculated by the following equation

EVA = NOPAT-(WACC*IC)

where NOPAT = net operating profit after tax

WACC = weighted average cost of capital

IC = invested capital (total assets)

EVA is positive if NOPAT exceeds the cost of financing. Stern Stewart states that, in this case the company has created shareholders' value. On the other hand when EVA is negative, the company is destroying the value of the shareholders.

NOPAT has been taken from the income statement of company's reference to capita line database.

## The Adjustments done in NOPAT

1. Interest expenses
2. Goodwill written off
3. Research and development expenses

### Calculate WACC (Weighted Average Cost of Capital)

The second step is to calculate WACC (Weighted Average Cost of Capital).

WACC=Ke*We+Kd*Wd+Kp*Wp

### Cost of Equity (ke)

Cost of Equity (ke) is calculated by the CAPM Model.

Ke=Rf+ (Rm-Rf) Beta

### Beta for Calculation of Cost of Equity

For calculation of Cost of Equity the Beta has been calculated by the following method.

Market return = Current day closing price of nifty - previous day closing price of nifty

Previous day closing price of nifty

Security return = Current day closing price of stock - previous day closing price of stock

Previous day closing price of stock

Regression formula has been used to check the dependency of security return on market return which is called 'beta'.

### Calculation of RM (Market return) or Market Premium

(Current day closing price of nifty-previous day closing price of nifty)* Number of trading days

Previous day closing price of nifty

Kd= rate of interest rate paid by the company for debts

### Calculation of Cost of Debt

Total interest expenses* (1-effective tax rate)

Average total borrowings

### Calculation of Cost of Preference Shares

Kp= (Preference .dividend / Average Preference Capital.

### Calculation of MVA (Market Value added)

(Number of Common Shares Outstanding x Share Price) + (Number of Preferred Shares Outstanding x Share Price) – (Book Value of Invested Capital)

## ANALYSIS OF THE STUDY

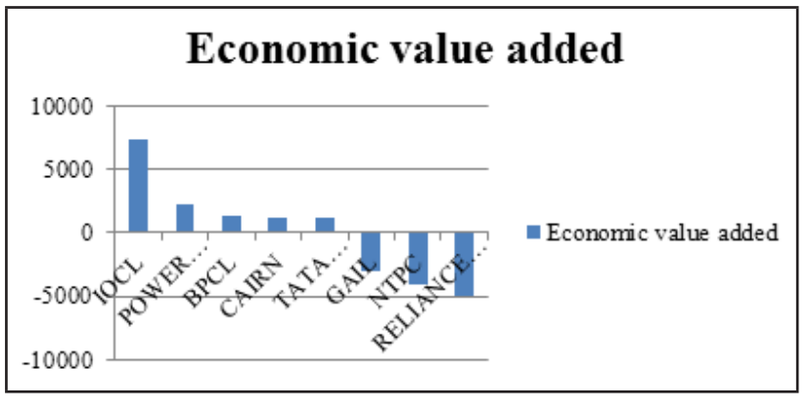
## Ranking of Power Sector Companies According to Economic Value Added

**Table 1: EVA of Power Sector Companies in India**

| Name of the Company | Average (in Crore) | Rank |
|---|---|---|
| Indian Oil Corporation Ltd. | 7378.183947 | 1 |
| Power Grid Corporation of India Ltd. | 2258.233366 | 2 |
| Bharat Petroleum Corporation Ltd. | 1365.740153 | 3 |
| Cain Energy corporation | 1228.802556 | 4 |
| Tata Power Ltd. | 1222.895051 | 5 |
| GAIL India Ltd. | -2988.667309 | 6 |
| NTPC Ltd. | -4013.081092 | 7 |
| Reliance Power Ltd. | -5049.612116 | 8 |

