ANWESHAN, Vol. 5, No. 1, March 2017

EVA verses Traditional Accounting-based Financial Performance Measures: An Evaluation of Relative and Incremental Information Content in explaining Variation in Stock Return

Dr. Debdas Rakshit
Professor, Department of Commerce
The University of Burdwan,
Burdwan, West Bengal, Pin - 713104
Contact Number - 09434546216
Email:debdas_rakshit@yahoo.co.in
&
Dr. Susanta Mitra
Associate Professor, Department of Commerce
Kazi Nazrul University, Asansol
Burdwan, West Bengal, Pin-713340
Contact Number – 09474540362
Email: susanta8560@yahoo.com
&
Mr. Mahesh Kumar Kurmi
Assistant Professor, Department of Commerce
Netaji Mahavidyalaya, Arambagh
Hooghly, West Bengal, Pin - 712601
Contact Number - 09563185670
Email: mahesh605.kurmi@gmail.com

Abstract

Modern value-based financial performance measures, in particular EVA, is argued by its proponents as a major improvement over the Traditional accounting-based financial performance measures on the ground that EVA is more informative than the traditional performance measures in explaining the variations in stock returns. On the contrary, a good number of other researchers argued that traditional financial performance measures are more informative in contrast to EVA. However, various empirical studies have been conducted in this regard till date but the research results are quite at odds. Thus, a modest attempt has been made to scan the information content of EVA and the traditional financial performance measures (ROA, ROCE, ROE, and EPS) in explaining variations in stock returns that will enable to recognize that whether EVA can be

a preferred financial performance measure for investors in evaluating performance of companies while designing investment strategies. Relative information content test as well as incremental information content test approach has been applied here to engulf the problem. Several hypotheses have been tested statistically in order to elucidate the findings and inferences of the study. 50 Indian firms listed in Bombay Stock Exchange for the period from 1st April 2006 to 31st March 2016 have been considered here as sample for conducting the study. Relevant statistical tools and techniques along with specific statistical test such as 't' test, 'F' test ,Co-linearity test (VIF) and Akaike information Criterion test (AICc) have also been applied at apt places for analyzing the data used in the study. Relative information content test divulges that EVA has the greatest value-relevance as it possesses the greatest information power in explaining the variations in the stock return followed by ROA, EPS, ROE, and ROCE. Incremental information content test also discloses that EVA adds considerable illustrative power to traditional performance measures.

Keywords: Economic Value Added (EVA), Stock Return (R), Return on Assets (ROA), Return on Capital Employed (ROCE), Return on Equity (ROE).

Introduction

Most of the traditional accounting based performance measures viz., Return on assets (ROA), Return on capital employed (ROCE), Return on equity (ROE), and Earnings per share (EPS) etc. were developed at that period of time when most of the company's focus was centered on maximization of accounting profit either from the view point of the company or from the view point of the owner. These performance measures spoke about the performances of the companies in terms of historical data and had not been able to forecast the future performance. Further, these measures had not been able to provide an integrated or holistic inspection of the company's performance. But, in early 1990's, a paradigm shift of the company's focus over shareholders' wealth maximization has produced several value based performance measures considering the economic profit as input instead of accounting profit as had been done in the earlier days. Among the various value based performance measures, the most reliable measure of corporate performance is Economic Value Added (EVA) which has been coined and popularized by Stern Stewart & Co. in 1991.

Theoretically, it has become almost a consensus that modern value based performance measures especially EVA is superior to other measures of performance as it considers overall cost of capital and treats EVA as a measure of pure economic profit. Despite all the widespread support for EVA, the claim of EVA's superiority of possessing the greatest information power in explaining the variations in the stock returns, several empirical studies do not support the claim. Biddle (1997) finds "little evidence to support the Stern Stewart claim that EVA is superior to earnings in its association with stock return or firm values". Chen and Dodd (1997) conclude "EVA measures provide relatively more information than the traditional measure of accounting in term of stock return association, but EVA should not entirely replace the traditional measures since measures such as ROA and ROE have incremental value in monitoring firm performance." Kim (2006) get "Economic value added (EVA) has a relatively low explanatory power. Incremental information content tests demonstrate that EVA makes only a marginal contribution to information content beyond that provided by earnings and cash flow."

