Investigating the Relationship between Disclosure Quality in Information Systems and Securities Liquidity in Tehran Stock Exchange

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ABSTRACT: The present study aimed to investigate the effect of disclosure quality in information systems on securities liquidity in the companies listed in Tehran Stock Exchange (TSE). In this regard, firm size was considered as the control variable. The disclosure quality was measured using the scores that Securities and Exchange Organization of Tehran gives to companies, which are made available through the report on ‘Disclosure quality and appropriate information’. The scores range from zero to 100. Four criterion variables including the number of shares traded, rate of stock turnover, volume of stock exchanges in Rial, and value of shares traded were used to measure liquidity. The sample of the study consisted of 70 companies over the period 2006 to 2011. Considering the five fiscal years for every company, the study covered the data on 350 company-years. The results of data analysis revealed a significant positive correlation between firm size and securities liquidity. This significance results from the relationships among three criterion variables including the number of shares traded, volume of stock exchanges in Rial and value of shares traded. However, the results showed no significant correlation between disclosure quality and securities liquidity. This lack of significance results from a lack of significant correlation among three liquidity variables including the number of shares traded, rate of stock turnover and volume of stock exchanges in Rial. It should be noted that due to the conceptual model and large numbers obtained for firm size, the volume of stock exchanges in Rial and value of shares in Rial, the natural logarithm of the numbers of these three variables were used in the regression model.

Keywords: Disclosure quality, Firm size, Securities liquidity, Number of shares traded, Rate of stock turnover, Value of shares traded.

INTRODUCTION

Participants of the capital markets always seek high-quality financial information since this type of information reduces information asymmetry between company management and external investors. Noorvash and Hoseini (2009) have laid down requirements for information disclosure by companies in order to deal with information asymmetry and to protect the rights of investors and creditors through improved transparency, financial reporting standards in every country and supervisory bodies of capital market. Empirical evidence shows that extensive disclosure policy is a mechanism that reduces information asymmetry between managers and external investors. Transparency and information disclosure may be considered as a mechanism to protect the rights of external investors, which help decrease information asymmetry and delegation costs. Information asymmetry may bring about adverse outcomes including increased cost of trading, market weakness and poor liquidity as well as overall reduction in trading profit in the capital market (Chen et al., 2007).

Based on the depth and size of the market, there are various tools available for investment in every market. Investors make investments by considering the returns and risks of assets. One of the factors affecting the risk of assets is their liquidity. Thus, the less the liquidity of a share is, the less the share will be attractive to investors unless it produces higher returns for the shareholder. Empirical evidence shows that liquidity can play a key role in decision-making. In other words, some investors may immediately need the financial resources of their investment in which case the liquidity potential can play a key role. Thus, securities that are warmly welcomed in the securities market may have immediate liquidity potential (Yahyazadeh Far et al., 2010). Liquidity is a concern for those who embark on trading

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stock or manage trading infrastructure. The main factors in studying market situation is the securities liquidity. A high rate of liquidity in a stock market implies the successful market performance in information transparency and the closeness of securities prices to their intrinsic value. Investors of securities market are concerned about the liquidity of their shares; therefore, they need an instrument to predict the liquidity of the stock they wish to buy. Liquidity refers to the speed at which investments or assets can be converted into cash (Hoseini et al., 2010).

Information systems may function as an instrument to decrease information asymmetry among traders and to effectively increase their inclination for doing trading when they wish at a reasonable price. With information asymmetry, managers will have more and better information on the market since they can access confidential information. That is, they can access company information before the market can have the information available. This brings about undesirable consequences including increased trading costs, market weakness, less liquidity and decreased trading profit in the capital market. Information is the trump card of large enterprises. As gathering information in a manual and conventional way is impossible for large commercial enterprises, they have inevitably turned to information systems (Khajavi Etemadi Joryabi, 2010). Information systems are used to process data, provide useful information and reports so as to optimize daily activities and operations, move ahead of time, reduce errors and make tactical and strategic decisions. Using information technologies, companies and institutions can disclose their information on websites on the Internet so that stakeholders can access the information readily (Amihud, 2002).