*Source: Based on Data Analysis

**Figure 1: Economic Value Added of Power Sector Companies**




*Source: Based on Data Analysis

This is a disappointment from the practical business world as they are not thinking about the value maximization of the shareholder which is the main rule of capitalism. Although this is the main slogan of every business that they believe in shareholder value maximization but this is not the fact. In India the truth is that only a small number of companies are measuring the shareholder wealth with proper methodology. Its not true that only the big companies can generate the wealth for the shareholder. The small companies having great competencies can also generate the wealth for the shareholder. To add value manager should focus on value addition in shareholders' wealth. Power sector which is a valuable industry in India should also consider the value addition of the shareholders. Economic value added created by the power sector during 2009-2011 is depicted in Table 1. In this study Indian Oil Corporation is the most wealth generating company for the shareholders. Out of eight companies of power sector under consideration, three companies are destroying the wealth of the shareholder which are GAIL India Ltd, NTPC Ltd. and reliance power Ltd. Average performance of GAIL India Ltd. has been less because in the year 2009 cost of equity was higher in comparison to year 2010 and year 2011. In case of NTPC Ltd. cost of equity was higher in the year of 2010 while comparing to year 2009 and year 2011. Reliance Power Ltd. has higher cost of equity in year 2009 which is more than year 2010 and year 2011 In Reliance Power the cost of equity is more than other two value destroyer companies. This is the reason that this company is the most value destroyer company among the companies under consideration.

The graph in Figure 1 shows IOCL (Indian Oil Corporation Ltd.) is the most valuable company in the terms of shareholder value generation for the period (2009-2011). IOCL performance has been followed by Power Grid Corporation Ltd, BPCL (Bhartiya Petroleum Corporation Ltd.) CAIRN Energy Corporation and Tata Power Ltd. Reliance Power is the most value destroyer companies in power sector for the period (2009-2011).

## MVA Ranking of Power Sector Companies

**Table 2: EVA of Power Sector Companies in India**

| Name of the Company | Average | Rank |
|---|---|---|
| Reliance India Ltd. | 214739.9 | 1 |
| NTPC Ltd. | 150413.9 | 2 |
| Indian Oil Corporation Ltd. | 87346.1 | 3 |
| GAIL India Ltd. | 50962.97 | 4 |
| Cairn Energy Corporation | 43558.16 | 5 |
| Power Grid Ltd. | 42389.99 | 6 |
| Tata Power Ltd. | 24928.2 | 7 |
| Bhartiya Petroleum Ltd. | 22813.74 | 8 |

* Source: Based on Data Analysis

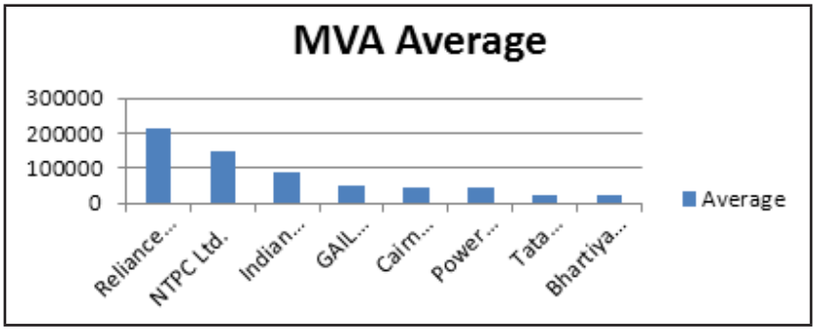
**Table 3: Correlation between EVA and MVA**

| Name of the Company | EVA | MVA | Correlation |
|---|---|---|---|
| Reliance India Ltd. | -5049.61 | 214739.9 | 0.596 |
| NTPC Ltd. | -4013.081 | 150413.9 | 0.387 |
| Indian Oil Corporation Ltd. | 7378.18 | 87346.1 | 0.952 |
| GAIL India Ltd. | -2988.66 | 50962.97 | 0.387 |
| Cairn Energy Corporation | 1228.8 | 43558.16 | 0.351 |
| Power Grid Ltd. | 2258.23 | 42389.99 | 0.962 |
| Tata Power Ltd. | 1222.89 | 24928.2 | -0.998 |
| Bhartiya Petrolium Ltd. | 1365.74 | 22813.74 | -0.356 |

