The Study of Relationship between Institutional Ownership and Stock Liquidity in Tehran Stock Exchange

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ABSTRACT
We examine the link between the liquidity of a firm’s stock and its ownership structure (institutional ownership percentage and ownership concentration) in Tehran’s stock exchange. The presence of the institutional investors can affect stock liquidity in two ways due to their informational benefits: decrease in liquidity due to the increase in information asymmetry (adverse selection effect) and increase of liquidity due to the increase of price discovery resulted from the competition between institutional investors (effectiveness of the information). Seventy Two (72) companies were chosen between the period of 2004 and 2008. They were tested by the multivariate pooled regression model of the research hypotheses. The results of the research show a significant positive relationship between the percentage of institutional ownership and stock liquidity, so we find that there is negative and opposite relationship between stock liquidity and concentration ownership.

KEY WORDS: Institutional Ownership, Ownership Concentration, Stock liquidity, Information Asymmetry, Bid-Ask spread.

1. INTRODUCTION
One of the most important specifications of the investment market in the developed countries is the increase in institutional ownership. In the recent years the role of the institutional ownership in financial markets is more important (Agarwal, 2009). The noticeable development of the financial markets in Iran in the recent years is witnessing the increasing presence of institutional investors such as investment companies, insurance companies and pension funds.

Considering the depth and the expansion of any financial market, there are several available investment instruments. One of the basic subjects of investment is the rate of liquidity of the assets because some of the investors may need their financial resources promptly. The speed of liquidity of stocks is related to the receipt of transaction by the investor’s in the stock exchange market. Liquidity in secondary markets has a distinctive role in successful public offering and it results in decreasing the cost of risks of underwriter and market makers. Also the cost of investors decreases by decreasing the bid-ask spread and costs of transactions. So from a vast viewpoint, existence of cash investment markets is necessary for efficient allocation of funds. This will decrease the costs of the issuers. From diminutive point of view the cash investment market provides the access and availability for various investors with variety of transaction strategies.

The relationship between the ownership structure and stocks liquidity is always a considerable subject in financial literature so by considering the important role of institutional investors and the importance of liquidity of stocks in the price discovery process, distribution of financial risks and establishing the motives for the investors in the transaction decisions the main question of the research is; can a ownership structure of the company affect the liquidity of stocks?

2. Literature and Research Background
In the recent years the shares owned by the institutional investors has increased considerably. From theoretical viewpoint, the institutions may have active supervision of management which is followed by the increase of the value of the shareholders (Shleifer and Vishni, 1986 and Pound, 1988). Bush (1988) also

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states that institutional investors will clearly supervise the company by gathering information and pricing the management decision indirectly and administering company’s operation directly.

Based on Bush (1998) description, institutional investors are major investors such as banks, insurance companies, investing companies and etc. Generally it’s supposed that the existence of institutional investors may change the behavior of the company. This is rooted in the supervision activities of these investors.

One of the unsolved issues, in the finance field, is the relation between ownership structure and stocks liquidity (Rubin 2007). When considering this relation, researchers focus on two hypotheses, which we refer to as the adverse selection hypothesis and the trading hypothesis. The adverse selection hypothesis posits that when informed shareholders possess superior information compared to outside shareholders, an information asymmetry arises, which reduces liquidity (e.g., Grossman and Stiglitz, 1980; Glosten and Milgrom, 1985; Kyle, 1985; Easley and O’Hara, 1987). The trading hypothesis, on the other hand, posits that when investors turn over their portfolio more often, transactions costs are reduced, which increases liquidity (Demsetz, 1968; Merton, 1987; Schwartz and Shapiro, 1992).

While the focus of most empirical studies on the ownership-liquidity relation is on the adverse selection hypothesis (e.g., Chiang and Venkatesh, 1988; Kini and Mian, 1995; Heflin and Shaw, 2000; Barabanov and McNamara, 2002), there is no consensus in the literature about which entities constitute the informed group of investors. Some studies focus on insiders, some focus on institutions, and some focus on blockholders. The fact that all three groups have been shown to have superior information presents a challenge for several reasons.

