The influence of economic and market added values on financial performance of the firms listed in Tehran Stock Exchange

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Abstract

Economic added value and market added value are among the criteria for evaluating performance of management. The current researcher-based study has been done through selecting and investigating 50 top active food industrial companies listed in Tehran Exchange in a 5-year period. In the present research, while accounting for performance evaluation index theoretically, those indices have been tested, necessary evidence has been presented in order to assist capital market activists and evaluate performance of agencies logically for making decisions. Findings indicate that economic added value and market added value affect stock returns and correlation between economic added value and returns on shares is higher.

Keywords: Economic Added Value, Market Added Value, Return on Shares

Introduction

For many years in the past, economists were thinking that all groups related to a corporate such as managers and shareholders were working in order to achieve to a common goal; however, many cases of interest conflict have been seen among those groups since 1961, resulting in the fact that firms have been seeking for solution for this conflict of interests (Jensen and Meckling, 1976, p.312). One of the ways for solving existing conflict of interests among shareholders and managers is using performance evaluation systems (Horengeran, 2006, p.791).

Performance evaluation is a process managers perform in order to achieve to their goals and strategies. Choosing a proper performance evaluation criterion and achieving to organizational goals using this criterion heighten the importance of the way a proper criterion is chosen for performance evaluation (Lehman, et al., 2004, pp.90-97). To measure their performance for specifying returns and incomes, many companies use traditional accounting tools such as earning per share (EPS), return on investment (ROI), free cash flow, residual income and stock prices (Baum, et al., 2004, p.82).

Traditional criteria for performance evaluation have individually their own shortcomings and if they are used as a basis for measurement, performance measurement and company value determination will not be realistic (Worthington and West, 2004, p.202). In other words, whereas traditional criteria are considered as important tools for company's performance and operational evaluation, companies' ever-changing environments need to use new criteria for performance evaluation in addition to old criteria (Hrisch, 2000, p.587). Economic added value is a proper and precise measure of added value to the investment done by shareholders (Brigam, et al., 1999, p.48). Confirming what is told by Brigam and his colleagues, Worthington and West (2004) state that economic added value and market added value is the only criterion that does not have shortcomings of traditional performance evaluation methods and calculates firm's value in a realistic manner. In other words, economic added value and market added value is a fundamental index for measuring firm's performance and determining its value.

Also, in Stewart's opinion (1991), economic added value may be used for achieving firm goals, budgeting capital, evaluating firm performance and calculating managers' rewards. Unlike economic added value (EVA) which totally is an internal performance evaluation, market added value (MVA) is an external performance evaluation in which the manner of firm performance evaluation from market side in terms of debt market value and shares market value is compared with capital invested in the firm.

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Statement of the Problem

In traditional accounting, there are ambiguous results. In recent years, a new approach has been developed for firms including economic added value (EVA) and market added value (MVA). EVA was firstly used by Stern Stewart Management Association in 1989. Then, this concept was developed by J. Bant Stewart the third, Stern Stewart managerial colleague. From that time on, more than 300 countries all over the world have implemented the above-mentioned concepts. MVA refers to the difference between usual shares market value with shares invested by shareholders. EVA is among important factors in forming firms, ultimately influencing stock exchange shares prices. Findings from different studies indicate that if EVA and MVA measurement is positive, the firm will gain added value and usually enhances firm's shares price so that return on shares may increase or the firms tries to create added value for investors. Conversely, if EVA and MVA measurement is negative, the firm will see decrease in performance which generally witnesses fall in shares price and ultimately, return on shares reduces firm value because resulted interest rate is lower than what investors expect. Therefore, positive value of MVA and EVA has positive effects on the increase in return on shares. Shares price is influenced by market price and is determined by supply-and-request forces. Shares market price is actual criterion for firm's investment value. So, shares price is an index of responding to investors' expectations resulted from changes in firm's financial performance. Investors' shares price reflects expected net cash flow in terms of time and invested risk. Shares value has interwoven relationship with firm's future performance. Financial performance is used as an input for the payment of return on investments in shares. EVA and MVA concept is considered as relatively new approach in firm performance evaluation. Unlike old performance criteria, requiring comparative analysis with similar firm in the industry, EVA and MVA is one of the main factors in forming firms, which affects return on shares (Saputra, 2010). Therefore, in the current research, it is attempted at investigating the influence of MVA and EVA on the performance evaluation of firms listed in Tehran Stock Exchange in order to determine whether MVA and EVA may be a proper criterion for describing firms' performance or not.

