Investigating the Relation between Market Ratios and Stocks Short-Time Revenue in Tehran Stock Market
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ABSTRACT
This study aims to investigate the relation between the correlation of stock short-time revenue and the market ratios and also to study the relation between variables of this research in Tehran stock market. The volume of statistical society included 155 companies which 60 out of them were selected as samples. In order to determine the hypothesis data normality, the Colmogrove-Smiernove test has been used. Using multiple linear regressions the linear relation of variables has been tested. In this study, we also implemented the correlation coefficient test. The results of this study show that there is no significant relation between remarked variables P/E, EPS, P/B and stock output. And the changes in P/E, EPS, P/B ratio is opponent with the changes in stock short-time revenue.

Keywords: stock short-time revenue, the price to interest ratio, interest of each stock, the market value to registry value.

1. Introduction

Various stock companies like value makers, investors, government and even the managers, are investigating the matter of large stock companies emersion and the vast issue of ownership and management separation and some huge revenue conflict between owners and managers who investigate the companies and their managers and leaders functions. The amount of increase in worth by increasing the price and value of the company or by the means of revenues is important. By separating the ownership and management, in order to investigate the company managers and their functionality and also in order to compensate them, some significant scales like total income, functionality interest, total interest, stocks short-time revenue, value added, Tobin Q and etc., should be considered. The commercial units have to gain sufficient interest to provide the investors expected revenue, to absorb invests and encourage the investors. The most important parameter to make investment in some company includes the income and therefore the interest. Supposing a continuous
success, the companies with large interests might encounter with an increase in offers to buy stocks and therefore an increase in the price of stocks or conversely.

According to explains mentioned above, finding the correlation between stocks short-time revenue and market rates, this study aims to investigate the correlation between variables of this research.

2. Problem and Research Necessity

Investigating the price and revenue condition in past, some expectable influence is anticipated in price and revenue future. In such a market, the price and revenue are influenced by different variables including the companies' financial and economical variables (Raee & Pooyanfar, 2004). Investing in stock market is some essential necessity in economical process and improvement of some country and this resulted in many financial researches toward predicting the price or stock revenue in various markets (Hendriksen, 2005).

3. History

In some research conducted to investigate the relation between the profitability and stocks revenue ratio, in has been found that some ratio like properties revenue, stock owners' salary and the profit margin had positive relation with stock revenue (Mehrani & Mehrani, 2003). The results showed that the revenue of assets (ROA) has more effect on predicting the stock revenue than the other variables. In 1998, Punti and Eschel conducted some study related on the ability of B/M ratio in predicting the stock revenue. This study investigated the relation between stock revenue and registry value ratio to market value, based on the industry standards average (Dow Jones index). The results show that this variable could predict the revenue better that the other variables like the revenue divided on the price of each stock and the interest rate.

The financial ratios could insist the users at least to investigate the company's past and present results. One of the consequences resulted from accounting evolutionary path, using the financial ratio in order to analyze and making decisions. These ratios are backed to late 19s century and since then the analyzers developed the financial ratios. Today, analyzing the financial ratio is considered as some proper instrument to investigate the financial function, analyze the customers' credibility and determine stock value (Gorganlidoji & Noravesh, 2003).

The financial proportion of mathematics for two or more financial numerators or other financial data resources (the stock price which is resulted from stocks and) is illustrated as \( x/y \). Analyzing the ratios, the figures could be comparable and the problem in making results could be solved on the basis of absolute values (Conner, 1974).

Investors, managers and value makers consider some special scales to investigate the commercial sector's functionality. Analyzing the financial ratio is known as the first step to investigate the companies for investors. Although the accounting roots are the same in all countries, the accounting systems in various countries are different. Even the company accounting systems in various industries of some country have some differences (Talebi, 1993). These differences are resulted from the rules and orders, the ability of managers and accountants to choose various methods and different structures in financial security in
companies and etc. Serano Kenica et al (2005) believe that the financial ratio is highly influenced by the size of company. Also, the ratios in some country to another one are different and incomparable for the companies with equal sizes. The country is of course is more considerable than the size of the company. In other words, they found that the difference in financial ratios for various companies by the same sizes is less than the difference of financial ratios in companies with the same sizes in various countries (Serranocinen & et al, 2005).

Also, the financial ratios are naturally limited resulted from some objections on financial lists valuation. These limitations are often related to the reporting on the base of historical value and ignoring the current value of money, multiple accounting methods and … that should be considered when implementing and comparing the ratios (Eezadipanah, 1999).