First, adverse selection costs depend on the probability that a market maker trades with an informed investor. This means that considering only one group of possibly informed shareholders may underestimate the extent of the actual information asymmetry that exists. Second, the three groups of investors are overlapping. An institutional investor can be an insider, an insider can be an institution, and a blockholders can be either an insider or an institution. Without a partition that effectively separates the three groups of investors, it would be hard to decide which groups of investors drive the observed relation.

Third, adverse selection is only one of the factors hypothesized to be related to liquidity. Group-specific trading behavior may also be important. In general, it seems that institutions tend to turn over their portfolio more often than other investors. In some instances, institutional portfolio turnover may be driven by agency problems. Finally, some institutions’ trades are determined primarily by pre-determined investment objectives, such as indexing; and their trades are largely determined by movements in the index, which tend to occur continuously. Thus, to the extent that institutions as a group trade more often, institutional ownership should reduce a market maker’s required inventory, which in turn may reduce spreads (e.g., Tinic, 1972; Hamilton, 1978; Schwartz and Shapiro, 1992; Gompers and Metrick, 2001).

The information advantage of the institutional investors can affect the liquidity in two ways: decrease in liquidity due to the increase in information asymmetry (result of adverse selection) and increase of liquidity due to effecting probable increase of information on price (information efficiency increase resulted from the competition between institutional investors).

Mendelson and Tunca (2004) claimed that institutions will decrease the uncertainty of the real prices of the assets, decrease the losses resulted from the transactions, increase the desire of the investors and finally increase the liquidity in the market. Cueto (2009) believes that institutional investors with investment long term viewpoint will be the reason for decrease in accessible floating stocks numbers and decreases liquidity. Chung and others (2008) investigated the effects of corporate governance and ownership structure on stocks liquidity. They reached this result that institutional ownership will increase liquidity. Agarwal (2009) reviewed the relationship between stocks liquidity and institutional ownership from two points of view; adverse selection and efficiency of the information. This resulted in a non-linear relationship between institutional ownership and liquidity of stocks. In lower levels of ownership the adverse selection assumption is ruling but with increase of the level of institutional ownership the liquidity will increase.

Heflin and Shaw in year 2000 chose samples inclusive of 260 companies which had a positive relation between the percentage of the block shares of the shareholders and bid-ask spread. Heflin and Shaw state that in companies with centralized ownership structure the major shareholders have access to the private information and in result in the transactions they are involved in the parties of the transaction have the risk of adverse selection. This will result in increase of the stocks bid-ask spread by the parties of transaction to reduce the risks of adverse selection which will decrease the liquidity of market shares.

Kothare (1997), Amihud, Mendelson and Uno (1999) found out that by dispersion of ownership the liquidity improves. Chiang and Vankatesh (1998) used the centralization of insider block stockholders as a measure of information asymmetry and they concluded that the bid-ask spread increases by the percentage of insider block stockholders.
Denis and Weston (2001) examined the advantage of information for institutional investors on bid-ask spread and the adverse selection component and the result obtained was decrease in the bid-ask spread in institutional ownership and increase adverse selection component. Rubin (2007) examined the relationship between the level of ownership, ownership concentration and liquidity and the result is higher liquidity in transaction activity by increase of institutional ownership and decreases due to higher adverse selection because of block ownership. Golsten and Haris (1988) found an important relationship between the bid-ask spread and insider stockholders and the result showed that insider investors can be effective on stock liquidity due to effectiveness of information and adverse selection. Ginglinger and Hamon (2007) tested the effect of ownership concentration and separation of ownership from the control, on liquidity of market in France. The findings show that the companies with major insider blockholder have a considerable decrease in liquidity. Sarin, Shastri and Shastri (1999) inspected the relationship between ownership structure and liquidity of stocks and the result obtained showed the relationship between the major institutional and insider ownership with vast bid-ask spread and lower price depth. Jacobi and Zheng (2010) examined the relationship between the ownership dispersion and liquidity of the market. The result of this research showed that the more dispersion the ownership is the more improvement in liquidity market. Belton and Von Thadden in 1998 describe the decrease of the shareholders in share transactions due to concentration of ownership; this decreases the effective investment in the market and liquidity in share market.