Methodology

Present research is descriptive one in which correlation research and multiple longitudinal regression analysis. In the research presented here, to test research hypotheses, data related to the firms listed in Tehran Stock Exchange during 2007-2011 is used. Furthermore, research type is applied regarding its aim and other fundamental studies benefit from its findings.

Research Population

In this study, food industrial firms mean 33 firms producing food materials, active in Tehran Stock Exchange. Reasons behind the selection of this group of firms listed in the Stock Exchange are as following:

Appropriate number of listed firms in the Stock Exchange in this industry, presence of firms in this group in time interval of 2007-2011, lowness of exit rate from the Exchange among firms in this group or lack of changes effective on exchange activities of those firms, more complete financial data comparing to other groups, lack of similar research in this group, differentiation in research population selection and uses of research findings in the industrial group for large firms to be listed in the Exchange.

Criteria for the selection of those firms are as following:

Firms should be listed in the Exchange before 2007, transaction of firms' stocks in at least 50% of yearly working days of the Exchange, possibility of obtaining needed data on the firms for calculating assessment measures for interval of 2007-2011 and 12-year financial period of the firms (some of the firms have 3-month or 10-month financial periods which this fact affects results).

Data Collection Tools

• Reliable foreign and domestic books and papers on the topic understudy
• Data banks of firms and the Stock Exchange
• Internet and other information tools if needed.

Results

Results from first hypothesis testing

To investigate the relationship between economic added value (EVA) and return on shares (ROS), Pearson correlation coefficient is used. The hypothesis H0 and H_1 is defined as:

$$H_0 : r_{xy} = 0$$
$$H_1 : r_{xy} \neq 0$$

As shown in table 1, the correlation coefficient is 0.14 between EVA and ROS, indicating relative correlation between research variables. Error level is 0.05 and confidence level is 95% accordingly. Test signifi-

cance level is 0.001 lower than 0.05. So, with 95% confidence, it can be stated that there is a significant relationship between EVA and ROS and H1 is confirmed. Summary of statistical tests is shown in table 1.

Table 1. Correlation Test for Hypothesis 1

	Test Type	Correlation Coefficient between ROS & EVA	Significance Level	Test Result
Independent Variable-ROS	Correlation	0.146	0.001	Direct and Significant
	ANOVA	F	Significance Level	
		13.89	0.000	Significant

To investigate this claim that EVA affects ROS, a model in which ROS is dependent variable and EVA is independent variable is calculated. To test the hypothesis, following regression model is fitted:

Y=a+b1x1+ei

Where:
Y = returns on shares
a = fixed term
b1 = regression coefficient
X1 = EVA
ei = error estimation (standard error)

To investigate the influence of EVA on ROS, regression test is used. Correlation coefficient for EVA variable is r = 0.14 and determination coefficient (R2) is 0.02%, meaning that EVA influences 0.02% on ROS of each share and approximately 0.02% of changes in response variable is accounted for by independent variable.

Table 2. Regression Test for Hypothesis 1

Hypothesis	α	P-value	R	R^2	Result
H_0 (EVA,ROS)	0.05	0.01	0.146	0.021	rejected

To investigate the fact that which variable remains in regression model and which one omits

from the model, following hypothesis is examined:

$$H_0 : \alpha = 0$$
$$H_1 : \alpha \neq 0$$

Regarding that P-value is lower than α_i, H_0 is rejected accordingly, meaning that α_i is not zero and all variables remains in income equation.