Many researches including Lewellen, (2004) and Bae, & Kim, (1998) showed the correlation between these ratios and stock revenue in America and Japan stock markets, respectively. It is foreseen that the ratios mentioned above are more predictable in modern stock markets like Tehran which have been rejected for their weak functionality in different periods, by some researchers namely Emamai (1990), Fadaei Nejad (1995), Namazi (1996). The researches in stock market investigate the probable effect of financial and accounting information on price or the stock revenue. The financial researches could offer some models for investors to make decisions. Model is one way to help people to have an equal insight on phenomena. Altman (1964), Bior (1967), Dicken (1972) and Bloom (1974), offered the first models in accounting and financial managing fields (Mramor, & Pahor, 1998). The predictors are always trying to find the price predictor models in order to benefit from their invests in proper investing situations. These models are not durable because passing the time, as a result of being implemented by many investors and users; they lost their usefulness (Timmermann, & Granger, 2008). So, some newer investments should be conducted to discover new and modern models. Since the very early of the investment, Ball & Brown (1968) and Beaver (1968) and many other researchers have considered on investigating the importance of the financial lists data effect on the market.

For the first time in Asia, in Japan stock market, the linear relation between stocks revenue and financial was tested by Ou & Penman, (1989) and the statistical methods were used to analyze the results. Olson in his two studies in 1990 and 1995 conducted some experimental studies on investigating the relation between accounting figures and stock price. Others followed him and introduced different methods of statistical and non-statistical analyze in their studies. Also, Chui & Wei (1998) investigated the relation between expected revenue and Beta ($\beta$) risk, the ratio of registry value to stock market value $B/M$ and the value of company in five markets from Pacific Ocean. They found that the relation between Beta revenue was weak in all markets. But, the ratio of $B/M$ illustrated the revenue in stock markets of Hong Kong, Korea and Malaysia. However, there was some significant relation between the company value and stock revenue in all markets apart from Taiwan.

4. Other Internal and External Researches

- The effect of financial variables on stock revenue in markets of East Asia (Ting Lau & et al, 2002).
- The relation between the ratio of profitability and stocks additional revenue (Bartholdy, 2002).
- The relation between financial ratios and stock market in Hong Kong stocks (Lam, 2002).
- The model of economics to evaluate stocks (Sim, 2000).
- The ability to predict the stock revenue with non-linear models (Kanas & Yannopoulos, 2001).
- The linear and non-linear relations between revenue and financial ratios (Omran & Rajab, 2002).
- The relation between the ratios of liability and stocks revenue (Janathan Loilin, 2004).
- The accrual and cash financial ratios efficiency in predicting the stock revenue (Gorganlidoji, Noravesh, 2003).
- The relation between the ratios of profitability and stock revenue in Tehran stock market (Mehrani & Mehrani, 2003).
- The relation between Functionality and profit sharing (Etemadi & Chalaki, 2005).

5. Research Hypothesis

Hypothesis 1: There is some significant relation between the ratio of price and profit (P/E ratio) to stock short-time revenue.
Hypothesis 2: There is some significant relation between the profit of each stock (EPS) and stocks short-time revenue.
Hypothesis 3: There is some significant relation between market value and registry value (P/B) with stock short-time revenue.

6. Variables

In this research, the relation between market ratios will be studied as independent variable \(X_i\) with stock short-time revenue \(Y\). The stock short-time revenue is the dependant variable and has been selected to limit the number of independent variables from 3 market ratios. The variables include:
The ratio of profit price (P/E)
The profit of each stock (EPS)
The ratio of market value to registry value (the P/B ratio)

6.1 Independent Variables

Investors and stock holders usually consider the market price and the related ratios, because the investor should pay the market price to gain the stocks of some company. These ratios are composed of financial lists and market data and in fact it could be said that the market ratios are some the profit. This group includes the ratios related to the stock profit. Many studies like Lewellen (2004) and Bae & Kim (1998), in America and Japan stock markets showed the correlation between these ratios and stock revenue. It is predicted that the ratios mentioned in modern stock markets like Tehran which were rejected for their low efficiency in various periods by some researchers like Emami (1990), Fadaei Nejad (1995), Namazi (1996), are more predictable.
6.2 Dependant Variable

Revenue is simply the total revenue that the investor will gain during one period of investment. The revenue rate shows the speed of increase or decreases in investors' assets and is shown in percentage of primary investment. By stock revenue we mean the advantages gained during the financial year for some specific stock. Having a glance on investors who invest on different companies' stocks, we will find two kinds of expected profits, one cash profit that is paid by the company which receives invests and this kind of profit is naturally expected for the people who want less risks. It should be noted that, this kind of profit will export the cash from the company and will balance the company stocks, because it weakens the stocks basis. The other one is resulted from an increase in stocks value that will happen after the price changes as a result of some factors like remained profit, the increase in the request offer, the economical and political problems and many groups consider this revenue because:

1. They are more risk taker
2. They profit from this revenue by making some continuous connection with stocks market and being informed from undulations in buying and selling prices.

