The Relationship between the Indicators of Financial Performance Measurement of the Companies Listed in Tehran Stock Exchange

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ABSTRACT: By the separation of ownership and management, followed by the emergence of representation theory, performance measurement raised as one of the main issues in accounting. In addition, measuring the performance of companies has been always considered by the shareholders, investors, financial creditors, such as banks and financial institutions, creditors and especially managers. This study evaluated the relationship between indicators of financial performance measurement of the companies listed in Tehran Stock Exchange. To achieve the research objectives, hypotheses are developed that analyze the significant relationship between the most important indicators of financial performance. In order to test the hypotheses, SPSS16 software and correlation tests have been used and all these hypotheses were tested at 95% level. The results indicate that there is a positive and significant relationship between accounting profit and return on assets, return on equity and earnings per share. This is despite the fact that there is no relationship between accounting profit and Tobin’s Q of the company.

Keywords: Financial Performance, Representation Theory, Return on Assets, Profitability.

INTRODUCTION

Economic growth and development, increased number of corporations, and separation of ownership from management have made the representation issues as one of the most important concerns of investors. Representation stems from the fact that investors have not usually the required tendency or ability to administer the affairs of company, thus they delegate the responsibility to the managers. Since both the managers and investors seek for maximizing the personal interests, but the representative might not always intended to provide the owner’s interests and maximize his wealth, choosing an appropriate criteria to ensure achieving the final goal of the company, which is maximization of the owners’ wealth, is one of important solutions toward the stakeholders in order to measure the performance and correct economic decisions. Financially, performance measurement is determined by two factors of liquidity power, profitability. Profitability is a signal for the health of the firm and its liquidity power; it is a signal for the life of the firm. Although both of them are important, but liquidity is more important. Low-profit or non-profit companies can serve the economy for longer period of time, but companies with no-liquidity have lower life expectancy.

Initial searches to obtain performance measures led to the use of accounting figures and information in this area. Many performance measures are based on accounting models, especially reported accounting earnings or earnings per share. Over time, managers started earnings management through falsification of accounting numbers in order to maintain and improve the level of reward. It has caused some companies to encounter with financial crises including lack of liquidity, despite their desirable financial status in terms of accounting numbers and performance measures based on accounting models. Therefore, the performance measures based on accounting model and its reward plans could not move towards the benefits of shareholders and other groups outside the organization, and caused conflicts of interest. The outcome of an accounting information system is
financial reports, in which the reported earnings is of great importance to the users. The investors measure the company’s performance and make their predictions based on accounting earnings. Managers also use earnings in planning for future. In the performance measurement model of accounting, the Company’s value is obtained from the product of two numbers: first, the company’s earnings; second, the conversion factor. The value of a company is a function of different criteria such as earnings, earnings per share, profit growth rate, return on equity, and return on investment, free cash flow and dividend.

Accounting is an effective tool to provide useful information for the judgment and decision of financial statement users; so that the core of many reasons proposed to support the existence of accounting science is emphasis on the process of judgment and decision. According to the theoretical foundations of accounting and financial reporting of Anglo-Saxon countries and Iran, investors are the main users of financial statements. They are seeking for the information by which it is possible to measure the expected risk and return on investment. Accounting earnings is the most traditional performance measure important for the investors, shareholders, managers, creditors and securities analysts. From the perspective of many researchers, accounting profit calculated by accrual assumption is one of the most important measures of performance. Regarding the advantage of availability of information required by these models and also eases of their calculations; these measures of performance are widely used by the users of financial information. The researches in this field also show that accounting earnings and its resulting information provide useful information to the users that are effective on their decision making. Therefore, the focus in this study is on the relationship between the indicators of financial performance measurement of the companies listed in Tehran Stock Exchange. The variables selected from the view include return on assets, return on equity, accounting earnings, earnings per share and Tobin's Q. The main reason for choosing these variables is that, these ratios have a direct relationship with the corporate strategy and management performance.