Yaghoob Nezhad and Zabihi (2008) investigated the relationship between disclosure quality and securities liquidity in the companies listed in TSE. They gathered historical data over the period 2004-2008 on a number of 72 companies listed in TSE. The main assumption was that improved disclosure quality was positively correlated with the liquidity of company shares. However, the results showed no significant correlation between disclosure quality and securities liquidity so that the research hypothesis was rejected. Saidi and Dadar (2010) studied the relationship between stock liquidity and liquidity index of previous periods in TSE. They studied the effect of liquidity interruptions up to six months as the independent variable on securities liquidity over time as the dependent variable. The results showed a significant correlation between securities liquidity in the current month and securities liquidity in the previous interruption. The results of regression analysis also revealed a positive correlation between predicted securities liquidity index and computed liquidity index. Setayesh et al. (2008) investigated the effect of disclosure quality on liquidity as well as current and future cost of common stocks in the companies listed in TSE. They reported a significant positive correlation between firm size and current and future securities liquidity; however, no significant correlation was observed between disclosure quality and current and future securities liquidity in the companies. Moreover, there was a significant negative correlation between disclosure quality and current and future cost of common stocks. Heflin et al. (2002) studied the effect of disclosure quality on market liquidity. They reported that accounting information disclosure quality was a useful tool to decrease information asymmetry among traders and could effectively increase traders’ ability to do trading when they wish to trade at a reasonable price. By examining the information from 221 American enterprises during 1988-1998, they found that high disclosure quality could increase market liquidity through increasing price depth and decreasing effective price range. Studying the effect of disclosure quality on information asymmetry, Chang et al. (2009) reported that disclosure quality could function as an effective plan and influence the relations with investors. That is, disclosure quality can lead to improved disclosure status of the company, affect the way analysts see the company, attract institutional investors, improve public perception, decrease the cost of capital, and eventually improve reporting and standards of information disclosure. Research has shown that price gap is negatively correlated with information disclosure. In other words, information asymmetry, determined by using price gap between supply and demand, decreases with increased disclosure quality. Fang et al. (2009) reported a positive correlation between securities liquidity and company performance by using feedback theory. They found that companies tried to attract institutional investors through disclosing better performance.

By investigating the relationship between the disclosure quality of financial information and securities liquidity in the companies listed in stock markets, attentions have been directed toward transparent financial statements and disclosure quality of information provided via information systems as a viable approach that can reduce information asymmetry. Both theoretical analysis and empirical evidence show that increased information asymmetry between company managers and shareholders is associated with decreased number of investments, decreased securities liquidity, lower volume of trading and decreased social benefits derived from trading (Sirani et al., 2011). Research on liquidity and its effect on investment returns and risk assessment and stock prices provides indicators and criteria for investors, creditors, experts and non-experts. In this regard, shares with a high liquidity potential normally entail less risks of retention as they are immediately convertible to cash (Welker, 1995).

Thus, due to their risk aversion nature, investors try to choose stock with a high liquidity potential so that they may sell their stock when needed quickly with the least price variation. In other words, the present study poses the question ‘is there any relationship between disclosure quality in information systems and securities liquidity?’. Access to more valid information decreases information asymmetry and thus market liquidity increases. Shares are securities that not only provide liquidity but also grant voting and supervision rights. Trading securities plays a key role in evaluation and supervision of companies. Theoretical analyses assert that liquidity allows minority shareholders to become major shareholders, improves management rights and benefits and encourages informed investors to do trading. Thus, it may not be unreasonable to think of a positive correlation between liquidity and company information. Asset liquidity is the
ability to buy or sell an asset with minimal costs and as soon as possible. A manager, as a decision-maker in an organization or society, should have access to accurate and proper information in time in order to make, execute and evaluate appropriate managerial decisions. To this end, information systems help managers record proper information as soon as possible and achieve maximum efficiency and efficacy. Transparency of financial statements in information systems has drawn attentions as a viable approach that may provide a flow of updated, high-quality information to decrease information asymmetry and inconsistency. All organizations across the world need information systems that are consistent with their needs and organizational structure. Considering the discussions above, we aim to address the question ‘is there any relationship between disclosure quality in information systems and liquidity in the companies listed in TSE?’

