Relationship between the Power of the Product Market and Amihud Illiquidity Index in Firms Accepted in Tehran Stock Exchange

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ABSTRACT
Liquidity is the capability to purchase and sell a considerable amount of Stock Exchange quickly and with few influences on the price. This issue has attracted the scholars’ attention within the last few decades both at the market level and at the international level (considering risk-avoidance of most investors and their tendency toward being liquid of the shares) since this capability has been the concern of many who are involved in trading shares or managing the transactional substructures. Determining a criterion which would contribute to the determination of the extent of share liquidity would lead to better decisions on the part of the investors. The purpose of the study was to examine the influence of the power of the product market on the shares’ liquidity indices. The study was a correlational one and its statistical population consisted of all the firms accepted in Tehran Stock Exchange. Through sampling, 93 firms were examined from 2005 till 2009. The dependent variable of the study was Amihud Illiquidity index. In order to analyze the data, multi-variate regression was used in the form of panel data using Eviews. The results of the study revealed that there was a significant inverse relationship between the power of the product market and Amihud Illiquidity index among the firms accepted in Tehran Stock Exchange in the capital market of Iran.

KEYWORDS
Power of the Product Market, Amihud Illiquidity Index, Tehran Stock Exchange, Information asymmetry

INTRODUCTION
Capital market is considered as a financial market. One of its main roles is contributing to the transfer of individuals’ and commercial institutes’ deposits into investment in other business units. Investors mostly tend to make investment in such shares that have low risk and high productivity. In addition, investor should be certain about the fact that the given shares can be easily and readily changed into cash, if needed.

One of the most important indices in examining the status of the market is liquidity of stock exchange. Having high liquidity capability in a stock market indicates the success of that market in clarifying the information and the proximity of stock exchange to the intrinsic value and is considered as a criterion for determining market efficiency. An increase in this capability could lead to distribution of more financial risk and an increase in investors’ motivation to make transactional decisions. In this way, the expenses of the transactions would significantly decrease. In this sense, in order to ensure the investors regarding the transference of deposits and capital into financial assets, Liquid markets seem to be a necessity.

Many factors influence the liquidity capability of the shares. One is market power which is defined as a firm’s capability for increasing the prices to the higher level than the competitive one so that this increase would not lead to a considerable decrease in the extent of sales. Capital market environment in Iran have confronted investors with numerous challenges due to lack of mechanisms for causing liquidity and has put this market next to those Illiquid markets of the world. These all had given rise to the significance of conducting various studies regarding this issue.

THEORETICAL BACKGROUND AND REVIEW OF LITERATURE
Gopalan et al. (2009) conducted a study entitled “liquidity assets and liquidity shares” and found a positive relationship between assets liquidity and shares liquidity [1].

Peress (2010) conducted a study entitled “Market power competition, secret-information transactions, and capital market efficiency” and used noisy rational expectations model and found that higher power of the product market would improve the shares liquidity. The reason might be the firm’s capability for changing its pricing policies while being confronted with the shocks from the product market’s...
customers which would lead to a decrease in the cash flows fluctuations and share productivity. Moreover, the findings of this study clarified the influence of information asymmetry on the market liquidity. When there is little information asymmetry, the investors’ estimates would be more precise than the future price of the share (even regardless of the influence of product market fluctuations). Contrarily, when there is extreme information asymmetry, the stability of the power of the product market seems to be more important for the investors in order to predict the share price. Hence, an increase in the information asymmetry would make the relationship between the power of the product market and liquidity much stronger[5].

Kale and Loon (2011) carried out a study entitled “the power of the product market and shares liquidity” using Peress model and examined the relationship between the power of the product market (Lerner index (criterion of margin price-expenditure and share from the market) and shares liquidity. They used panel data and made 12695 observations of the firms from 1984 till 2003 and examined the relationship between the power of the market and liquidity while taking size as the control variable. They categorized the sample based on the size and power of the market in order to examine the relationship between the power of the market and liquidity taking size as the control variable. Each category led to this conclusion that liquidity would improve from the lowest level of the market power to the highest level of it. Moreover, they came to the same conclusion regarding the market share and margin of price-expenditure for the power of the product market. They concluded that the power of the product market was positively associated with the liquidity[2].

Zare Stehreji (2002) conducted a study entitled “investigating the influential factors in shares liquidity in Tehran Stock Exchange” and found that shares were highly associated with the amount of shares transactions and the firm value which indicate the depth of the firm’s shares market[8].

