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Information content of EVA and Traditional accounting based financial performance measures in explaining corporation's change of market value

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ABSTRACT

Theoretically, it is almost a consensus that modern value based financial performance measure especially EVA is superior to traditional ones as a financial performance measure tool among shareholders' because it considers overall cost of capital making EVA as a measure of pure economic profit. But while question rose about the explanatory power of financial performance measures, several researchers and practitioners have claimed that EVA is superior to traditional accounting measures in explaining corporation's change of market value. Other researchers have refuted these claims by supplying strong proof in support of traditional accounting measures. Numerous empirical studies have been conducted so far in this regard over the last two decades but the question is still unsettled and subject to enormous debates among the researchers and academicians. Thus, a modest attempt has been made here to examine the information content of EVA and traditional financial performance measures (ROA, ROCE, ROE, and EPS) in explaining variation in market value of firm that will enable to recognize that whether EVA can be a preferred measure in valuation of companies for shareholders. Relative information content test as well as Incremental information content test approach has been applied here to trounce the problem. For this 50 reputed Indian firms listed in BSE for the period from 1st April 2000 to 31st March 2016 have been considered here as sample for carrying out the study. Various statistical tools and techniques along with few statistical test such as 't' test, 'F' test , Collinearity test (VIF) and Akaike information Criterion test (AICc) etc. have also been applied at appropriate places for analyzing the data. The findings of our study show significant support for EVA and provide evidence about its superiority as a financial performance measure as compared to conventional accounting based financial performance measures.

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

1. Introduction

Traditional financial performance measures that were very affluent in the pre liberalization era are becoming old-fashioned and loose-fitting. Performance measures that existed since decades have lost their significance and in some cases have been failed to scan company's ultimate goal. Most of traditional performance measures were designed to attain the objective of profit maximization either from the view point of company or from the view point of owner. But, sorry to say, the ultimate goal of the firm has been misinterpreted in past. Company's ultimate goal should be the maximization of shareholder's wealth. As a result, several corporate firms were bound to re-assess their traditional performance measure and had tried to find out more accurate and transparent performance measures that could meet all dimensional specification of the company's ultimate goal. Against this background, the modern value based performance measures have received countless attention in the recent years. Among the various value based performance measures, the most reliable measure of corporate performance is Economic Value Added (EVA) which is coined and popularized by Stern Stewart & Co. in 1991. It is a measure of a company's financial performance based on the residual wealth calculated by deducting cost of capital from its operating profit.

Theoretically, it has become almost a consensus that modern value based performance measure especially EVA is superior to other measures of performance as it considers overall cost of capital making EVA as a measure of pure economic profit. Stewart (1991) has strongly advocated EVA as the single best measure of wealth creation and the most accurate measure of corporate performance over any given period. Stewart (1991) argues: "Earnings, earnings per share and earnings growth are misleading measures of corporate performance. The best practical periodic performance measure is EVA. It is the financial performance measure that comes closer than any other to capturing the true economic profit of an enterprise. EVA also is the performance measure most directly linked to the creation of shareholder wealth over time". Stewart (1994) states "EVA is almost fifty percent better than its closest accounting-based competitor (including EPS, ROE and ROI) in explaining changes in shareholder wealth". Despite all the widespread support for the EVA, the claim that EVA has the greatest value-relevance as it possesses the greatest information power in explaining the variation in the corporation's change of market value, several empirical studies does not support the claim. Kramer and Pushner (1997) conclude that the market is more likely to react favourably to profits than to EVA, at least in the short term. Hence, they found no clear evidence to support superiority of EVA over traditional measures. Biddle (1997) gets "little evidence to support the Stern Stewart claim that EVA is superior to earnings in its association with firm values".

In light of above problem statement some research motivational queries arise such as –

- How far the variability in firm's market Value is explained by EVA and traditional financial performance measures?
- Whether EVA can be preferred by Shareholders for valuation of companies while designing investment strategy?
- Does EVA essentially add new information content on firm's market value as claimed by its supporter?

Thus, a modest attempt has been made to scan the information content of EVA and traditional financial performance measures (ROA, ROCE, ROE, and EPS) in explaining variation in Market Value of the firm. Relative information content test as well as Incremental information content test approach has been applied here to trounce the problem. Relative information content test assesses the fact that among different dependent variables, which has more information content as compared with other variables. On the other hand, the incremental information content scans whether one measure adds information to that provided by another measure.

The structure of the paper is as follows: section two takes up the summary of literature review of past study in this field, section three makes available a look over the objective of the study, section four highlighting hypothesis, section five describes the methodology followed, section six puts focus on the result and discussion of findings and finally, section seven is concerned with the conclusion of the research.

