The Investigation of the Relationship between Economic Value Added (EVA) and Return on Assets (ROA) in Tehran Stock Exchange (TSE)

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Abstracts
This study investigates the relationship between economic value added (EVA) and return on assets (ROA) in Tehran Stock Exchange (TSE). The aim of the study is to investigate whether ROA is a substitution for EVA in vehicle, food, chemistry and cement industry during the period of 2008 to 2010. After collecting data using listed firms’ financial statements in TSE and calculation of research variables applying Pierson coefficient of correlation, data analysis and statistical model presentation are performed. The results of the study show that there is no relationship between EVA and ROA in TSE.

Key words: Economic Value Added (EVA), Return On Assets (ROA), Firms Performance Evaluation, Tehran Stock Exchange (TSE)

INTRODUCTION
In the 1990s, the concept of economic value added (EVA) became a topic of considerable interest resulting in wide, financial economics literature research from various perspectives. Stewart (1991) proposed EVA as a firm’s performance measurement and as executives’ performance evaluation tool by arguing that EVA represents a firm’s true performance because EVA reflects only incremental values added to a firm after considering cost of capital (Lee and Kim, 2009). Most of the companies measure performance with accounting profits which are often seriously biased measure of profitability. EVA is an unbiased measure of profitability. Unlike accounting profits, EVA indicates the value to what extent created by management or agent for shareholders (Jahur and Riyadh, 2010).

However, there is also a fire on it when Tebogo writes “EVA has been hailed as an innovative value-facilitating technique since it tends to focus management’s attention on value-creating activities rather than on short-term gains. This much is appreciated, but Stern Stewart & Co have gone on to trash the accountancy profession. Stern Stewart & Co. makes sweeping allegations against the practice of accounting without indicating which version of accounting they are against”

LITERATURE REVIEW
ROA is one of the most important profitability ratios and indicates management performance regarding firm’s resources and assets calculated by dividing net profit by total assets. Calculating accounting profit considering the price volatility may make difficult decision making for firm’s performance evaluation. However, recent year’s economy situation has changed management performance measurement evaluation. One of management performance measurement evaluation is ROA. ROA evaluates firm’s ability in profit making according to total investments in assets. The other one is EVA, measures firms’ actual return and shows capital return level after financing costs. Irala (2007) investigated firm’s performance measurement in India by using financial information of 6 years. The results of the study show that EVA is a more suitable predictive measure of market value than other traditional accounting measures. Worthington and West (2004) exploring the information content of EVA, residual income (RI) and earnings before extraordinary items find that stock return changes and earnings before extraordinary items have more information content than others. Fernandez and Reinoso (2003) investigated the relationship between EVA and shareholders created shareholder value (CSV) and concluded that EVA cannot measure CSV. SalehNejad and Gayour (2010) in their investigation titled the impact of return on assets and return on equity and financial leverage on stocks price of the firms listed in TSE indicated that

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return on assets and return on investment have more accurate predictability than earnings. The results also suggest that return on assets and return on investment affect on stocks price. Saleh Abadi and Amadpour (2010) investigated the correlation between EVA to capital ratio and market value added (MVA) to capital ratio in TSE demonstrating that EVA has no priority than other traditional ratios. Esfandiyari (2009) show that refined economic value added (REVA) and operating cash flows have not equal correlation with market value. Yahyazadeh et al. (2010) studied the relationship between EVA and profitability ratios with MVA in TSE. Their results show that there is a significant relationship between EVA and return on investment ratio and return and MVA. However, they found no evidence suggesting the significance relationship between ROA and earnings per share (EPS) and MVA. RahnemaeeRoudposhti (2006) show a relationship between EVA, MVA, and financial variables, however, the relationship between EVA and financial variables is more than MVA.

This study investigates the relationship between EVA and ROA. The main purpose is to clarify the issue as to whether ROA can substitute EVA or not.

RESEARCH METHODOLOGY

Population and statistical sample
The population of this study consists of 16 firms in TSE in different industries. The population must have following characteristics:

- Firms must be active in TSE during the period of 2008-2010 and financial reporting and other necessary information in these years must be available.
- Fiscal year must be ended at the end of year.
- Firms must not be brokerage or investment firms.

In this study, the documental method is used for collecting information. Necessary information is driven from financial statements and notes in four industries. This information includes periodical increases and decreases in capital equity which is drawn from TSE database, Tadbirpardaz and RahavardeNowin softwares.

Research hypotheses
EVA is one of the main measures of management performance showing actual return of the firm though covering capital and operational costs. Different groups like stockholders, investors, lenders, managers, banks etc. regard performance evaluation important. These evaluations have different measures driven from financial statements and market or both having respective advantage and disadvantages. However, the following hypotheses in 4 industries are represented:

H₁: There is a relationship between EVA and ROA in vehicle industry.
H₂: There is a relationship between EVA and ROA in food industry.
H₃: There is a relationship between EVA and ROA in chemical industry.
H₄: There is a relationship between EVA and ROA in cement industry.

Methodology
The method of this study is descriptive method and ex post facto (casual-comparative) and in the context of objective is applied and positive research. In the first stage, data of monthly reports and financial statements are extracted from TSE and then variables are calculated using Excel software. Finally, the relationship between variables is tested by Spearman coefficient of correlation.