Some research questions that may come out in the light of above problem statement are as follows:

- How far the variability in Stock Return is explained by EVA and Traditional Financial Performance Measures?
- Whether EVA can be preferred by the investors in evaluating performance of companies while designing its investment strategies?
- Does EVA essentially add new information content on stock return as claimed by its supporters?

Thus, a modest endeavor has been made to examine the information content of EVA and Traditional Financial Performance Measures (ROA, ROCE, ROE, and EPS) in rationalizing variations in Stock Returns. Relative information content test as well as Incremental information content test approach has been applied here to engulf the problem. Relative information content test assesses the fact that among different dependent

variables, which one can provide more information content as compared to the other variables. On the other hand, the incremental information content scans whether one measure adds information to that provided by the other measure.

The structure of the paper is as follows: Section 2 takes up the summary of literature review of the earlier studies in this field, Section 3 makes available a look over the objectives of the study, Section 4 highlights hypothesis, Section 5 describes the methodology followed, Section 6 puts focus on the result and discussion of findings and finally, Section 7 is concerned with the conclusion of the research.

Review of Existing Literature

Since the 1990s, strong arguments have been raised in favour of EVA as a preeminent measure of performance, mainly by the Stern Stewart Consulting Company and Associates. Since that time, one of the most contentious questions among the researchers on financial performance measures is that- *"How far EVA is superior to traditional accounting based financial performance measures in explaining variation in stock return? Does EVA essentially add new information content on stock return as claimed by its supporter?"* Numerous theoretical and empirical studies have been conducted so far in this regard over the last few decades but the question is still unsettled and subject to colossal debate among the researchers and academicians. A survey of the available literature in this area reports that a good number of empirical studies have concluded in favour of EVA over other conventional accounting based measures.

A quick look over the existing literature on this important issue seems to be appropriate before pacing the empirical study. **Lehn and Makhija (1997)** through their study attempted to analyze the effectiveness of EVA indicating the share price performance of US companies operated especially in manufacturing industry for a period from 1985 to 1994. The study was based on a final sample of 452 large US firms collected from Stern and Stewart 1000 database. Six performance measures were computed for each of the company for a period of four years, namely Return on Assets (ROA),

Return on Equity (ROE), Return on Sales (ROS), Share Returns, EVA and MVA. It was found in the study that all the six measures are positively correlated with share returns but the percentage of correlation between EVA and Stock Return was 59% which was slightly higher than the correlation of MVA (58%), ROE (46%) , ROA (46%), ROS (39%)that of other measures. Their empirical findings suggested that EVA outperforms traditional measures in explaining variation in stock return. They have further concluded that EVA and MVA are effective performance measures that contain information about the quality of strategic decisions and that serve as signals of strategic change. **Bao and Bao (1998)** carried out a similar research where they studied the usefulness of EVA and abnormal economic earnings of 166 US firms and results indicate that EVA is a significant factor in market returns and its explanatory power is higher than that of accounting earnings. Economic Value added is the most significant explanatory variable on market returns and its explanatory value exceeds the value of earnings by 34%. **Lefkowitz (1999)** in his research paper analyzed the US companies and results of the study supported Stern-Stewart hypothesis, i.e., EVA is strongly correlated with stock returns as compared to traditional performance measures. He also highlighted that EVA can be used to improve the prediction of future earnings. **Maditinos et al. (2006)** took a sample of 163 large firms from Athens Stock exchange to investigate the relative information content of EVA and SVA compare with EPS, ROE, and ROI in explaining stock returns in the Athens Stock Exchange over the period 1992-2001. They found that stock returns are more closely associated with EPS (19%) than EVA (9%) and other measures such as ROI (4%), SVA (1%). Moreover they suggested that the pair wise combination of EVA with EPS increases significantly the explanatory power of EPS in explaining stock market returns. **Ismail (2006)** conducted a study on EVA and its association with stock returns vis-à-vis other accounting measures (RI, NI, NOPAT and OCF) where he established that net operating profit after taxes (NOPAT) and net income (NI) outperform EVA in explaining stock returns. Their study reported that the correlation between Stock Return and those measures were: NOPAT 25.78%, NI 25.03%, RI 20.79%, EVA 20.20% and OCF 19.87%. They also used changes in independent variable rather than levels and they found that

