An Investigation of the Effect of Voluntary Disclosure of Information on One- and Multi-dimensional Measures of Stock Liquidity in the Context of the Firms Enlisted in Tehran Stock Exchange

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ABSTRACT

The knowledge of the effect of corporate disclosure quality on market variables such as stock market liquidity is very important. Discovering the influential factors on stock liquidity is of mounting importance, regarding its ever-increasing significance and its fundamental role in price discovery of assets, financial risk distribution, expected increased return and transaction costs decrease. Consequently, the present study has strived to investigate the effect of voluntary disclosure of information on stock liquidity. The sample consisted of 87 of then listed firms in Tehran Stock Exchange (TSE) during the period of 2010 to 2014. To measure liquidity, two multi-dimensional measures, namely the proportion of zero return days and the Amihud liquidity ratio, and further two one-dimensional measures, namely the mean of daily rials trading volume and the number of stock trading, have been utilized. Additionally, to evaluate voluntary disclosure of information, 60 questions were prepared and examined. Hypotheses testing has been done employing multivariate regression and analysis panel data. The results indicate a significant relationship between lateral one-dimensional liquidity measures and voluntary disclosure of information. However, the relationship between multi-dimensional liquidity measures and voluntary disclosure of information came out to be non-significant.

KEYWORDS

Voluntary disclosure, liquidity, one-dimensional liquidity, multi-dimensional liquidity

INTRODUCTION

Nowadays, the existence of transparent information with reasonable quality is considered as one of the cornerstones of accountability and decision-making in an informed economy. Disclosure of the information by firms is conceived of as one of the significant and valuable resources of information for the investors, creditors and beneficiaries. As the distribution of knowledge increases in the societies, the possibility of accountability and wise decision-making regarding the how of developing and utilizing resources in the state and private sectors increases and the probability of corruption decreases. One of the backbones of managing an efficient and desirable firm is adopting policies based on transparency and disclosure of the information. As a matter of fact, disclosure methods of a firm can be considered as a mechanism supporting foreign investors’ rights and this fact results in less asymmetry of the information and agency cost (Chen et al, 2007).

Asymmetry of the information, resulting from the low quality of disclosure, leads to adverse selection (Setayesh, 2011). Stocks having such a problem are less possible to liquidate (Matoussi, 2004), and more costly at the time of exchange. As a result, the buyers are less interested in buying them. The investors demand more premium for the extra transaction cost paid. The corporates can reduce the asymmetry of the information and the stock exchange costs hence the cost of investment through more voluntary disclosing of information and increasing the quality of disclosure (Amihud, and Mendelson, 1986).

Vernimmen (2005) believes that liquidity means the ability to exchange a large number of stocks with a low cost in a short time. That is, the cost of the stocks should not change a lot in the time interval between the order and the buying (Vernimmen et al, 2005). Thus, transaction costs decrease (liquidity increase) relies heavily on the activities leading to the development and improvement of the monitoring mechanisms.
In regard with information disclosure and its impact on the market value, Diamond and Verrecchia (1991) presented the firm value. In their model, they suggested that voluntary disclosure of information will result in the reduction of the asymmetrical information between the corporation and the market (will reduce its power) and, as a result, a higher number of the stocks will be exchanged and the stock market liquidity of the firm increases and this very fact will interest big investing organizations (Diamond and Verrecchia, 1991). Therefore, liquidity increase and cost of Equity decrease are among the most significant outcomes of improving the quality of information disclosure in the capital market. To this aim, the present study attempts to practically investigate the effect of voluntary disclosure of information on different types of liquidity measures in the context of the firms enlisted in Tehran Stock Exchange.

**THEORETICAL FRAMEWORK**

- **Definition of disclosure**

Semantically, the word ‘disclosure’ means to circulate the information, although the accountants usually tend to limit the meaning of the word to the publication only of the financial information of the enterprise in the annual reports. The most precise viewpoint to the disclosure of the information includes management issues, analysis and interpretation, accompanied notes of the financial statements and supplementary statements (Hendriksen and Van Breda, 1992).