Y=30.406+4.69X_1+ei

Results from Second Hypothesis Test

To investigate the relationship between market added value (MVA) and return on shares (ROS), Pearson correlation coefficient is used. The hypothesis H0 and H_1 is defined as:

$$H_0 : r_{xy} = 0$$
$$H_1 : r_{xy} \neq 0$$

As shown in table 3, the correlation coefficient is 0.102 between MVA and ROS, indicating relative correlation between research variables. Error level is 0.05 and confidence level is 95% accordingly. Test significance level is 0.043 lower than 0.05. So, with 95% confidence, it can be stated that there is a significant relationship between MVA and ROS and H1 is confirmed. Summary of statistical tests is shown in table 3.

Table 3. Correlation Test for Hypothesis 2

	Test Type	Correlation Coefficient between ROS &MVA	Significance Level	Test Result
Independent Variable-ROS	Correlation	0.102	0.010	Significant
	ANOVA	F	Significance Level	
		3.507	0.000	Significant

To investigate this claim that MVA affects ROS, a model in which ROS is dependent variable and

MVA is independent variable is calculated. To test the hypothesis, following regression model is fitted:

$Y=a+b_2x_2+e_i$

Where:
Y = returns on shares
a = fixed term
b_2 = regression coefficient
X_2 = MVA
e_i = error estimation (standard error)

To investigate the influence of MVA on ROS, regression test is used. Correlation coefficient for MVA variable is r = 0.102 and determination coefficient (R2) is 0.010%, meaning that MVA influences 0.010% on ROS of each share and approximately 0.010% of changes in response variable is accounted for by independent variable. According to this result, it may fairly be stated that H_0 is rejected and H_1 is confirmed.

Table 4. Regression Test for Hypothesis 2

Hypothesis	α	P-value	R	R²	Result
H_0 (EVA,ROS)	0.05	0.043	0.102	0.010	rejected

To investigate the fact that which variable remains in regression model and which one omits from the model, following hypothesis is examined:

$$H_0 : \alpha = 0$$
$$H_1 : \alpha \neq 0$$

Regarding that P-value is lower than α_i, H_0 is rejected accordingly, meaning that α_i is not zero and all variables remains in income equation.

$$Y=23.75+2.108X_2+e$$

Results from Third Hypothesis Test

To investigate the relationship between market added value (MVA) and economic added value (EVA) and return on shares (ROS), Pearson correlation coefficient is used. The hypothesis H0 and H_1 is defined as:

$$H_0 : r_{xy} = 0$$
$$H_1 : r_{xy} \neq 0$$

The correlation coefficient is 0.14 between EVA and ROS, indicating correlation between research variables. Error level is 0.05 and confidence level is 95% accordingly. Test significance level is 0.001 lower than 0.05. So, with 95% confidence, it can be stated that there is a significant relationship between EVA and ROS and H1 is confirmed. The correlation coefficient is 0.146 between MVA and ROS, indicating relative correlation between research variables. Error level is 0.05 and confidence

level is 95% accordingly. Test significance level is 0.043 lower than 0.05. So, with 95% confidence, it can be stated that there is a significant relationship between MVA and ROS and H1 is confirmed. Summary of statistical tests is shown in table 5.

Table 5. Correlations

		ROS	EVA	MVA
ROS	Pearson Correlation	1	.146*	.102
	Sig. (2-tailed)		.001	.043
	N	164	164	164
EVA	Pearson Correlation	.146**	1	.123*
	Sig. (2-tailed)	.001		.000
	N	164	164	164
MVA	Pearson Correlation	.102	.123**	1
	Sig. (2-tailed)	.043	.000	
	N	164	164	164

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

To investigate this claim that EVA and MVA affect ROS, a model in which ROS is dependent variable and MVA and EVA is independent variable is calculated. To test the hypothesis, following regression model is fitted:

$$Y=a+b_1x_1+b_2x_2+e_i$$

Where:
Y = returns on shares
a = fixed term
b_1b_2 = regression coefficient
X1X2 = EVA and MVA
e_i = error estimation (standard error)

To investigate the influence of MVA and EVA on ROS, regression test is used. Correlation coefficient for two variables MVA and EVA is r = 0.12 and determination coefficient (R2) of these two variables is 0.015%, meaning that MVA and EVA influence 0.015% on ROS of each share and approximately 0.015% of changes in response variable is accounted for by independent variable. According to this result, it may fairly be stated that H_0 is rejected and H_1 is confirmed.