relative information content test once again confirmed that EVA (23.77%) does not outperform NI (24.35%). Further, the study stated that incremental information content tests of EVA components revealed that all the components are highly significant but Accruals and Operating Cash Flows have more incremental information content than EVA. **Kyriazis and Anastassis (2007)** tested the relative explanatory power of EVA with respect to stock returns and compare the results with the results of established accounting variables. The study collected data of 121 non-financial publicly traded Greek firms for a period of eight years (1996-2003). Their findings did not support the Stern Stewart claim that EVA is more highly correlated with stock market returns, because net income and operating income have higher information content with respect to abnormal and raw stock returns. **Erasmus, P. (2008)** makes an attempts to evaluate the relative and incremental information content of value-based financial performance measures economic value added (EVA), cash value added (CVA) and cash flow return on investment (CFROI) to that of the traditional measures earnings (EBEI), RI and cash from operations (CFO) in explaining market adjusted share returns from a sample of 23 companies listed in JSE for a period of 15 years from 1991 to 2005. When the relative information contents of the different value-based financial performance measures had been investigated, the results indicated that value based financial performance measures have not been able to outperform earnings (EBEI) in explaining market adjusted share returns. EBEI has a significantly higher adjusted R^2 value (7.73%) than the other measures. **Taufik et al. (2008)** made an attempt to examine which approach between accounting approach (ROE and ROA) and Economic Value Added (EVA) approach had highest explanatory power in forecasting stock return of banks listed in Jakarta Stock Exchange (JSX) for a period of 2002 – 2005. The statistical result showed that these three variables could only explain 27.9% of the variation in stock return. Moreover, the statistical result revealed that EVA approach is superior to accounting (ROE and ROA) approach in influencing the listed banks stock return. They concluded that management should adopt EVA because EVA could create a better corporate culture by building a mindset of managers that they have to realize and to become responsive for continuously creating value for the

company. **Ebrahim et al. (2011)** attempted to analyze the determinant power of traditional criteria (Return on Assets and Operating Cash Flow) and new ones (Economic Value-Added and Market Value-Added) in explaining Stock Return .They selected 70 non-financial companies listed in Tehran Stock Exchange for a period of six year from 2004 to 2009 to carry out their research. The results showed a significant relationship between EVA as well as the ROA and stock return and on the other hand, there was no significant relationship between OCF as well as the MVA and stock return. EVA has a significantly higher adjusted R^2 value (24%) than the other measures. The regression analysis based on the ROA values yields the second largest adjusted R^2 value (10%). They also strongly recommended that the investors while predicting the stock return and determining company value should pay special attention to these two criteria since there were no significant difference between the determinant power of accounting (ROA) and economic criteria (EVA). **Samadiyan et al. (2013)** investigated the superiority of economic value added as an economic criterion of performance assessment in comparison with other accounting performance assessment criteria (Net Income, net operational profit after taxation and operational cash flow.). Their sample took into account 120 companies listed in Tehran Stock Exchange during the time period between the years 2003 and 2010. The results of testing the research hypotheses showed that Net Income (R^2 =11%) and net operational profit after taxation (R^2 =9%) has more data content to describe the traits of stock return compared to economic value added (R^2 =5%) and operational cash flows (R^2 =4%). They believed that still the accounting profit has a more data content than economic value added and operational cash flows in predicting stock return for investors and it is taken into consideration by the decision makers in Stock Exchange market as the most important accounting variable in financial and investment decisions.

It is apparent from the literature survey that research results are quite at odds One of the important points frequently being tested and examined in corporate world is in regard to the the matter of information content of EVA with respect to other traditional measures in explaining the variation in Stock Return. But a very less number of studies have been undertaken in India to examine the information content of EVA with respect to other

traditional financial performance measures in explaining the variation in Stock Return. Thus, the study aims to fulfill this gap and to explore the informative power of EVA and other traditional financial performance measures in order provide a clear view upon the preferred measures for evaluating the performance of companies while designing investment strategies by the investors.