**Literature review**

Smith and Begemann (2011) in a research called “the relationship between working capital and return on investment” on 135 companies of the Johannesburg Stock Exchange concluded that the current ratio and quick ratio, as the indicators of liquidity, are positively related to ROA. Furthermore, no significant relationship was observed between the cash conversion cycle and ROA. Brainard and Tobin (1968) found that the relationship between Tobin's Q ratio (as an important criterion for measuring the performance) and the company's potential growth is positive; which means that companies with Tobin's Q greater than one have higher ability to grow. Wang (2002) in a research entitled “operational performance of liquidity management of and company’s value: Evidences from Japan and Taiwan” studied the relationship between liquidity management and profitability and company’s value on 1555 Japanese companies and 375 Taiwanese companies from 1996 to 1985. The results indicated that there is a negative and significant correlation between the cash conversion cycle and profitability indicators. In addition, valiant liquidity management occurs by reducing the cash conversion cycle, then improves the performance and increase Company’s value. Eljelly (2014) in a research entitled “the balance of liquidity and profitability”, investigated the relationship between liquidity and profitability in 29 corporations of Saudi Arabia. The results at the level of all companies showed that there is a significant and negative relationship between profitability (return on sales) and liquidity ratio measured by current ratio and cash conversion cycle. The results at the level of industry showed that cash conversion cycle has a more significant impact on the profitability of companies compared with the current ratio, and the companies’ size should be considered as an important factor.

Rezaei (2001) carried out a research titled “the effect of correlation between EVA and ROE on the measurement of Automobile Companies’ performance listed in Tehran Stock Exchange” and concluded that there is no significant relationship between EVA and ROE. The research by Mahdavi and Ghorbani (2012) aims to investigate the role of both modern and traditional indicators of liquidity in financial performance measurement. To achieve the purpose of the study, fifteen hypotheses have been developed testing the significance of the relationship between liquidity indicators and financial performance of the companies. The statistical method used to test the hypotheses of this study is combined data. The sample of the study consisted of 74 companies over a period of eleven years. The analysis of research hypotheses showed that all the hypotheses, except for hypotheses concerning the ratio of Tobin’s Q, have been confirmed. According to the results of hypotheses test, modern indicators of liquidity represent more precise pictures to the financial information user in order to make optimal decision. Their results showed that the company’s cash conversion cycle is inversely correlated with financial performance. Thus, given that cash flow is a vital component of working capital management, it can be said that the Working Capital Management is one of the main factors determining the financial performance of the company. The rate of ROA and continuous growth rate, which is induced by ROE and dividend ratio, is directly related to the financial performance of the Company. A research by Mahdavi and Hosseini Azan Akhary (2013) investigated the relationship between Refined EVA and conventional criteria for performance measurement, including EPS, and the ratio of price to EPS in the companies listed in Tehran Stock Exchange from 2001 to 2004. The results indicate that here is no statistically
significant relationship between Refined EVA and EPS, and the ratio of price to EPS. Although the relationship has not been established on the basis of statistical analysis, it does not mean the absence of any relationship between the research variables. Correlation coefficient percentages and determination coefficient show that there is a weak correlation between Refined EVA and conventional criteria for performance measurement, including EPS, and the ratio of price to EPS. However, the intensity of the correlation for the ratio of price to EPS is slightly stronger than EPS itself. Rajabi and Ganji (2010) have examined the relationship between leading system and financial performance. Their results showed that the independent auditor's opinion and fully observing the duties prescribed by the general assembly have more relationship with company's financial performance compared with other leading mechanisms.

Research Objective

The main objective of this study is to investigate the relationship between the indicators of financial performance measurement of the companies listed in Tehran Stock Exchange. The study of this relationship can help to determine which of these indicators a better measure for evaluating companies is.

Research Hypotheses

To achieve the objective, this research subject has been proposed as the following hypotheses:
The first hypothesis: there is a significant relationship between accounting earnings and return on assets in the companies listed in Tehran stock exchange.
The second hypothesis: there is a significant relationship between accounting earnings and return on equity in the companies listed in Tehran stock exchange.
The third hypothesis: there is a significant relationship between accounting earnings and earnings per share in the companies listed in Tehran stock exchange.
The fourth hypothesis: there is a significant relationship between accounting earnings and Tobin’s Q in the companies listed in Tehran stock exchange.

METHODOLOGY

Generally, the methodology of behavioral sciences can be divided with respect to two criteria: 
Objective: Researches are categorized into applied, fundamental, and developmental in terms of objective. Applied researches are those seek to find solutions for their target population. Developmental research seeks to add researcher’s knowledge. And finally, fundamental research seeks to develop the theories in a scientific field. Accordingly, the present research is applied one.

