

The Relationship between Different Types of Institutional Investors, Management Ownership and Stock Liquidity

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Abstract: The aim of this study is to investigate the relationship between institutional ownership, management ownership and stock liquidity. In this study, price spread suggested for buying and selling stocks is used to measure the liquidity. The research is performed using a sample including 90 firms listed on Tehran Stock Exchange from 2009 to 2013. To estimate the model, panel data regression multivariate technique is used. The final result of the test of research hypotheses indicates that there is not a significant relationship between institutional ownership and stock liquidity, but the results using dividing an institutional investor to active and inactive investors show that active institutional ownership compared to inactive institutional ownership has a stronger relationship with stock liquidity. In addition, there is not a significant relationship between management ownership and stock liquidity in this research.

Keywords: Stock Liquidity, Institutional Ownership, Management Ownership.

Introduction

Although, institutional ownership has long been considered as a factor of stability in the financial markets, some questions have been proposed about the impact of institutional investor to maintain market stability during the crisis of liquidity. After the financial crisis, institutional owners more have been under public supervision due to their use of leverage and their reliance on short-term funding (Cao & Petrsek, 2014).

Types of institutional investors affect liquidity compared to other effective methods on liquidity. For example, Brunnermeier and Pedersen (2009) have provided the model related to the liquidity risk of the leverage ownership of speculators such as funds of financing. Financing funds use leverages such as short-term funding (Lo, 2008).

Glosten and Milgrom (1985) argue that one of the reasons for the lack of liquidity of the stock is the presence of an aware private sector. One of aware private traders is corporate executives. Seyhun (1986) showed that transactions of managers before abnormal changes were in stock price of firms. This indicates that the ownership level of executives in a company can affect the liquidity of the shares (Sarin et al., 2000).

Due to the increasing presence of institutional investors in companies and also significant direct effects of liquidity on the stock market as well as management ownership role in reducing information asymmetry, this study investigates the effects of institutional ownership and management ownership on stock liquidity of the firms.

Review of literature and development of hypotheses

An institutional investor is generally more aware than other investors. Theoretical studies show that information competition among informed traders increases stock liquidity. For example, Admati and Pyleiderer (1988) and Holden and Subrahmanyam (1992) developed a model that this showed how informed traders influenced on stock liquidity. Since these informed traders compete in obtaining information; as a result, information is quickly reflected in stock prices. As a result, more informed traders accelerate the flow of data transmission and as a result, the lack of liquidity of the stock decreases. A number of previous studies have examined the empirical relationship between supply and demand gap and the ownership of an institutional investor. Tinic (1972) and Hamilton (1978) reported a negative relationship between institutional ownership and supply and demand gap. In contrast, Fabozzi (1979) and Chiang and Venkatesh (1988) do not observe any significant relationship. Namazi et al (2009) did not find any evidence indicating that there was a relationship between stock liquidity and trading volume of stocks with combination of shareholders both (legal) institution and non-institutional (real). Cao and Petrsek (2014) found that institutional ownership reduced liquidity risk. Liu (2013) found that an institutional investor was more willing to stock liquidity than other shareholders.

Finally, the first hypothesis is stated as follows:

First hypothesis: There is a positive relationship between institutional ownership and stock liquidity.

Active institutional owners have had a long-term perspective and they consider a low portfolio turnover and long-term performance of the company. Low turnover of portfolio for large investors represents their motivation to hold stock and encourage managers to improve operations and increase shareholder wealth. These shareholders by actively monitoring and management and their decisions provide incentives for greater accountability management and they have plenty of incentive to have a representative on the board of the investee company (Erabi & Kordlor, 2010). Inactive institutional investor, these owners have a high portfolio turnover and moment trading strategy. For example, they buy stocks with good news and they sell stocks with bad news. For these owners, the current stock price is very important, they have transient and short-term view and they prefer current performance to long-term performance (Porter, 1992). Bushee (1998) concluded in his research that these institutional shareholders tend to have a lot of short-term income (Ahmadpour et al., 2010). The results of the research of Liu (2013) show that the active institutional investor has more effects on the liquidity level of the stock in comparison to inactive institutional investors. In the research of Cao and Petrsek (2014), among the different types of institutional investor, investment funds show more sensitive to stock market liquidity compared to other institutions and individuals. The model of Brunnermeier and Pedersen (2009) shows that assets held by lever speculators such as funds of financing are sold when the market liquidity is weakened and as a result, liquidity risk is high.

Finally, the second hypothesis is stated as follows:

Second hypothesis: There is a difference between active and inactive institutional ownership on stock liquidity.

Demsetz and Lehn (1985) and Denis et al. (1994) argue that companies with more local ownership are faced with a more unstable environment. Since the level of information asymmetry in relation to the value of the company is an increasing function of uncertainty, this suggests that there is a sectional positive relationship between the asymmetry of information and local ownership. It is expected that a higher level of information asymmetry leads to wider gap of supply and demand. Also, a higher level of local ownership may be associated with turnover, since local ownership is expected that he is informed of the market situation of the company, as a result, his decisions can lead to broader and deeper gap between supply and demand for the stock. However, evidence about the gap of supply and demand and local ownership is uncertain. Chiang and Venkatesh (1988) found a positive relationship between the gap of supply and demand and local ownership in this regard. Glosten and Harris (1988) found a less important relationship between demand and supply gap of domestic ownership. Asta (2011) found in a research that there was a negative and significant relationship between institutional ownership and management ownership and earnings management, there was a significant and positive relationship between corporate ownership and earnings management. The results of the research of McConnell et al (2008) indicate that there is an empirical relationship between local ownership and value of the company. Gugler et al. (2008) found in a research that the ownership of managers has a positive effect on performance. Accordingly, the third hypothesis is as follows:

Third hypothesis: There is a negative relationship between *management ownership and stock liquidity*.

Materials and Methods

The population of the research includes all companies listed on Tehran Stock Exchange for a period of 5 years from 2008 to 2013 according to the criteria:

1. Information of each companies studied is complete.
2. In order comparability of information, the end of the fiscal year of study is in 29 March.
3. Trading interval is not more than six months.
4. They do not belong to financial and investment companies.

Due to the above conditions and using among the remaining companies, 90 companies were selected as a sample. Data are extracted from audited financial statements, notes to the financial statements, the board reports to the General Assembly of the shareholders and other reports in database of the software of Rahavard Novin 3.

To test the hypothesis, multiple regression models will be used as follows.

$$1. \text{Liquidity}_{i,t} = \beta_0 + \beta_1 \text{IIS}_{i,t} + \beta_2 \text{MO}_{i,t} + \beta_3 \text{firm size}_{i,t} + \beta_4 \text{Leverage ratio}_{i,t} + \beta_5 \text{book-to-market ratio}_{i,t} + \beta_6 \text{Tang}_{i,t} + \beta_7 \text{age}_{i,t} + \varepsilon_{i,t}$$

$$2. \text{Liquidity}_{i,t} = \beta_0 + \beta_1 \text{AIIS}_{i,t} + \beta_2 \text{IAIS}_{i,t} + \beta_3 \text{MO}_{i,t} + \beta_4 \text{firm size}_{i,t} + \beta_5 \text{Leverage ratio}_{i,t} + \beta_6 \text{book-to-market ratio}_{i,t} + \beta_7 \text{Tang}_{i,t} + \beta_8 \text{age}_{i,t} + \varepsilon_{i,t}$$

In these models, the method of calculating the variables is as follows:

Dependent variable: stock liquidity

In this study, liquidity is used based on the price spread of bid to buy and sell stocks as a measure of liquidity. Whatever the above spread is less, stock liquidity is higher. This is calculated using the following formula:

$$\text{spread}_{it} = \frac{AP - BP}{\frac{AP + BP}{2}} \times 100$$

Spread = difference spread of bid price to buy and sell company stocks I in year t.

AP (Ask/ Price) = the average price of a bid to sell stocks of the company i in year t.

BP (Bid/ Price) = the average price of a bid to buy stocks of the company i in year t.

In this research, a bid price to buy and sell stocks in the end of every month for each of the companies obtains from company site of Tehran Securities Exchange Technology Management and the average monthly for bid price to buy and sell shares is calculated for each company.

Independent variables

Institutional investor (IIS):

The ownership percent of an institutional financier who the institutional investor includes:

1. Banks and insurances;
2. Holding companies, investment firms, pension funds, corporate finance and investment funds registered with the Securities and Exchange Organization.

Active institutional investor (AIIS): This includes all institutional investors except banks and insurance companies i in year t.

Inactive institutional investor (AIIS): This includes banks and insurance companies i in year t.

Management ownership (Mo): Ownership percentage of board members.

Control variables

They include:

Firm size (SIZE): this is the natural logarithm of market value

Financial leverage (LEV): this is calculated as the sum of short-term and long-term debt to total assets.

Book value to market (book-to-market ratio)

This is book value ratio to stock market of the firm.

(Tang): this is the ratio of fixed assets to total assets.

Firm age: this is defined as the natural logarithm of the firm age.

To examine the underlying assumptions of the model including the study of the absence of autocorrelation in the residuals of Durbin-Watson statistic, VIF statistic is used to examine lack of co-linearity among the independent variables and Chow test is used in order to determine the appropriate method of regression.

Descriptive statistics

Table 1. Descriptive statistics.

Variable	Mean	Max	Min	SD	Coefficient of skewness	Coefficient of Kurtosis
Liquidity	9.9151	53.8020	0.0000	8.4407	1.3091	1.8660
Institutional investors	0.4338	0.9900	0.0000	0.3384	0.1133	-1.5366
Active institutional investors	0.4258	0.9600	0.0000	0.3360	0.1194	-1.5337
Inactive institutional investors	0.0080	0.1400	0.0000	0.0207	3.5503	13.8325
Management ownership	0.6142	0.9900	0.0000	0.2669	-1.0364	0.1774
Ratio of fixed assets to total assets	0.2153	0.8233	0.0008	0.1530	1.0012	0.7246
Book value to market	0.5001	2.6575	-9.3732	0.7243	-5.3166	69.1134
Firm size	3.3096	3.4867	3.1311	0.0617	0.2896	0.3773
Financial leverage	0.6467	2.0775	0.0891	0.2521	1.1115	4.6280
Firm age	3.4808	4.1271	1.7918	0.4591	-0.9564	3.2004

According to Table 4.1, the greatest amount of liquidity is related to Aloumorad Company and the lowest is related to Pars Khodro Company. The greatest amount of institutional ownership model is related to the Osveh drug company and the lowest is related to the company of Behsaram, Plastiran, Plasco Kar Saipa and Iranian data processing. The greatest amount of active institutional ownership is related to the company of Daroupakhsh materials and the lowest is related to Plasco Kar Saipa, making combine etc. The greatest amount of inactive institutional ownership is related to Pars Oil Company and the lowest is related to the company of Absal, Azarab etc. the greatest amount of management ownership is related to the company of Plasco Kar Saipa and Fars cement and the lowest is related to the company of Aloumorad, Plastiran etc.

Test results of hypotheses

To investigate the hypotheses, first, Chow test for models of the hypothesis must be done and then, based on what is needed, Housman statistics will be used. Chow test results are presented in Table 2.

Table 2. Information on the methodology used to test research models.

Model	Type of test	Statistical amount calculated	Amount of probability	Result
1	Chow	1.4101	0.0145	Using panel data
1	Housman	18.6504	0.0094	Fixed effects
2	Chow	1.4071	0.0150	Using panel data
2	Housman	19.2884	0.013	Fixed effects

In Table 3, the results of the first model are given.

Table 3. The results of statistical analysis of model number one (panel data regression - fixed effects).

Variable	B	T	P-value	VIF
C	-1.7012	-0.6937	0.4883	
Institutional investors	-0.7031	-1.6123	0.1076	1.2510
Management ownership	0.0918	0.2744	0.7839	1.2770
Firm size	0.0173	0.1841	0.8540	1.1920
Financial leverage	-0.0250	-0.0596	0.9525	1.4080
Book value to market (book-to-market ratio)	-0.0380	-0.3289	0.7424	1.2430
Fixed assets ratio to total assets	-0.3457	-0.5998	0.5490	1.0490
Firm age	0.4586	0.6221	0.5342	1.0570
The coefficient of determination (R ²)	0.3004	(adj) R ²	0.1433	
Durbin Watson statistic (Durbin- Watson)	2.1543	K-S	.6790	
F	1.9119	P-value(F-statistic)	0.0000	

According to Table (3), adjusted coefficient of determination of the model is equal to 0.1433 and this means that about 14 percent of the dependent variable is explained by the independent variables. F statistic is less than 0.10 and the generalization of the results is confirmed to statistical population. The basis for decision making is the first variable coefficient of the model (IIS) to approve or reject significant hypothesis, according to the statistic t and the probability that the variable is greater than 0.10, it is concluded that this coefficient was not statistically significant and the statistical null hypothesis is confirmed and the first hypothesis (alternative hypothesis) is rejected. This result is not consistent with the result of the studies of Tajvidi et al. (2013), Asta (2011) and Cao and Petrsek (2014). The probability related to Kolmogorov-Smirnov test is equal to 0.6790 which is more than 0.10. Therefore, with 90% confidence, normality of residuals is confirmed. Durbin-Watson is equal to 2.1543, given that this amount is close to the number 2; however, we can accept independence of residuals in the fitted model. According to VIF statistics for independent variables, the linear problem is not observed among independent variables.

In Table 4, the results of statistical analysis related to the second model are mentioned.

Table 4. The results of statistical analysis of model number two (panel data regression - fixed effects).

Variable	B	T	P-value	VIF
C	-1.6901	-0.6893	0.4910	
Institutional investors	-0.8733	-1.8696	0.0622	1.2610
Management ownership	-0.887 ^v	-0.2975	0.7662	1.0630
Firm size	0.0855	0.2557	0.7983	1.2760
Financial leverage	0.0203	0.2158	0.8293	1.1990
Book value to market (book-to-market ratio)	-0.0170	-0.0406	0.9676	1.4170
Fixed assets ratio to total assets	-0.0330	-0.2859	0.7751	1.2450
Firm age	-0.3259	-0.5645	0.5727	1.0740
The coefficient of determination (R ²)	0.4515	0.6127	0.5404	1.0780
Durbin Watson statistic Durbin- Watson))	0.3022	(adj) R ²	0.1436	
F	2.1503	K-S	0.8920	
Institutional investors	1.9041	P-value(F-	0.0000	

According to Table (4), adjusted coefficient of determination of the model is equal to 0.1436 and this means that about 14 percent of the dependent variable is explained by the independent variables. F statistic is less than 0.10 and the generalization of the results is confirmed to statistical population. According to Table 4, p-values of variables for active institutional ownership (IIS) and inactive institutional ownership (IAIS) is equal to 0.0622 and 0.7662 which is less and more than 0.10, respectively and this result indicates that active institutional ownership variable has a significant relationship with liquidity, but inactive institutional ownership variable has not a significant relationship with the variable of liquidity, however, the statistical null hypothesis is rejected and the second hypothesis (alternative hypothesis) is confirmed at the level of 90 percent. This result is consistent with the result of the studies of Cao and Petrsek (2014) and Liu (2013) and is not consistent with the research of Namazi et al. (2009).

The probability related to Kolmogorov-Smirnov test is equal to 0.8920 which is more than 0.10 and normality of residuals is confirmed. Durbin-Watson is equal to 2.1503, given that this amount is close to the number 2; however, we can accept independence of residuals in the fitted model. According to VIF statistics for independent variables, the amount is less than 10 and as a result, the linear problem is not observed among independent variables.

The basis for decision making is the first variable coefficient of the model (IIS) to approve or reject significant hypothesis, according to Tables 3 and 4, p-value for t-statistic t for the variable mentioned is equal to 0.7839 and 0.7983 which is more than 0.10 and the third hypothesis of the research (alternative hypothesis) is rejected. This result is not consistent with the result of the studies of McConnell et al (2008) and Gugler et al. (2008).

Conclusion

The aim of this study is to investigate the relationship between institutional ownership, management ownership and stock liquidity. Based on the results, there is not a positive relationship between institutional ownership and stock liquidity. Active institutional ownership compared to inactive institutional ownership has a stronger

relationship with stock liquidity. There is not a relationship between management ownership and stock liquidity. It is expected that management ownership which is informed of the market situation of the company, the decisions can lead to broader and deeper gap between supply and demand for the stock, but there was not observed a negative relationship between management ownership and stock liquidity.

Given the role of active institutional investor on stock liquidity, it is recommended to attend the shareholders in the combined company's ownership interest. The officials are recommended that as the presence of these shareholders in the composition of corporate ownership increase, the context of competition among them be provided and the possibility of information effect in prices be increased. One of the issues that need to be addressed, is to create rating agencies to determine the rating of corporate governance and liquidity of listed companies on Tehran Stock Exchange and provide report these firms to the public and institutions concerned so that investors examine corporate leadership situation and liquidity before attempting to buy and sell and these measures can be involved in their decisions. Creating rating agencies can be a factor to control the behavior of managers.

Each research has limitations and this study is also in this way and the following restrictions are applied:

1. One of the limitations for the present study is to obtain data on the average bid prices to buy and sell stocks which these variables are based on the average monthly rather than daily average from Tehran Securities Exchange Technology Management.

2. Impossibility of using the criteria of Amihud is to calculate the liquidity of the stock due to restrictions in obtaining data required of another research limitation.

Conflict of interest

The authors declare no conflict of interest

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