Further, the American Association of Accounting has defined ‘disclosure’ as “the flow of the information from the private to the public”. Disclosure is a pervasive term in accounting and includes almost all the process of financial reporting and is known as disclosure principle which is one of the fundamental principles. This principle necessitates the financial statements to be prepared and presented in a way that makes them understandable, informative and as comprehensive as possible in regard with the aims of financial reporting. In other words, financial reporting emphasizes the presentation of sufficient and clear information in financial statements and demands the disclosure of the related information in those statements to be in a form that, on the one hand, increases the possibility of making informed decisions on the part of the users of the financial statements and, on the other hand, does not mislead them.

- **The purpose of information disclosure**

One of the main purposes of financial reporting is to provide the information needed for decision-making. To achieve this purpose, it is necessary to properly disclose financial and the other related information. Financial accounting standards board has identified the aims of financial reporting as follows:

“The general purpose of financial reporting is to provide the information that illustrates the effects of financial transactions, financial affairs and operations that are influential on the financial status and the outcomes of the financial operations of an enterprise, hence to help the investors, creditors of financial facilities and other outwork users in assessing and decision-making about an enterprise” (Hendriksen and Van Breda, 1992).

According to the existence or non-existence of laws and regulations related to disclosing the information, disclosure can be categorized into two types:

a. **Obligatory disclosure**

b. **Voluntary disclosure**

If the firms are obliged by the related laws and regulations, professional authorities or applicable standards to disclose their information, it is called obligatory disclosure which is accomplished through financial statements, explanatory notes and other determined laws and regulations. However, when the corporates disclose their information such as anticipation of the future performance, financial analysis, etc. voluntarily, it is considered as voluntary disclosure that is achieved through explanatory notes, the press, the media, etc.

- **Voluntary disclosure**

Voluntary disclosure is the process of spreading the information from the firm’s reportage to the financial markets without any obligation to do so. To put it another way, voluntary disclosure is on the basis of managing motifs. All in all, the studies on the voluntary disclosure of the information are based on the notion that, even in an efficient capital (equity) market, the managers have more information and a better understanding of the future performance of the corporate compared to outwork investors (Healy et al., 1999). Thus, voluntary disclosure strategy of the firm plays a vital role in decreasing the asymmetry of the information between the managers and the outwork investors (Shin, 2002).

Efficient financial markets facilitate the smooth flow of money from the savers of money to those who have profitable investing opportunities. Such markets indicate a high rate of exchange volume and participation in the market. In such markets, the investors engage in the exchange because they are convinced that the stocks prices are logically efficient and fair, and, as a result, the exchange volume of the market increases due to the non-existence of risky information, which is called liquidity increase of the market. As implied in so many studies, the exchange volume can reflect the differences in the process of stock pricing by the investors. These differences are rooted in the asymmetry of information, that is, when the investors have certain information with different qualities. This information asymmetry that is due to the presence of the investors who have access to the classified information results in charges because of adverse selection in the exchanges among the sellers and buyers of the firm’s stocks and these adverse selections indicate liquidity decrease on the side of the firms’ stocks. Therefore, just like the quality of the reports presented by the corporate, the quality of the information clearly plays a significant role in the liquidity of the capital market. Disclosure reduces the asymmetry of the
information among the traders to some extent. The probability of liquidity increase of the traders’ stocks rises strikingly due to stock exchange when they are eager to exchange with a reasonable cost. This increase in liquidity leads to a decrease in costs of equity (Ghaemi and Rahimpour, 2010). So, drawing on the theoretical principles, disclosure does not influence liquidity directly, rather it affects liquidity through adverse selection. Therefore, disclosing more information causes a decrease in the adverse selection part of the asymmetry of the information in the market, an increase in the tendency of the traders to exchange with a reasonable exchange cost, an increase in the exchange facility and, consequently, an increase in stock liquidity.