Procedure: Most research activities show a method or strategy that is easily recognizable and include certain common procedures such as stating the problem, gathering information and making conclusion. The details of these specific procedures are largely determined by the method. According to the categorization of researches based on objective, the methodology used in this research is descriptive-quantitative. In terms of data collection, the present research is a documentary-library one; means that all the information have been gathered from the texts, articles, and researches available in the libraries or the archive of organizations, and there was no need to refer to the individuals and conduct question or observation or interview. With respect to the outcome, it is an applied research, because the results can be used by the stock brokers, individuals and companies likely to invest in Tehran Stock Exchange, people interested in financial issues, higher education centers, and financial management training institutions, and their student, in addition to the target organization.

The population: Population is all the elements and individuals in a certain geographical scale with one or more certain and common attributes. Population implies to the entire group of people, events, or things about which the researcher searches for. The population of this research is the companies listed in Tehran Stock Exchange during the period 2009 to 2013. The small is a sample group of the target population composed of some members selected from the target population. Sampling is the process of selecting the sufficient number from the target population, so that we can generalize these properties and characteristics to the entire population by studying the sample and understanding their properties and characteristics.

Sampling method and sample size: As the acceptance of the companies in Stock Exchange is subjected to providing and making the information publicly accessible the easiest and most reliable source of information is the companies’ information on the Stock Exchange Organization. The population consists of all the companies listed in Tehran Stock Exchange, which have the following features:
- In terms of increased comparability, the end of the financial year to be 20th March of every year.
- They shall be active in Stock Exchange during the financial period of the research.
- They have not altered activity or changed their financial year during above years.
- They have not altered activity or changed their financial year during above years.
Companies were selected from the banks and financial institutions (investment firms, financial brokering, holding and leasing companies).

Financial information required for this study are presented in full. Due to restrictions imposed and based on the investigations conducted, 63 companies were selected from the companies listed in Tehran Stock Exchange.

**Data Collection Methods:** Library methods such as books and magazines were used to collect the information required for the literature review; and the audited financial statements and their accompanying explanatory notes available on the websites of Research Management, Development and Islamic Studies, and Codal of the Tehran Stock Exchange, as well as Tadbir Pardaz, and Rahavard Novin software were used for financial data.

**Research variables and how they are calculate:** The first step to test the hypotheses is providing a precise and appropriate definition of the variables that make the measurement of the studied parameters possible. The variables of this study are discussed to test the hypotheses. ROE: it is one of the most popular and widely used measures of performance because of the possibility to separate return on equity from profitability ratios of asset turnover and financial leverage due to Dupont analysis. ROE expresses the fact that how much return has been created by investors on the funds invested by them. This ratio is obtained by dividing the net profit by equity.

**ROA:** it is another accounting measure indicating the efficiency of management to utilize available resources to gain profit. It is also one of profitability ratios in which the earnings source is not absolutely investigated, but also in relation with its gain resource. This ratio is obtained by dividing net income by total assets.

**EPS:** it is the performance criteria of each share over a period of time. This criterion doesn’t consider the capital effectively used to increase the profit (in some cases, increased profit may be due to increased non-economic investments). Earnings per share are calculated by dividing the profit after tax by the total number of shares. It represents the profit that the company has earned in a specified period of time per an ordinary share.

Tobin’s Q: this ratio is one of combined criteria based on accounting information and market information. According to the majority of researchers, it is the best criteria for performance measurement and company’s value. It is calculated as follows: the sum of market value of the shares with the book value of company’s debts divided by the book value of total assets of the company.

**Accounting earnings:** earning is one of important element in capitalistic economies. Earnings as a guide to pay the dividends and measure the effectiveness of management, is a tool used to predict and evaluate the decisions and always utilized by the investors, managers and analysts. One of the main goals of any business firm is profit maximization. Investors looking to gain benefits that best fit their investment risk. As a prediction tool for analysts and investors, profit has got a special place. When the appropriate solution is specified with respect to the business environment for the managers and users of financial information in order to create profitable investment opportunities, it will definitely lead to incredible results that can survive a business unit from declination to the power borders. In other words, accounting earnings is the difference between expenses and income that can be achieved on the basis of accounting principles where the costs are the internal costs of doing things. In this study, Earnings before interest and taxes are calculated and tested.