Objective of the study

This study has the following specific objectives-

1. To examine relative information content of EVA and Traditional Financial Performance Measures (ROA, ROCE, ROE, and EPS) in explaining the variations in the Stock Returns.

2. To assess incremental information content of EVA beyond that provided by Traditional Financial Performance Measures (ROA, ROCE, ROE, and EPS) in explaining the variations in the Stock Returns.

Hypothesis of the study

To attain the various objectives of the study, the following null hypotheses are to be tested in this regard:

***Hypothesis 1*:** There is no significant difference in the information content of EVA and Traditional financial Performance Measures (ROA, ROCE, ROE, and EPS) in explaining variation in Stock Returns.

Rejection of the null hypothesis indicates a statistically significant difference in the information content of the EVA and Traditional financial Performance Measures.

Hypothesis 2: EVA does not provide information content beyond that provided by Traditional financial Performance Measures (ROA, ROCE, ROE, and EPS) in explaining variation in Stock Returns.

Rejection of the null hypothesis indicates that the inclusion of the component (EVA) under investigation will contribute significant additional information content.

Database and Methodology of the study

The study is exclusively based on secondary data extracted from the financial statement of the companies under study, and also from secondary databank and special publications. 50 reputed Indian firms listed in BSE for the period from 1st April 2006 to 31st March 2016 have been considered here as sample by applying purposive sampling procedure for carrying out the present study. While analyzing the data used in this study, correlation and regression techniques were applied. Several statistical tests such as 't' test, 'F' test etc. are also used to analyze data. Co-linearity test (VIF) and Akaike information Criterion test (AICc) have also been applied at apt places.

To achieve the various objectives of the study and to test the research hypotheses, various regression models are formulated here. The statistical models used in the study are based on methodology used by various researchers such as Easton and Harris (1991), Uyemura et al. (1996) and Biddle et al. (1997) etc. in their research work.

To test the 1st hypothesis following regression models are used where Stock Return (R) is taken as dependent variables and other performance measures along with their changes is taken as independent variables.

$$R_{it} = \alpha_0 + \beta_1(EVA_{it})/P_{i(t-1)} + \beta_2\Delta(EVA_{it})/P_{i(t-1)} + e_{it} \quad \ldots\ldots\ldots\ldots\ldots\ldots(1)$$

$$R_{it} = \alpha_0 + \beta_1(ROA_{it}) + \beta_2\Delta(ROA_{it}) + e_{it} \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots(2)$$

$$R_{it} = \alpha_0 + \beta_1(ROCE_{it}) + \beta_2\Delta(ROCE_{it}) + e_{it} \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots(3)$$

$$R_{it} = \alpha_0 + \beta_1(ROE_{it}) + \beta_2\Delta(ROE_{it}) + e_{it} \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots(4)$$

$$R_{it} = \alpha_0 + \beta_1(EPS_{it})/P_{i(t-1)} + \beta_2\Delta(EPS_{it})/P_{i(t-1)} + e_{it} \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots(5)$$

To test the 2nd hypothesis following regression models are used following regression models are used where Stock Return (R) is taken as dependent variables and other performance measures along with their changes combined with EVA and change in EVA is taken as independent variables.

$$R_{it} = \alpha_0 + \beta_1(ROA_{it}) + \beta_2\Delta(ROA_{it}) + d_1(EVA_{it})/P_{i(t-1)} + d_2\Delta(EVA_{it})/P_{i(t-1)} + e_{it} \quad \ldots\ldots\ldots(6)$$

$$R_{it} = \alpha_0 + \beta_1(ROCE_{it}) + \beta_2\Delta(ROCE_{it}) + d_1(EVA_{it})/P_{i(t-1)} + d_2\Delta(EVA_{it})/P_{i(t-1)} + e_{it} \quad \ldots\ldots\ldots(7)$$

$$R_{it} = \alpha_0 + \beta_1(ROE_{it}) + \beta_2\Delta(ROE_{it}) + d_1(EVA_{it})/P_{i(t-1)} + d_2\Delta(EVA_{it})/P_{i(t-1)} \quad \ldots\ldots\ldots\ldots\ldots(8)$$

$$R_{it} = \alpha_0 + \beta_1(EPS_{it})/P_{i(t-1)} + \beta_2\Delta(EPS_{it})/P_{i(t-1)} + d_1(EVA_{it})/P_{i(t-1)} + d_2\Delta(EVA_{it})/P_{i(t-1)} + e_{it} \quad \ldots(9)$$