Welker has studied the effect of the quality of information disclosure on the Bid-Ask spread as part of the market liquidity. He proposed that as the information disclosure policy of the firm improves this variation (in the Bid-Ask spread) decreases because a better information disclosure policy reduces the investors’ concerns about the secret transactions (internal transactions) and the issues raised regarding adverse selection. Welker concluded that there is a significant and negative relationship between the quality of the disclosed information (according to the analysts’ ranking of the disclosed information) and the Bid-Ask spread. The results of such studies confirm the model presented by Diamond and Verrecchia (Welker, 1995).

- **Liquidity**

Liquidity has been defined as the ability to sell and buy a desired number of stocks at the market price in a short period of time. This feature is valuable since, under the same conditions, higher liquidity stocks will cost more compared with lower liquidity stocks (Johnson and Timothy, 2008). The success of the capital market in equipping and directing financial resources depends on liquidity of the utilized instruments in that market and attracting the trust of the owners of the savings resources, which is impossible without the presence of efficient stock exchanges. Thus, one of the main purposes of the active economic markets is to help upgrade the role of the capital market in funding the productive economic activities which is not possible without proper liquidity of the financial instruments present in the market.

Liquidity has many criteria none of which has the potential to measure all its dimensions (Robin, 2007). In a classification, Von wyss has broadly divided liquidity criteria into one-dimensional and multidimensional measures. Von wyss has named Amiust liquidity ratio, Amihud illiquidity ratio and zero return days ratio as multidimensional criteria. Further, Von wyss has regarded the criteria related to the volume, related to the size of the corporate, related to time and related to the Bid-Ask spreads as one-dimensional measures. Unlike one-dimensional criteria, multidimensional criteria tend to incorporate several factors in one criterion (Von wyss, 2004). “Domestic studies mostly use one-dimensional liquidity criteria, like Setayesh et al. (2011) and Fakhaari and Mallaah (2009), or two-dimensional criteria, like Ya’qub nejad and Zabihi (2011). But the present study has utilized two of the multidimensional liquidity criteria which have been scarcely used in the domestic studies along with two one-dimensional liquidity criteria. Another variable in this study is disclosure. Unlike other domestic studies which draw on the criterion of the exchange informing stock exchange, the present study uses the voluntary information disclosure criterion which is composed of 60 questions in the area of voluntary disclosure.

**LITERATURE REVIEW**

In a study, Diamond and Verrecchia (1991) investigated the relationship between liquidity and cost of Equity in the American corporates. The results indicated that general information disclosure to reduce information asymmetry can decrease costs of Equity the corporate through absorbing the demand of the major investors to increase stock liquidity.

Chen et al (2007) examined the relationship between corporate navigation and stock liquidity. To measure corporate navigation, they relied on the ranking measures of S&P institute which are based on the transparency and disclosure of the information. The authors found out that the corporates with less information disclosure suffer from serious information asymmetry. They have utilized the Bid-Ask spread to measure liquidity. The study has shown that there is a direct relationship between corporate navigation and liquidity and the liquidity costs are higher for those corporates adopting an inefficient information disclosure strategy. The authors have added that weak corporate disclosure is accompanied by weak corporate navigation leading to a higher information asymmetry risk which, in turn, results in a bigger costs gap (lower liquidity) for the firm.

Espinosa et al (2008) investigated the relationship between disclosure and liquidity in the stocks exchange in Madrid. The results show that there is a direct relationship between disclosure and liquidity.

In a study to examine the effect of disclosure quality and information asymmetry, Chuang et al (2008) found out that the quality of disclosure, as an efficient program, can influence the how of the relationship with the investors. In other words, it can affect disclosure circumstances of the firm, the status of the attention of the analysts to the firm, absorbing institutional investors, improving general understanding, costs of investment decrease, entry generation and developing disclosure standards. The results illustrate that price gap is negatively related to the disclosure of information. Simply put, information asymmetry caused by the price gap between supply and demand (liquidity measure) decreases as a result of the increase in the quality and transparency of the disclosure. So it can be stated that an increase in the quality of disclosure increases the level of liquidity.

