Effect of Ownership and Liquidity of the Stock and the Market Value of Companies Listed on Tehran Stock Exchange

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Abstract
The establishment of appropriate corporate governance mechanisms of action for the optimal use of resources improves accountability, transparency, fairness and the rights of all stakeholders in the company. Each of the internal and external mechanisms, processes and monitoring corporate activities and promote accountability and achievement of corporate strategic goals are. One of these mechanisms is the aim of this study the effect of ownership concentration and ownership structure and liquidity of the stock and the market value of companies listed on the Stock Exchange in Tehran. The sample includes 107 companies during the years 1392-1388. Also, multiple regression was used to test hypotheses of significance was performed using the t test and F. Finally, it was found that, between the ownership structure and the company's market value and the market value of the company's cash and and liquidity of the stock there is a significant relationship.

Keywords: percentage of shares held by institutional investors, stock markets, stock turnover index Liquidity index

1. Introduction
It is well known that emerging financial markets are not as liquid as those of advanced economies. The lack of liquidity is regarded as a key factor for the high volatility in emerging markets and a significant impediment to financial market development. The opening of domestic financial markets to international investors, often as part of the overall financial liberalization, was expected to enhance local market liquidity. As elaborated by Stulz (1999), the participation by large international financial institutions would enhance local market liquidity through better information disclosure and more active trading. Although several studies examine emerging market liquidity, yet little prior research exists on the link between financial market liberalization and liquidity.1 Levine and Zervos (1998) and Bekaert et al. (2002) show that liquidity, as measured by the ratios of trading value to GDP and trading value to market capitalization, increased after stock market liberalization in emerging economies. Recently Bekaert et al. (2007) demonstrate a positive effect from the level of openness to foreign investors to liquidity in merging equity markets. To our best knowledge, these are the only studies that address the liquidity impact of financial market opening in emerging markets. Although these studies do not examine the liquidity impact of the actual foreign trading, the link between foreign participation and enhanced liquidity has been used to explain the economic success after market liberalization, e.g. private investment booms (Henry, 2000), lower cost of capital (Bekaert and Harvey, 2000), and greater economic growth (Bekaert et al., 2001). This paper provides direct evidence on the liquidity impact of foreign investments in emerging stock markets.

2. Hypothesis
The hypothesis is formulated in the following groups:

The first main hypothesis: ownership structure has a significant impact on the company's market value.

Sub-hypothesis 1.1: Percentage shares held by institutional investors has a significant impact on the company's market value.

Sub-hypothesis 1.2: focus on the stock investors has a significant impact on the company's market value.

The second main hypothesis: Liquidity Index calculated by Amihood method has a significant impact on the company's market value.

Sub-hypothesis 2.1: Liquidity Index calculated by Amihood the company's market value has a significant impact.

Sub-hypothesis 2.2: Index of shares in circulation has a significant impact on the company's market value.

3. Sample and sampling methods
In the process of doing research to find a sample in the nature of research, information requirements and characteristics of the population of the member firms is determined. So that samples can be extracted in the process of testing hypotheses while observing save cost and time, results in the best manner to extend population. Therefore, in this study, a systematic elimination sampling was used so that only companies that have the following conditions have made some members of the population, have been included in the sample.

1. Investment firms, banks, insurance, financial intermediation and holding due to differences in the nature and classification of financial statement items have been excluded to manufacturing companies.

2. Up to the beginning of the year 2010 or earlier accepted in Tehran Stock Exchange by the end of 1392, their
shares have been traded.
3. The financial period, ending on the date of the end of March each year.
4. Companies for more than 5 years data should be used to calculate variables.
5. Companies should be considered in the course of their work have changed.
6. Companies should not be operating during the period considered an interruption.
According to the terms of the conditions, the number of statistically selected sample of the population, 70 companies have been selected. The entire community is to be able to ensure that specimens with sufficient elements from each class are selected.

4. Variable and how to measure them

4-1. Dependent variable

• Market Value: Market Value by multiplying the number of ordinary shares issued in the company's stock price at the end of the year is obtained.

