The Investigation of the Relation between Changes in Financial Ratios with Changes in Stock Returns on the Tehran Stock Exchange

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ABSTRACT

For absorbing capital and encouraging investors, the commercial units have to obtain enough profit for providing expected yield of the investors. Since the source of many people need to assess finally, they decided on annual financial statements and financial ratios of the company, the purpose of this study, changes in financial ratios with stock returns of companies listed on the Stock Exchange of Tehran. The study included Companies listed on the Tehran Stock Exchange and a sample of 53 companies from various industries in the years 2006 until 2010. Hypotheses using tests Kolmogorov Smirnov, Independent T-test and Pearson correlation were in the plant results indicate a significant correlation between changes in weak liquidity ratios (current and instantaneous) changes in profitability ratios (gross profit to sales and profits) changes in the stock market is efficient. Finally, the regression models considering the effective variables were fitted.

KEYWORDS: Variation in stock returns, liquidity ratios, market profitability.

INTRODUCTION

One of the main tools for expanding and deepening the capital market, the market level analysis without extensive and comprehensive research and analysis on the capital markets [1]. We cannot expect to grow its position in the national economy [2]. Summary of developments in Tehran Stock Exchange, as the main pillars of the market consists of capital in the economy which dominates the market is always a gap analysis. But in recent years, a promising step toward using international criteria and standard methods for the analysis of our capital markets has been removed [3]. However, it is still ideal to analyze the capital market, there is a huge gap and great space to work in this field. If investors to invest without regard to a series of factors and they will be good results from investment income [4]. One of the factors that investors - investors should consider their investment returns are achieved. So we can say that the fundamental purpose of private investors, including investors in common stock, the profit and efficiency. Stock returns depend on two factors: changes in the stock price at the end of the first period and the dividend is received. In any type of investment [5]. Investors seeking investment returns and tries to get information from the future stock returns [6]. However, earnings per share are one of the ways in which the information content of the internal situation of the company offers. Stock returns are influenced by several factors. Gingham can get more detailed financial ratios of the changes in the components of the major factors is the change in stock returns [7]. Considering the factors that affect stock returns can be Provides useful information to investors and corporate executives diverse information needs of users financial information company cause their analysis of financial information, used various methods to each group of users, depending on their needs certain methods of their choice. Easy way to calculate ratio according to financial reports has led many researchers such as Lee Jimenez to pay to examine the relationship between financial ratios and stock characteristics (coefficient B, stock price, and return on equity) [8]. Most research in the field of financial ratios, stock returns have been doing. The aim of this study was to compare the changes associated with changes in the financial ratios of listed companies in Tehran Stock Exchange is a stock.

2 - RESEARCH METHODOLOGY

This study is a descriptive correlation regression analysis. The aim of the study Limits are placed on applied research. Therefore, the results obtained can be used manager’s financial analysts and shareholders. The type of data

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collected, this is a finding. To test the hypothesis of information about companies listed in Tehran Stock Exchange has been used. The argument of analogy - is inductive because the theoretical framework and background for the comparative study of library practices, review articles and Internet.

3 - Population and sample

Population is all listed companies Tehran Stock Exchange, which has worked since 2006 to end of 2010 are in stock and have the following features.

1 - This financial year to the end of March.
2 - Businesses should make their fiscal year during the period in question have changed.
3 - Information on the variables selected in this study possesses.
4 - During the course of buying and selling stocks.

The number of listed companies in Tehran Stock Exchange 250 companies qualified for selection as the population was considered. Given the above limitations, the number of listed companies in Tehran Stock Exchange 250 companies qualified for selection as the population was considered.

Given the above limitations, given the above limitations, 250 of the Companies the target population finally, 53 companies who were selected as samples. Selected sample size was calculated using the following formula:

\[ n = \frac{[Z_{a/2}]^2 \times p \times q \times N}{(N-1) \times E^2 + [(Z_{a/2})^2 \times p \times q]} \]

N: Population size  
\( n \): Sample Size  
P: success  
q: failure  
Z: Changing the standard normal distribution  
E: Estimation error

In similar studies the confidence interval 0/95 and the estimation error of 0/12 are considered

The study also estimated the error in the 0/12 and a confidence interval of 0/95 consider. Population size of 250 is equal to the volume of the sample is calculated as follows:

\[ n = \frac{(1/96)^2 \times 0/5 \times 0/5 \times 250}{249 \times (0/12)^2 + [(1/96) \times 0/5 \times 0/5]} \approx 53 \]

It can be seen in 0/95With error 0/12should be selected 53 this result can be generalized to the entire sample of firms listed in Tehran Stock Exchange for the period under examination 2006 – 2010.