Brockman and the others (2009) investigated the effect of block ownership on transaction activities and liquidity of shares of the company. Their results showed that the block ownership has decreased the transaction activities in comparison with dispersion ownership structure. From the literature and the empirical research results we expect a positive relationship between liquidity of stocks and institutional ownership and a negative relationship between ownership concentration and liquidity of stocks.

3. RESEARCH METHODOLOGY

This research is descriptive-correlate type. The methodology of research is of aftermath type because it can be applied to the procedure of using information so it’s a kind of applicable research. For testing the theories of the research the multi variable regression with combined data is used for the period of 2003 till 2008.

Research Hypothesis

In order to obtain the target of research, hypothesis has been compiled as follows:

First hypothesis: “There’s a meaningful positive relationship between institutional ownership and stock liquidity”.

Second theory: “There’s a meaningful negative relationship between ownership concentration and stock liquidity.”

Measurement the Research Variables

In this research the relationship of stock liquidity as an independent variable and variable percentage of institutional investors and ownership concentration as independent variables and the variables such as company’s size, share price, market value of companies and the Stock returns volatility as controlled variables are examined.

Stock liquidity

Liquidity is a multi-dimension measure. Up till now several variables were replaced for liquidity such as: transaction value, number of transaction, volume of transaction, the rate of the turnover of transaction volume and bid-ask spread.

In this research the measure provided by Amihud (2002) for illiquidity was used. The method of calculation is described in the following:

\[ ILLIQ_{i,t} = \frac{1}{D_{i,t}} \sum_{d=1}^{D_{i,t}} \left| \frac{R_{i,d,t}}{V_{i,d,t}} \right| \]

In which \( R_{i,d,t} \) is the yield of shares i on day d in the month t, \( V_{i,d,t} \) is the volume of the transactions of stock i on day d in month t and \( D_{i,t} \) is the total days of transaction for stock i in month t and ILLIQ is the rate of illiquidity.
If the illiquidity rate stands high the share faces illiquidity. This rate is high when the stock price compared to the low volume of transactions has numerous changes. This measure is described as a response to the daily price of stock to transaction volume.

**Percentage of Institutional Investors:** The meaning of institutional investors is legal entities which are mediators between people and companies and will prepare the portfolio of shares on behalf of the shareholders. This variable is calculated from the percentage of total owned shares by the institutional investors on the total invested shares.

**Ownership concentration:** ownership concentration is the pattern that the stocks are distributed between different stockholder. The lower amount of stockholder the more ownership concentration. In this research for calculating the ratio of ownership concentration Hirschman’s index is used. The mentioned index is obtained from the square of the total sum percentage of stocks belonging to the stockholders of the companies. The result is between 0 and 1. The nearer to 1 means more concentration and the nearer to 0 indicates non-concentration. The method of calculation of ownership concentration based on the above mentioned index is described in the following:

\[ \sum_{i=1}^{n} INown^2 \]

**Size of the Company:** In this research the size of the company is the assets of the company and the natural logarithm of the size of assets at the end of the year is a measure for the size of the company in the model.

**Price of Shares:** The average final price of shares daily.

**Market Value:** The value of the company’s market is the product of number of issued stocks by the price of stocks in the market. Then a natural logarithm of the average will be used in the model.

**Stock returns volatility:** stock returns volatility measured by the deviation of standard for the stock returns in the last 12 months.

**Society and the statistical Sample**
The statistical society of this research is the companies accepted in Tehran’s stock market in the period of 2004-2008. The companies that have not obtained the following conditions are removed from the statistical samples.

- To be present in the stock market from 2004-2008
- The company being reviewed must have the same fiscal year during the period of review
- The requested information of the company shall be in access.
- Their fiscal year shall be the 30th of march of each year
- Shall not be banks, investment, holding and leasing companies
- Shall not have non-continuance of transaction for more than six months
- The company shall have at least minimum 100 days of transaction

By considering the above a sample inclusive of 360 companies-years related to 72 companies were selected.

**The Model Used in the Research**
Considering the above mentioned contents regarding the descriptive variables, the research model which is prepared from the indicated researches of the research literature is shown in the following:

\[
Liquidity = \beta_0 + \beta_1 OWNCON + \beta_2 INSOWN + \beta_3 Lndsize + \beta_4 PRICe + \beta_5 LN MV + \beta_6 Volatility + e
\]

In which:
- Liquidity: liquidity of stock i at the time t (based on the various measures it can be measured)
- Insown: the percentage of the institutional owners of the company i at a time t
- Owncon: concentration of ownership in a company i at the time t
- Size: Size of the company i at the time t
- Price: Average of the price of stock of the market of company i at a time t
- Volatility: stock returns volatility of stock of the company i at a time t
- e: the coefficient of error for every independent period.
Descriptive Statistics
Table 1 has the descriptive statistics of the data’s for usage in linear regression. Since we use the cross-sectional time series data for examining the hypotheses of our research the number of observations of year-company based on the balanced pooling data is 360.

<table>
<thead>
<tr>
<th>Variables</th>
<th>Observations</th>
<th>Average</th>
<th>Mean</th>
<th>Min</th>
<th>Max</th>
<th>Standard Deviation (SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>INSOWN</td>
<td>360</td>
<td>59/68</td>
<td>69/68</td>
<td>0/07</td>
<td>97/4</td>
<td>26/43</td>
</tr>
<tr>
<td>OWNCON</td>
<td>360</td>
<td>0/27</td>
<td>0/24</td>
<td>0/00</td>
<td>0/83</td>
<td>0/18</td>
</tr>
<tr>
<td>MV</td>
<td>360</td>
<td>11/66</td>
<td>11/54</td>
<td>8/87</td>
<td>14/38</td>
<td>0/78</td>
</tr>
<tr>
<td>PRICE</td>
<td>360</td>
<td>7720</td>
<td>5035/99</td>
<td>424/89</td>
<td>192992</td>
<td>14701/38</td>
</tr>
<tr>
<td>VOLATILITY</td>
<td>360</td>
<td>13/81</td>
<td>10/63</td>
<td>0/00</td>
<td>80/65</td>
<td>12/44</td>
</tr>
<tr>
<td>SIZE</td>
<td>360</td>
<td>11/81</td>
<td>11/7</td>
<td>7/21</td>
<td>13/86</td>
<td>0/71</td>
</tr>
<tr>
<td>LIQUIDITY</td>
<td>360</td>
<td>0.00229</td>
<td>0.00031</td>
<td>0.00001</td>
<td>0.143</td>
<td>0.01</td>
</tr>
</tbody>
</table>

Examining the Research Hypothesis
The statistical method used in this research is multi-regression method variables by using the pooling data. The main motive for using sectional data and time series is when a moderate model is defined. In this case the evaluation, comprehension and prognosis are more effective. For eliminating problems such as variance heteroskedasticity the method of generalized lowest squares (GLS).

Examining the Significant Model Related to the Hypothesis
For defining the significance of a regression model Fisher’s statistical F is used. By using statistical F and in the table with free levels of k-1 and n-k were calculated for 5% error level. The entire hypothesis model has been reviewed.

Test of Meaningfulness of Independent Variables
For reviewing the meaningfulness of independent coefficient of the variables in each model statistical t is used. The obtained statistical t will be compared with the t in the table with freedom level of n-k calculated at certainty level of 95%. If the absolute t calculated is bigger than t in the table, the considered coefficient has a meaning which shows the relationship between the independent and dependent variables.

Test of Auto Correlation
Auto correlation contravenes with the standard hypothesis of regression pattern. By using Durbin Watson statistics the existence and non-existence of auto correlation of regression pattern can be defined. Durbin Watson statistics is testing the hypothesis by using the pooling regression 1.89 which shows non-existence of auto correlation.

4. RESULT ANALYSIS
In the following table (2), the general pattern of the effects of ownership structure on stock liquidity is provided (percentage of institutional ownership and ownership concentration):

<table>
<thead>
<tr>
<th>Dependent Variable: stock Liquidity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Liquidity = β₀ + β₁OWNCON + β₂INOWN + β₃Lnsize + β₄PRICE + β₅LNMV + β₆Volatility + e</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Result</th>
<th>P-value</th>
<th>t-statistic</th>
<th>Coefficient</th>
<th>Descriptive Variables</th>
</tr>
</thead>
<tbody>
<tr>
<td>meaningful</td>
<td>0.066</td>
<td>1.84</td>
<td>0.0033</td>
<td>Cross from origin</td>
</tr>
<tr>
<td>meaningful</td>
<td>0.0000</td>
<td>5.23</td>
<td>0.000072</td>
<td>Volatility</td>
</tr>
<tr>
<td>meaningful</td>
<td>0.021</td>
<td>-2.31</td>
<td>-0.000015</td>
<td>Price</td>
</tr>
<tr>
<td>-</td>
<td>0.81</td>
<td>0.23</td>
<td>0.000047</td>
<td>MV</td>
</tr>
<tr>
<td>meaningful</td>
<td>0.049</td>
<td>1.96</td>
<td>0.00031</td>
<td>Size</td>
</tr>
<tr>
<td>meaningful</td>
<td>0.0026</td>
<td>3.85</td>
<td>0.000017</td>
<td>Insown</td>
</tr>
<tr>
<td>meaningful</td>
<td>0.004</td>
<td>-2.9</td>
<td>-0.0019</td>
<td>owncon</td>
</tr>
</tbody>
</table>

F- statistic : 13/30
P-value: 0/00
Adjusted R²: 0.23
Durbin Watson statistic : 1/89
Homogenous test F- statistic: 0/10
Considering table (2) we will find that the model is meaningful measured with 99% certainty and the meaningful level calculated shows a meaningful relationship between ownership structure (institutional ownership percentage and ownership concentration) and stock liquidity. Also the meaningful level calculated for control variables inclusive of Stock returns volatility, size of the company and the price of the market stock shows a meaningful relationship between the variables of stock liquidity with the exception of the market price related to stock liquidity which did not have a meaningful relationship even in certainty level of 90%. Also by considering the clarifying coefficients in confirmed models the independent variables have shown 23 percentage change of pattern in the liquidity criteria.

Considering the results of table 2, the first hypothesis regarding the meaningful relationship between the institutional investor’s percentage and the liquidity of stocks were confirmed. In other words by increase of institutional ownerships the liquidity of stocks will increase which is in conformance with the results obtained from researches of Rubin (2007), Denis and Weston (2001), Chung and others (2008) and Cueto (2009). The negative relationship between ownership concentration and liquidity of stocks is confirmed. The negative coefficient means a contrary relationship between ownership concentration and stock liquidity meaning the increase in ownership concentration will decrease the stock liquidity which is in conformity with the results of researches of Belton and Von (1998) and Rubin (2007).

5. Conclusion

In this research, the hypotheses regarding the meaningful relationship between the stock liquidity and ownership structure (institutional ownership percentage and ownership concentration) was tested. From the main operations of institutional ownership which were indicated in the research literature supervising operation and information applications can be named. The effect of institutional ownership on liquidity depends on the resultant of the above mentioned. The result of testing the research hypothesis shows a meaningful relationship between the stock liquidity and institutional ownership. This relationship is direct and positive, in other words the rate of increase of institutional ownership increases the stock liquidity of the companies. This matter shows that institutional investors motivate the improvement of investment companies by applying efficient supervision. The presence of institutional investors will improve the operation of the company and results in the increase of value of the company. Also the adverse selection due to information asymmetry will decrease in presence of these investors and will increase the level of certainty and stock liquidity. Also the results have shown a meaningful relationship between ownership concentration and stock liquidity. This relationship is negative and contrary. Based on adverse selection hypothesis, the concentration of the information of company in the hand of few investors will increase the information asymmetry between stockholders and results in decrease of stock liquidity.

REFERENCES