Where, for all equations,

α_0 = alpha (constant term), β_1 , β_2 , d_1 and d_2 = Beta (slope), e_{it} = error term for firm (i) in period (t), R_{it} = Stock Return for firm (i) in period (t), EVA_{it}= Economic Value Added for firm (i) in period (t), ROA_{it} = Return on Assets for firm (i) in period (t), $ROCE_{it}$ = Return on Capital Employed for firm (i) in period (t), ROE_{it} = Return on Equity for firm (i) in period (t) and EPS_{it} = Earnings per Share for firm (i) in period (t). $\Delta(EVA_{it})$ = Change in Economic Value Added for firm (i) over period t-1 to t, $\Delta(ROA_{it})$ = Change in Return on Assets for firm (i) over period t-1 to t, $\Delta(ROCE_{it})$ = Change in Return on Capital Employed for firm (i) over period t-1 to t, $\Delta(ROE_{it})$ = Change in Return on Equity for firm (i) over period t-1 to t, $\Delta(EPS_{it})$ = Change in Earnings per share for firm (i) over period t-1 to t and $P_{i(t-1)}$ is the market value per share for firm (i) at the first trading day of the ninth month prior to fiscal year.

Major Findings of the study

Relative Information Content:

Table 1: Relative Information Content of EVA, ROA, ROCE, ROE, and EPS in explaining firm's Stock Return

Summary (all years) results from the five (1-5) Regressions

All Years	Regression (1) EVA	Regression (2) ROA	Regression (3) ROCE	Regression (4) ROE	Regression (5) EPS
R^2	0.135	0.100	0.055	0.058	0.098
Adjusted R^2	0.098	0.062	0.014	0.018	0.060
F	(3.670)**	(2.614)*	(1.359)	(1.451)	(2.568)*
Significance	0.033	0.084	0.267	0.245	0.087
AICc	324.274	327.642	329.826	329.826	327.298
Akaike weight	0.6533	0.1213	0.0407	0.0407	0.1440

*significance at 10% level, **significance at 5% level, ***significance at 1% level

Table 1 clearly exhibits that there was a significant difference between the five regressions in the relative information content tests. Regressions (1) was significant at 0.05 level, regression (2) and regression (5) were significant at0.10 level, while regressions (3) and regression (4) were not statistically significant. Beside that the reported Adjusted R^2s of the four pooled regressions revealed that EVA has the greatest value-relevance as it possesses the greatest information power in explaining the variation in the Return followed by ROA, EPS, ROE, and ROCE. The results of the study showed that EVA(R^2 =13.5percent) provides more information in explaining stock returns followed by other traditional measures such as ROA (R^2 = 10 percent) EPS (R^2 = 9.8 percent), ROE (R^2 = 5.8 percent), and ROCE (R^2 = 5.5 percent).Thus, Empirical findings of Table 1 rejected the null Hypothesis 1, and provided an empirical support in favour of alternative hypothesis that there is a significant difference in the information content of EVA and traditional financial performance measures (ROA, ROCE, ROE, and EPS) in predicting Stock Return. This suggests that the EVA has more ability in predicting Stock Return in comparison to traditional financial performance measures (ROA, ROCE, ROE, and EPS).

In Table 1, the outcome of Akaike information criteria (AICc) test were also publicized, where it can be seen that the AICc value of the EVA model (324.274)(model 1) is less than the AICc value of the other traditional measure such as EPS model(327.298) (model 5), ROA model(327.642) (model 2), ROE model(329.826) (model 3) and ROCE model(329.826) (model 4). Obviously, the model that has the smaller AICc values are to be preferred and selected as the best fitted model (Akaike, 1974). Therefore the EVA model is preferable than other models to explain stock returns.