4 - Method of data collection

Information needed to conduct library research methods and data variables the financial statements of companies and databases banking portfolio, prudence and Dena share the collection has been obtained.

5 - Research Findings

A: Descriptive statistics

In the first step of data analysis, descriptive statistics of the data is calculated. Descriptive statistics describes a collection of observations about some of the statistics that are discussed Statistical inference from it without being

In fact, descriptive statistics section, which examines the properties (parameters)Population census through deals table of descriptive statistics in table 2 shows the descriptive parameters for each variable separately and can be set for many years.
Table 1: Descriptive statistics

<table>
<thead>
<tr>
<th>Variable name</th>
<th>Number</th>
<th>Maximum</th>
<th>Minimum</th>
<th>Range of variation</th>
<th>Mean</th>
<th>Standard deviation</th>
<th>Skewness</th>
<th>Elongation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current ratio</td>
<td>265</td>
<td>204.83</td>
<td>140</td>
<td>-344.83</td>
<td>7</td>
<td>0.3242</td>
<td>0.172</td>
<td>1.463</td>
</tr>
<tr>
<td>Ratio Fast</td>
<td>265</td>
<td>124.87</td>
<td>93.91</td>
<td>-218.78</td>
<td>13.085</td>
<td>-0.0000</td>
<td>0.012</td>
<td>1.012</td>
</tr>
<tr>
<td>Margin to Buy</td>
<td>265</td>
<td>368.30</td>
<td>354.4</td>
<td>-722.68</td>
<td>10.176</td>
<td>-0.0000</td>
<td>0.071</td>
<td>1.23</td>
</tr>
<tr>
<td>Profit on sale</td>
<td>265</td>
<td>200.09</td>
<td>150</td>
<td>-350.09</td>
<td>6</td>
<td>-0.0000</td>
<td>0.069</td>
<td>1.62</td>
</tr>
<tr>
<td>Earnings per share</td>
<td>265</td>
<td>160</td>
<td>265</td>
<td>-425</td>
<td>9.5</td>
<td>-0.0000</td>
<td>0.079</td>
<td>0.90</td>
</tr>
<tr>
<td>Price to earnings</td>
<td>265</td>
<td>320</td>
<td>234.4</td>
<td>-554.4</td>
<td>12</td>
<td>-0.0000</td>
<td>0.071</td>
<td>-.371</td>
</tr>
<tr>
<td>Returns</td>
<td>265</td>
<td>349</td>
<td>295.36</td>
<td>-644.36</td>
<td>11.43</td>
<td>-0.0000</td>
<td>0.081</td>
<td>-0.150</td>
</tr>
</tbody>
</table>

(B) Test data normality Kolmogorov test for normal data - used to summarize the results of these tests are given in Table 2.

Table 2: Kolmogorov – Smirnov test for normally distributed variables

<table>
<thead>
<tr>
<th>Result</th>
<th>P-value</th>
<th>Statistics of the Kolmogorov - Smirnov</th>
<th>Number</th>
<th>Variable name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal</td>
<td>0.0077</td>
<td>1/275</td>
<td>265</td>
<td>Current ratio</td>
</tr>
<tr>
<td>Normal</td>
<td>0.0062</td>
<td>1/319</td>
<td>265</td>
<td>Ratio Fast</td>
</tr>
<tr>
<td>Normal</td>
<td>0.0066</td>
<td>1/307</td>
<td>265</td>
<td>Margin to Buy</td>
</tr>
<tr>
<td>Normal</td>
<td>0.0071</td>
<td>1/225</td>
<td>265</td>
<td>Profit on sale</td>
</tr>
<tr>
<td>Normal</td>
<td>0.0069</td>
<td>1/302</td>
<td>265</td>
<td>Earnings per share</td>
</tr>
<tr>
<td>Normal</td>
<td>0.0079</td>
<td>1/290</td>
<td>265</td>
<td>Price to earnings</td>
</tr>
<tr>
<td>Normal</td>
<td>0.0065</td>
<td>1/304</td>
<td>265</td>
<td>Returns</td>
</tr>
<tr>
<td>Normal</td>
<td>0.0081</td>
<td>1/267</td>
<td>265</td>
<td>Residuals</td>
</tr>
</tbody>
</table>

Since the P-value for each of the variables at a confidence level greater than 0.05 (P.Value>0.05) is obtained, it can be concluded that the variables have a normal distribution.