4-2. Independent variables

According to the objectives and assumptions in this study, four independent variables to be considered. The two variable and two variables related to the ownership structure of the liquidity of the stock is calculated as follows:

Ownership structure variables:

• Percentage shares held by institutional investors: According to the definition used in research and Rubin (2007) and Quito (2009), to calculate the total institutional ownership of stock in the hands of banks and insurance companies, holding and investment companies investment, pension funds, financing companies and investment funds, organizations and government agencies and companies owned by the entire issued stock, divided by the percentage or amount of institutional ownership is obtained.

• Focus institutional shareholders: institutional ownership concentration to calculate the Herfindahl - Hirschman is used. Herfindahl - Hirschman economic indicator used to measure the degree of monopoly in the market. Thus, the percentage shares of each of the two institutional investors can come and be together. The result is between 0 and 1. The closer to 1, the more focus.

Stock liquidity indicator variables:

• Liquidity Index Amihood method: Amihood (2002) model, measure of illiquidity (inverse measure of liquidity) was introduced.

In their study, liquidity and ease of purchase and sale of securities without change in price defines the criteria by dividing the daily deals inverse daily returns on liquidity and ideas. Is an inverse measure of liquidity for markets with no major capital markets and market infrastructures are not developed. Thus, the model, if the share trading volume is low or during a specified time period, the number of days the transaction is small, so it is illiquid share.

Liquidity reverse share index = (stock return) / (share of trading volume)

Index of shares in circulation. Other criteria considered in this study is that stock liquidity index of shares in circulation is known that in this model, as the number of shares traded shares to total shares issued by the Company have been described Amihood, 2012).

Workflow stock index = (number of stock exchange transactions) / (Total number of stock released)

4-3. Control variable

Cash: result is the sum of cash and short-term investments (Amihood, 2012).

Cash flow: operating profit before amortization is as follows (Amihood, 2012).

5. Analysis of the main theories

The first main hypothesis: there is a significant relationship between ownership structure and market value.

This hypothesis of the existence of a meaningful relationship between ownership structure and market value of companies listed on the Tehran Stock Exchange has been proposed and tested using the following subsidiary hypothesis:

• The analysis of the first subsidiary hypothesis

First subsidiary hypothesis: there is a significant relationship between percentage of shares held by institutional investors and the market value.

This hypothesis is the existence of a significant relationship between the percentage of shares held by institutional investors and the market value of companies listed on Tehran Stock Exchange has been proposed and tested using the following model.

\[ MV = \alpha_0 + \alpha_1 INST_{it} + \alpha_2 CASH_{it} + \alpha_3 CF_{it} + \epsilon_{it} \]

In This study, based on the model, cross –timing fix effect tested. Table (2) Table (3) for determining the regression F test hypotheses about the show.
In the combined effects of period and cross sectional test. The period fixed effects model for each of the years a cross-sectional intercept and the fixed effects model for each of these companies will provide an intercept. To see this intercept is statistically significant difference or not, we chow test to work.

So hypothesis (H0) and H1 arises as follows:

H0: All intercepts are equal ↔ Pooled
H1: intercept ↔ differ when fixed effects model or cross sectional or both

The constant model (intercept) in each of the above modes is as follows:

Pooled ↔ α_0
Panel type fixed effects when ↔ α_t
Panel type cross fixed effect ↔ α_i
Panel Type fixed effects regression and panel ↔ α_(i, t)

According to Chow test statistic smaller than 0.05 if the probability model is the assumption H_ (0) b ased on the width of the source rule and fixed effects model is preferred.

Results related to cross fixed effect and timing fixed effect presented in Table 1 and 2.

<table>
<thead>
<tr>
<th>Table 1: Redundant Fixed Effects Tests</th>
</tr>
</thead>
<tbody>
<tr>
<td>Effects Test</td>
</tr>
<tr>
<td>Cross-section F</td>
</tr>
<tr>
<td>Cross-section Chi-square</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Table 2: Redundant Fixed Effects Tests</th>
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</thead>
<tbody>
<tr>
<td>Effects Test</td>
</tr>
<tr>
<td>Period F</td>
</tr>
<tr>
<td>Period Chi-square</td>
</tr>
</tbody>
</table>

According to Chow test statistic about cross fixed effect is likely to be smaller than 0.05 and on the effects of fixed period effect is greater than 0.05, so the probability of that hypothesis (H_1) confirmed that the difference between the intercept for the cross fixed effect and the effects Fixed cross is preferred.

