

STUDY THE ECONOMIC VALUE ADDED AND ITS INFLUENCE ON THE MARKET PRICE OF SHARES IN INDIAN STOCK MARKET

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Abstract

Economic Value Added (EVA) is important because it is used as an indicator of how profitable corporation projects are and it therefore serves as an image of management performance. Stock price maximization is the most widely accepted objective of listed firms worldwide. The entire corporate decision-making framework revolves around this comprehensive framework. This study is expected to clarify the relationship between accounting and economic measures with share market value as a company's performance, and it could help to selected Sensex companies' owners/managers in their making decision and increasing their performance. The variables chosen for the purpose of study like Economic Value Added (EVA), Earnings Per Share (EPS), Return on Equity (ROE), Return on Assets (ROA), Return on Sales (ROS) and Market Value Added (MVA). The results indicates that economic growth rate in India as increased due to inflation, causing companies to spend more to adjust the level of economic growth that occurred. So that the investors pay attention to know about other information are such as company profitability like (ROE and ROA), EPS, financial and non-financial factors.

Keywords: Economic Value Added (EVA), Earnings Per Share (EPS), Return on Equity (ROE), Return on Assets (ROA) and Market Value Added (MVA).

Stock price maximization is the most widely accepted objective of listed firms worldwide. The entire corporate decision-making framework revolves around this comprehensive framework. The metrics of financial performance are important in the corporate and investors' decision-making to the extent they influence the stock prices. Traditionally accounting based measures of financial performance like EPS, ROA, ROE and ROS have been found to influence the stock prices but of late due to helplessness of these measures to

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accounting distortions these measures are finding fewer acceptances among the investors. The Economic Value Added (EVA) framework developed by the Stern Stewart & Company is gradually replacing the traditional metrics of financial performance due to its robustness and its immunity from "creative accounting".

EVA that gained currency in the second half of 1990's has emerged as one of the most prominent value based management techniques. Fortune magazine has called it "today's hottest financial idea and getting hotter" and management guru Peter Drucker referred to it as a measure of total factor productivity. Companies across a broad spectrum of industries and a wide range of countries have joined the EVA bandwagon and have started reporting their EVA numbers.

Review of Literature

Eljelly and Alghurair (2001)⁴ test the association between stock returns and wealth creation (as measured by Market Value Added, MVA) on the one hand and various performance measures of joint stock companies in Saudi Arabia. These measures include traditional accounting measures; Earning Per Share (EPS), Return on Equity (ROE), and Cash Flow (CF), as well as a relatively recent measure, the Economic Value Added (EVA). Their study reveals strong links between various traditional accounting measures and show that those measures give similar indication of a company's overall performance. The results indicate that MVA and stock returns are associated with traditional accounting measures, but not with EVA. However, EPS is found to dominate other measures of performance with respect to its association with stock returns and MVA

Singh and Garg (2004)⁵ have compared some selected financial variables like ROCE, EPS, ARNW, MVA and NPV with EVA. They observed in almost all cases, the positive relationship has been established between the variables under reference. The different correlation matrix tables have reveals that EVA is also giving the results in the same direction for the rationale underlying. During the multiple regression analysis in their study, it became apparent that EVA was the single largest and most consistent variable, which has a decisive role in predicting the MVA. Their study concludes that the relationship between EVA and MVA is statistically significant.

Objectives of the Study

1. to impact of Economic Value Added on the market price of shares.
2. to study the Economic Value Added and its influence on the market price of shares

Hypotheses

The following hypotheses were formed and tested:

1. There is no significant relationship between Economic Value Added (EVA) and the Market Value Added (MVA).
2. There is no significant relationship between accounting variables (ROA, ROE, ROS and EPS) and the Market Value Added (MVA).

Selection of Sample and Data Collection

The required data for the present study were the period of 5 years from 2009 to 2014 for 22 companies out of 30 companies in SENSEX data were collected from BSE website and Bloomberg Database. As there is no availability of data for left out eight companies they were not included.

⁴ Abuzar M. A., Eljelly, Khalid S. Alghurair (2001), "Performance Measures and Wealth Creation in an Emerging Market: The Case of Saudi Arabia", *International Journal of Commerce & Management*, 11(¾).