METHODOLOGY

The study adopted an ex-post facto method. The study is an applied research as the findings may be applied to the process of using information. The study aims to examine the relationship between disclosure quality and securities liquidity whereby the former variable is considered as the predictor variable and the latter is the criterion variable. Firm size was considered to be the control/moderator variable. The scope of the study covers all the companies listed in Tehran Stock Exchange (TSE). The spatial scope of the study consists of the information on all companies listed in TSE whose financial statements have been recorded in the information system of TSE for the period 2006-2011. The number of these companies amounted to 70. The data was collected from past financial events. To this end, the data was gathered through library studies and by referring to documents available in TSE system. The data was collected from a number of 70 non-investment companies over five fiscal years. The statistics and data was gathered from the databases of Securities and Exchange Organization of Tehran and Tadbir Pardaz software using library study. Organizational analysis is the unit of analysis in the present study that refers to the level of data collection. The population of the study consisted of all companies listed in TSE over the period 2006-2011. The inclusion criteria are as follows: 1) companies should have been listed in TSE by March 20, 2011; 2) their fiscal year should end by March 20, 2011 and no change should have occurred in their fiscal year over the studied period (2006-2011); 3) they should not be one of financial intermediation companies (e.g. banks, insurance companies, leasing companies and investment companies); 4) they should have fully disclosed the information required in this study; 5) there should not have been any interruption in the company index and their shares should have been traded over the respective period; and 6) companies should have been profitable and their equity book value should have been positive over the respective period. Having applied the above inclusion criteria, the data was gathered and analyzed from 70 companies, which amounted to a sample of 350 year-company. Besides descriptive statistics, multivariate regression analysis using panel data was run for the period 2006-2011 in order to test research hypotheses. Data analysis was conducted using SPSS18 and Excel2010.

RESULTS

Table 1, illustrates the descriptive statistics such as mean and standard deviation on the research variables.

<table>
<thead>
<tr>
<th>Variable</th>
<th>No.</th>
<th>Mean</th>
<th>Median</th>
<th>Min.</th>
<th>Max.</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disclosure quality</td>
<td>350</td>
<td>56.62</td>
<td>58</td>
<td>-13</td>
<td>98</td>
<td>22.66</td>
</tr>
<tr>
<td>Firm size</td>
<td>350</td>
<td>13.89</td>
<td>13.57</td>
<td>11.15</td>
<td>19.62</td>
<td>1.46</td>
</tr>
<tr>
<td>Number of shares traded</td>
<td>350</td>
<td>504748</td>
<td>105959</td>
<td>5573</td>
<td>20403970</td>
<td>1496520</td>
</tr>
<tr>
<td>Volume of stock exchanges in Rial</td>
<td>350</td>
<td>1746874092</td>
<td>352469009.5</td>
<td>5043569</td>
<td>47738312486</td>
<td>4249381534</td>
</tr>
<tr>
<td>Rate of stock turnover</td>
<td>350</td>
<td>0.00134</td>
<td>0.00065</td>
<td>0.00007</td>
<td>0.1115</td>
<td>0.006</td>
</tr>
<tr>
<td>Value of shares traded</td>
<td>350</td>
<td>1917634238310</td>
<td>492218574020</td>
<td>44165558</td>
<td>27311762452107</td>
<td>4019711239616</td>
</tr>
</tbody>
</table>

As shown in the table, the mean score of disclosure quality is 56.62. The indices of the volume of stock exchanges in Rial show that the mean and median are 1746874092 and 4249381534 Rials, respectively, for all years. The mean score of the value of shares traded is 1917634238310 Rials with the standard deviation of 4019711239616 Rials for 350 company-years. The standard deviation is thus a large number, which shows a great difference in the value of shares traded among different companies.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Beta</th>
<th>t</th>
<th>P-value</th>
<th>F</th>
<th>P-value</th>
<th>R²</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disclosure quality</td>
<td>0.046</td>
<td>0.917</td>
<td>0.36</td>
<td>57.881</td>
<td>0.000</td>
<td>0.25</td>
</tr>
<tr>
<td>Number of shares traded</td>
<td>0.046</td>
<td>10.299</td>
<td>0.000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Disclosure quality</td>
<td>0.019</td>
<td>0.33</td>
<td>0.74</td>
<td>0.068</td>
<td>0.934</td>
<td>0.000</td>
</tr>
</tbody>
</table>