In order to put strength of evidence in favour of one model over other models Akaike weight was also computed. Akaike weight can be interpreted as the probability that a particular model, say, M_i is best model (in the AICc sense, that it minimizes the Kullback- Leibler discrepancy) over other model (Burnham & Anderson, 2001). From an inspection of Akaike weight in Table 1, it can easily be inferred that EVA model is best fitting model. The Akaike weight of EVA model was 0.6533 which was 4.54 (evidence ratio) times more likely to be the best model in term of

Kullback- Leibler discrepancy than is the next best model which is EPS model whose Akaike weight is 0.1440. Normalised Probability of preference of EVA model over EPS model is 0.82. Thus using Akaike weight we arrive at the conclusion that EVA model is to be preferred over its competitors to explain stock return.

Incremental Information Content:

Table2: Incremental information content of EVA in explaining firm's Stock Return

Summary (all years) results from the four (6-9) Regressions

All Regression Year		Constant	(EVA)/P_{t-1}	Δ(EVA)/P_{t-1}	ROA	ΔROA	ROCE	ΔROCE	ROE	ΔROE	(EPS)/P_{t-1}	Δ(EPS)/P_{t-1}	R^2	Adj R^2	F-stat	Sign	AICc	Wi(AICc)
6	Coefficient	56.253	0.250	1.083	-1.119	0.035							0.224	0.155	(3.248)**	0.020	322.082	0.3556
	t	(8.047)***	(0.507)	(2.605)**	(-2.133)**	(0.797)												
	Significance	0.000	0.615	0.012	0.038	0.429												
	VIF		1.069	1.008	1.065	1.008												
7	Coefficient	48.601	-0.023	1.130			-0.199	0.042					0.183	0.110	(2.519)*	0.054	324.274	0.1188
	t	(8.063)***	(-0.046)	(2.630)**			(-1.065)	(1.367)										
	significance	0.000	0.964	0.012			0.293	0.178										
	VIF		1.093	1.022			1.087	1.083										
8	Coefficient	45.925	0.113	1.148					-0.140	0.000			0.192	0.120	(2.667)**	0.044	324.274	0.1188
	t	(11.510)***	(0.230)	(2.707)**					(-1.702)*	(0.543)								
	significance	0.000	0.820	0.010					0.096	0.589								
	VIF		1.017	1.007					1.007	1.015								
9	Coefficient	37.209	-0.273	1.049							84.269	-0.018	0.208	0.138	(2.955)**	0.030	321.813	0.4068
	t	(7.575)*	(-	(2.428)*							(2.033)	(-0.189)						

		**	0.542)	*							**							
	significance	0.000	0.590	0.019							0.048	0.851						
	VIF		1.097	1.066							1.128	1.072						

* Significance at 10% level, ** significance at 5% level, ***significance at 1% level

To test the incremental information power of independent variables related to explaining firm's Stock Return, various traditional accounting based performance measures (ROA, ROCE, ROE, and EPS) was combined pair wise with EVA.

All regression models were tested for multi collinearity using the variance inflation factor (VIF). According to Neter, Wasserman and Kunter (1985) a VIF in excess of 10 is often taken as an indicator of severe multi collinearity, while mild multi collinearity exists when the VIF is between 5 and 10. A low or negligible multi collinearity exist when the VIF is lower than 5. A low or negligible multi collinearity and moderate multi collinerity may not be problematic. However, severe multi collinerity is a problem because it can increase the variance of the coefficient estimates and make the estimates very sensitive to minor changes in the model due to which the coefficient estimates may unstable and difficult to interpret. Multi collinerity debilitates the statistical power of the analysis. It sapped the significance of one of our predictor and changed its sign and makes it more difficult to specify the correct model. The reported VIF from our regressions were not more than 1.128 for those regression models which were significant at 0.01 levels. Examination of residual plot and normality plot revealed no serious violations of the regressions' assumptions. Hence such a very low or negligible VIF is not challenging in specifying the correct model.