After the cross sectional test, Chow and fixed effects model for the selection of test data between two fixed effect and random effects Hausman test is used.

Results of the Hausman test in Table 3 are provided.

<table>
<thead>
<tr>
<th>Table 3: Correlated Random Effects - Hausman Test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test Summary</td>
</tr>
<tr>
<td>cross-section random</td>
</tr>
</tbody>
</table>

Given the possibility of testing that is smaller than 0.05 so at 95 percent random-effects rejected and fixed-effects will be accepted. The results of hypothesis testing in Table 4 Provided.

<table>
<thead>
<tr>
<th>Table 4: Cross-section fixed (dummy variables)</th>
</tr>
</thead>
<tbody>
<tr>
<td>variable</td>
</tr>
<tr>
<td>INST</td>
</tr>
<tr>
<td>CF</td>
</tr>
<tr>
<td>CASH</td>
</tr>
<tr>
<td>C</td>
</tr>
</tbody>
</table>

According to F-statistic and probability it can be concluded that the regression equation is significant at 99% confidence level. The results of the Durbin - Watson (the correlation of error terms) to indicate the relative independence of the data. Adjusted coefficient of determination express the degree of relevance of the independent variables and the dependent variable (market value) is. Table 4.5 adjusted coefficient of determination in accordance with the model is approximately 0.86 .so, on average, 86 percent of dependent variable explained by the model.

According to the test results and the probability of variables, the percentage of shares held by institutional investors (INST) has a probability of less than 0.01 is so variable in the model is significant at 99% confidence level covariates are also cash company (CASH) and net cash flow (CF) is also likely to be less than 0.01. So these variables in the model are significant at the 99% confidence level. Considering the variable significant percentage of shares held by institutional investors (INST) is the main variable to confirm or reject the hypothesis can be argued that the percentage of shares held by institutional investors there is a significant relationship with the company's market value.

The variable percentage of shares held by institutional investors is positive. This means that the relationship between the percentages of shares held by institutional investors and market value is direct. I.e. the percentage of shares held by institutional investors and increase the company's market value by reducing the
percentage of shares held by institutional investors reduced the market value of the company.

- **The analysis of the second subsidiary hypothesis**

**The second secondary hypothesis**: The focuses of the company’s stock and market value have a significant relationship.

The hypothesis of the existence of a significant relationship between the concentration of the company's shares and the market value of companies listed on Tehran Stock Exchange has been proposed and tested using the following model.

\[ MV = \alpha_0 + \alpha_1\text{INST}_{it} + \alpha_2\text{CASH}_{it} + \alpha_3\text{CF}_{it} + \varepsilon_{i,t} \]

Results related to cross and period fixed effects are presented in Table 5 and 6.

<table>
<thead>
<tr>
<th>Effects Test</th>
<th>Statistic</th>
<th>d.f.</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cross-section F</td>
<td>21.4561</td>
<td>(120.58)</td>
<td>0.000</td>
</tr>
<tr>
<td>Cross-section Chi-square</td>
<td>56.2792</td>
<td>120</td>
<td>0.0000</td>
</tr>
</tbody>
</table>

Table 5: Test cross-section fixed effects

According to Chow test statistic about cross fixed effect is likely to be smaller than 0.05 and on period fixed effects are likely to be greater than 0.05. So the hypothesis that the difference H_1 intercept for fixed effects and fixed effects model cross-sectional certified preferred. After the test period, Chow and fixed effects model for the selection of test data between two fixed effect and random effects Hausman test is used. Results of the Hausman test in Table 7 are provided.