2. Review of existing literature

Traditional accounting based measures of financial performance yield unreliable result because earning fails to quantify the real change in economic value. To trounce the problems concerned with the accounting based performance measures, several scholars and academicians have proposed some alternative approach of performance measurement which are popularly termed as modern value based measures of financial performance. Now the value based measures particularly EVA became increasingly popular as a financial performance measure tool among shareholders. But 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 market value of firm? Does EVA essentially add new information content on corporation's change of market value as claimed by its supporter?"* A survey of the available literature in this area tells us that 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 enormous debates among the researchers and academicians.

However, a swift gaze through the existing literature on this important issue seems appropriate before pacing the empirical study. **Stewart (1991)** first time through his milestone research study in the path of EVA literature "The Quest for Value: A Guide for Senior Managers" put the strong fact that there exists a very high level of correlation between the level of EVA and MVA. **Stern (1993)** contributed to the current debate between EVA and traditional financial performance measures by attempting to show empirically that EVA is a better predictor of firm's market value. His research showed that the r^2 for the relationship between MVA and EVA was 50%. The relationship of other independent variables with MVA was 25% for ROE, 22% for Cash Flow Growth, 18% for EPS Growth, 18% for Assets Growth, 16% for Dividend Growth and 9% for Turnover Growth. **O'Byrne (1996)** conducted a similar study to analyze the superiority of EVA to earnings (NOPAT) in explaining firm value. The results reported an adjusted r^2 of 56% for the EVA regression and 33% for

the NOPAT regression. The study concluded that EVA is systematically linked to the market value. **Milunovich and Tsuei (1996)** carried out a similar study to investigate the correlation between frequently used financial measures (such as EVA, ROE and EPS growth, free cash growth and FCF) and the MVA of companies in the US computer technology industry for the period from 1990 to 1995. They found that EVA (r^2 =42%) is the most influential variable affecting MVA, EPS growth is second (r^2 =34%) and ROE is the third variable (r^2 =29%), FCG is fourth (r^2 =25%) and FCF is the fifth variable (r^2 =18%) affecting MVA. Thus, the study concluded that growth in earnings is not enough to create value, unless returns are above the cost of capital. They suggested that EVA works best as a supplement to other measures when one is evaluating shares and that EVA sometimes works when other measures fail. **Kramer and Pushner (1997)** presented insights on the strength of the relationship between EVA and MVA, using the Stern Stewart 1000 companies for the period between 1982 and 1992. They found that MVA and NOPAT were positive on average but the average EVA over the period was negative. The regression between the levels of MVA and the levels of EVA yielded an r^2 of 10%, which was significant, but left a large part of the MVA unexplained. Hence, they found no clear evidence to support superiority of EVA over traditional measures. **Banerjee and Jain (1999)** conducted a similar study to find the relationship between shareholder wealth (MVA) and certain financial variables viz., Earnings per Share (EPS). Average Return on Net worth (ARONW), Capital Productivity (KP), Labour productivity (LP) and Economic Value Added (EVA).Out of the chosen seven years of their study, only EVA and MVA had significant positive correlation in six years. From their observation, the authors have concluded that EVA has proved to be the most explanatory variable and they claim their superiority over the other variables. **Fernandez (2001)** examined the correlation between EVA and MVA of 582 American companies for the period from 1987 to 1997 along with other measures viz. NOPAT and WACC and he observed either low or sometimes negative correlation between EVA and MVA, and concluded that traditional tools present higher levels of correlation with the increase in MVA. **De Wet (2005)** provides a basis for understanding the linkages between EVA and MVA on empirical level. The result of their study exhibited that OCF has significant connection with MVA and there is positive relationship between OCF and MVA. The association between MVA and EVA was lower than OCF and ROA. The relationship between standardized MVA and OCF, ROA, and standardized EVA is 38%, 15%, and 8% respectively. Their findings suggest that some caution is merited when focusing only on EVA as the measure of choice for internal company performance. **Kim (2006)** in his study investigated relative and incremental information content of EVA and traditional performance measures, earnings, and cash flow. The results of regression analysis indicate that earnings (16.9%) have the highest explanatory power, followed by cash flow (14.2%) and Economic value added (10.3%).Incremental information content tests demonstrate that EVA makes only a marginal contribution to information content beyond that provided by earnings and cash flow. This study concluded that empirical results do not support the proposition that EVA is superior to traditional accounting measures in association with equity market value. **Sharma and Kumar (2012)** examined whether EVA can be employed as a tool of performance measures while investing in Indian market and provide evidence about its superiority as a financial performance measure as compared to conventional performance measures (EPS, ROE, ROA, OCF, NOPAT, NI, and RI)in Indian companies. The relative information content test exhibited that EPS (23.40%) has the greatest value-relevance as it possesses the greatest information power in explaining the variation