However, Table 2 shows the detailed results of various regression models. It was noticed that regressions (6), (8), and (9) are significant at 0.05 levels, whereas regression (7) was significant at 0.10 levels.

The highest R^2 (22.4 percent) was reported in regression (6), which combines ROA, ΔROA and EVA, ΔEVA .The contribution of the EVA in the explanatory power of this regression was higher than that of ROA, since the $R^2$of EVA alone was 13.5 per cent (regression 1, table 1) while that of ROA alone was 10 per cent (regression 2, table 1). However the R^2 of regression equation (9), which combines EPS, ΔEPS and EVA, ΔEVA was 20.8. The contribution of the EVA in the explanatory power of this regression was higher than that of EPS, since the $R^2$of EVA alone was 13.5 per cent (regression 1, table 1) while that of EPS alone was 9.8 per cent (regression 5, table 1). When ROE, ΔROE and EVA, ΔEVA were combined in regression (8), 19.2 per cent of R^2 was revealed. The contribution of the EVA in the explanatory power of this regression was higher than that of ROE, since the $R^2$of EVA alone was 13.5 per cent (regression 1, Table 1) while that of ROE alone was 5.8 per cent (regression 4, table 1). The R^2 of regression equation (7), which combines ROCE, ΔROCE and EVA, ΔEVA was 18.3. The contribution of the EVA in the explanatory power of this regression was higher than that of ROCE, since the $R^2$of EVA alone was 13.5 per cent (regression 1, Table 1) while that of ROCE alone was 5.5 per cent (regression 3, Table 1).

Thus, empirical findings of Table 2 reject the® Null Hypothesis 2 and provide an empirical support in favour of alternative hypothesis that EVA provides information content beyond that provided by traditional financial performance measures (ROA, ROCE, ROE, and EPS) in explaining Stock Return. It can be seen that the new information provided by the EVA is of

some value relevance in explaining stock returns. In our study, it is found that EVA is useful measures for measuring the financial performance especially when it is combined with ROA. Though, the combination of ROA and EVA represents the most satisfactory explanation for stock returns in the Indian Stock Market still the combination of EVA with EPS, EVA with ROE and EVA with ROCE may not be ignored also because all examined models which are statistically significant have reported very close R^2s.

The results in Table 3 provide incremental information tests for the pair wise combinations of EVA, ROA, ROCE, ROE and EPS.

Table:3 **Incremental Value-Relevance Test**

Rank order of R^2	ROE/EVA		ROCE/EVA		ROA/EVA		EPS/EVA
R^2	13.4%	>	12.8%	>	12.4%	>	11.0%

The incremental value-relevance of EVA over ROE (13.4 per cent) can be quantified by comparing the R^2 of the two regressions: the value-relevance of the pair wise comparison of EVA and ROE (19.2 per cent) from Table 2 minus the value-relevance of ROE (5.8 per cent) from Table 1. As summarized in Table 3, the results indicate that EVA exhibits the largest incremental information usefulness over traditional measures with regard to explanation of Stock return. These results support the fact that EVA essentially adds new information content on stock return as claimed by its supporter.

In table 2, the results of Akaike information criteria (AICc) test were also exposed where the AICc value of the EPS/EVA model (321.813) (model 9) was less than the AICc value of the other models such as ROA/EVA model (322.082) (model 6), ROE/EVA model (324.274) (model 8), and ROCE/EVA model (324.274) (model 7). As mentioned earlier, the model that has the smaller AICc values are to be preferred and selected as the best model to explain stock returns. Therefore, the EPS/EVA model (model 9) is preferable than other models to explain stock returns. From an evaluation of Akaike weight in Table 2, it can be easily inferred that EPS/EVA (model 9) is best fitting model. The Akaike weight of EPS/EVA model is 0.4068 which was 1.14 (evidence ratio) times more likely to be the best model in term of Kullback- Leibler discrepancy than the next best model which is ROA/EVA model whose Akaike weight is 0.3556. Normalized Probability of preference of EPS/EVA model over ROA/EVA model is 0.53. Thus, Akaike information criteria (AICc) test and Akaike weight suggest that the new information provided by the EVA is of some value relevance in explaining variation in stock returns.

