

# Comparison of information content value creation measures (EVA, REVA, MVA, SVA, CSV and CVA) and accounting measures (ROA, ROE, EPS, CFO) in predicting the Shareholder Return (SR)

## Evidence from Iran Stock Exchange

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## ABSTRACT

The aim of this article is to use of the creation value measures and accounting measures in predicting shareholder return in the Tehran Stock Exchange. This research was conducted using secondary data sourced for the period 2007-2011. The sample included listed firms 76 Iran Stock Exchange. Also ten hypotheses have been provided for this study. Every hypothesis examined the relationship between accounting measures and creation value measures with SR. Spearman's correlation coefficient test has been used for examining research hypotheses and multiple regression techniques have been applied for testing significance of research hypotheses. The Research results indicate that there is not significant relationship between creation value measures of EVA, REVA, MVA, SVA and CVA and accounting measures of ROE, EPS and CFO with shareholder return (SR), while there is a significant relationship of positive between CSV with SR, also there is a significant relationship of negative between accounting measure of ROA with SR. Generally the results showed that CSV is more correlated.

**Key words:** *Accounting measures, creation value measures, Shareholder Return*

## 1. INTRODUCTION

In today's competitive world, value and value creation for shareholders are among the most important goals of businesses. For the sake of achieving his goals, the investor needs some instruments in order to evaluate the potential value of each opportunity of investment. It is clear that these instruments are not capable of predicting the exact future, they just provide some piece of information and advice that help the investor in the decisions he makes. Among these criteria, the most common types are Return on assets (ROA), Return on equity (ROE) and cash flow from operations (CFO). Despite the numerous applications of these instruments, theoretically, they are not related with shareholders' value or creation wealth. In recent years, the modern evaluation methods based on economic profit such as Economic value added (EVA), Market value added (MVA), Refined economic value added (REVA), adjusted economic value added (AEVA), cash value added (CVA), shareholder value added (SVA) and created shareholder value (CSV) replace the accounting of accounting measures and have widely drawn the attentions. These criteria follow the performance assessment with regard to the changes in the value and alongside maximizing the long-term shareholder returns. Thus, in the financial literature, there has been an observed attempt to develop new financial performance measures (Ittner and Larcker, 1998).

Several studies have been conducted in the last two decades in the international market community to answer questions such as: (a) whether it is really better

to use new value-based measures than traditional accounting performance measures to measure the corporate financial performance, or (b) which performance measure best explains corporations' change in market value. Results are quite mixed and controversial. This study is inspired by the controversial results of the previous research and aims to investigate whether traditional and/or new value-based performance measures are explanatory power relevant shareholder return in Tehran Stock Exchange (TSE).

## 2. LITERATURE REVIEW

Lehn and Makhija (1996) applying a sample be composed of 241 US firm over the years 1987, 1988, 1992, and 1993, tested EVA and MVA as metrics of performance and as signals for strategic change. They shown that (a) both EVA and MVA correlated positively with SR and that this correlation was slightly better than with accounting performance metrics and (b) both EVA and MVA were effective performance metrics containing information about the quality of strategic decisions and that they can serve as signals for strategic changes.

Lehn and Makhija (1997) in addition found that SR over a ten-year period were more highly correlated with average EVA over the period than with the average of ROA, ROS or ROE. Bao and Bao (1998) tested the usefulness of value added and abnormal economic earnings of 166 US firms. They found that value added

is a significant explanatory factor in SR, and more, its explanatory power is higher than that of earnings.

Dodd and Chen (1996) found that SR and EVA per share are correlated as advocated by EVA adopters. However, the correlation was far from perfect. On the other hand they found that ROA explained SR slightly better than EVA. Their findings also suggested that if a company wants to adopt the philosophy of EVA as a firm performance metric, it might want to consider using residual income (RI) instead. Finally, since nearly 80 per cent of their sample's SR could not be explained by EVA, they concluded that EVA is neither the only performance measure to tie with SR nor a very complete one. This is consistent with other stock market research suggesting that to explain more completely the variability in SR, multiple determinants are required.

Biddle et al. (1997) examined an explanatory power of EVA, accrual earnings, RI and CFO on market adjusted returns (MAR), and revealed that accrual earnings showed a higher explanatory power compared to other performance measures including EVA.

Turvey et al. (2000) studied the relationship between EVA and SR for a sample of 17 publicly traded food companies in Canada. The key finding was that no relationship could be found between the two.

Goyandeh (2007) examined the Iran market and concluded that there is not significant relationship between with SR, while correlation of EVA was better than REVA with SR.

