Examining the Effect of Discretionary Accrual's on Stock Liquidity of Companies Listed in TSE:
A Comprehensive Index for Liquidity

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ABSTRACT

Stock liquidity is one of the criterions that the investors consider in their portfolio decisions. There are some advantages in high levels of stock liquidity such as attracting short-term capitals and also increasing turnover in capital market. On the other hand, earnings management is a managerial activity influencing stock liquidity and includes discretionary related earnings management and real earnings management. Therefore the main purpose of this study is to estimate the effect of the discretionary accruals based earnings management on stock liquidity of companies listed in TSE. This study conducted through regression model based on panel data and then hypotheses examined through this. The results of data analysis and hypotheses examination indicated that the earnings management activities based on discretionary accruals significantly influence stock liquidity negatively. Control variables include standard deviation of daily stock returns, the average daily turnover of stocks, the average closing price of stocks traded, the average number of daily transactions of stocks, and market value of the firm. Based on the results, these variables have no significant effect on the dependent variable.
KEYWORDS: earnings management, discretionary accruals, and stock liquidity

1. INTRODUCTION

Generally there are two types of reaction to information in capital market: price effect and market effect as volumetric which peers in liquidity creations (Chung et al, 2009). Lack of transactional costs and also high levels of liquidity are two of important characteristics in an efficient and ideal market. Therefore stock liquidity can bee considered as one of the important criteria of market efficiency especially in terms of informational efficiency (Chung et al, 2009). Increasing stock liquidity leads to more sharing of financial risk through reduction of portfolio handling costs and high levels of investor's motivation in terms of their transactional decisions (Lesmond et al, 1999). Finally it can decrease transactional costs through improvement of the process of price discovery. One of the important issues in liquidity management bye managers and its prediction by investors is the exploration of the factors affecting it such as earnings management. Earnings management is one of the dimensions of management clearance. Therefore recognition of existence and continuity of earnings management is indicative of low quality of accounting information (Dechow and Dichev, 2002) and decreases firms` credit risk and also financing opportunities (Lim et al, 2008), (Loughran and Ritter, 1997), (Rangan, 1998), and (Teoh et al, 1998) and so leads to higher levels of liquidity costs because of its effect on investors` expected rate of return. Such costs observed in companies' accounting scandals frequently (Chung et al, 2009). There are different studies in terms of bid-ask price spreads, and earnings management that indicate there is a significant relationship between bid-ask spreads, and earnings management (Dechow et al, 2000), (Richardson, 2000), and (Trueman et al, 1988). Chung et al. (2009) argue about decreasing of liquidity as an important subsequent of earnings management. On the other hand Ascioglu et al. (2011), estimate the earnings management by a cross sectional regression model and predicted its significant effect on market liquidity and concluded similar results to later findings.

With respect to the mentioned descriptions, in this study (similar to Ascioglu et al (2011)) the earnings management will be examined based on discretionary accruals and the model proposed bye Jones (1991) has been used for its estimation and the measure of stock liquidity is the difference between bid and ask price of the stock. Based on Jones (1991) control variables of the relationship between earnings management and liquidity include deviation of daily stock returns, the average daily turnover of stocks, the average closing price of stocks traded, the average number of daily transactions of stocks, and market value of company. In order to this, the effect of each of these factors on discretionary accruals and stock liquidity has been examined separately.

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Research background

Ascioglu et al (2011) examined the effect of earnings management (through accruals, real earnings management and discretionary expenses) on market liquidity. They also utilized lack of liquidity criteria KV (based on Chung et al. (2009)) to evaluating market liquidity. Their results indicated that there are significant relationship between earnings management by discretionary accruals with lack of liquidity criteria and market liquidity decreases with increasing abnormal operating cash flow. Also their results indicated that the latest method of earnings management (abnormal discretionary expenses) has direct relationship with lack of liquidity. Chung et al (2009) examined the relationship between earnings management and stock liquidity and also confirmed this prerequisite that the earnings management indicates to higher levels of incorrect choosing costs. They also indicated that if earnings manipulation is indicative of applying assertive methods of accounting, then liquidity suppliers and providers effort to expand differences between bid and ask price in order to maintaining and supporting themselves. Bachtiar (2008) examined the effect of discretionary on informational asymmetry that reflects in trade costs of financial market. The findings indicated that there are significantly positive relationships between quality of low earning and bid-ask price as a criteria of measuring informational asymmetry. In this study, quality of low earning derived from Jones's modified model. There are so many other studies confirmed the effect of earnings management on different liquidity measures such as Gupta et al (2009), Richardson (2000) and Franchs et al. (2005)

Research hypotheses

With respect to the main purpose of this study that is to analysis of the effect of discretionary accruals on stock liquidity of the firms listed in TSE (TSE), the hypotheses formulated as following.

H1: discretionary accruals influence stock liquidity of the companies listed in TSE.