in the MVA followed by RI (19.40%) and EVA (19.17%).Furthermore, incremental information content approach revealed that the three pair wise combinations that most explain MVA, in order of decreasing power, were EPS/NOPAT (26.54%), EPS/RI (25.98%), and EVA/EPS (29.89%). EVA is ranked third best measures when combined with EPS, thereby concluding that although EPS is best measures of shareholder valuation but EVA also can be used by investors making investment decision and in firm valuation.

It is evident from the literature survey that research results are quite mix and at variance. One of the important points frequently being tested and examine in corporate world is the matter of information content of EVA with respect to other traditional measures in explaining the variation in MVA. 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 market value of the firm. Thus, the study aims to fulfill this gap and to investigate the superiority of EVA over traditional financial performance measures regarding value creation in order to depict the real corporate financial picture.

3. Objective of 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 firm's Market Value Added.

2. To assess incremental information content of EVA beyond that provided by Traditional Financial Performance Measures (ROA, ROCE, ROE, and EPS) in explaining firm's Market Value Added.

4. 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 firm's Market Value Added.

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 firm's Market Value Added.

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

5. 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 2000 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. Collinearity test (VIF) and Akaike information Criterion test (AICc) have also been applied at appropriate 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), and Biddle et al. (1997) etc. in their research work.

To test 1st hypothesis following regression models are used where Market Value Added (MVA) is taken as dependent variables and other performance measures along with their changes is taken as independent variables.

$$MVA_{it}/P_{i(t-1)} = \alpha_0 + \beta_1(EVA_{it})/ P_{i(t-1)} + \beta_2\Delta(EVA_{it})/ P_{i(t-1)} + e_{it} \quad \text{.....(1)}$$
$$MVA_{it}/P_{i(t-1)} = \alpha_0 + \beta_1(ROA_{it}) + \beta_2\Delta(ROA_{it}) + e_{it} \quad \text{.....(2)}$$
$$MVA_{it}/P_{i(t-1)} = \alpha_0 + \beta_1(ROCE_{it}) + \beta_2\Delta(ROCE_{it}) + e_{it} \quad \text{.....(3)}$$
$$MVA_{it}/P_{i(t-1)} = \alpha_0 + \beta_1(ROE_{it}) + \beta_2\Delta(ROE_{it}) + e_{it} \quad \text{.....(4)}$$
$$MVA_{it}/P_{i(t-1)} = \alpha_0 + \beta_1(EPS_{it})/ P_{i(t-1)} + \beta_2\Delta(EPS_{it})/ P_{i(t-1)} + e_{it} \quad \text{.....(5)}$$

To test 2ndhypothesis following regression models are used where Market Value Added (MVA) 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.

$$MVA_{it}/P_{i(t-1)} = \alpha_0 + \beta_1(ROA_{it}) + \beta_2\Delta(ROA_{it}) + d_1(EVA_{it})/P_{i(t-1)} + d_2\Delta(EVA_{it})/P_{i(t-1)} + e_{it} \quad \text{.....(6)}$$
$$MVA_{it}/P_{i(t-1)} = \alpha_0 + \beta_1(ROCE_{it}) + \beta_2\Delta(ROCE_{it}) + d_1(EVA_{it})/P_{i(t-1)} + d_2\Delta(EVA_{it})/P_{i(t-1)} + e_{it} \quad \text{.....(7)}$$
$$MVA_{it}/P_{i(t-1)} = \alpha_0 + \beta_1(ROE_{it}) + \beta_2\Delta(ROE_{it}) + d_1(EVA_{it})/P_{i(t-1)} + d_2\Delta(EVA_{it})/P_{i(t-1)} + e_{it} \quad \text{.....(8)}$$
$$MVA_{it}/P_{i(t-1)} = \alpha_0 + \beta_1(EPS_{it})/P_{i(t-1)} + \beta_2\Delta(EPS_{it})/P_{i(t-1)} + d_1(EVA_{it})/P_{i(t-1)} + d_2\Delta(EVA_{it})/P_{i(t-1)} + e_{it} \quad \text{.....(9)}$$

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), MVA_{it} = Market Value Added 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_{it-1} is the market value per share for firm (i) at the first trading day of the ninth month prior to fiscal year.