Pashei (2008) studied the relationship between creation value measures of EVA, REVA, MVA and accounting measures of ROE, ROA and CFO with MAR companies in Iran. Result shown that REVA in compare with ROA and ROE was better correlation with MAR.

Many other studies reported the weak correlation of RI metrics with SR. Peterson and Peterson (1996) provided evidence that EVA type metrics do not provide much more information than stock prices. Stark and Thomas (1998) examined the UK market and concluded that the relationship between RI and market value is by no means perfect. Gunther, Landrock and Muche (2000) in examining the Germany stock market, could not prove that value-based measures (EVA, CVA, DCF and Tobin's Q) outperform traditional measures (ROS, ROI, and ROE). Goetzmann and Garstka (1999) found that long-term survival of companies may be related to accounting earnings, and more, simple EPS does as well or better than EVA at explaining differences across firm and at predicting future performance.

### 3. MODEL

The study performs a pooled regression analysis to performance measures (i.e., (EVA, REVA,

MVA, SVA, CSV, CVA, ROA, ROE, EPS and CFO) in terms of explanatory power on SR, while controlling for firm size. The model is:

$$\begin{aligned} \text{SR} = & \beta_0 + \beta_1 \text{EVA} + \beta_2 \text{MVA} + \beta_3 \text{REVA} + \beta_4 \text{SVA} \\ & + \beta_5 \text{CVA} + \beta_6 \text{CSV} + \beta_7 \text{ROA} + \beta_8 \text{ROE} + \beta_9 \text{CFO} + \beta_{10} \text{EPS} \\ & + \beta_{11} \text{SIZE} + \varepsilon \end{aligned}$$

Where SR of a company over a given period are the actual dividend yields and capital gains to the company's stockholders; EVA is the amount of economic value added for the owners by management, REVA represents refined EVA, estimated by using total market value of the firm's assets in calculating total cost of capital; MVA represents market value added, estimated by summing all projected EVAs in the future. Shareholder value added (SVA) is defined as the difference between the present value of incremental cash flow before new investment and the present value of investment in fixed and working capital. Created shareholder value (CSV) for a company creates value for the shareholders when the shareholder return exceeds the share cost (the required return to equity). In other words, company creates value in one year when it outperforms expectations. Cash value added (CVA), contrast to EVA it is derived from cash flow numbers. CFO represents cash flow from operations; ROA is return on assets, estimated by dividing operating income before depreciation (OIBD) by total assets. ROE is return on equity, estimated by dividing OIBD by total shareholders' equity; EPS is Earnings per Share and finally SIZE represents firm size that estimated by log of assets. Thus, Performance measures are calculated as follows (Table I):

**Table 1:** The research of variables and how of measurement

Performance measures	Formula
Economic Value Added (EVA)	$\text{EVA} = \text{NOPAT} - \text{WACC} (\text{CAPITAL})$
Market Value Added (MVA)	$\text{MVA} = \text{current market value of a firm} - \text{capital contributed by its investors}$
Refined Economic Value Added (REVA)	$\text{REVA} = \text{NOPAT} - \text{WACC} (\text{MCAPITAL})$
Shareholder Value Added (SVA)	$\text{SVA} = (\text{Present value of cash flow from operations during the forecast period} + \text{residual value} + \text{marketable securities}) - \text{Debt}$
Created Shareholder Value (CSV)	$\text{CSV} = \text{Shareholder value added} - (\text{Equity market value} \times \text{Ke})$
Cash Value Added (CVA)	$\text{CVA} = \text{Operating cash flow} - \text{Economic depreciation} - \text{Capital charge} (\text{Gross investment} \times \text{cost of capital})$

Return On Assets (ROA)	ROA= Net Income/ Book Value of Assets
Return On Equity (ROE)	ROE= Net Income/ Book Value of Equity
Cash Flow from Operations (CFO)	CFO= Cash Flow from operations in Cash Flow statement
Earnings Per Share (EPS)	EPS= Net Income/ number of share
Shareholder Return (SR)	SR= Capital Gains + Dividend Yield

#### 4. THE HYPOTHESES

In testing the pooling regression model, hypothesis of the investigation are developed for construction sector. Furthermore, construction sectors will utilize the hypotheses, which as follows:

**H<sub>1</sub>:** The value creation of EVA has information content in predicting SR

**H<sub>2</sub>:** The value creation of MVA has information content in predicting SR

**H<sub>3</sub>:** The value creation of REVA has information content in predicting SR

**H<sub>4</sub>:** The value creation of SVA has information content in predicting SR

**H<sub>5</sub>:** The value creation of CSV has information content in predicting SR

**H<sub>6</sub>:** The value creation of CVA has information content in predicting SR

**H<sub>7</sub>:** The accounting measures of ROA has information content in predicting SR

**H<sub>8</sub>:** The accounting measures of ROE has information content in predicting SR

**H<sub>9</sub>:** The accounting measures of CFO has information content in predicting SR

**H<sub>10</sub>:** The accounting measures of EPS has information content in predicting SR

#### 5. FINDINGS

##### a. The Results of Hypotheses Testing

Table 2 presents the results of testing the relationship between creation value measures (EVA, REVA MVA, SVA, CSV, and CVA) and accounting measures (ROA, ROE, CFO, EPS) with SR. As shown in this table, the results indicate a positive relationship of significant between CSV and also negative relationship

of significant between ROA with SR, which suggests that increase in CSV and decrease ROA associated with increase in SR. On the other hand, as shown in Table II, SR has no significant relationship with EVA, REVA MVA, SAV, CVA, ROE, CFO and EPS. Finally, the results show that SR has also no significant relationship with control variable of firm size ( $\text{sig}=.623$ ).

**Table 2:** Summarize The Results of Hypotheses Testing: collective output

hypothesis	Correlations			Results
	Correlation coefficient	Sig	N	
EVA & SR	.189	.147	455	Reject
MVA & SR	-.084	.073	455	Reject
REVA & SR	-.022	.637	455	Reject
SVA & SR	-.078	.098	455	Reject
CSV & SR	.956(*)	.000	455	Accept
CVA & SR	.068	.150	455	Reject
ROA & SR	.093(**)	.047	455	Accept
ROE & SR	-.087	.064	455	Reject
CFO & SR	.040	.392	455	Reject
EPS & SR	.071	.131	455	Reject

\* Correlation is significant at the 0.01 level

\*\* Correlation is significant at the 0.05 level

##### b. The Results of Linear Regression

Regarding Spearman's Correlation Coefficient test in previous sections, we can have the following regression model:

$$\text{Model: } \text{MAR} = \beta_0 + \beta_1 \text{CSV} + \beta_2 \text{ROA} + \varepsilon$$

The model represents the linear regression model between the dependent variable (SR) and independent variables (CSV, ROA), which we will investigate. Before conducting the regression, the hypothesis of errors independency should be tested. For this purpose, Durbin - Watson has been used.

According to the obtained results of this test, the statistic of the above model is 1.55, which is between 1.5 and 2.5 (Table III). Thus, the null hypothesis no correlation between the errors is accepted. So we can use the regression equation in case of existence. According the independent can be used. According to the results of the following table, the significance level of independent variable is lower than 0.05, therefore, we can claim between dependent variable (SR) and independent variables (CSV and ROA) is established regression relationship.

**Table 3:** Output of Durbin – Watson

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.944(a)	.852	.891	1.2029019064	1.55

**Table 4:** ANOVA for model

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	5387.008	2	2693.504	1861 .475	.000 (a)
	Residual	654.032	452	1.447		
	Total	6041.040	454			

**Table 5:** Linear Regression of Testing for model

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta	B	Std. Error
1	(Constant)	- .137	.097		-1.409	.160
	CSV	.939	.015	.945	61.006	.000
	ROA	.728	.522	.022	1.395	.164

Therefore, regarding the above-mentioned in Table V, the model can be written as follows:

$$\text{MAR} = .939\text{CSV} + \varepsilon$$

## 6. RESEARCH CONCLUSION

In the present study, the hypotheses regarding the existence of a significant relationship between the dependent variable of SR with CSV and ROA and on the other hand non significant relationship between the dependent variable of SR and independent variables of EVA, MVA, REVA, SVA, CVA, ROE, EPS and CFO. The study provides interesting and meaningful findings that CSV and ROA can be considered good performance measures throughout the Tehran Stock Exchange. According to the findings, CSV significantly explain the SR by presenting positive coefficients, while performance measures (i.e. EVA, MVA, REVA, SVA, CVA, CFO, EPS and ROE) do not explain much of SR.

General findings of the study support several previous studies or in fact, consistent with the findings of Bao and Bao (1998), Dodd and Chen (1996), Biddle et al. (1997) and no consistent with the findings of Lehn and Makhija (1996) and Turvey et al. (2000), Pashei (2008) and Goyandeh (2007). According to the existence of a significant correlation between the ROA and CSV with SR, it is recommended that the investors while predicting the stock return and determining company

value should pay special attention to these two criteria and suggested that these criteria along with other information written in company's financial statement are disclosed. For future study recommended the relationship of performance evaluation criteria with adjusted stock return on the account of inflation effects. Finally the research set out to understand the relationship between other performance measures such as return on sale (ROS), P/E ratio, M/B ratio, RI, free cash flow (FCF), Tobin Q with SR.

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