*Source: Based on Data Analysis

Table 2 depicts the ranking of power sector companies on the basis of market value added. It shows that Reliance India performed well in market than any other companies

**Figure 2: Market Value Added of Power Sector Companies**




*Source: Based on Data Analysis

Graph in Figure 2 shows that Reliance Power Ltd. performed well as per the market value added. Bhartiya Petroleum performed last in given sample.

## Correlation of EVA and MVA

Table 3 depicts the correlation between EVA and MVA in given sample companies under consideration. The table shows that most of the companies have positive correlation between EVA and MVA.

## Comparison of EVA and MVA

MVA (Market Value Added) is the wealth metric of EVA. Table 2 depicts that there is a positive relationship between MVA and EVA. By comparing EVA and MVA of every company under consideration it has found that MVA is moving according to EVA. If EVA has a positive move MVA also has a positive move.

## Trends of EVA and MVA

The trends have been set by taking year 2009 as base year for EVA and MVA. It shows that Indian Oil Corporation has positive trend in 2010 which is decreasing in year 2011. MVA of this company also has the same trend.

## Companies Disclosing EVA

There is not a single company of power sector under consideration has disclosing EVA in their annual report.

# FINDINGS, RECOMMENDATIONS, LIMITATIONS AND CONCLUSIONS

## Findings

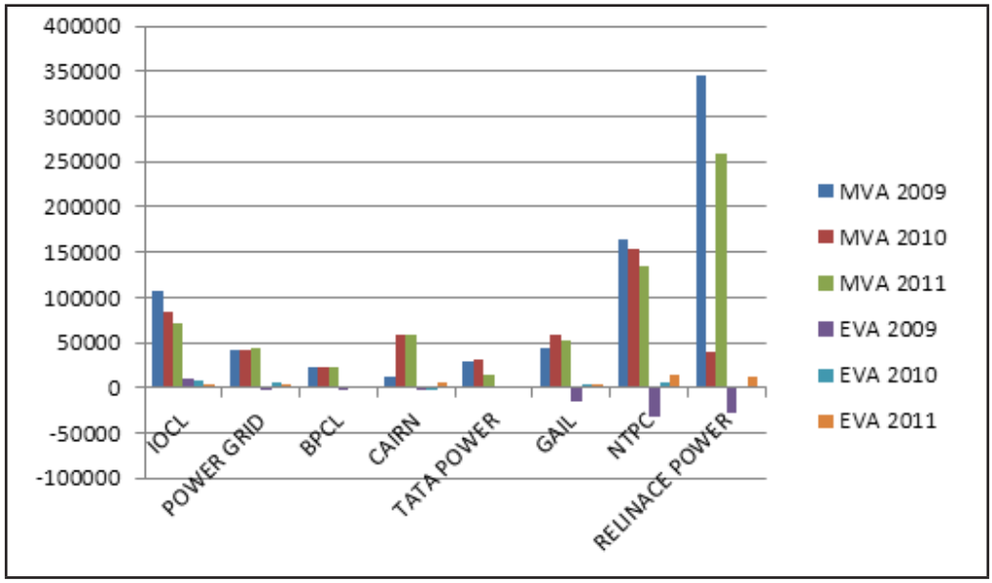
Investors in the stock market always try to purchase and maintain the stocks which give them highest output and profit. EVA is the best measure between other value measures due to consider cost of equity. Today maximization of the