<table>
<thead>
<tr>
<th>Effects Test</th>
<th>Statistic</th>
<th>d.f.</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Period F</td>
<td>1.6374</td>
<td>(5.87)</td>
<td>0.061</td>
</tr>
<tr>
<td>Period Chi-square</td>
<td>4.7124</td>
<td>5</td>
<td>0.1843</td>
</tr>
</tbody>
</table>

Table 6: Test period fixed effects

According to F-statistic and probability it can be concluded that the regression equation is significant at 99% confidence level. According to the test results and the probability of variables, the focus of the company's shares (CENT) has a probability of less than 0.01 so variable in the model is significant at 99% confidence level, as well as control variables firm cash (CASH) and net cash flow (CF) has a probability of less than 0.01 are therefore 99% above variables in the model are statistically significant Considering the variable focus stock company (CENT) approve or reject the hypothesis is that the main variable it can be argued that the focus of the company’s stock market value now there is a significant relationship.

- **Analysis of the second main hypothesis**

**Second main hypothesis**: there is a significant relationship between stock liquidity and market value.

- **First subsidiary hypothesis**: the index reverse stock liquidity and market value have a significant relationship.

The hypothesis of the existence of an inverse relationship between liquidity index and stock market value of companies listed on the Tehran Stock Exchange has been proposed and tested using the following model.

\[ MV = \alpha_0 + \alpha_1\text{BA}_{it} + \alpha_2\text{CASH}_{it} + \alpha_3\text{CF}_{it} + \varepsilon_{i,t} \]

The results of cross-sectional and period fixed effects in Tables 9 and 10 will be provided.
Table 9: Test cross-section fixed effects

<table>
<thead>
<tr>
<th>Effects Test</th>
<th>Statistic</th>
<th>d.f.</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cross-section F</td>
<td>10.942</td>
<td>(120.58)</td>
<td>0.001</td>
</tr>
<tr>
<td>Cross-section Chi-square</td>
<td>22.252</td>
<td>120</td>
<td>0.0034</td>
</tr>
</tbody>
</table>

Table 10: Test period fixed effects

<table>
<thead>
<tr>
<th>Effects Test</th>
<th>Statistic</th>
<th>d.f.</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Period F</td>
<td>1.7562</td>
<td>(5.87)</td>
<td>0.0541</td>
</tr>
<tr>
<td>Period Chi-square</td>
<td>3.5824</td>
<td>5</td>
<td>0.1254</td>
</tr>
</tbody>
</table>

According to Chow test statistic about cross fixed effect is likely to be smaller than 0.05 and on the period fixed effects is greater than 0.05, so the probability of that hypothesis (H_1) confirmed that the difference between the intercept for the cross-section fixed effect is preferred.

The results of Hausman test is provided in Table 11.

Table 11: Correlated Random Effects - Hausman Test

<table>
<thead>
<tr>
<th>Test Summary</th>
<th>Chi-Sq. Statistic</th>
<th>Chi-Sq. d.f.</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>cross-section random</td>
<td>25.892</td>
<td>6</td>
<td>0.000</td>
</tr>
</tbody>
</table>

Given the possibility of testing that is smaller than 0.05 so at 95 percent random-effects rejected and fixed-effects will be accepted.

The results of hypothesis testing in Table 12 Provided.

Table 12: Cross-section fixed (dummy variables)

<table>
<thead>
<tr>
<th>variable</th>
<th>coefficient</th>
<th>STD</th>
<th>T test</th>
<th>probe</th>
</tr>
</thead>
<tbody>
<tr>
<td>BA</td>
<td>6.163759</td>
<td>0.881506</td>
<td>6.992304</td>
<td>0</td>
</tr>
<tr>
<td>CF</td>
<td>2.6434</td>
<td>0.45334</td>
<td>5.830942</td>
<td>0</td>
</tr>
<tr>
<td>CASH</td>
<td>2.119243</td>
<td>0.345757</td>
<td>6.129281</td>
<td>0</td>
</tr>
<tr>
<td>C</td>
<td>936858</td>
<td>539362.7</td>
<td>1.736972</td>
<td>0.0831</td>
</tr>
</tbody>
</table>

Table 12 adjusted coefficient of determination in accordance with the model test results and the probability approximately 0.84 of variables, liquidity reverse stock index (BA) has a probability of less than 0.01 is so variable in the model at a confidence level of 99% means is significant. also control variables Cash (CASH) and net cash flow (CF) has a probability of less than 0.01 are therefore also at 99% confidence level variables in the model are statistically significant Considering the reverse stock index variable liquidity (BA ) is the main variable to confirm or reject the hypothesis can be argued that the reverse stock index, liquidity and market value now there is a significant relationship.