Fakhari and Fakhaari (2009) attempted to examine the effect of information disclosure on stock liquidity of the firms enlisted in Tehran Stock Exchange. To determine the
level of information disclosure by the firms, they prepared a checklist based on the accounting standards and, in the end, investigated its relationship with stock liquidity in 112 firms in 2007. The obtained results illustrated that there is a significant reverse relationship between certain information disclosure and stock liquidity index.

Ya’qub nejad and Zabihi (2011) probed the relationship between the quality of disclosure and stock liquidity in 72 firms enlisted in Tehran Stock Exchange during the years 2004-2008. They drew on the exchange informing grade of the stock exchange and Amihud liquidity ratio to determine the quality of disclosure and liquidity, respectively. The results showed that there is no significant relationship between liquidity and information disclosure.

Setayesh et al (2011) investigated the effect of the quality of disclosure on liquidity and costs of Equity in current and future common stock of the corporates enlisted in Tehran Stock Exchange. To do so, the effect of the corporate’s size was controlled for. To measure the variable of disclosure quality, the scores assigned to each corporate which are released by Tehran Stock Exchange through “quality of disclosure and proper exchange informing” announcement were relied on. Further, to measure liquidity, such criteria as stock turn rate, the number of stocks exchanged and rial volume of the transactions were utilized. The results of the study indicated that there is no significant relationship between the quality of disclosure and the firm’s current and future liquidity. Moreover, no significant relationship was detected between the quality of disclosure and the costs of investment of the current and future common stock.

METHODOLOGY

The hypotheses of the study According to the above-mentioned theoretical principles, the following hypotheses were formulated:

- **Major hypothesis:**
  - Voluntary disclosure of information has a significant effect on the corporate’s liquidity.

- **Minor hypothesis:**
  - Voluntary disclosure of information has a significant and negative effect on liquidity.
  - Voluntary disclosure of information has a significant and negative effect on zero return days ratio.
  - Voluntary disclosure of information has a significant and positive effect on the mean of daily rials trading volume.
  - Voluntary disclosure of information has a significant and positive effect on the number of stock trading ratio.

- **Population, sample and length of the study**

The target population of the study was composed of the corporates enlisted in Tehran Stock Exchange. In order to select a representative sample from among the target population, the systematic exclusion sampling method was utilized. Consequently, the firms having the following features were included in the sample:

a. The intended firm has been enlisted in the stock exchange since 2010
b. The financial year of the firm ends in Esfand 29th (March 20th).
c. Transaction symbol of the firm should not have undergone an interruption longer than 100 days.
d. The data needed for investigation should be available and complete.
e. The firms should not be among financial intermediators.

With regard to the above-mentioned limitations, the number of firms examined through the years 2010 to 2014 mounted to 87. The instrument included document analysis which involves utilizing forms and data bases. In other words, the needed data were extracted from the financial statements of the firms and the official website and the library of Tehran Stock Exchange and also ‘Tadbir pordad’ and ‘Rahavard Novin’ data banks. The data obtained were analyzed through STATA 12 and SPSS 16.

**MODEL OF THE STUDY AND VARIABLE EXTRACTION**

To test the hypotheses of the study, Chen et al.’s (2007) model and Brown and Hillegies’t’s (2007) model were relied on.

The basic model of the study to test the hypotheses is as follows (equation 1)

\[
\text{Liq}_i = \alpha + \beta_1 \text{Voldis}_i + \beta_2 \text{lnassets}_i + \beta_3 \text{lev}_i + \beta_4 \ln Mv_i + \epsilon_i
\]

(1)

Liq: different measures of liquidity (four measures)
Voldis: measure of voluntary information disclosure in firm i during period t
lnassets: total assets of firm i during period t (corporate size)
Lev: financial leverage of firm i during period t
LnMv: closing stock market value of firm i during period t (corporate value)
\(\epsilon_i\) : error sentence for firm i during period t