(C) Test the research hypotheses
First hypothesis:
There is a relationship between changes in liquidity ratios (current and instantaneous) changes stock returns.
Hypothesis H0: There is no relationship between stock returns and current ratio changes.
Hypothesis H1: There is a relationship between stock returns and current ratio changes.
Hypothesis H0: There is no relationship between stock returns changes and shifts instantaneous.
Hypothesis H1: There is a relationship between stock returns changes and shifts instantaneous.

Table 3: results of hypothesis testing

<table>
<thead>
<tr>
<th>Linear relationship</th>
<th>Sig F</th>
<th>F</th>
<th>s(i)(β)</th>
<th>s(i)(α)</th>
<th>t</th>
<th>r² Coefficient of determination</th>
<th>Slope of the line (β)</th>
<th>Intercept (α)</th>
</tr>
</thead>
<tbody>
<tr>
<td>There is a relationship</td>
<td>0.025</td>
<td>8.635</td>
<td>0.025</td>
<td>0.778</td>
<td>4.654</td>
<td>0.043</td>
<td>0.208</td>
<td>0.0956</td>
</tr>
</tbody>
</table>
Statistic F 8 / 635 are larger than F table. Sig F to 0/025, which is less than 0/05. And 0/95, indicating a linear relationship between variables, independent and dependent, i.e., changes liquidity ratio (current) and changes in efficiency shares according to the analysis of variance model is significant and may to the model said. Thus be concluded that the changes liquidity ratio (current) and changes in stock returns significantly. Ratio of 0/043 that is a 4.3% change in stock returns can be explained by the variable liquidity ratios sig (β) 0/025, which is less than 0/05 with 0/95 indicates the significance of the coefficient β of the variables that indicate rejection of the hypothesis H₀ with 95% confidence and acceptance of the hypothesis H₁. So it can be concluded that the significant case study Significant differences between changes in liquidity ratios (current), and there are significant changes in stock returns, there is a significant results obtained from these tests can be accepted namely: Hypothesis H₁: there is a significant change in liquidity ratios (current) and changes in stock returns thus, table 4 shows the relationship between changes in liquidity ratios (the real) stock returns and changes such a model would be:

<table>
<thead>
<tr>
<th>Linear relationship</th>
<th>Sig F</th>
<th>F</th>
<th>sig(β)</th>
<th>sig(α)</th>
<th>t</th>
<th>Coefficient of determination</th>
<th>The correlation coefficient α</th>
<th>Slope of the line (β)</th>
<th>Intercept (α)</th>
<th>year</th>
</tr>
</thead>
<tbody>
<tr>
<td>There is a relationship</td>
<td>0/004</td>
<td>8/5</td>
<td>0/004</td>
<td>0/652</td>
<td>1/92</td>
<td>0/012</td>
<td>0/109</td>
<td>0/713</td>
<td>0/000</td>
<td>All years</td>
</tr>
</tbody>
</table>

Statistic F 8 / /5 are larger than F table. Sig F the 0/004 that is less than 0/05 and 0/95, indicating a linear relationship between variables, independent and dependent, i.e., changes liquidity ratio (current) and changes is the return on equity. According to analysis of variance model is significant, and can be fitted to the model. Thus be concluded that the changes liquidity ratio, and there are significant changes in stock returns. Ratio of 0/012 is a 1.2% change in stock returns can vary liquidity ratio explained. Sig (β) 0/004, which is less than 0/05 with 0/95 indicates the significance of the coefficient β of the variables that indicate rejection of the hypothesis H₀ with 95% confidence and acceptance of the hypothesis H₁. So it can be concluded that the significant difference between the studies of changes in the cash and there are significant changes in stock returns. The results obtained from these tests can be adopted, namely: hypothesis H₁: liquidity ratio changes and there are no significant changes in stock returns. Second hypothesis test
A) statistical hypothesis: There is a significant relationship between changes in profitability (profit margin sales) stock returns and shifts.
To test the first hypothesis of the model (1) and used to test two hypotheses H₀ and H₁ the hypothesis that the following offer:
Hypothesis H₀: there is a no significant relationship between stock returns and shifts the margin to sell.
Hypothesis H₁: there is a significant relationship between stock returns meaningful changes and shifts the margin to sell.
Hypothesis H₂: there is a no significant relationship between stock returns and shifts sales ratio changes.
Hypothesis H₃: there is a significant relationship between stock returns and shifts changes to sales ratio. The second hypothesis tests the relationship between changes in the profitability ratios (gross profit to sales ratio) and changes in stock returns for the years 2006-2010