With respect to the mediator variables, the following hypotheses have been formulated:

H2: the deviation of daily stock returns influences the relationship between discretionary accruals and stock liquidity of the companies that listed in TSE.

H3: the average daily turnover of stocks influences the relationship between discretionary accruals and stock liquidity of the companies that listed in TSE.

H4: the average closing price of stocks traded influences the relationship between discretionary accruals and stock liquidity of the companies that listed in TSE.

H5: the average number of daily transactions of stocks influences the relationship between discretionary accruals s and stock liquidity of the companies that listed in TSE.

H6: the market value of company influences the relationship between discretionary accruals s and stock liquidity of the companies that listed in TSE.

RESEARCH METHODOLOGY

This study was aimed to examination and description of an appropriate model to the effect of discretionary accruals on stock liquidity of the firms listed in TSE. The results of this study could help the investors in terms of their investment decisions. Therefore this is a practical, descriptive, and correlation study. The data has been gathered through TSE web site and other resources such as related web sites and databases such as Tadbir Pardaz. The sample of the study includes all non-financial firms listed in TSE before 2003 and their stock trade has not been cease in years of 2003 to 2008 excluding the firms whom the financial statements are not accessible and consists of 81 firms. The following regression model has been predicted to test the first hypothesis.

Model 1: $PSP_{it} = \alpha_0 + \alpha_1\ DA_{it} + \epsilon_{it}$

in which, PSP_{it} refers to the liquidity (bid-ask spreads) and DA is discretionary accruals. In order to estimation of discretionary accruals variable, the Jones (1991) model has been used as following equation (Ascioglu et al, 2011).

$$\frac{TA_{i,t}}{A_{i,t-1}} = k_1 \frac{1}{A_{i,t-1}} + k_2 \frac{\Delta SALES_{i,t}}{A_{i,t-1}} + k_3 \frac{PPE_{i,t}}{A_{i,t-1}} + \varepsilon_{i,t} \tag{1}$$

In this equation, TA refers to total accruals and has been measured as operating profit minus operating cash flow. A is total assets, $\Delta SALES$ is change in net sales during two financial years t and t-1, PPE is gross assets, machines and facilities, and ε is the residual of the multiple regression model and is the measure of the level of discretionary accruals.

Relative bid-ask spreads has been measured through equation 2 based on Ryan' study (1996).

$$BA_{i,t} = \frac{AP_{i,t} - BP_{i,t}}{\dfrac{AP_{i,t} + BP_{i,t}}{2}} \tag{2}$$

In this equation, BA is bid-ask spreads, AP is the best ask price, and BP is indicative of the best bid. The measured values of BA averaged for different days and the average values used in statistical analysis for the year.

The effect of moderator variables on liquidity has been tested bye the following regression models

Model 2: $PSP_{it} = \beta_0 + \beta_1 DA_{it} + \beta_2 SDRET_{it} + t$

Model 3: $PSP_{it} = \beta_0 + \beta_1 DA_{it} + \beta_2 LNTV_{it} + t$

Model 4: $PSP_{it} = \beta_0 + \beta_1 DA_{it} + \beta_2 LNCLP_{it} + t$

Model 5: $PSP_{it} = \beta_0 + \beta_1 DA_{it} + \beta_2 LNTR_{it} + t$

Model 6: $PSP_{it} = \beta_0 + \beta_1 DA_{it} + \beta_2 LNMV_{it} + t$

So that In SDRET refers to the deviation of daily stock returns, LNTV is the natural logarithm of the average daily turnover of stocks, LNTR is the average closing price, and LNMV is market value. In order to measuring the deviation of daily stock returns, equation 3 has been utilized.

$$R_{i,t} = P_{i,t} - P_{i,t-1}/P_{i,t-1} \tag{3}$$

In this equation, R is to stock return, and P is the price of the stock.

RESULTS

In this study Fisher test- ADF has been used to examining the stationary of all of variables. The results indicated that all of the variables were stationary. So, the panel data regression has been used to predict the models. In order to examining auto-correlation, Durbin-Watson test has been used and White test has been used to examining variance heteroscedasticity. The results of these tests have been shown in table 1.With respect to the results, the models have no auto-correlation and also there isn't any variance heteroscedasticity for hypotheses. In order to analyzing hypotheses, all of them have been examined in the level using panel data. After that, the Limer`s F test the Hausman test has been used to determine the approach of model estimation and the findings has been offered at the table 1.