Models
Return on assets
Return on investment: earnings from total assets calculated as following:

$$ROI = \frac{\text{Income after tax}}{\text{Total assets}}$$
Return on stock: in this research, calculated as changes in stock price as following

\[
\text{Return on stock} = \frac{\text{Stock price at the beginning of period} - \text{Stock price at the end of period}}{\text{Stock price at the beginning of period}}
\]

Capital equity: equity capital has different components calculated separately. For calculating the weight of equity capital, noncurrent debts and financing costs in firm’s capital structure, the following equitation is used:

Capital equity

\[
\text{Capital equity weight (We)} = \frac{\text{Total capital equity and noncurrent debts}}{\text{Total capital equity and noncurrent debts}}
\]

Noncurrent debts

\[
\text{Noncurrent debts weight (Wd)} = \frac{\text{Total capital equity and noncurrent debts}}{\text{Total capital equity and noncurrent debts}}
\]

Cost of capital rate (Kd)

\[
\text{Cost of capital rate (Kd)} = \frac{\text{Financing cost}}{\text{Noncurrent debts}} = \frac{Kd1-Kd2-KD3-...-Kdn}{n}
\]

Financing cost (Wacc)

\[
\text{Financing cost (Wacc)} = (\text{We} \times \text{Ke}) - (\text{Wd} \times \text{Kd})
\]

Where Wd is percentage of debt contribution in total capital, We is percentage of common stock contribution in total capital, Kd is debt cost and Ke is new common stocks cost.

EVA is a measure of performance evaluation showing the ways of increasing or decreasing the firm’s value more accurately. This measure indicates residual income after deducting capital cost. EVA evaluates the output of firm instead of gross return and it is return of investors, lenders, government, etc. A proportion of this income is distributed as dividend among stockholders or tax, debt reimbursement and wage cost and the remained amount is reinvested in the firm. Following formula is used to EVA measurement:

\[
\text{EVA} = \text{ROA} - \text{WACC}
\]

Where, WACC is weighted average cost of capital and ROA is return on assets.

EMPIRICAL RESULTS

The results of regression model are presented in Table 1. The results show that there is a significant relationship between EVA and firm’s return on investment in different industries of TSE. More explicitly, there is a positive relationship between EVA in cement, vehicle and chemical industry and total assets return and this relationship is strong in vehicle industry. However, the results do not support the relationship between dependent and independent variable in food industry. According to Table 1, adjusted R² (0.983) manifests that 98.3 percent of dependent variable is explained by independent variable. Considering the p-value which is less than 0.05, we can conclude that ROA in four studied industries affect firms EVA. Calculated T-statistic is less than 1.96 other than one group indicating that Beta coefficients do not predict the effect of independent variable on dependent variable accurately and we cannot rely on these coefficients.

CONCLUSION AND DISCUSSION

The aim of study is to investigate the relationship between economic value added (EVA) and return on assets (ROA) in listed firms of TSE. The results of the study are consistent with the results of the research conducted internally and externally. After collecting data using listed firms’ financial statements in TSE and calculation of the research variables applying Pierson coefficient of correlation, data analysis and statistical model presentation are performed. We conducted these research on four industries including...
vehicle, food, chemistry and cement during the period of 2006 to 2008. The results of the study show that there is strong relationship between EVA and ROA in TSE. The decisions which firm’s managers make in increasing stockholders profit and capital in some extent is related to future event and predictions and managers considering short term and long term predictions, provide firm’s program. The capital market development causes to increase the performance evaluation measures through information content. One of the best ways is ROA showing firms income relates to the level of investment.

**SUGGESTION REMARKS**
The results of the study show that there is strong relationship between EVA and ROA. Therefore, financial decision makers and stockholders in their financing in order to make decision about investment should consider ROA instead of EVA additional to general methods of firm’s performance evaluation like financial ratios and income statement.

**REFERENCES**
Rahnemaeeroudposhti, F. 2006. The investigation of market economic value added application for firm’s economic performance evaluation, journal of economic research.

<table>
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<tr>
<th>Variables</th>
<th>Regression coefficients</th>
<th>T-Statistic</th>
<th>Sig</th>
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<tr>
<td>Constant</td>
<td>-1.600</td>
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<td>0.154</td>
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<tr>
<td>ROI (1)</td>
<td>0.052</td>
<td>1.036</td>
<td>0.335</td>
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<tr>
<td>ROI (2)</td>
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<td>ROI (3)</td>
<td>1.019</td>
<td>23.876</td>
<td>0.000</td>
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<td>ROI (4)</td>
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<td>0.119</td>
<td>0.909</td>
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<tr>
<td>R²</td>
<td>adjusted R²</td>
<td>Coefficient of correlation</td>
<td>F-statistic</td>
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<td>0.989</td>
<td>0.983</td>
<td>0.994</td>
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Table 2. Summary results of regression test

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<th>hypotheses</th>
<th>The result of hypothesis test</th>
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<td></td>
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<tr>
<td>H1</td>
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<td></td>
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<td>H3</td>
<td>*</td>
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<td>H4</td>
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