<table>
<thead>
<tr>
<th>Linear relationship</th>
<th>Sig F</th>
<th>F</th>
<th>sig(β)</th>
<th>sig(α)</th>
<th>t</th>
<th>Coefficient of determination</th>
<th>The correlation coefficient α</th>
<th>Slope of the line (β)</th>
<th>Intercept (α)</th>
<th>year</th>
</tr>
</thead>
<tbody>
<tr>
<td>There is a relationship</td>
<td>0/012</td>
<td>6/339</td>
<td>0/012</td>
<td>0/750</td>
<td>2/579</td>
<td>0/024</td>
<td>0/153</td>
<td>0/553</td>
<td>0/000</td>
<td>All years</td>
</tr>
</tbody>
</table>

Statistic F 6 / 339, which is larger than F table. Sig F to 0/012, which is less than 0/05 and 0/95, indicating a linear relationship between variables, independent and dependent, i.e., changes margin changes in stock returns. According to analysis of variance model is significant, and may to the model said. Thus be concluded that the changes in the margin changes in stock returns significantly. Ratio of 0/024 that is a 2.4% change in stock returns can be explained by varying the ratio of gross income to sales. Sig (β) 0/012, which is less than 0/05 is with 0/95
indicates the significance of the coefficient \( \beta \) of the variables that indicate rejection of the hypothesis \( H_0 \) with 95% confidence and acceptance of the hypothesis \( H_1 \) is there is a no significant relationship between in the study concluded that Significant differences between changes in sales and margin changes are correlated with stock returns. The results obtained from these tests can be adopted, namely: hypothesis \( H_1 \); there is a significant relationship between Change the margin between sales and stock returns change. The second hypothesis tests the relationship between changes in the profitability ratios (the ratio of profit to sales) and stock changes.

<table>
<thead>
<tr>
<th>Linear relationship</th>
<th>Sig F</th>
<th>F</th>
<th>sig(( \beta ))</th>
<th>sigt(( \alpha ))</th>
<th>t</th>
<th>Coefficient of determination ( r^2 )</th>
<th>Slope of the line ( \beta )</th>
<th>Intercept ( \alpha )</th>
<th>year</th>
</tr>
</thead>
<tbody>
<tr>
<td>There is a relationship</td>
<td>0.018</td>
<td>7.231</td>
<td>0.018</td>
<td>0.868</td>
<td>3.171</td>
<td>0.053</td>
<td>0.231</td>
<td>0.855</td>
<td>0.000</td>
</tr>
</tbody>
</table>

Statistic \( F \) 7 / 231 which is larger than \( F \) table is. Sig F to 0/018, which is less than 05/0 and 095, indicating a linear relationship between variables, independent and dependent, i.e., changes in the ratio of profit to sales change stock returns are. According to analysis of variance model is significant, and may to the model said. Thus be concluded that the variation of the ratio of profit to sales change stock returns significantly. Ratio of 0/018 is the1.8% Changes in stock returns can be explained by the variable ratio of sales. Sig (\( \beta \)) 0/012, which is less than 0/05 is with 0/95 indicates the significance of the coefficient \( \beta \) of the variables that indicate rejection of the hypothesis \( H_0 \) with 95% confidence and acceptance of the hypothesis \( H_1 \). So it can be concluded that the significant case study.

Significant differences between changes in sales and changes in stock returns ratio is significant the results obtained from these tests can be adopted, namely:

Hypothesis \( H_1 \): there is a significantly changes to sales ratio of the stock returns change.

Third hypothesis test
A) statistical hypothesis:

There is a relationship between changes in profitability (earnings per share and price earnings) changes stock returns. Test the third hypothesis used for testing the hypothesis that the two hypotheses \( H_0 \) and \( H_1 \), as below we:

Hypothesis \( H_0 \): there is a no significant relationship between changes in stock returns than earnings per share.

Hypothesis \( H_1 \): there is a significant relationship between changes in stock returns than earnings per share.

Hypothesis \( H_0 \): there is a no significant relationship between price-to-earnings ratio changes and shifts in stock returns.

Hypothesis \( H_1 \): there is a significant relationship between price-to-earnings ratio changes and shifts in stock returns.

The third hypothesis tests the relationship between changes in market rates (earnings per share) and changes in stock returns.