Table 1: The results of analytical method of the models

Number of model	The results of F test		The results of Hausman test		The results of white test	The results of Durbin-Watson test	Method of analysis
	sig	Statistic	Sig	Statistic			
Model 1	0.0356	1.7316	0.7704	0.08521	0.99	1.8665	Panel data with random effects
Model 2	0.942	0.749	-	-	0.93	1.830	Panel data
Model 3	0.020	1.648	0.0231	0.733	0.85	2.194	Panel data with fixed effects
Model 4	0.013	1.219	0.000	31.296	0.28	2.073	Panel data with fixed effects
Model 5	0.039	0.652	0.475	1.487	0.94	1.904	Panel data with random effects
Model 6	0.021	1.680	0.032	0.915	0.28	2.161	Panel data with fixed effects

With respect to the results of this table, each of these models has been estimated in e-views and the results have been shown in table 2.

Table 2: the results of the models estimation

Variable	LNMV	LNTR	LNCLP	LNTV	SDRET	DA	C	F
Model 1						0.1108 (0.041)	-0.1514 (0.000)	4.38 (0.0366)
Model 2					0.000 (0.329)	0.324 (0.000)	NA (NA)	3.57 (NA)
Model 3				-0.019 (0.0002)		0.082 (0.160)	0.506 (0.000)	9/96 (0.014)
Model 4			-0.084 (0.000)			0.048 (0.387)	0.854 (0.000)	1/54 (0.003)
Model 5		-0.011 (0.000)				0.1002 (0.065)	0.266 (0.000)	6/14 (0.002)
Model 6	-0.028 (0.008)					0.092 (0.121)	0.521 (0.000)	2/86 (0.020)

The values in parenthesis are p-values and the values out of parentheses are coefficients.

With respect to the results of the first model estimation, p-value of accruals was 0.041 meaning that the first hypothesis is confirmed and based on it, discretionary accruals influence stock liquidity negatively. The effect of mediator variables has been tested by the value of t calculated by equation 4. If its value is more than 2 or less than -2 then it is concluded that the effect of mediator variables on the relationship between dependent and independent variables is significant and the variable mediate this relationship (Palani-Rajan Kadapakkam, 1998) .

$$t = \frac{\beta_2 - \beta_1}{(SD_1 - SD_2)/2} \qquad (4)$$

β_1 and β_2 refer to coefficient of independent variables in the model with and without the mediator variable. Then SD_1 and SD_2 are the standard deviation of statistics in the model with and without mediator variables. To test the second hypothesis about determining the effect of deviation of daily stock returns, t-value was -1.004 that is greater than -2, therefore it is concluded that this hypothesis rejected, so it should remember that deviation of daily stock returns didn't moderate the relationship between discretionary accruals and stock liquidity.

In the third hypothesis, in order to determining the moderating effect the average daily turnover of stocks, t-value was 0.123 that is less than 2, therefore it is concluded that this hypothesis rejected, so it should remember that the average daily turnover of stocks dose not moderate the relationship between discretionary accruals and stock liquidity. In the fourth hypothesis, in order to determining the moderating effect the average closing price of stocks traded, t-value was 0.28 that is less than 2, therefore it is concluded that this hypothesis rejected, so it should remember that the average closing price of stocks traded dose not moderate the relationship between discretionary accruals and stock liquidity. In the fifth hypothesis, in order to determining the moderating effect of the average number of daily transactions of stocks, t-value was 0.048 that is less than 2, therefore it is concluded that this hypothesis rejected, so it should remember that the average number of daily transactions of stocks dose not moderate the relationship between discretionary accruals and stock liquidity. And finally In the sixth hypothesis, in order to determining the moderating effect of market value of company, t-value was 0.08 that is less than 2, therefore it is concluded that this hypothesis rejected, so it should remember that market value of company dose not moderate the relationship between discretionary accruals and stock liquidity.

CONCLUSION

The test results of the first hypothesis indicated that the discretionary accruals have a negative influence on stock liquidity meaning that if managers use discretionary accruals for earnings management, the liquidity of the firms` stock will be decreased. These results support Ascioglu et al. (2011) and also Chung et al. (2009). Also this is suggested to stakeholders that if the stock liquidity is important in their investment decisions, they should consider discretionary accruals in analyzing stock investment decisions. Based on moderating test of the moderator variables we can conclude that none of the moderating variables moderate the relationship between discretionary accruals and liquidity meaning that the effect of earnings management on liquidity will not change when deviation of daily stock return changes. This conclusion can bee applied for other moderating variables. This result support Ascioglu et al. (2011), Chung et al (2009).

Based on the conclusions it is suggested to investors and liquidity analyzers that attend to quality of reported earning and consider earnings management in their judgments about financial statements especially when the value

of discretionary accruals shows the existence of earnings management. The managers may look for different benefits of earnings management but we suggest them to consider the liquidity consequences of such a decision and then rethink about their behavior.

Also it is suggested for future studies that conduct this issue in different industries. We utilize only bid-ask spreads, so it is suggested that future studies utilize different models and measures to measuring liquidity and earnings management. In this study the relationship between earnings management and stock liquidity examined only during six years, so it is suggested that this relationship examine for short-term periods such as two years or even one year.

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