**Independent variable**

Voluntary disclosure: Grading the disclosure level of the firms has been accomplished using the checklist prepared by Hossein pour (2011). This disclosure checklist is composed of 60 items on voluntary disclosure of information arranged in 11 broad classes. The broad classes include: the general information of the firm, institutional imperium, statement of the prospect, corporate aims and strategies, corporate anticipations, information on the financial and operational analyses of the firm, research and development, general risk management, information related to the staff, social and environmental reports, non-financial key statistics, and information on the market. Through examining annual financial statements, explanatory notes and public community reports, one point was assigned to each of the
items of the checklist which was disclosed by the firms, otherwise, zero was assigned to the items. Finally, voluntary disclosure index was calculated through dividing the total of the disclosed items by the total of the items. Voluntary disclosure index was calculated as follows (equation 2)

\[ Dvol = \frac{\sum d_i}{n} \]  

(2)

where
\[
\begin{align*}
& d_i = 1 & \text{if the item is disclosed} \\
& d_i = 0 & \text{if the item is not disclosed} \\
& n = 60 & \text{the total number of the items}
\end{align*}
\]

- **Dependent variables**

  Liquidity: liquidity is considered as a controversial term in many financial texts, that is, although a seemingly simple term, but it is very complicated to measure and calculate in the context of transactions. Fernandez (1999) cites Kinz who believes that liquidity cannot be measured by one absolute criterion. Sometimes terms like ‘marketability’ or ‘tradability’ are used instead because the larger the number of the potential sellers and buyers of an asset is, the more liquidable it is (Karami et al., 2011). This study has made use of those liquidity measures through which different dimensions of liquidity can be detected.

  The mean of daily rials trading volume (Volume): this is a one-dimensional criterion since it relies just on volume. The mean of daily rials trading volume equals the mean value of the transactions done during one fiscal period.

  The total number of transactions (NT): this includes the total number of transactions of one stock in a yearly period. This criterion is also one-dimensional since it relies just on volume.

  Amihud illiquidity ratio: Amihud first introduced this measure in 2002 to measure illiquidity (the reverse measure to liquidity) since there were no infrastructure data extraction about the exchanges and the price offers in many financial markets for a long time. This measure is proper for those markets which lack macro-infrastructures of the capital market and do not have a well-developed market. This measure is multidimensional and shows the ratio of absolute price variation to the volume of transactions and the price impact of the number of orders (equation 3)

\[ ILLIQ = \frac{\text{abs}(\frac{\text{daily return}_{id}}{\text{daily volume}_{id}})}{1000000} \]  

(3)

daily return_{id}: return of the stock i in the day d  
daily volume_{id}: rial value of exchanging stock i in day d

  Zero return days ratio (zrd): Lesmond et al. (1999) introduced the theoretic foundations of this liquidity index and utilized it. If the value of each information signal does not exceed that of the transaction cost, they believed, the participants of the market will not exchange anything and zero returns appear. Therefore, the higher the rate of transaction costs go, the more zero return days it causes. To measure zero return days ratio, the number of zero return days for particular stocks should be divided by the number of days in a year when the stocks of the firm are transacted and it is calculated as follows (equation 4). This criterion is multidimensional, too, because it is on the basis of transaction cost besides volume.

\[ PZR = \frac{\sum zrd}{dym} \]  

(4)

zrd: symbolizes zero return days for stock i  
That is zrd equals 1 if the return of the stock i equals 0 on that day; otherwise, it equals zero.  
dym: the number of trading days of stock i through one fiscal year.

- **Control variables**

  Drawing on the studies cited in the literature review, this study has attempted to control for some variables which include:

  Lnassets: the normal logarithm of the total assets of the firm at the end of the year (corporate size)

  Lev: corporate leverage which is calculated through dividing the total of debts by the total stockholders’ equity

  LnMve: the normal algorithm of stock market value in the end (corporate value)