**Statistical Method**

Descriptive and inferential statistics are used for statistical analysis of the data. Descriptive statistics include frequency distribution of data, measurement of the central tendencies and dispersion of data. Inferential statistics (correlation analysis, Pearson correlation coefficient, correlation coefficient significance test) were used for data analysis. The data collected for this study was calculated using Excel 2010 software and analyzed with SPSS16. Various modes for r are as follows:

- If $r = 1$: this is complete and direct correlation. With the increase in the value of $x$, $y$ values are definitely increased.
- If $r = -1$: this is complete and inverse correlation. With the increase in the value of $x$, $y$ decreases.
- If $-1 < r < 0$: this is incomplete and inverse correlation. With the increase in the value of $x$, $y$ values are relatively decreased.
- If $1 < r < 0$: this is incomplete and direct correlation. With the increase in the value of $x$, $y$ values are relatively increased.

**RESULTS**

**Descriptive statistic**

In this section we analyze the data using central indexes, such as mean, median and mode and dispersion indexes of standard deviation, skewers and elongation. The mean shows the average of data. Middle indicates that 50% of the data are less than the middle number of population and the other 50% are more. Closeness of the
mean and the median shows the data symmetry. Standard deviation shows dispersion, and skew is the symmetry index. Descriptive statistics for the variables are provided in Table 1.

<table>
<thead>
<tr>
<th>Table 1. Descriptive statistics of the research variables.</th>
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<tbody>
<tr>
<td>Firms</td>
</tr>
<tr>
<td>Valid</td>
</tr>
<tr>
<td>Missing</td>
</tr>
<tr>
<td>Std. Deviation</td>
</tr>
<tr>
<td>Skewers</td>
</tr>
<tr>
<td>Std. Error of Skewers</td>
</tr>
<tr>
<td>Kurtosis</td>
</tr>
<tr>
<td>Std. Error of Kurtosis</td>
</tr>
<tr>
<td>Minimum</td>
</tr>
<tr>
<td>Maximum</td>
</tr>
</tbody>
</table>

**Hypotheses Test**

The first hypothesis: there is a significant relationship between accounting earnings and return on assets in the companies listed in Tehran stock exchange.

This hypothesis can be written based on statistical hypotheses as follows:

\[ H_0: \text{There is no significant relationship between the variables.} \]

\[ H_1: \text{There is a significant relationship between the variables.} \]

If \((p\text{-value})\) is greater than the desired alpha error of 5%, the coefficient obtained is not significant, and \(H_0\) hypothesis cannot be rejected. Similarly, if \((p\text{-value})\) is smaller than desired alpha error, the coefficient obtained is significant and \(H_0\) hypothesis is rejected. Interpretation of the correlation results using Table 2 are as follows:

<table>
<thead>
<tr>
<th>Table 2. First hypothesis test results.</th>
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</thead>
<tbody>
<tr>
<td>Income</td>
</tr>
<tr>
<td>Pearson Correlation</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
</tr>
<tr>
<td>N</td>
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</tbody>
</table>

**Correlation is significant at the 0.01 level (2-tailed).**

According to the above table, the significance level of the variables is smaller than the error (\(Sig < 0.05\)). So there is a significant relationship between accounting earnings and return on assets in the companies listed in Tehran stock exchange at the confidence level of 95%.

The second hypothesis: there is a significant relationship between accounting earnings and return on equity in the companies listed in Tehran stock exchange.

This hypothesis can be written based on statistical hypotheses as follows:

\[ H_0: \text{There is no significant relationship between the variables.} \]

\[ H_1: \text{There is a significant relationship between the variables.} \]

If \((p\text{-value})\) is greater than the desired alpha error of 5%, the coefficient obtained is not significant, and \(H_0\) hypothesis cannot be rejected. Similarly, if \((p\text{-value})\) is smaller than desired alpha error, the coefficient obtained is significant and \(H_0\) hypothesis is rejected. Interpretation of the correlation results using Table 3 are as follows:

<table>
<thead>
<tr>
<th>Table 3. First hypothesis test results.</th>
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<tbody>
<tr>
<td>Income</td>
</tr>
<tr>
<td>Pearson Correlation</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
</tr>
<tr>
<td>N</td>
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</tbody>
</table>

**Correlation is significant at the 0.01 level (2-tailed).**
According to the above table, the significance level of the variables is smaller than the error (Sig < 0.05). So there is a significant relationship between accounting earnings and return on assets in the companies listed in Tehran stock exchange at the confidence level of 95%.