⁵ Karam Pal Singh, M. C. Garg (2004), "Economic Value Added (EVA) in Indian Corporates", *New Delhi, Deep & Deep Publications Pvt.Ltd.*

Limitation of the Study

The researcher has taken only five years for analyzing the Economic Value Added, Accounting Variables and Market Value effects. The indices were not used for analyzing the Economic Value Added, Accounting Variables and Market Value Added. The strength of arguments laid in the study relies in the validity of the data used.

Choice of Variables

Five independent variables have been chosen for the purpose of study. They include Economic Value Added (EVA), Earnings Per Share (EPS), Return on Equity (ROE), Return on Assets (ROA), and Return on Sales (ROS). Market Value Added (MVA) has been taken as the dependent variable in the study. These variables have been defined as follows for the purpose of the study.

Multiple Linear Regressions

The hypothesis for the study uses five chosen independent variables (EVA, EPS, ROA, ROE and ROS). EVA is the most reliable metrics of the firms' financial performance as it finds a better reflection in the market value of shares. EVA is the single most significant explanatory variable in explaining the variation in the Market Value Added.

The collected data is analyzed using the tool of regression analysis. As there are multiple explanatory variables the analysis, to begin with, started using the following multiple regression model.

$$MVA = \alpha + \beta_1 EVA + \beta_2 ROE + \beta_3 ROA + \beta_4 ROS + \beta_5 EPS + \varepsilon \dots\dots \quad (1)$$

Where,

MVA = stock market value of companies,

EVA = economic value added,

ROE = return on equity,

ROA = return on assets,

ROS = return on sales,

EPS = is earning per share,

α = intercept term,

β_1 through β_5 = impact level of each of these variable and

ε = error term.

Economic Value Added Variable

EVA is a revised version of Residual Income (RI) with a difference the way, the economic profit and the economic capital is calculated⁶. The economic value added is a good indicator both for the retrospective evaluation of performances (the economic value added for the historical period) and also for prospective evaluation of performances (the economic value added for the future period)⁷. In this study, economic value added (EVA) intended found on

⁶ Sharma A. and S. Kumar (2012), "EVA versus Conventional Performance Measures - Empirical Evidence from India", in *ASBBS Annual Conference: Las Vegas*, pp.804 - 815.

⁷ Pantea M. I., et al. (2008), "The Managerial Performances Evaluation through the Economic Value Added", *European Research Studies*, XI (4).

Cordeiro & Kent⁸, and besides, these formulas have been used by Ismail⁹.

The formula used to calculate a company's EVA is the following

$$EVA = Capital * (ROIC - WACC) \dots\dots\dots (1.1)$$

$$ROIC = \frac{NOPAT}{Capital} \dots\dots\dots (1.1.1)$$

$$NOPAT = PBT + IE - TI \dots\dots\dots (1.1.2)$$

Where,

NOPAT = operational profit after tax,

WACC = weighted average cost of capital,

ROIC = rate of invested return,

IC = invested capital,

PBT = profit and loss before tax,

IE = interest expense and

TI = tax shield on interest.

$$WACC = r_D(1 - T_c) * (D/V) + r_E * (E/V) \dots\dots\dots (1.1.3)$$

Where,

r_D = The required return of the firm's Debt financing

$(1 - T_c)$ = The Tax adjustment for interest expense

(D/V) = (Debt/Total Value)

r_E = the firm's cost of equity

(E/V) = (Equity/Total Value).

Accounting Performance Measures

In accounting performance evaluation model, the value of company functions as various parameters such as earning per share (EPS), return on equity (ROE), return on assets (ROA), and return on sales (ROS) selected as accounting performance measures.

Return on equity

According to Chandra Shil¹⁰, among all traditional measures, return on capital is very common and relatively good performance measure. Different companies calculate this return with different formulas and call it also with different names like return on investment (ROI), return on invested capital (ROIC), return on capital employed (ROCE), return on net assets (RONA), return on equity (ROE) etc. The calculation of ROE can be broken up into three separate ratios, as follows:

$$ROE = (Net Income / Outstanding Equity) \times 100 \dots\dots\dots (1.2)$$

⁸ Cordeiro J. J. and D.D. Kent Jr (2001), "Do EVA Adopters Outperform their Industry Peers? Evidence from Security Analyst Earnings Forecasts", *American Business Review*, 19(2), pp.57 - 63.

⁹ Ismail I. (2011), "The Ability of EVA (Economic Value Added) Attributes in Predicting Company Performance", *African Journal of Business Management*, 5(12), pp.4993-5000.