Table 6. Regression Test for Hypothesis3

Hypothesis	α	P-value	R	R²	Result
H_0 (EVA,MVA,ROS)	0.05	0.02	0.12	0.015	rejected

To investigate the fact that which variable remains in regression model and which one omits from the model, following hypothesis is examined:

$$H_0 : \alpha = 0$$
$$H_1 : \alpha \neq 0$$

Regarding that P-value is lower than α_i, H_0 is rejected accordingly, meaning that α_i is not zero and all variables remains in income equation.

$$Y = 34.099 + 2.35X_1 + 1.96X_2 + ei$$

Considering results from first hypothesis test that there is relationship between EVA and ROS and results from second hypothesis test that there is relationship between MVA and ROS, third hypothesis that there is relationship between EVA and MVA and ROS is automatically confirmed.

Table 7. Regression Model Analysis

Y=a+b1x1+b2x2+e:			Model
Y=34.099+2.35X1+1.96X2+ei			
Coefficient(α_i)	t- test	Sig.	Std.error
constant	34.099	5.436	.000	6.273
EVA	2.35	4.137	.002	.001
MVA	1.96	2.014	.031	.002

Conclusions

As previously pointed out, many researchers, notably Stewart, always believes that economic added value (EVA) is a powerful and efficient tool for describing firm performance. They state that this criterion is more powerful in describing stocks market value than general and traditional criteria. However, other researchers claim that this criterion has weaker correlation with stocks market value than general and traditional criteria.

In the current research, in line with performed researches, the effect of this criterion is investigated using data related to the firms listed in Tehran Stock Exchange. Ultimately, it is found that there is a significant relationship between EVA and MVA and return on equity. Therefore, EVA and MVA is an effective tool in describing firms' stocks market value and may be investigated beside other available criteria for evaluating firms' performance in Tehran Stock Exchange.

Recommendation

As noted, many researchers, notably Stewart, always believes that economic added value (EVA) is a powerful and efficient tool for describing firm performance. They state that this criterion is more powerful in describing stocks market value than general and traditional criteria. However, other researchers claim that this criterion has weaker correlation with stocks market value than general and traditional criteria.

In the current research, in line with performed researches, the effect of this criterion is investigated using data related to the firms listed in Tehran Stock Exchange. Ultimately, it is found that there is a significant relationship between EVA and MVA and return on equity. Therefore, EVA and MVA is an effective tool in describing firms' stocks market value and may be investigated beside other available criteria for evaluating firms' performance in Tehran Stock Exchange.

Suggestions for Future Studies

Following Recommendations may pave the way for future studies related to the current research topic:

1. In economic performance evaluation, in addition to financial and quantitative indices, other indices including marketing and sales, productivity and innovation indices, indices related to risk and ... should also be paid attention to.

2. Investigating several criteria for performance evaluation used in Tehran Stock Exchange and comparing it with REVA in terms of efficiency and its influence on firms' stocks market value prediction.

3. Investigating the effect of EVA application together with other tools such as Activity-Based Costing (ABC) and balanced evaluation in enhancing firms' values.

4. Investigating the relationship between EVA and Return on Assets (ROA) in a manner that EVA calculation is done by using an operational approach.

5. Comparing Firms' EVA with respect to ownership type (governmental or non-governmental)

6. Using EVA criterion as a criterion for offering rewards to managers and investigating its effect on managers' performance.

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