The third hypothesis: there is a significant relationship between accounting earnings and earnings per share in the companies listed in Tehran stock exchange.

This hypothesis can be written based on statistical hypotheses as follows:

$H_0$: There is no significant relationship between the variables.

$H_1$: There is a significant relationship between the variables.

If (p-value) is greater than the desired alpha error of 5%, the coefficient obtained is not significant, and $H_0$ hypothesis cannot be rejected. Similarly, if (p-value) is smaller than desired alpha error, the coefficient obtained is significant and $H_0$ hypothesis is rejected. Interpretation of the correlation results using Table 4 are as follows:

### Table 4. First hypothesis test results.

<table>
<thead>
<tr>
<th></th>
<th>Income</th>
<th>EPS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Income</td>
<td>Pearson Correlation</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed)</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>315</td>
</tr>
<tr>
<td>EPS</td>
<td>Pearson Correlation</td>
<td>0.962**</td>
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<tr>
<td></td>
<td>Sig. (2-tailed)</td>
<td>0.000</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>315</td>
</tr>
</tbody>
</table>

**Correlation is significant at the 0.01 level (2-tailed).

According to the above table, the significance level of the variables is smaller than the error (Sig < 0.05). So there is a significant relationship between accounting earnings and return on assets in the companies listed in Tehran stock exchange at the confidence level of 95%.

The fourth hypothesis: there is a significant relationship between accounting earnings and Tobin’s Q in the companies listed in Tehran stock exchange.

This hypothesis can be written based on statistical hypotheses as follows:

$H_0$: There is no significant relationship between the variables.

$H_1$: There is a significant relationship between the variables.

If (p-value) is greater than the desired alpha error of 5%, the coefficient obtained is not significant, and $H_0$ hypothesis cannot be rejected. Similarly, if (p-value) is smaller than desired alpha error, the coefficient obtained is significant and $H_0$ hypothesis is rejected. Interpretation of the correlation results using Table 5 are as follows:

### Table 5. First hypothesis test results.

<table>
<thead>
<tr>
<th></th>
<th>Income</th>
<th>TOBIN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Income</td>
<td>Pearson Correlation</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed)</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>315</td>
</tr>
<tr>
<td>TOBIN</td>
<td>Pearson Correlation</td>
<td>-0.054</td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed)</td>
<td>0.343</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>315</td>
</tr>
</tbody>
</table>

According to the above table, the significance level of the variables is greater than the error (Sig < 0.05). So there is no significant relationship between accounting earnings and return on assets in the companies listed in Tehran stock exchange at the confidence level of 95%.

**CONCLUSION**

To date, many researches have been carried out in most of the areas related to the Stock Exchange in Iran, but what has been less studied is addressing the serious researches on the performance indicators in Tehran Stock Exchange. In most countries, the knowledge of managers’ process in the stock exchange has been always an important issue. The researchers in most countries undertake considerable efforts to investigate financial measures and subsequently the effect of these factors on the price of securities; because they affect the...
investment decisions of the investors in the market. In addition, financial investigators are trying to explain and find the causes of specific cases with the help of other sciences, such as psychology, social sciences and physics. In this study, the relationship between indicators of financial performance measurement of the companies listed in Tehran Stock Exchange, and it was concluded that accounting earnings have positive and significant relationship with ROA and ROE and also EPS. This is despite the fact that there is no relationship between accounting earnings and Tobin’s Q. These results are consistent with the findings of Smith and Begmann (2011), Mahdavi and Ghorbani (2012).

**Applicable Recommendations**

Regarding the capabilities of financial measures in managers’ performance measurement and assessment, it is recommended to use these indicators together with other indicators (such as economic value added, earnings before interest and taxes EBIT, net profit, etc.) in order to evaluate the performance of managers as well as the actual value of the companies. Given to the two aspects of finance method and also inefficiency or efficacy of the processes in the companies, it is recommended for the shareholders and investors to consider these criteria before any decision- making as an efficient indicator to evaluate the performance of managers as well as the actual value of the companies.

**Conflict of interest**

The authors declare no conflict of interest

**REFERENCES**