The stocks revenue could be calculated as follows:

\[ \text{Stock revenue} = \text{stocks cash revenue} + \text{stocks price changes revenue} \]

Based on the equation mentioned above, we find that the investors in group one gain more stock cash revenue and less stock price changing revenue and for the investors in group two the opposite is true. The main problem in this scale as an investigation scale is that the stock revenue and essentially the part of stock price changing revenue is resulted from the factors namely external ones and this is not under the control of management, so taking the responsibility of some uncontrollable factor seems unreasonable. The other problem is of course the lack of using accounting analyzing data which is highly reliable therefore more confident than market data. Among the other problems affecting on this scale is some data asymmetry in different levels.

7. Research Method

This is an apply research and the Methods of data analysis, descriptive, survey and the method used is a correlative one. The society studied in this research includes whole the companies accepted in Tehran stock market except for the investor companies. 60 members of statistical society were selected with removal of systematic screening method among various industrial groups. The information needed to study the relation between variables in research are classified and gathered from documents existed in exchange department (Dena Sahm software, Rah Avard-e-Novin, Pars Portfolio). In this research, the market ratios are considered as independent variables and stocks short-time revenue is considered as dependant variable.

Hypothesis is analyzed in four steps:

1. Kolmogrove-Esmironove test to determine the data normality
2. Variables linear relation, using multiple linear regression
3. Correlation coefficient test
4- The results of analyzing the data

Table 1: Investigating the variables data normality

<table>
<thead>
<tr>
<th>Year</th>
<th>Stocks short-time revenue significance level</th>
<th>EPS significance level</th>
<th>P/E significance level</th>
<th>P/B significance level</th>
<th>Data Normality</th>
</tr>
</thead>
<tbody>
<tr>
<td>2005</td>
<td>0.102</td>
<td>0.334</td>
<td>0.234</td>
<td>0.035</td>
<td></td>
</tr>
<tr>
<td>2006</td>
<td>0.504</td>
<td>0.226</td>
<td>0.223</td>
<td>0.041</td>
<td></td>
</tr>
<tr>
<td>2007</td>
<td>0.322</td>
<td>0.072</td>
<td>0.072</td>
<td>0.344</td>
<td></td>
</tr>
<tr>
<td>2008</td>
<td>0.436</td>
<td>0.662</td>
<td>0.667</td>
<td>0.914</td>
<td></td>
</tr>
<tr>
<td>2009</td>
<td>0.214</td>
<td>0.799</td>
<td>0.773</td>
<td>0.823</td>
<td></td>
</tr>
</tbody>
</table>

About the variables (P/E ratio, EPS, P/B ratio and stock short-time revenue), the results of SPSS showed the data normality.

8. Investigating the Relation between Variables

The correlation coefficient is the best scale to specify the relation or the lack of relation between two or more variables and to show the strength or weakness. While the correlation is just existed between two variables, it is called simple correlation and while it is existed between more than two variables we call it a multiple correlation.

Hypothesis 1: there is some significant relation between stock short-time revenue and P/E ratio and the results could be illustrated as follows:

Table 2: The stock short-time revenue correlation and P/E in 2005 - 2009

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of sample (n)</td>
<td>60</td>
<td>60</td>
<td>60</td>
<td>60</td>
<td>60</td>
</tr>
<tr>
<td>Degree of freedom (n-2)</td>
<td>58</td>
<td>58</td>
<td>58</td>
<td>58</td>
<td>58</td>
</tr>
<tr>
<td>The evaluated Student t</td>
<td>0.206</td>
<td>0.136</td>
<td>0.0362</td>
<td>0.265</td>
<td>0.249</td>
</tr>
<tr>
<td>The table t</td>
<td>2.064</td>
<td>2.064</td>
<td>2.064</td>
<td>2.064</td>
<td>2.064</td>
</tr>
<tr>
<td>The line measure (α)</td>
<td>0.05</td>
<td>0.05</td>
<td>0.05</td>
<td>0.05</td>
<td>0.05</td>
</tr>
<tr>
<td>Pierson correlation coefficient</td>
<td>-0.044</td>
<td>-0.029</td>
<td>0.088</td>
<td>0.0221</td>
<td>0.053</td>
</tr>
<tr>
<td>Determination coefficient</td>
<td>0.0019</td>
<td>0.0008</td>
<td>0.0077</td>
<td>0.0533</td>
<td>0.0028</td>
</tr>
</tbody>
</table>

As we see in table illustrated above, in 2006 the P/E ratio with the correlation amount of 0.221 has the highest level of relation with the stock short-time revenue. As it can be seen, the Pierson correlation coefficient for 2005-2009, is straight during the years 2005-2007 and inversed during the years 2008 and 2009. So, regarding the amount of evaluated t which is less than the t existed in table, we can see that the zero thesis is accepted in confident level of
95% and there is no significant correlation between stock revenue and P/E ratio in various years.