**Table 4: Comparison of EVA and MVA of Power Sector Companies**

| | EVA(in crore) | | | MVA(in crore) | | |
|---|---|---|---|---|---|---|
| Name of the Company | 2009 | 2010 | 2011 | 2009 | 2010 | 2011 |
| Indian Oil Corporation Ltd. | 9,808.94 | 7,920.5 | 4,405.04 | 106944 | 84402 | 70691 |
| Power Grid Ltd. | -3117.130841 | 5038.35 | 4,853.48 | 41410. | 42655. | 43103. |
| Bhartiya Petroleum Ltd. | -758.746636 | 2582.01 | 2273.9545 | 23023 | 23087. | 22330. |
| Cairn Energy Corporation | -25.3174 | -1284.6 | 5703.6714 | 11506 | 59450 | 59718.3 |
| Tata Power Ltd. | 1,096.31 | 1,083.9 | 1,488.42 | 29111. | 30828 | 14844. |
| GAIL India Ltd. | -16109 | 3368.19 | 3774.8037 | 43550. | 57765 | 51573 |
| NTPC Ltd. | -31712 | 6282.02 | 13390.737 | 16332 | 15322 | 134694 |
| Reliance India Ltd. | -27820.3473 | 171.404 | 12,500.11 | 34456 | 40091. | 259565 |

*Source: Based on Data Analysis

**Figure 3: EVA and MVA Comparison of Power Sector Companies**




*Source: Based on Data Analysis

**Table 5: Trends of EVA and MVA**

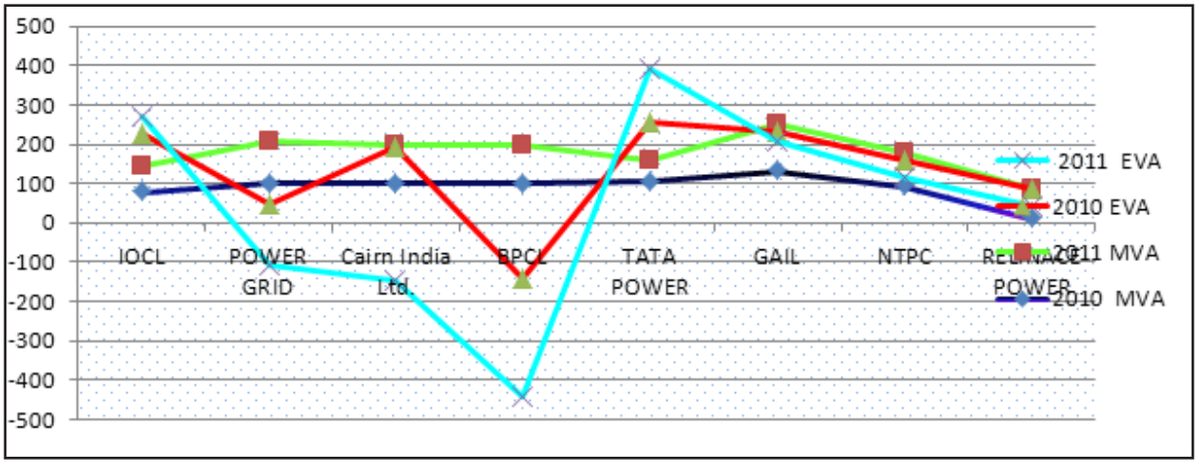
| Name of the Company | 2010 (EVA%) | 2011 (EVA%) | 2010 (MVA%) | 2011 (MVA%) |
|---|---|---|---|---|
| Indian Oil Corporation Ltd. | 80.74839 | 44.90843 | 78.92223 | 66.10130817 |
| Power Grid Ltd. | -161.634 | -155.703 | 103.0063 | 104.0877553 |
| Bhartiya Petroleum Ltd. | -3.39774 | -340.3 | 100.2796 | 96.7236499 |
| Cairn Energy Corporation | -340.3 | -299.699 | 100.2796 | 96.99412389 |
| Tata Power Ltd. | 98.87324 | 135.766 | 105.8983 | 50.99038358 |
| GAIL India Ltd. | -20.9088 | -23.4329 | 132.641 | 118.4233207 |
| NTPC Ltd. | -19.8096 | -42.2261 | 93.81721 | 82.47109894 |
| Reliance India Ltd. | -0.61611 | -44.9315 | 11.63539 | 75.33142457 |