In the analysis of variance \( F \) statistic that describes the model is very low and is smaller than the \( F \) tables \( F \) levels significantly higher than the 095 level, which is 0/05, indicates no linear relationship between the dependent and independent variables, the change in earnings per share and return on equity is changing. According to analysis of variance, hypothesis \( H_0 \) is accepted model is not significant. Thus, we can conclude that change in earnings per share and no significant changes in stock return. That does not change any of the information content and cannot be fitted to the model. The correlation coefficient indicates Relationship between the independent and dependent variables and assign the appropriate coefficient of determination which represents the percentage change in the independent variable is the change was very low and showed no relationship between the independent and dependent variables, The change in earnings per share and return on equity is the change \( T \) statistic that describes how the meaningful relationship between independent variables and dependent or \( \beta \) coefficient is hypothesis \( H_0 \) is not rejected, indicating a very low level with 095 and \( H_0 \) hypothesis is accepted. Represents the beta coefficient is zero probability greater than 0/05 is with 0/95 indicates the absence of significant beta coefficient for this variable and indicates rejection of the hypothesis \( H_0 \) accepted. The third hypothesis tests the relationship between changes in income and changes in stock prices.
There is a relationship between changes in stock returns and changes in stock prices. According to the variance analysis, assuming $H_0$ is accepted and the model is not significant, we can conclude that tab more residing between changes in income and changes in the price of the stock returns are not significant. This means that the ratio of price to income changes no information content. The correlation coefficient, which indicates the type of relationship between the independent and dependent variables and the coefficient of determination shows the percentage of explained real variables are subject to change by very low and showed no relationship between the independent variable and function. The changes in income and changes in stock prices are. Statistic $T$, which describes how the meaningful relationship between independent variables and a dependent or beta coefficient is very low, which indicates a failure to reject the hypothesis $H_0$ with a confidence level of 0.05 and by hypothesis $H_0$. Steichen beta indicates beta coefficient is $H_0$ probability of greater than 0.05 with 0.05 indicates not significant beta coefficient for this variable and indicate rejection of the null hypothesis and accept the premise is $H_0$.

6 – Conclusion

The study tested three hypotheses. The hypotheses tested in 53 companies during 2006-2010 were, with the 265 observed. The results of this test are as follows:

First hypothesis: there is a relationship between change in liquidity ratios (current and instantaneous), and changes in stock returns. Test this hypothesis for the current and immediate expression of solidarity with the poor and meaningful order of 0/208 and 0/109 over a five-year deal at 0/95. Namely, the changes liquidity ratio (current and instantaneous) change stock returns are significant. The model also showed a significant test for the current value of Sig (0/025) than $\alpha$ (0/05), as well as a significant test of the model showed that the instantaneous value of Sig (0/004) than $\alpha$ (0/05) is the $H_0$ hypothesis is rejected for both models and idea that changes in liquidity ratios correlated with changes in stock companies listed. So resist the urge to. Second hypothesis: there is a relationship between change in profitability ratios (gross profit to sales and profits to sales) changes in stock returns. To test this hypothesis sales and profit margin ratio to sales. Represents a significant weak correlation to the amount of 0/153 and 0/231 in 95 cases over five years. That is, the changes in profitability (profit margin sales) are correlated with changes in stock returns. Significant test model also showed that the ratio of margin to sell the Sig (0/024) is less than $\alpha$ (0/05) is also significant test model also showed that the ratio of sales value Sig (0/018) than $\alpha$ (0/05) is $H_0$ hypothesis is rejected for both models. Assuming the $H_0$ is rejected. So the idea that the changes in profitability ratios (sales and profit margin on sale) changes listed companies and stock returns are correlated, it is confirmed.

Third hypothesis: there is a relationship between market changes (earnings per share and price earnings), and changes in stock returns. This hypothesis suggests a lack of correlation between test cases for a total of 0/95 I.e., the ratio of market changes (earnings per share, price to earnings), with no significant changes in stock returns. Significant test model also showed that the ratio of earnings per share of Sig (0/871) greater than the value $\alpha$ (0/05) is also significant test model also showed that the ratio of price to income value Sig (0/812) than $\alpha$ (0/05) is Thus, assuming $H_0$ is approved for both models. The $H_0$ hypothesis is confirmed. So the idea that between changes in market rates (earnings per share and price earnings) and stock returns changes listed companies, there is a significant
relationship, though not confirmed, between changes in market rates (earnings per share and price earnings) and stock returns changes listed companies, there is a significant relationship, though not confirmed.

REFERENCES