**FINDINGS OF THE STUDY**

- **Descriptive statistics**

  Central index and distribution is illustrated in Table 1. The difference between the minimum and maximum of the data shows the proper range to use for the variables. The acceptable standard deviation indicates the consistency of the data collected from the sample. The small difference between the mean and the median illustrates the normal distribution of the data.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>Median</th>
<th>Standard deviation</th>
<th>Maximum</th>
<th>Minimum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Involume</td>
<td>2104</td>
<td>20.83</td>
<td>1.61</td>
<td>27</td>
<td>17</td>
</tr>
<tr>
<td>Inassets</td>
<td>14.74</td>
<td>14.94</td>
<td>1.509</td>
<td>19.62</td>
<td>12.11</td>
</tr>
<tr>
<td>Dvol</td>
<td>0.483</td>
<td>0.465</td>
<td>.1468</td>
<td>0.83</td>
<td>0.08</td>
</tr>
<tr>
<td>Illiq</td>
<td>15.48</td>
<td>58.78</td>
<td>1.163</td>
<td>749</td>
<td>0.04</td>
</tr>
<tr>
<td>Pzr</td>
<td>0.051</td>
<td>0.076</td>
<td>0.075</td>
<td>0.46</td>
<td>0.00</td>
</tr>
<tr>
<td>Leverage</td>
<td>0.56</td>
<td>0.57</td>
<td>0.224</td>
<td>1</td>
<td>0.00</td>
</tr>
<tr>
<td>NT</td>
<td>21598</td>
<td>82.8</td>
<td>31631</td>
<td>171434</td>
<td>588</td>
</tr>
<tr>
<td>LnMve</td>
<td>14.33</td>
<td>13.79</td>
<td>1.55</td>
<td>18.93</td>
<td>12.09</td>
</tr>
</tbody>
</table>
HYPOTHESES TESTING

Because of the use of pooled data in analyzing the models of this study, the types of data of the study are examined first. The question raised when using pooled data is which panel or classic method should be used. To determine whether the data are panel or classic, F Limmer test was administered. In case of selecting panel data, in the second stage, decision should be made as whether fixed or random effects should be taken into account, for which Hussman test is usually administered. Data types for each model of the study are presented in Table 2.

Table 2. Model of the study

<table>
<thead>
<tr>
<th>Model of the study (minor hypotheses)</th>
<th>F Limmer Test, the choice between pooling and panel methods</th>
<th>Hussman Test, the choice between fixed and random effect methods</th>
</tr>
</thead>
<tbody>
<tr>
<td>First minor hypothesis</td>
<td>Pooling method</td>
<td>-</td>
</tr>
<tr>
<td>Second minor hypothesis</td>
<td>Panel method</td>
<td>Random effects</td>
</tr>
<tr>
<td>Third minor hypothesis</td>
<td>Panel method</td>
<td>Random effects</td>
</tr>
<tr>
<td>Fourth minor hypothesis</td>
<td>Panel method</td>
<td>Random effects</td>
</tr>
</tbody>
</table>

In regression studies, the regression premises should be examined with the purpose of increasing the efficiency and the consistency of the results.

Examining congruence of error variance: To examine the congruence of error variances, the adjusted measure was utilized. The results related to each model are presented in Table 3.

Table 3. The results related to each model are presented

<table>
<thead>
<tr>
<th>Models</th>
<th>Null hypotheses</th>
<th>p-value</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model 1</td>
<td>Variances are congruent</td>
<td>0.00</td>
<td>Null hypothesis rejected</td>
</tr>
<tr>
<td>Model 2</td>
<td>Variances are congruent</td>
<td>0.00</td>
<td>Null hypothesis rejected</td>
</tr>
<tr>
<td>Model 3</td>
<td>Variances are congruent</td>
<td>0.00</td>
<td>Null hypothesis rejected</td>
</tr>
<tr>
<td>Model 4</td>
<td>Variances are congruent</td>
<td>0.00</td>
<td>Null hypothesis rejected</td>
</tr>
</tbody>
</table>

Since the significance level for all the four models is 0.05, so the variance is incongruent and to resolve this incongruence White Correction is used in most cases.

Correlation of errors: In order to examine the correlation of errors, Valdridge Test was administered. The results are presented in Table 4.