Source: Based on Data analysis

shareholders' value is the main purpose of the business unit. EVA which has given by Stern Stewart and Co. is the most valuable measure of internal performance appraisal and it has a close link with MVA (Market value added) than any other traditional measures. Although it is a true measure of economic profit of a company, in India there are very less number of companies which are disclosing EVA in their annual reports. As a part of this research work we find that none of the company under consideration has disclosed EVA in their annual report. The findings of the study are:

- Majority of top wealth destroying company is from public sector although Indian Oil Corporation Ltd. which is the top performer in the study is ideal for other public sector companies.
- Top wealth destroyer company is Reliance Power Ltd. which is a private sector company. The reason which makes it top destroyer is high equity cost in year 2009 although it performed well in year 2010 and year 2011.
- MVA (Market Value Added ) which is a wealth metrics of EVA (Economic value added) has positive relationship with EVA.
- The name of the top wealth destroyer companies are NTPC Ltd, GAIL India Ltd. and Reliance Power Ltd.
- The reason of increasing performance of Indian Oil Corporation Ltd. is increasing profit and decreasing equity cost by investing funds in beneficial projects which ultimately gives it high profit than invested capital.

**Figure 4: Trends of EVA and MVA of the Companies under Consideration**




*Source: Based on Data Analysis

- In our study there is not a single company which is disclosing EVA in their annual report.

## Recommendations

The company should disclose EVA in their annual report. Managers' performance can be linked with EVA. Management of the company should think about shareholders' preferences and invest in the projects which give positive EVA and maintain it for long term. As market value added is positively linked with EVA so decreasing EVA can be the reason of decreasing MVA which is not a good sign for a company. Followings are some recommendations.

- The study highly recommends that it should be mandatory for the companies to disclose economic value added in their annual report.
- NTPC Ltd. and GAIL India Ltd. and Reliance Power Ltd. should select investment project efficiently so that the investment produces better return and EVA can be increased.
- EVA should be linked with the performance of the managers.
- The general rule of the business says increasing wealth of the shareholders and their interest is more important that manager's personal interest so every time when they are investing money in any project they should think about the long term profit for the shareholders rather than thinking about the short term profits.
- Capital structure should be optimum equity is not a free cost of capital so there is should be an optimum ration of equity and debt.
- MVA and EVA are positively linked, so if there is positive EVA, MVA will be positive.

## Limitation of the Study

- Stern Stewart, the father of Economic Value Added, has given 160 adjustments to calculate true economic profit but in this study only three adjustments have been taken.
- The study is based on valuation concept.
- Performance of the companies under consideration has taken for the year 2009-2011.

## Conclusion

Economic value added is an important measure to judge the performance of the company. It is not mandatory to disclose EVA in annual reports of the companies in India. It is less popular in India or may be the companies are not interested to adopt it because market price of the shares depends on the profit of the company, but if the companies calculate EVA and deduct the cost of equity from profit the value would be less as equity cost is the highest cost instead of other component of capital cost. It has found while preparing this paper that many companies has enough profit but these company has negative or less economic value added due to not having optimum capital structure or due to high cost of equity. But as investor is investing his hard- earned money to the company, so company should think about the investor first. There is a value for his single penny and company should prove worthy to him by giving him good returns. Company should invest wisely in different projects, because if company would not think about investor it cannot survive for long term, so it should take care and think first about investor while investing in any project. EVA is positively linked with MVA so it should generate positive EVA. MVA is positively linked with EVA so if EVA is decreasing simultaneously MVA would decrease which is not a good

sign for company growth. It should be mandatory for every company to disclose EVA in its annual report. So that investor can check true profitability of the company while investing.

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