¹⁰ Chandra Shil N. (2009), "Performance Measures: An Application of Economic Value Added", *International Journal of Business and Management*, 4(3), pp.169- 177.

Return on Assets

ROA is one of the profitability ratios. It shows the efficient management at using assets to generate earnings. The ratio of net income to total assets measures the return on total assets (ROA) after interest and taxes.

$$ROA = (\text{Net Profit} / \text{Total Assets}) \times 100 \quad \dots\dots\dots (1.3)$$

Return on Sales

ROS is a useful measure of a company's operational efficiency as well as its profitability. It reflects how resourcefully each dollar of sales revenue is used, how well the company manages costs, and how it responds to difficulties like a sales downturn, increasing costs, or a fall in prices. A higher ROS indicates that a company is likely to cope well with such circumstances, and may be able to hold out against cutting its prices or entering into a price war.

$$ROS = (\text{Net Profit} / \text{Total Sales}) \times 100 \quad \dots\dots\dots (1.4)$$

Earning per Share

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.

$$EPS = \frac{\text{Net Income} - \text{Dividends on Preferred Stock}}{\text{Average Outstanding Shares}} \quad \dots\dots\dots (1.5)$$

Market Value Added

EVA measures the impact of firm's operations on the wealth of shareholders. According to the EVA theory, earning a return greater than the cost of capital increases firms' value. For the listed firms Stewart has defined another measure to assess whether the company has created value for its shareholders. If the total market value of a company is more than the amount of capital invested in it, the company has managed to create value for its shareholder. If the case is opposite, the company has destroyed shareholder value. Stewart calls that difference between the company's market value and book value as Market Value Added (MVA). EVA is an internal measure of performance that determines MVA which is an external measure of firm's performance.

$$MVA = \text{Company's Total Market Value } (k) - \text{Capital Invested } (c) \dots\dots\dots (1.6)$$

$$k = \text{Current Market Price} * \text{Total Numbers of Outstanding Shares} \dots\dots (1.6.1)$$

$$c = \text{Total Assets} - \text{Non-Interest Bearing Liabilities (NIBL)} \dots\dots\dots (1.6.2)$$

$$\text{With NIBL} = \text{Total Current Liabilities } (-) \text{ Short-Term Debt} \dots\dots\dots (1.6.2.1)$$

In the below table shows that the Mean, Maximum, Minimum, Range, Standard Deviation, Skewness and Kurtosis of research variables are among 22 selected Sensex companies are shown respectively.

Table 1.1: Result of Descriptive Statistics of Selected Variables for Selected Sensex Companies from April, 1999 to March, 2014

	MVA (Rs.)	ROA (%)	ROS (%)	ROE (%)	EPS (%)	EVA (Rs.)
Mean	-330.8	13.009	14.189	22.922	45.428	229317.786
Minimum	-843521	-30.80	-18.30	3.56	-0.08	-624761.24
Maximum	168581.55	57.53	41.66	103.11	174.46	2433721.39
Range	1012102.95	88.33	59.96	99.55	174.54	3058483.63
Standard Deviation	121544	13.22	9.55	18.92	38.87	431150.07
Skewness	-3.717	0.996	0.303	2.536	1.107	1.837
Kurtosis	21.432	2.808	1.308	6.969	0.708	7.660

Pearson Product-Moment Correlation

Pearson Product-Moment Correlation is used to measure the association between the following variables,

- Relationship between economic value added and market value added, return on assets, return on sales, return on equity, earning per share.

The table below reveals the correlations between the Economic Variable Measures and Accounting Variables Measures (ROA, ROS, ROE and EPS), Market Value Added of research variables among 22 selected Sensex companies are shown respectively.

Table 1.2: Relationship between Economic Value Added, Accounting Variables and Market Value Added (April, 1999 to March, 2014)

Pearson Correlation Coefficients of Economic Value Measures and Accounting Measures, Market Value Measures (two-tailed significance levels in parentheses; sample size = 110)							
Pearson Correlation Coefficients of MVA, Accounting Measures and EVA	Variables	MVA (Rs.)	ROA (%)	ROS (%)	ROE (%)	EPS (%)	EVA (Rs.)
	MVA (Rs.)	1					
	ROA (%)	0.397**	1				
	ROS (%)	0.045	0.496**	1			
	ROE (%)	0.247**	0.425**	0.010	1		
	EPS (%)	-0.155	-0.044	0.008	-0.041	1	
	EVA (Rs.)	0.256**	0.142	0.019	0.017	0.247**	1

Note:*. Correlation is significant at the 0.05 level (2-tailed).