Table 4. Valdridge Test

<table>
<thead>
<tr>
<th>Models</th>
<th>Null hypotheses</th>
<th>p-value</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model 1</td>
<td>There is no correlation</td>
<td>0.243</td>
<td>Hypothesis accepted</td>
</tr>
</tbody>
</table>

Non-colinearity of the variables: To examine the non-colinearity of the variables, variance of inflation factor index was used, which, according to the results, indicated that the variables are not colinear.

- Testing Hypotheses

In examining the first hypothesis, according to Table 5, the first minor hypothesis was rejected. In other words, there is a negative and insignificant relationship between Amihud illiquidity ratio and voluntary information disclosure at the significance level of 0.05.

Table 5. Model estimation using White Correction

<table>
<thead>
<tr>
<th>Independent variable</th>
<th>coefficient</th>
<th>t-value</th>
<th>p-value</th>
<th>VIF</th>
<th>regressio n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lnassets</td>
<td>-8.871</td>
<td>-0.21</td>
<td>0.072</td>
<td>2.00</td>
<td></td>
</tr>
<tr>
<td>Leverage</td>
<td>-57.56</td>
<td>-2.37</td>
<td>0.019</td>
<td>1.23</td>
<td></td>
</tr>
<tr>
<td>LnmveDvol</td>
<td>-1.07</td>
<td>-1.81</td>
<td>0.832</td>
<td>2.15</td>
<td>A.R2= 0.0382</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>P-Value= 0.000</td>
</tr>
<tr>
<td></td>
<td>-63.513</td>
<td>-0.90</td>
<td>0.368</td>
<td>1.02</td>
<td></td>
</tr>
</tbody>
</table>

The results indicate that there is no significant relationship between the multidimensional measure of Amihud illiquidity ratio and voluntary disclosure of information. The findings confirm the results of the study by Ya’qubnejad and Zabihi (2011) who made use of multidimensional measure of Amihud.

In probing the second minor hypothesis the results of which are presented in Table 6, the hypothesis was rejected. That is, there is a negative insignificant relationship between zero return days ratio and voluntary disclosure of information at the significance level of 0.05.

Table 6. Model estimation using White Correction

<table>
<thead>
<tr>
<th>Independent variable</th>
<th>coefficient</th>
<th>t-value</th>
<th>p-value</th>
<th>VIF</th>
<th>regressio n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lnassets</td>
<td>0.015</td>
<td>3.39</td>
<td>0.001</td>
<td>2.00</td>
<td></td>
</tr>
<tr>
<td>Leverage</td>
<td>0.057</td>
<td>-2.27</td>
<td>0.023</td>
<td>1.23</td>
<td></td>
</tr>
<tr>
<td>LnmveDvol</td>
<td>-0.021</td>
<td>-4.46</td>
<td>0.000</td>
<td>2.15</td>
<td>A.R2= 0.0382</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>P-Value= 0.000</td>
</tr>
<tr>
<td></td>
<td>-0.043</td>
<td>-1.28</td>
<td>0.199</td>
<td>1.02</td>
<td></td>
</tr>
</tbody>
</table>

dependent variable: illiq
The findings show that there is no significant relationship between the multidimensional measure of zero return days ratio and voluntary disclosure of information. The findings obtained from this hypothesis are in line with the findings of the study by Ya’qub nejad and Zabihi (2011) who made use of multidimensional measure of Amihud. In examining the third hypothesis the results of which are presented in Table 7, the hypothesis was accepted. That is, there is a positive significant relationship between the mean of daily rials trading volume and voluntary disclosure of information at the significance level of lower than 0.05.

The findings of this study illustrate that there is a significant relationship between mean of daily rials trading volume and voluntary disclosure of information. The findings are in line with the results obtained by Fakhaari and Mallaah (2009) and foreign studies like Espinosa et al (2008) in the context of Spain Stock Exchange and Chen et al (2007) and Chuang et al (2008) who utilized the one-dimensional measure of Bid-Ask spread.

The findings show that there is a significant relationship between the multidimensional measure of zero return days ratio and voluntary disclosure of information. The results of the study confirm the results obtained by Fakhaari and Mallaah (2009) and foreign studies like Espinosa et al (2008) in the context of Spain Stock Exchange and Chen et al (2007) and Chuang et al (2008) who utilized the one-dimensional measure of Bid-Ask spread.