Rahmani, Hosseini, and Rezapoor (2010) carried out a study entitled “investigating the relationship between institutional ownership and shares liquidity in Iran” and showed that there was a positive significant relationship between the extent of institutional ownership and shares liquidity and the focus of institutional ownership would decrease the shares liquidity[6].

Masjed Mousavi (2010) investigated the relationship between assets liquidity and shares liquidity in firms accepted in Tehran Stock Exchange and found a significant relationship[3].

Moiani Eghtaii (2011) examined the relationship between the changes in the extent of price fluctuation and shares liquidity in Tehran Stock Exchange. The results indicated a significant relationship between the changes in the extent of price fluctuation and shares liquidity in that an increase in the extent of price fluctuation in Tehran Stock Exchange would lead to a decrease in the shares liquidity. Moreover, a significant relationship was also found between the changes in the extent of price fluctuation and maximum and minimum amount of daily price in that an increase in the extent of fluctuation in Tehran Stock Exchange would decrease the number of times which shares reach the allowed maximum or minimum daily price[4].

Rahmani Khalili (2011) examined the relationship between share liquidity and the value of firms accepted in Tehran Stock Exchange and found a significant relationship. Moreover, a more significant correlation was found for the relationship between liquidity and the firm’s value for the firms with higher basic volume and operational profit fluctuation[7].

**RESEARCH HYPOTHESIS**

There is a significant direct relationship between the firm’s product market and Amihud Illiquidity index.

**METHOD**

The study was correlational considering the nature and content and was an applied one with regard to its purpose. The study adopted an analogical-inductive framework. The theoretical underpinnings and literature of the study was collected in the analogical framework and through library studies, articles and websites in order to confirm or reject the hypothesis using inductive reasoning. Multi-variate regression in the form of panel data was used. First, Limer F test (Bound) was used to examine the use of table data with fixed effect and mixed data method. The hypotheses were as follows:

H0: Pooled Mo
H1: Fixed Effect Model

In the case of choosing panel method, Houseman’s test would be used to choose between fixed effect and random effect methods. The hypothesis for this test was as follows:

H0: Random Effect Model
H1: Fixed Effect Model

Eviews software was used to analyze the data. Finally, the research hypothesis was tested using t-test, Fischer’s F, and determination coefficient ($R^2$).

**Data gathering procedure:**

The required data were collected using the primary information of financial invoices and documents and positive certificates in stock exchange market. In order to prepare the data, Excel was used. Having extracted the data related to the variables under the study from the sources, they were fed into new worksheets in this software and required calculations were done in order to obtain the variables under the study. Having prepared the variables using Excel and doing required calculations in order to obtain the required variables, Eviews software was used in order to make econometrics estimates using the collected data.

**Statistical population:**

The statistical population consisted of all the firms accepted in Tehran Stock Exchange within 2005 and 2009.
RESULTS

Descriptive statistics:

In order to gain more information about the variables, the summary of descriptive statistics are presented for 465 firms (93 sample firms within 2005 and 2009) in Table 1.

Tab.1. Descriptive statistics for the research variables

<table>
<thead>
<tr>
<th>N</th>
<th>Standard deviation</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Median</th>
<th>Mean</th>
<th>Variable</th>
</tr>
</thead>
<tbody>
<tr>
<td>46</td>
<td>0.0088</td>
<td>0.0002</td>
<td>0.0144</td>
<td>0.0001</td>
<td>Amihud illiquidity index</td>
<td></td>
</tr>
<tr>
<td>46</td>
<td>0.17</td>
<td>0.013</td>
<td>0.92</td>
<td>0.27</td>
<td>Index Lerner1</td>
<td></td>
</tr>
<tr>
<td>46</td>
<td>0.79</td>
<td>0.006</td>
<td>9.5</td>
<td>0.26</td>
<td>Index Lerner2</td>
<td></td>
</tr>
<tr>
<td>46</td>
<td>0.247</td>
<td>0.0002</td>
<td>1.32</td>
<td>0.11</td>
<td>Share index of the product market</td>
<td></td>
</tr>
<tr>
<td>46</td>
<td>0.007</td>
<td>0.055</td>
<td>0.094</td>
<td>0.076</td>
<td>Information asymmetry</td>
<td></td>
</tr>
</tbody>
</table>

Source: researchers’ findings

As Table 1 indicates, the mean and median of most variables were close together, indicating the appropriate distribution of research variables.

Inferential statistics:

Research hypothesis: There is a significant direct relationship between the power of the firm’s product market and the Amihud illiquidity index.

H0: There is no significant direct relationship between the power of the firm’s product market and the Amihud illiquidity index.