** Correlation is significant at the 0.01 level (2-tailed).

From the table 1.2, it is observed that the Correlation co-efficient difference between Economic Variable Added, Accounting Variables (ROA, ROS, ROE and EPS) and Market Value Added. It also reveals those variables economic value added (EVA) and market value added (MVA) has perfect composition with the significance at 0.001 percent level. As a result there is correlation between the economic value added and market value added. Hence, null hypothesis is rejected and the alternate hypothesis is accepted. It shows that there is significant relationship between the economic value added and market value added.

Also research results illustrate those variables economic value added (EVA) and return on assets (ROA) are not correlated with each other. As a result there is no correlation between the economic value added and return on assets. Hence, null hypothesis is accepted and the alternate hypothesis is rejected. It shows that there is no significant relationship between the economic value added and return on assets.

Also research results illustrate those variables economic value added (EVA) and return on sales (ROS) are not correlated with each other. As a result there is no correlation between the economic value added and return on sales. Hence, null hypothesis is accepted and the alternate hypothesis is rejected. It shows that there is no significant relationship between the economic value added and return on sales.

Other those variables economic value added (EVA) added and returns on equity (ROE) are not correlated with each other. As a result there is no correlation between the economic value added and return on equity. Hence, null hypothesis is accepted and the alternate hypothesis is rejected. It shows that there is no significant relationship between the economic value added and return on equity.

It also reveals that the variables economic value added (EVA) and earning per share (EPS) has perfect composition with the significance at 0.001 percent level. As a result there is correlation between the economic value added and earning per share. Hence, null hypothesis is rejected and the alternate hypothesis is accepted. It shows that there is significant relationship between the economic value added and earning per share.

Results indicate that the relationship between value of the stock market (MVA) and variables including economic value added (EVA) and earning per share (EPS) is significant at a level less than 5%. Moreover, there is no significant relationship between return on assets (ROA), return on sales (ROS) and return on equity (ROE).

Multiple Regression Analysis

This table presents the result to determine the influence of Economic Value Added (EVA), Market Value Added (MVA) and Accounting Variables of Stock Return on 22 SENSEX Selected Companies listed in Bombay Stock Exchange (BSE) used multiple linear regression analysis. The data is represent as data consists of 110 observations and Time-series length of five years. The regressions are corrected for heteroskedasticity using Wald test consistent standard errors and covariance. Auto correlation is check by the Durbin-Watson. The asterisks ***, ** and, * denote statistical significance at 0.001, 0.050, and 0.010 levels respectively.

The model of the multiple regression is

$$MVA = \alpha + \beta_1 EVA + \beta_2 ROE + \beta_3 ROA + \beta_4 ROS + \beta_5 EPS + \varepsilon \dots\dots (1)$$

Table 1.3: Result of Multiple Regression Analysis (April, 1999 to March, 2014)

Variables	Coefficient	t-ratio	p-value
Constant	-17710.847	-0.694	0.489
ROA (%)	3728.575	3.598	(0.000)***
ROS (%)	-2037.941	-1.591	0.115
ROE (%)	-610.196	-2.237	(0.027)**
EPS (%)	411.486	0.665	0.508
EVA (Rs.)	0.070	3.549	(0.006)***
P value (F)		(0.000)***	
R-sq		0.264	
Adj R-sq		0.228	

*Note: Statistically significant at 0.001(***), 0.05(**) and 0.010(*) level*

From the table 1.3, the multiple regression model for the selected companies in the stock returns in order to test research variable predicts that independent variable like economic value added (EVA) and return on assets (ROA) are significant at 0.001 level and return on equity (ROE) is significant at 0.050 level. It means that by increasing one percent in economic value added value of the stock market is increased equal to 0.070 units and this variable has had a positive and significant impact. By increasing one percent in return on assets (ROA) value of the stock exchange market is increased about

3728.575 and by one percent change in return on equity (ROE) value of the stock exchange market is increased equal to -610.196 but there is no significant relationship between earning per share (EPS) and return on sales (ROS) are value of the stock market.