6. Major findings of the study

6.1. Relative Information Content:

Table 1: Relative Information Content of EVA, ROA, ROCE, ROE, and EPS in explaining firm's Market Value Added

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	0.377	0.035	0.050	0.132	0.084
Adjusted R^2	0.351	-0.006	0.009	0.095	0.045
F	(14.248)***	(0.850)	(1.229)	(3.583)**	(2.155)
Significance	0.000	0.434	0.302	0.036	0.127
AICc	359.137	371.054	371.054	370.972	365.902
Akaike weight	0.9599	0.0025	0.0025	0.0026	0.0326

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

From the above table it is clear that there is a significant difference between the five regressions in the relative information content tests. Regression (1) is significant at 0.01 level, regression (4) is significant at 0.05 level, while regression (2), regression (3) and regression (5) are not statistically significant. Comparing the reported Adjusted R^2 s of the five pooled regressions, it is quite noticeable that EVA has the greatest value-relevance as it possesses the greatest information power in explaining the variation in the Market Value Added. The results of the present study show that EVA (R^2=37.7percent) provide more information in explaining variation in Market Value Added followed by other traditional measures such as ROE (R^2= 13.2 percent), EPS (R^2= 8.4 percent), ROCE (R^2= 5.0 percent), and ROA (R^2= 3.5 percent). Thus, Empirical findings of table 1 rejects the null Hypothesis 1, and provide 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 explaining firm's Market Value Added.

In tables 1, the results of Akaike information criteria (AICc) test are also revealed, where the AICc value of the EVA model (359.137)(model 1) is less than the AICc value of the other traditional measure such as EPS model(365.902) (model 5) , ROE model(370.972) (model 4), ROA model(371.054) (model 2), and ROCE model(371.054) (model 3). Generally, the model that has the smaller

AICc values is to be preferred and selected as the best fitted model (Akaike, 1974). So, here EVA model is best model to explain Market Value Added of the firm.

In order to put strength of evidence in favour of one model over other models Akaike weight is also used here. 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 be easily inferred that EVA model is best fitting model. The Akaike weight of EVA model is 0.9599 which is 29.44 (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 0.0326. Normalized Probability of preference of EVA model over EPS model is 0.96. Thus using Akaike weight we arrive at the conclusion that EVA model is to be preferred over its competitors to explain variation in firm's MVA.

6.2. Incremental Information Content:

Table2: Incremental information content of EVA in explaining firm's Market Value Added

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

All Regression Year		Constant	$(EVA)/P_{t-1}$	$\Delta(EVA)/P_{t-1}$	ROA	ΔROA	ROCE	ΔROCE	ROE	ΔROE	$(EPS)/P_{t-1}$	$\Delta(EPS)/P_{t-1}$	R^2	Adj R^2	F-stat	Sign	AICc	Wi(AICc)
6	Coefficient	-0.877	-3.704	-0.276	1.199	0.116							0.470	0.423	(9.985)***	0.000	358.624	0.1022
	t	(-0.101)	(-6.025)***	(-0.533)	(1.831)*	(2.114)**												
	Significance	0.920	0.000	0.597	0.074	0.040												
	VIF		1.069	1.008	1.065	1.008												
7	Coefficient	8.105	-3.914	-0.119			0.186	0.120					0.522	0.480	(12.285)***	0.000	355.550	0.4754
	t	(1.164)	(-6.629)***	(-0.240)			(0.860)	(3.425)***										
	significance	0.251	0.000	0.812			0.394	0.001										
	VIF		1.093	1.022			1.087	1.083										
8	Coefficient	10.425	-3.234	-0.169					0.107	0.002			0.478	0.431	(10.294)***	0.000	356.810	0.2532
	t	(2.153)**	(-5.433)***	(-0.329)					(1.068)	(2.714)***								
	significance	0.037	0.000	0.744					0.291	0.009								
	VIF		1.017	1.007					1.007	1.015								
9	Coefficient	5.142	-3.631	-0.165							97.916	0.239	0.485	0.439	(10.583)***	0.000	357.616	0.1692
	t	(0.859)	(-5.911)***	(-0.314)							(1.939)*	(2.045)**						
	significance	0.395	0.000	0.755							0.059	0.047						
	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 MVA, various traditional accounting based performance measures (ROA, ROCE, ROE, and EPS) is 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 are not more than 1.128 for those regression models which are significant at 0.01 levels. Examination of residual plot and normality plot reveal no serious violations of the regressions' assumptions. Hence such a very low or negligible VIF is not challenging in specifying the correct model.