Hypothesis 2: There is some significant relation between stock short-time revenue and EPS and the results are shown in the following table, briefly.

Table 3: The stock short-time revenue correlation and P/E in 1384 and 1388

<table>
<thead>
<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>Number of sample (n)</td>
<td>60</td>
<td>60</td>
<td>60</td>
<td>60</td>
<td>60</td>
</tr>
<tr>
<td>Degree of freedom (n-2)</td>
<td>58</td>
<td>58</td>
<td>58</td>
<td>58</td>
<td>58</td>
</tr>
<tr>
<td>The evaluated Student t</td>
<td>0.201</td>
<td>0.192</td>
<td>0.366</td>
<td>1.108</td>
<td>0.253</td>
</tr>
<tr>
<td>The table t</td>
<td>2.064</td>
<td>2.064</td>
<td>2.064</td>
<td>2.064</td>
<td>2.064</td>
</tr>
<tr>
<td>The line measure (α)</td>
<td>0.05</td>
<td>0.05</td>
<td>0.05</td>
<td>0.05</td>
<td>0.05</td>
</tr>
<tr>
<td>Pierson correlation coefficient</td>
<td>-0.043</td>
<td>0.041</td>
<td>0.078</td>
<td>0.0230</td>
<td>0.054</td>
</tr>
<tr>
<td>Determination coefficient</td>
<td>0.0018</td>
<td>0.0016</td>
<td>0.0060</td>
<td>0.0059</td>
<td>0.0029</td>
</tr>
</tbody>
</table>

As it could be seen in table above, in 2006 EPS with correlation amount of 0.230, has the highest relation with stock short-time revenue. And as we see, the Pierson correlation coefficient for 2005-2009, during the years 2005-2008 the point is straight and it is inversed in 2009. Therefore, considering the amount of evaluated t in compare with t in table, the zero thesis is accepted in confident level of 95% and there is no linear relation between stock short-time revenue and EPS in different years.

Hypothesis 3: There is some significant relation between stock short-time revenue and the results are shown in the following table, briefly.

Table 4: The stock short-time revenue correlation and P/E in 2005-2009

<table>
<thead>
<tr>
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<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>Number of sample (n)</td>
<td>60</td>
<td>60</td>
<td>60</td>
<td>60</td>
<td>60</td>
</tr>
<tr>
<td>Degree of freedom (n-2)</td>
<td>58</td>
<td>58</td>
<td>58</td>
<td>58</td>
<td>58</td>
</tr>
<tr>
<td>The evaluated Student t</td>
<td>0.648</td>
<td>0.0845</td>
<td>0.519</td>
<td>0.348</td>
<td>0.239</td>
</tr>
<tr>
<td>The table t</td>
<td>2.064</td>
<td>2.064</td>
<td>2.064</td>
<td>2.064</td>
<td>2.064</td>
</tr>
<tr>
<td>The line measure (α)</td>
<td>0.05</td>
<td>0.05</td>
<td>0.05</td>
<td>0.05</td>
<td>0.05</td>
</tr>
<tr>
<td>Pierson correlation coefficient</td>
<td>-0.137</td>
<td>0.018</td>
<td>0.110</td>
<td>0.074</td>
<td>0.051</td>
</tr>
<tr>
<td>Determination coefficient</td>
<td>0.0187</td>
<td>0.00032</td>
<td>0.0121</td>
<td>0.0054</td>
<td>0.0026</td>
</tr>
</tbody>
</table>
As it is illustrated in table above, during the years 2005 to 2009 the stock short-time revenue has a weak correlation with the P/E ratio and as we can see the Pierson correlation coefficient for the years 2005 to 2008 the trend is straight and it is inversed for 2009. So, according to the amount of evaluated t in compare with t in the table, we see that the zero thesis is accepted in confident level of 95% and there is some significant relation between stock short-time revenue and the P/B ratio in different years.

9. Conclusion

After gathering the needed information, (P/E, EPS, P/B) market ratios, the sample companies were selected and the correlation was measured using the Pierson correlation coefficient, and then the Student t test with freedom degree of n-2 and confident level of 95% were implemented to make the relation between these market ratios significant. As it has been observed, according to the correlation coefficient and regarding the evaluated t in compare with the t in the table, for the three theories mentioned, the zero thesis is accepted and therefore the research shows no significant relation between the variables mentioned including P/E, EPS and P/B and stock revenue.

References