The overall model of multiple regression fit to the equation because of the anova (F) is significant at 0.001 level, it imply that regression model have good predicted over the independent variables with the dependent variable in the equation. The R-sq value is 0.264 (26.4 per cent) which tells that independent variables have effect 2.64 per cent times on the dependent variable market value added. The autocorrelation is check by the Durbin- Watson (2.298), it shows that there is no autocorrelation between the variables and the multi co-linearity diagnostics of the variances inflation factor (VIF) lies in between the variables is maximum (1.795) for return on assets (ROA) and minimum (1.431) for return on sales (ROA), its less values in the variables will predict the model more. Hence the 'F' value (anova) is significant, it reject the null hypotheses.

The proposed model provides the moderating link between economic value added (EVA) and accounting variables (ROA, ROE, ROS and EPS) with market value added (MVA) to evaluate of company performance. The authors' intention is to fill up the gap about the lack of research on economic and accounting variables in India. There is no evidence conclusive that supporting whether EVA and MVA related measures are associated with financial performance. There is limited research about EVA in India. Furthermore, the study will be carried out resulting from the proposed model to investigate the role of accounting and economic performance to evaluation of company performance and value creation. This study is expected to clarify the relationship between accounting and economic value with share market value as a company's performance and it could help to selected Sensex companies' owners/ managers in their making decision and increasing their performance.

Salient Findings

Results indicate that the relationship between market value added (MVA) and selected variables economic value added (EVA) and earning per share (EPS) is significant at 5 per cent level. Moreover, there is no significant relationship between return on assets (ROA), return on sales (ROS) and return on equity (ROE).

Multiple Regression model for the selected companies in order to test research variable predicts that independent variable like economic value added (EVA) and return on assets (ROA) are significant at 0.001 level and earning per share (EPS) is significant at 5 per cent level. Hence, the hypothesis that "there is no significant relationship between economic value added and market value added" (MVA) and also "there is no significant relationship between accounting variables (ROA, ROE, ROS and EPS) and market value added (MVA)" are rejected.

Conclusion

Investors always intend to be aware of success level of managers in using their capital. They want to know how much value has been created from the conducted investment. Value creation and enhancement of stockholders wealth in long-term are the most important purposes of companies. It should be referred that value maximization of the stock market of companies is among the primary and essential purposes of any company. Thus analysts look for a criterion to take action towards value maximization of companies' stock market and enhance stockholders' wealth by regarding capital costs and rate of return of investment.

There is limited research about EVA in India. Furthermore, the study will be carried out resulting from the proposed model to investigate the role of accounting and economic performance measures to evaluation of company performance and value creation. This study is expected to clarify the relationship between accounting and economic measures with share market value as a company's performance, and it could help to selected Sensex companies' owners/managers in their making decision and increasing their performance. India's economic growth as inflation rates have increased, causing companies to spend more to adjust the level of

economic growth that occurred. So that the investors pay attention to know about other information are such as company profitability like (ROE and ROA), EPS, financial and non financial factors.

Reference

1. Abuzar M. A., Eljelly, Khalid S. Alghurair (2001), "Performance Measures and Wealth Creation in an Emerging Market: The Case of Saudi Arabia", *International Journal of Commerce & Management*, 11(3/4).
2. Karam Pal Singh, M. C. Garg (2004), "Economic Value Added (EVA) in Indian Corporates", *New Delhi, Deep & Deep Publications Pvt.Ltd.*
3. Sharma A. and S. Kumar (2012), "EVA versus Conventional Performance Measures - Empirical Evidence from India", in *ASBBS Annual Conference: Las Vegas*, pp.804 - 815.
4. Pantea M. I., et al. (2008), "The Managerial Performances Evaluation through the Economic Value Added", *European Research Studies*, XI (4).
5. Cordeiro J. J. and D.D. Kent Jr (2001), "Do EVA Adopters Outperform their Industry Peers? Evidence from Security Analyst Earnings Forecasts", *American Business Review*, 19(2), pp.57 - 63.
6. Ismail I. (2011), "The Ability of EVA (Economic Value Added) Attributes in Predicting Company Performance", *African Journal of Business Management*, 5(12), pp.4993-5000.
7. Chandra Shil N. (2009), "Performance Measures: An Application of Economic Value Added", *International Journal of Business and Management*, 4(3), pp.169- 177.
8. Brigham E. F. and Ehrhardt M. C. (2005), "Financial Management Theory and Practice", *South - Western, United States of America: Infotrac College Edition.*