However, Table2 shows the detailed results of various regression models. It is noticed that all regressions i.e., regression (6), regression (7), regression (8), and regression (9) are statistically significant at 0.01 levels. The highest R^2 (52.2 percent) is reported in regression (7), which combines ROCE, ΔROCE and EVA, ΔEVA .The contribution of the EVA in the explanatory power of this regression is higher than that of ROCE, since the $R^2$of EVA alone is 37.7 per cent (regression 1, table 1) while that of ROCE alone is 5 per cent (regression 3, table 1). The R^2 of regression equation (9), which combines EPS, ΔEPS and EVA, ΔEVA is 48.5. The contribution of the EVA in the explanatory power of this regression is higher than that of EPS, since the $R^2$of EVA alone is 37.7 per cent (regression 1, table 1) while that of EPS alone is 8.4 per cent (regression 5, table 1). However, the R^2 of regression equation (8), which combines ROE, ΔROE and EVA, ΔEVA is 47.8. The contribution of the EVA in the explanatory power of this regression is higher than that of ROE, since the $R^2$of EVA alone is 37.7 per cent (regression 1, table 1) while that of ROE alone is 13.2 per cent (regression 4, table 1). When ROA, ΔROA and EVA, ΔEVA are combined in regression (6), 47 per cent of R^2 is revealed. The contribution of the EVA in the explanatory power of this regression is higher than that of ROA, since the $R^2$of EVA alone is 37.7 per cent (regression 1, table 1) while that of ROA alone is 3.5 per cent (regression 2, table 1).

Thus, Empirical findings of table 2 rejects 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 firm's Market Value Added. It can be seen that the new information provided by the EVA® is of some value relevance in explaining firm's Market Value Added. In our study it is found that EVA is useful measures for measuring the financial performance especially when it is combined with ROCE. Though, the combination of ROCE and EVA represents the most satisfactory explanation for firm's Market Value Added in the Indian Stock Market still the combination of EVA with EPS, EVA with ROE and EVA with ROA may also not be ignored because all examined models which are significant at 0.01 levels 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	ROCE/EVA		ROA/EVA		EPS/EVA		ROE/EVA
R^2	47.2%	>	43.5%	>	40.1%	>	34.6%

The incremental value-relevance of EVA over ROCE (47.2 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 ROCE (52.2 per cent) from Table 2 minus the value-relevance of ROCE (5 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 Market Value Added. These results support the claims made by EVA proponents that EVA outperforms other traditional performance measures in explaining variation in Market Value Added.

In tables 2, the results of Akaike information® criteria (AICc) test are also publicized where the AICc value of the ROCE/EVA model (355.550) (model 7) is less than the AICc value of the other models such as ROE/EVA model (356.810) (model 8), EPS/EVA model (357.616) (model 9), and ROA/EVA model (358.624) (model 6). As mentioned earlier, the model that has the smaller AICc values are to be preferred and selected as the best model to explain firm's MVA. Therefore the ROCE/EVA model (model 7) is preferable than other models to explain firm's MVA. From an examination of Akaike weight® in Table 2, it can be easily inferred that ROCE/EVA (model 7) is best fitting model. The Akaike weight of ROCE/EVA model is 0.4754 which is 1.88 (evidence ratio) times more likely to be the best model in term of Kullback- Leibler discrepancy than is the next best model which is ROE/EVA model whose Akaike weight is 0.2532. Normalized Probability of preference of ROCE/EVA model over EVA/ROE model is 0.65. Thus, Akaike information criteria (AICc) test and Akaike weight suggests that the new information provided by the EVA is of some value relevance in explaining firm's MVA.

7. Conclusion

In this study, both relative and incremental information content approaches were employed to investigate the superiority of EVA® over traditional financial performance measures regarding value creation in order to depict the real corporate financial picture. The relative information content tests revealed that EVA (R^2 =37.7percent) has the greatest value-relevance as it possesses the greatest information power in explaining the variation in the Market Value Added followed by ROE, EPS, ROCE, and ROA. So, it can be voiced that EVA® measure is superior to traditional accounting based performance measures from the perspective of explanation of variation in MVA. Incremental information content approach revealed that the regression of ROCE with EVA gives a substantially greater R^2 of 52.2 per cent that the 5 per cent of the regression without EVA. This significant difference of R^2 (47.2 per cent) indicates that the new information provided by the EVA is of some value relevance in explaining firm's Market Value Added. This means that EVA can be used by organization for valuation of the firm. Thus, finding shows significant support for EVA and provides evidence about its superiority as a financial performance measure as compared to conventional performance measures so as to represent the real corporate financial depiction regarding value creation.

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