Table 2. Testing research hypotheses.
The results of testing research hypotheses are illustrated in table 2. As shown in the table, the P-values of the correlation of disclosure quality and firm size with the number of shares traded are 0.36 and 0.000, respectively. Besides, the F value (P-value<0.05) of the fitted regression model equals 57.881, which renders R² significant by 25 percent. Since the assumption as to the effect of the independent on the dependent variable is rejected, the Beta value (0.046) is not significant. However, the Beta value of the firm size (0.046) is significant since the statistical hypothesis is supported, which indicates a significant correlation between firm size and number of shares traded. The F value (P-value<0.05) of the rate of stock turnover in the fitted regression model equals 0.068, which renders R² insignificant in the second hypothesis. Since the assumption as to the effect of disclosure quality and firm size on the rate of stock turnover is rejected, the Beta values obtained for the two former variables equal 0.019 and -0.002, respectively, which are not statistically significant. Considering the F value (P-value<0.05) obtained for the volume of stock exchanges in Rial, the fitted regression model is significant. Thus, disclosure quality and firm size exert a significant effect on the volume of stock exchanges in Rial. Based on the obtained coefficient of determination, disclosure quality and firm size account for 23 percent of variance in the volume of stock exchanges in Rial. The Beta coefficient of disclosure quality showed no significant statistical correlation between the dependent and independent variables. However, the Beta coefficient of firm size indicates that there is a significant correlation between control and dependent variables so that a single unit of change in firm size (natural logarithm of firm size) causes variations as much as 0.051 in the volume of stock exchanges in Rial. The F value (P-value<0.05) obtained for the value of shares traded shows that the fitted regression model is significant. Thus, disclosure quality and firm size together exert a significant effect on the value of shares traded. Based on the obtained coefficient of determination, disclosure quality and firm size account for about 38 percent of variations in the value of shares traded. The Beta coefficients of disclosure quality and firm size indicate that a single unit of change in disclosure quality and firm size can result in 0.123 and 0.657 unit of variations, respectively, in the value of shares traded, which is not statistically significant.

**DISCUSSION AND CONCLUSION**

The results of analyzing the data from 70 companies listed in TSE over the period 2006-2011 indicated that there was a significant positive correlation between firm size and securities liquidity. This correlation results from the relationship among the three criterion variables including the number of shares traded, the volume of stock exchanges in Rial and the value of shares traded. However, the findings revealed no significant correlation between disclosure quality and securities liquidity, which is associated with a lack of correlation among the three liquidity variables including the number of shares traded, rate of stock turnover and the volume of stock exchanges in Rial. The results showed that information disclosure quality was only correlated with one of the four liquidity criteria. In other words, there was no significant correlation of disclosure quality with the number of shares traded, rate of stock turnover and the volume of stock exchanges in Rial over the fiscal period 2006-2011. The independent variable, disclosure quality, was only correlated with the value of shares traded in the Securities and Exchange Organization of Tehran. The present findings on the relationship between disclosure quality and securities liquidity are inconsistent with the findings of Fakhari and Fallah Mohamadi (2009) and Matoussi et al (2004) but consistent with the findings of Setayesh et al (2008) and Liu (2006). There are marked similarities between the current study and Setayesh and colleagues’ (2008) in terms of the findings and population. In this regard, we compare and contrast the present findings with the findings of Setayesh et al (2008) below.

Besides securities liquidity, Setayesh et al (2008) also studied the cost of capital as a variable. They studied a number of 105 companies while the sample in the present study consisted of 70 companies. They studied their sample over the period 2004-2008 while the temporal scope of the present study covered the period 2006-2011. As to the similarities, one may indicate that the basic assumption of both studies, which assumed a significant correlation between disclosure quality and liquidity, did not prove correct. Accordingly, in either study, no significant correlation was found between disclosure quality and the three criterion variables including the number of shares traded, rate of stock turnover and the volume of stock exchanges in Rial. Still, in either study, there was a significant correlation between disclosure quality and the value of shares traded.

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<table>
<thead>
<tr>
<th>Rate of stock turnover</th>
<th>-0.002</th>
<th>-0.02</th>
<th>0.97</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disclosure quality</td>
<td>0.084</td>
<td>1.66</td>
<td>0.098</td>
</tr>
<tr>
<td>Volume of stock</td>
<td>0.508</td>
<td>10.033</td>
<td>0.000</td>
</tr>
<tr>
<td>exchanges in Rial</td>
<td></td>
<td></td>
<td>52.76</td>
</tr>
<tr>
<td>Disclosure quality</td>
<td>0.123</td>
<td>2.71</td>
<td>0.007</td>
</tr>
<tr>
<td>Value of shares traded</td>
<td>0.657</td>
<td>14.52</td>
<td>0.000</td>
</tr>
</tbody>
</table>

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single unit of change in firm size was found to cause variation in the number of shares traded, volume of stock exchanges in Rial and the value of shares traded as much as 0.046, 0.508 and 0.657, respectively. Finally, future researchers are recommended to address all potential variables that may affect securities liquidity. It is recommended that future studies investigate the relation of disclosure quality with other financial variables in TSE.

REFERENCES