- The analysis of the second subsidiary hypothesis:

The second subsidiary hypothesis: the index of shares in circulation and market value, there is a significant relationship.

The hypothesis of the existence of a significant relationship between index of shares in circulation and market value of companies listed on the Tehran Stock Exchange has been proposed and tested using the following model.

\[ MV = \alpha_0 + \alpha_1 Li_{it} + \alpha_2 CASH_{it} + \alpha_3 CF_{it} + \varepsilon_{it} \]

Results related to cross and period fixed effect and is presented in Table 13 and 14.

Table 13: Redundant Fixed Effects Tests

<table>
<thead>
<tr>
<th>Effects Test</th>
<th>Statistic</th>
<th>d.f.</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cross-section F</td>
<td>12.8921</td>
<td>(120.58)</td>
<td>0.004</td>
</tr>
<tr>
<td>Cross-section Chi-square</td>
<td>26.2522</td>
<td>120</td>
<td>0.085</td>
</tr>
</tbody>
</table>

Table 14: Redundant Fixed Effects Tests

<table>
<thead>
<tr>
<th>Effects Test</th>
<th>Statistic</th>
<th>d.f.</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Period F</td>
<td>0.86746</td>
<td>(5.87)</td>
<td>0.1563</td>
</tr>
<tr>
<td>Period Chi-square</td>
<td>1.7959</td>
<td>5</td>
<td>0.3097</td>
</tr>
</tbody>
</table>

According to Chow test statistic about cross fixed effect is likely to be smaller than 0.05 and on the period fixed effects is greater than 0.05, so the probability of that hypothesis (H_1) confirmed that the difference between the intercept for the cross-section fixed effect is preferred.

The results of Hausman test is provided in Table 15.
Information and Knowledge Management
Vol.6, No.4, 2016

Table 15: Correlated Random Effects - Hausman Test

<table>
<thead>
<tr>
<th>Test Summary</th>
<th>Chi-Sq. Statistic</th>
<th>Chi-Sq. d.f.</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>cross-section random</td>
<td>21.714</td>
<td>6</td>
<td>0.0009</td>
</tr>
</tbody>
</table>

Given the possibility of testing that is smaller than 0.05 so at 95 percent random-effects rejected and fixed-effects will be accepted.

The results of hypothesis testing in Table 16 Provided.

Table 16: Cross-section fixed (dummy variables)

<table>
<thead>
<tr>
<th>variable</th>
<th>coefficient</th>
<th>STD</th>
<th>T test</th>
<th>probe</th>
</tr>
</thead>
<tbody>
<tr>
<td>LI</td>
<td>233560.6</td>
<td>15144.7</td>
<td>15.42194</td>
<td>0</td>
</tr>
<tr>
<td>CF</td>
<td>2.229548</td>
<td>0.139763</td>
<td>15.95235</td>
<td>0</td>
</tr>
<tr>
<td>CASH</td>
<td>2.151526</td>
<td>0.391213</td>
<td>5.499627</td>
<td>0</td>
</tr>
<tr>
<td>C</td>
<td>1224047</td>
<td>280913.5</td>
<td>4.35738</td>
<td>0</td>
</tr>
</tbody>
</table>

According to the test results and the probability of variables, stock turnover index (LI) has a probability of less than 0.01, so variables can be significant at the 99% confidence level in the model. Also control variables firm cash (CASH) and net cash flow (CF) has a probability of less than 0.01 and are thus 99% above variables in the model have meaning. Considering the significant stock variable flow index (LI) is the main variable to confirm or reject the hypothesis can be argued that the turnover index stocks with a market value there is a significant.

Resources

Persian resources:

English resources: