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Study of relationship between ownership structure liquidity of stocks of companies accepted in Tehran Stock Exchange

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Abstract

According to the efficient market theory, one of the features of an efficient and ideal market is lack of trade costs and high liquidity. Regarding to the importance of liquidity, recognition of the factors affecting it can help us to improve. The goal of this research is to study the relationship between ownership structure and liquidity of stocks of companies accepted in Tehran stock exchange. Thus, effects of ownership structure were studied in two aspects of ownership type and concentration of ownership on liquidity. A sample of 74 companies, members of Tehran stock exchange, was selected for a 5 year period (2005-2009). Linear regression model with confidence level of 95% and software Excel and SPSS were used to test the assumptions and study of relationship between ownership structure (independent variable) and liquidity (dependent variable). The results show that there a reverse (negative) relationship between institutional ownership level, managerial ownership level, and ownership concentration level with liquidity. Also there is a direct (positive) relationship between corporative ownership level and liquidity.

Keywords: Liquidity, ownership structure, ownership concentration.

Introduction

One of the main subjects of investment is liquidity of assets. Liquidity plays an important role in evaluation of assets, because investors notice if there is a suitable market to sell their assets or no. Liquidity capability of a stock certificate means of its rapid sale. Whatever a stock can be sold faster and with lower cost, its liquidity is higher. Securities that are daily and frequently transacted have more liquidation level and less risk (Yahyazadehfar & Larimi, 2010). The less the liquidation level, the less the attraction of that stock for investment. Liquidation is a function of rapid transaction of a high volume of securities with low cost. This means asset price would not significantly change from order time to purchase time. Liquidity degree of an investment is low when we cannot obtain its fair price rapidly. Liquidity level is also effective in decision-making of investors to form an investment portfolio. In other words, logical investors claim more risk for stocks with lower liquidity, and their expected return is more (Rezapur, 2010).

Many studies have been done in Iran about relationship between ownership structure and concepts such as corporative leadership, company performance, and profit and its quality, and company value. However, one of the problems not taken into account is liquidity concept. This research analyzed the effects of ownership structure (ownership type and ownership concentration) on liquidity. What is importance of liquidity? Why do we do it? One of the features of an efficient and ideal market is lack of trading costs and high liquidity. Trading costs include a broad spectrum of costs such as apparent costs (tax and agency costs) and hidden costs caused by information inefficiency. Accounting is one of the information sources that can decrease information inefficiency of market by offering confident information, and thus improves liquidity of stocks. Therefore, liquidity of stocks may be a criterion for market efficiency and can be used to study effective factors of information sources (Rezapur, 2010). Rather than theoretical aspects, and regarding to the available realities such as queue phenomena of buy and sell and other problems, notice to liquidity and effort to solve this problems is empirically necessary. Increment of liquidity can allot financial risk by decrement of revolving funds and create more motivation for investors. Studies show that trading costs were economically important in USA markets (Lesmond, 1992).

Regarding to the role of liquidity in discovery of assets, distribution of financial risk, and decrement of financial costs, recognition of its effective factors are very important. In this research, we study relationship between ownership structure (ownership type and ownership concentration) and liquidity of stocks.

Research history

Cueto (2009), in a paper titled "Market liquidity and ownership structure in markets that weakly support stockholders, evidences from Brazil and Chile", concluded that great stockholders cause decrement of accessibility to float stock in market and so decrement of liquidity (Cueto, 2009).

Agarwal (2008), in a paper titled "Institutional ownership and stock liquidity", studied the relationship between institutional ownership and stock liquidity from two views of incorrect selection and efficiency. He concluded that there was a nonlinear relationship between institutional ownership and liquidity of stocks (Agarwal, 2008).

Rubin (2007), in a paper titled "Ownership level, ownership concentration, and liquidity", studied

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relationship of institutional ownership and other intra-company groups with liquidity. The results showed that he couldn't observe relation between ownership of intra-company groups and liquidity, but he found that only these institutions affect liquidity of stocks. According to the assumptions, liquidity of stocks has a direct relationship with institutional ownership and a reverse relationship with concentration of institutional ownership. Therefore, both theories were confirmed (Rubin, 2007).

Jacoby & Zheng (2010) studied relationship between ownership dispersion (percentage of block stocks near stockholders) and liquidity of stocks by selection of a sample including 3576 American companies (1071 companies from NYSE, 323 companies from AMEX, and 2182 companies from NASDAQ). Their results showed that more dispersion of ownership improves liquidity of stocks (Jacoby & Zheng, 2010).

Kini & Mian (1995) studied relationship between ownership concentration (dispersion) and proposed price difference of buy and sell of stocks by selection of a sample of 1063 companies in USA Securities Bourse. They didn't found any significant relationship between these two variables (Kini & Mian, 1995).

Sarin (2000) used sectional analysis to study effect of information advantage of institutions on price gap and incorrect selection of traders. They found that hither share of ownership by institutions and managers (intra-organizational personnel) caused increment of price gap and decrement of market depth (Sarin, 2000).

Chang (2010), in a paper titled "Liquidity and return of stocks in Japan", studied relationship between stocks return and liquidity. They found that there was a strong negative relation between liquidity and stocks return (Chang, 2010).

Fang Noe and Tice (2009), in a paper titled "Liquidity of stocks and company value", studied relationship between liquidity of stocks and performance of company. They found that there was a strong positive relation between liquidity of stocks and performance of company (Fang Noe & Tice, 2009).

Chung (2008) studied effects of corporative leadership on liquidity of stocks using 24 indices related to financial and operational glassiness and ownership structure. They found that better corporative leadership causes more liquidity and less price effect (Chung, 2008).

Chordia (2008), in paper titled "Liquidity and market efficiency", suggested that short-term anticipation capability of stocks has a reverse relation with market efficiency. They found that when distance of buy and sell prices are limited, return anticipation is less. In their opinion, in an efficient market, return anticipation by past information has less efficiency (Chordia, 2008).

Rezapour (2010), in a paper titled "Relationship of institutional ownership and liquidity of stocks in Iran", studied relationship of institutional ownership and liquidity of stocks. According to the assumptions, they found that there is a direct relationship between institutional

ownership level and liquidity of stocks. But, there is a reverse relationship between institutional ownership concentration and liquidity of stocks. Therefore, in this research, both theories of information or transactional efficiency and incorrect selection were confirmed (Rezapour, 2010).

Izadinia & Rasaeian (2010), in a paper titled "Ownership dispersion and liquidity of stocks", studied relationship between ownership concentration level and liquidity of stocks of companies accepted in Tehran Stock Exchange. The results show that there is no significant relationship between ownership dispersion and liquidity of stocks in Tehran Stock Exchange (Izadinia & Rasaeian, 2010).

Izadinia & Rasaeian (2009), in a paper titled "Difference of buy and sell proposed price and profit quality in Iran", studied relationship between the research variables. They found that 27% of changes in difference of buy and sell proposed price are described by changes in profit quality (Izadinia & Rasaeian, 2009).

Research assumptions

The research assumptions are:

Assumption 1: There is a relationship between institutional ownership level and liquidity of stocks.

Assumption 2: There is a relationship between corporative ownership level and liquidity of stocks.

Assumption 3: There is a relationship between managerial ownership level and liquidity of stocks.

Assumption 4: There is a relationship between ownership concentration level and liquidity of stocks.

Research Methodology

This is an application research by goal, and a descriptive-correlation one by method and nature. The goal of this research is study of relationship between ownership structure (independent variable) and liquidity of stocks (dependent variable). Linear regression was used to study the relation between these variables. The assumptions were examined by confidence level of 95%. Also, test for nonlinear relationship between variables was done. Regarding to value of F statistic and significance level, it was found that linear regression is the best fit for variables.

Data gathering

In this research, libraries and archives were used to gather data. The research tools were financial statements, notes, and financial reports of the companies, gathered by Rahavard Novin Software and site of Tehran Stock Exchange. After classification and calculations in Excel, data was finally analyzed by SPSS.

Research model and measurement of variables

To test the assumptions, Rubin Model (2007) was used. The general model used in this research is:

$$\text{Liquidity measures}_{i,t} = \alpha + \beta_1(\text{Ownership}_{i,t}) + \beta_2 \text{Block}_{i,t} + \beta_3 \text{Size}_{i,t} + \beta_4 \text{Price}_{i,t} + \beta_5 \text{BM}_{i,t} + \beta_6 \text{VOLAT}_{i,t} + \varepsilon_{i,t} \quad (1)$$

in which,

Liquidity measures$_{i,t}$: Liquidity criteria for company i in period t

Ownership$_{i,t}$: Ownership type of company i period t

Block$_{i,t}$: Ownership concentration of company i in period t

Size$_{i,t}$: Size of company i in period t

Price$_{i,t}$: Price of stock of company i in period t

BM$_{i,t}$: Ratio of book value to market value of company i in period t

VOLAT$_{i,t}$: Return vibration of company i in period t

$\varepsilon_{i,t}$: Error term for company i in period t

Independent variables

Independent variable in this research is ownership structure and is studied by these two features:

a) Ownership type (composition of stockholders)

1) Institutional ownership: Percentage of stocks held by governmental and public companies from total stocks of capital. 2) Corporative ownership: Percentage of stocks held by components of corporation from total stocks of capital. 3) Managerial ownership: Percentage of stocks held by member of board of directors.

b)Ownership concentration

Percentage of stocks held by stockholders**:** Percentage of published stocks of a company held by five great stockholders of company.

Dependent variable

Variables of researches of Cueto (2009), Agarwal (2008), and Rubin (2007) were used to calculate liquidity of stocks. Totally, 5 measures in 2 groups: trading (trade-driven) and information (order-driven) were used, with the following definitions:

Trading measures (trade-driven)

1) Trading volume: Number of transacted stocks in a given period:

TVO = Trading volume   (2)

2) Trading value: This is obtained from multiplication of stocks price by trading volume. This measure was calculated for one-year intervals:

TVA = TVO $\times$ Price   (3)

in which,

TVA   : Trading value of stocks

TVO   : Trading volume of stocks

Price : Price of each stock

3) Stock turnover rate: Volume of traded stocks divided by number of stocks published by a company in a given period:

TOR = TVO / S   (4)

in which,

TOR   : Stock turnover rate

TVO   : Trading volume of stocks

S   : Number of published stocks

Information measures (order-driven)

Despite trading measures that were calculated annually, information measures need daily information in a definite hour.

1) Absolute gap between buy and sell proposed prices: This value is obtained from difference if buy and sell proposed prices.

ABS = AP$_{it}$ - BP$_{it}$ (5)

in which,

ABS   : Absolute gap of proposed prices

AP$_{it}$: Sell proposed price

BP$_{it}$: Buy proposed price

2) Relative gap between buy and sell proposed prices: This ratio is obtained from division of difference of buy and sell proposed price by average of proposed prices.

$$RS = \frac{AP_{it} - BP_{it}}{(AP_{it} + BP_{it})/2} \times 100 \qquad (6)$$

in which,

RS: Relative gap of proposed prices

AP$_{it}$: Sell proposed price

BP$_{it}$: Buy proposed price

Control variables

1) Stocks price: Average of stocks price of a company in an annual or seasonal interval, 2) Size: Natural logarithm of company's value at the end of period, 3) Book value to market value: This measure is obtained from division of book value by market value at the end of period,4) Return vibration: This variable is used as risk control index. To calculate this measure, standard deviation was calculated.

Statistical society and sample

The society of this research includes all companies accepted in Tehran Stock Exchange from 2005 to 2009, with the following conditions:

1. Company was accepted in Tehran Stock Exchange before 2005.
2. End of financial year of each company is March 20.
3. Number of trading days of the company in each year is not less than 70 days.
4. Company is not a member of investment and financial companies.
5. Financial data of company is accessible.

Regarding to the above limitations, 74 companies were selected as statistical sample by systematic deletion method.

Findings and data analysis

In order to examine each assumption, 5 models were defined and estimated upon dependent variables: trading volume (TVO), trading value (TVA), turnover rate (TOR), absolute gap between buy and sell proposed prices (ABS), and relative gap between buy and sell proposed prices (RS). Then, each assumption was separately examined using the results. Finally, general results were suggested.

Table 1. Results of assumption 1

Dependent variable	Independent variable		Variance analysis	Demonstration power			Watson camera statistic	Result
Liquidity variables	Institutional ownership level		F statistic (sig.)	R	R^2	Adjusted R^2		
	Coeff.	t statistic(sig.)						
TVO	-0.831	-6.303 (0.000)	42.013 (0.000)	0.605	0.366	0.357	1.958	Confirmed
TVA	-0.722	-6.446 (0.000)	47.399 (0.000)	0.628	0.394	0.386	1.956	Confirmed
TOR	-2.114	-7.024 (0.000)	42.860 (0.000)	0.609	0.371	0.362	1.948	Confirmed
ABS	2.048	6.805 (0.000)	44.674 (0.000)	0.617	0.380	0.372	1.968	Confirmed
RS	1.986	6.673 (0.000)	45.241 (0.000)	0.619	0.383	0.375	1.963	Confirmed

Table 2. Results of assumption 2

Dependent variable	Independent variable		Variance analysis	Demonstration power			Watson camera statistic	Result
Liquidity variables	Corporative ownership level		F statistic (sig.)	R	R^2	Adjusted R^2		
	Coeff.	t statistic(sig.)						
TVO	0.266	8.356 (0.000)	50.573 (0.000)	0.640	0.410	0.402	1.987	Confirmed
TVA	0.230	8.532 (0.000)	56.660 (0.000)	0.662	0.438	0.430	1.980	Confirmed
TOR	0.591	7.983 (0.000)	46.890 (0.000)	0.626	0.392	0.383	1.978	Confirmed
ABS	-0.505	-6.706 (0.000)	44.290 (0.000)	0.615	0.378	0.370	1.993	Confirmed
RS	-0.547	-7.449 (0.000)	48.407 (0.000)	0.632	0.399	0.391	1.991	Confirmed

Table 3. Results of assumption 3

Dependent variable	Independent variable		Variance analysis	Demonstration power			Watson camera statistic	Result
Liquidity variables	Managerial ownership level		F statistic (sig.)	R	R^2	Adjusted R^2		
	Coeff.	t statistic(sig.)						
TVO	-0.088	-7.166 (0.000)	45.321 (0.000)	0.619	0.384	0.375	1.962	Confirmed
TVA	-0.076	-7.288 (0.000)	50.826 (0.000)	0.641	0.411	0.403	1.956	Confirmed
TOR	-0.194	-6.752 (0.000)	41.812 (0.000)	0.604	0.365	0.356	1.950	Confirmed
ABS	0.163	5.602 (0.000)	40.401 (0.000)	0.597	0.357	0.348	1.968	Confirmed
RS	0.176	6.301 (0.000)	43.845 (0.000)	0.613	0.376	0.367	1.965	Confirmed

Results of assumption 1

Findings from statistical tests and analyses in Table 1 show that coefficient of independent variable of institutional ownership in regression pattern of first, second, and third models for liquidity measures is negative and significant, and in fourth and fifth models for non-liquidity measures is positive and significant. Since sig (significance level) of T and F for all models are less than 5%, H_0 is rejected and H_1 is accepted. Thus, assumption 1 is accepted. Therefore, there is a reverse relationship between institutional ownership level and liquidity of stocks. Then, it can be said that the more the institutional ownership level, the less the liquidity of stocks. Thus, assumption 1 is confirmed.

Results of assumption 2

Findings from statistical tests and analyses in Table 2 show that coefficient of independent variable of corporative ownership in regression pattern of first, second, and third models for liquidity measures is positive and significant, and in fourth and fifth models for non-

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liquidity measures is negative and significant. Since sig (significance level) of T and F for all models are less than 5%, H_0 is rejected and H_1 is accepted. Thus, assumption 2 is accepted. Therefore, there is a direct relationship between corporative ownership level and liquidity of stocks. Then, it can be said that the more the corporative ownership level, the less the liquidity of stocks. Thus, assumption 2 is confirmed.

Results of assumption 3

Findings from statistical tests and analyses in Table 3 show that coefficient of independent variable of managerial ownership in regression pattern of first, second, and third models for liquidity measures is negative and significant, and in fourth and fifth models for non-liquidity measures is positive and significant. Since sig (significance level) of T and F for all models are less than 5%, H_0 is rejected and H_1 is accepted. Thus, assumption 3 is accepted. Therefore, there is a reverse relationship between managerial ownership level and liquidity of stocks. Then, it can be said that the more the managerial ownership level, the less the liquidity of stocks. Thus, assumption 3 is confirmed.

Results of assumption 4

Findings from statistical tests and analyses in Table 4 show that coefficient of independent variable of ownership concentration in regression pattern of first, second, and third models for liquidity measures is negative and significant, and in fourth and fifth models for non-liquidity measures is positive and significant. Since sig (significance level) of T and F for all models are less than 5%, H_0 is rejected and H_1 is accepted. Thus, assumption 4 is accepted. Therefore, there is a reverse relationship between ownership concentration level and liquidity of stocks. Then, it can be said that the more the ownership concentration level, the less the liquidity of stocks. Thus, assumption 4 is confirmed.

Conclusion

There is a significant relationship between ownership structure and liquidity of stocks. The results of assumption 1 show that there is reverse relationship between institutional ownership level and liquidity of stocks. Increment of institutional ownership shows information asymmetry, because, even if there is institutional ownership concentration, a few stockholders can trade upon their information advantages (Rubin, 2007). If institutions enter as strategic stockholders into a company, a great percentage of stocks of the company are blocked. These decreases free float stock level and so decreases liquidity of stocks (Cueto, 2009).

The results of assumption 2 show that there is direct (positive) relationship between corporative ownership level and liquidity of stocks. Since corporative stockholders do not access to hidden information of company, they prevent information asymmetry and cause decrement of gap of buy and sell proposed price. Corporative stockholders do not hold and block stock for a long-term, and presence of corporative stockholders increase free float stocks level of companies and so increases liquidity of stocks (Sarin, 2000).

The results of assumption 3 show that there is reverse (negative) relationship between managerial ownership level and liquidity of stocks. Higher managerial ownership levels may accompany with more probability of trading of insiders, which decreases liquidity of stocks. Managerial stockholders are strategic ones. Strategic stockholders are those who invested with managerial and long-term goals. Therefore, presence of managerial stockholders decreases free float stock level of companies, so decreases liquidity of stocks (Sarin, 2000).

The results of assumption 4 show that there is reverse (negative) relationship between ownership concentration level and liquidity of stocks. In companies with concentrated ownership structure, great stockholders access hidden and private information of companies. Therefore, in their transactions, the other parties may encounter incorrect selection. Since great stockholders own large blocks of stocks, they can decrease free float stocks level in market. Therefore, presence of great stockholders can decrease liquidity of stocks (Izadinia & Rasaeian, 2010). Results of this research conflict with earlier findings Rubin (2007); Agarwal (2008); Cueto (2009); Jacoby & Zheng, (2010),but coincides with findings of Kini and Mian (1995) and Sarin (2000).

Table 4. Results of assumption 4

Dependent variable	Independent variable		Variance analysis	Demonstration power			Watson camera statistic	Result
	Ownership concentration level		F statistic (sig.)	R	R^2	Adjusted R^2		
Liquidity variables	Coeff.	t statistic(sig.)						
TVO	-0.245	-9.293 (0.000)	55.275 (0.000)	0.657	0.432	0.424	1.957	Confirmed
TVA	-0.214	-9.607 (0.000)	62.439 (0.000)	0.679	0.462	0.454	1.948	Confirmed
TOR	-0.565	-9.294 (0.000)	53.226 (0.000)	0.650	0.422	0.414	1.942	Confirmed
ABS	0.547	8.972 (0.000)	54.464 (0.000)	0.654	0.428	0.420	1.971	Confirmed
RS	0.546	9.103 (0.000)	56.319 (0.000)	0.660	0.436	0.428	1.963	Confirmed

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