**CONCLUSIONS AND IMPLICATIONS**

Asymmetry of information results in various undesirable outcomes such as transaction cost increase, market defect, low liquidity and, in general, interest decrease in the transactions of the assets market. Such undesirable outcomes can be modified through increasing the quality of disclosure with the purpose of decreasing information asymmetry. In the present study, the authors hypothesized that there is a significant relationship between various one- and multi-dimensional measures of liquidity and voluntary disclosure of information. Further, it was supposed that voluntary information disclosure beyond the scope determined by the authorities will lead to a decrease in information asymmetry and an increase in the corporate’s stock liquidity.

The results of the hypotheses testing illustrated that there is no significant relationship between the multidimensional measures of liquidity (Amihud and zrd) as previously indicated in the study undertaken by Ya’qub nejad and Zabihi (2011) in the context of Iran Stock Exchange using the multidimensional measure of Amihud. The other hypothesis of the study proved the existence of a significant and positive relationship between voluntary information disclosure and one-dimensional measures of liquidity (the mean of daily rials trading volume and the number of stock trading) confirming the findings of Fakhaari and Mallaah (2009). The results are also in line with the findings of foreign studies such as Espinosa et al. (2008) in the context of Spain Stock Exchange and Chen et al (2007) and Chuang et al (2008) who utilized the one-dimensional measure of Bid-Ask spread. Finally, it is suggested that future studies can use other one- and multi-dimensional measures of liquidity which have not been covered in this study. Further, the relationship between voluntary disclosure and liquidity can be investigated in longer periods of time or in various independent industries in Tehran Stock Exchange.

**REFERENCES**


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**Table 7. Model estimation using White Correction**

<table>
<thead>
<tr>
<th>Independent variable</th>
<th>coefficient</th>
<th>z-value</th>
<th>p-value</th>
<th>VIF</th>
<th>regression</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lassets</td>
<td>0.295</td>
<td>3.57</td>
<td>0.000</td>
<td>2.00</td>
<td></td>
</tr>
<tr>
<td>Leverage</td>
<td>0.447</td>
<td>3.12</td>
<td>0.026</td>
<td>1.23</td>
<td></td>
</tr>
<tr>
<td>Lnvolume</td>
<td>0.465</td>
<td>5.49</td>
<td>0.000</td>
<td>2.15</td>
<td>A.R2= 0.364</td>
</tr>
<tr>
<td>Dvol</td>
<td>1.111</td>
<td>2.51</td>
<td>0.012</td>
<td>1.02</td>
<td>P-Value = 0.000</td>
</tr>
</tbody>
</table>

**Table 8. Model estimation using White Correction**

<table>
<thead>
<tr>
<th>Independent variable</th>
<th>coefficient</th>
<th>z-value</th>
<th>p-value</th>
<th>VIF</th>
<th>regression</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lassets</td>
<td>2866.24</td>
<td>1.40</td>
<td>0.161</td>
<td>2.01</td>
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<tr>
<td>Leverage</td>
<td>-4162.85</td>
<td>-0.78</td>
<td>0.708</td>
<td>1.24</td>
<td></td>
</tr>
<tr>
<td>Lnvolume</td>
<td>-134.81</td>
<td>0.37</td>
<td>0.437</td>
<td>2.15</td>
<td>A.R2= 0.364</td>
</tr>
<tr>
<td>Dvol</td>
<td>156.8</td>
<td>2.71</td>
<td>0.007</td>
<td>1.03</td>
<td>P-Value = 0.000</td>
</tr>
</tbody>
</table>

The findings of the study show that there is a significant relationship between the one-dimensional measure of the number of stock trading and voluntary disclosure of information. The results of the study confirm the results obtained by Fakhaari and Mallaah (2009) and foreign studies like Espinosa et al (2008) in the context of Spain Stock Exchange and Chen et al (2007) and Chuang et al (2008) who utilized the one-dimensional measure of Bid-Ask spread.