Conclusion

In the present paper an effort has been made to make a comprehensive study of the relative and incremental information content of EVA and its supremacy over the other traditional accounting based financial performance measures in explaining the variations in the stock returns. As per our findings, the regressions show that EVA (R^2= 13.5 percent) has the greatest

value-relevance as it possesses the greatest information power in explaining the variations in the stock return followed by ROA, EPS, ROE, and ROCE. It proves that EVA® is more able to predict stock returns in contrast with the Traditional Financial Performance Measures (ROA, ROCE, ROE, and EPS). Incremental information content analysis revealed that the regression of ROA with EVA provides a substantially greater R^2 of 22.4 per cent than the 10 per cent of the regression without EVA. This significant difference of R^2 (12.4 per cent) indicates that the new information provided by EVA is of some value relevance in explaining variations in firm's stock returns and implies that EVA represents a better approximation to the real corporate financial depiction in regard to the prediction of stock return. Hence, it can be concluded that EVA can be a preferred measure for investors in evaluating performance of corporate bodies while designing their investment strategies.

***

References

1. Akaike, H. (1974). A new look at the statistical model identification. *IEEE Transactions on Automatic Control, 19 (6)*, pp. 716-723.

2. Bao, B.H. and Bao, D.H. (1998). Usefulness of Value Added and Abnormal Economic Earnings: An Empirical Examination. *Journal of Business Finance and Accounting, 25(1-2),* pp. 251-265.

3. Biddle, G.C., Bowen, R.M. and Wallace, J.S. (1999). Evidence on EVA. *Journal of Applied Corporate Finance, 12(2),* pp. 69-79.

4. Chen, S. and Dodd, J.L. (1997). Economic Value Added®: An Empirical Examination of a New Corporate Performance Measure. *Journal of Managerial Issues, 9(3),* pp. 318-333

5. Easton, P.D. and Harris, T.S. (1991). Earnings as an Explanatory Variable for Returns. *Journal of Accounting Research, 29(1),* pp. 19-36.

6. Erasmus, P. (2008). Value based financial performance measures: An evaluation of relative and incremental information content. *Corporate Ownership & Control, 6(1),* pp. 66-77

7. Ismail, A. (2006). Is EVA associated with stock return than accounting earnings? The UK evidence. *International Journal of Managerial Finance, 2(4),* pp. 343-353.

8. Kim, G.W. (2006). EVA and Traditional Accounting Measures: which Metric is a better predictor of market value of hospitality companies? *Journal of Hospitality & Tourism Research, 30(1),* pp. 34-49.

9. Kyriazis, D. and Anastasis, C. (2007). The validity of the economic value added approach: an empirical application. *European Financial Management, 13(1),* pp. 71-100.

10. Lefkowitz, S.D. (1999). *The Correlation between EVA and MVA of companies*. MBA Dissertation. California State University

11. Maditions, I. D., Sevic, Z., & Theriou, N. G. (2006). The Introduction of Economic Value Added in the Greek Corporate Sector. *The South European Review of Business & Accounting, 4(2),* pp. 1-11.

12. Neter, J.W. Wasserman and Kunter, M.H. (1985).*Applied Linear Statistical Models*, Homewood: Irwin, Inc.

13. Samadiyan, B., Poryeganeh, N., Ebrahimi, H. and Ghanbari, Y. (2013). Relative and Differential information content of Economic Value Added, Earnings, Operating Cash Flow and Stock Return. *International Journal of Asian Social Science, 3(1),* pp. 29-37

14. Stewart, G. B. (1991). *The Quest for Value: A Guide for Senior Managers*. First Ed., New York: Harper Business.

15. Taufik, H., Isnurhadi, H. and Widiyanti, M. (2008). The influence of traditional accounting and economic value added approaches on stock returns of banks listed on Jakarta stock exchange (jsx). *Proceedings of The MFA Conference 2008*. Pp. 185-210

Uyemura, D. G., Kantor, C.C., and Petit, J.M. (1996). EVA for Banks: Value Creation, Risk Management and Profitability Measurement. *Journal of Applied Corporate Finance, 9(2),* pp. 94-111.