H1: There is a significant direct relationship between the power of the firm’s product market and the Amihud illiquidity index.

In order to test this hypothesis, model 1 was used:

\[ \text{ILLIQ}_{i,t} = \alpha_0 + \alpha_1 \text{PCM}_{2,i,t} + \alpha_3 \text{MarketShare}_{i,t} + \alpha_4 \text{InfoAssy}_{i,t} + \epsilon_{i,t} \]

Table 2 presents the results for the testing the assumptions of linear regression of model 1.

Tab.2. Results of testing the hypothesis using one-way fixed effect method (for 93 sample firms within 2005 and 2009)

<table>
<thead>
<tr>
<th>Relationship</th>
<th>Error level</th>
<th>t value</th>
<th>Variable coefficient</th>
<th>Variable</th>
</tr>
</thead>
<tbody>
<tr>
<td>Positive</td>
<td>0.90</td>
<td>0.124</td>
<td>0.42</td>
<td>Width of origin</td>
</tr>
<tr>
<td>Negative</td>
<td>0.000</td>
<td>-5.34</td>
<td>-2.82</td>
<td>Index Lerner1</td>
</tr>
<tr>
<td>Positive</td>
<td>0.112</td>
<td>1.59</td>
<td>0.213</td>
<td>Index Lerner 2</td>
</tr>
<tr>
<td>Negative</td>
<td>0.000</td>
<td>-3.92</td>
<td>-0.74</td>
<td>Share index of</td>
</tr>
</tbody>
</table>

Source: Researchers’ findings

As the results of bound F test showed, calculated F (4.64) was more than critical F (1.29). The calculated sig was less than the significant level (0.05); hence, null hypothesis was rejected and asymmetry of Width of origin was accepted.

The results of Houseman’s test showed that calculated \( \chi^2 \) (19.69) was more than critical \( \chi^2 \) (0.351) at %95 level of certainty indicating that null hypothesis was rejected. Hence, using random effect method was incompatible and fixed effect method should be used.

The estimated model was as follows using Eviews:

\[ \text{ILLIQ}_{i,t} = \alpha_0 + \alpha_1 \text{PCM}_{2,i,t} + \alpha_3 \text{MarketShare}_{i,t} + \alpha_4 \text{InfoAssy}_{i,t} + \epsilon_{i,t} \]

Considering the significance of the above model, since the probability value was less than 0.05 (0.000), at %95 level of certainty, the significance of the entire model for examining the research hypothesis was confirmed. The regulated determination coefficient also indicated that independent variables of the research would account for more than %47 of the changes in dependant ones.

With regard to the obtained coefficients for the market power and their error level (acceptable level of error is %5), it might be said that Lerner 1 index and share of the product market had negative relationship while Lerner 2 index and Amihud Illiquidity index were positively correlated. Moreover, since the Lerner coefficient (negative) weighed more than Lerner 2 coefficient (positive), Lerner 1 index seemed to have more power compared to Lerner 2 index. Hence, the market power had negative and significant relationship with Amihud Illiquidity index. Hence, the first research hypothesis was rejected since the results revealed a significant and inverse relationship between the power of the product market and Amihud Illiquidity index.

CONCLUSION

One of the main indices in examining the status of the market is liquidity of existing Stock Exchange. Having high liquidity capability in a stock market indicates the success of that market in clarifying the information and the proximity of Stock Exchange to the intrinsic value and is considered as a criterion for determining market efficiency. An increase in this capability could lead to distribution of more financial risk and an increase in investors’ motivation to make
transactional decisions. In this way, the expenses of the transactions would significantly decrease. In this sense, in order to ensure the investors regarding the transference of deposits and capital into financial assets, liquid markets seem to be a necessity.

Many factors influence the liquidity capability of the shares. One is market power which is defined as a firm’s capability for increasing the prices to the higher level than the competitive one so that this increase would not lead to a considerable decrease in the extent of sales. Foreign studies have revealed that firms with higher market power had much more stable cash flows and the price of their shares was less sensitive to the ordering flows. Hence, they had less productivity fluctuations. All these factors would increase the liquidity power of their shares.

Bearing the above issues in mind, the study tried to provide evidence regarding the direct relationship between the product market power and Amihud Illiquidity index. To this end, the available literature and the theoretical underpinnings of the topic were scrutinized, hypotheses were formed and a sample of 93 firms was examined from 2005 till 2009. In order to analyze the data, multi-variate linear regression model was used in the form of panel data.

The results of the study showed that:

1. Among firms accepted in Tehran Stock Exchange, the product market power had a significant inverse relationship with the Amihud Illiquidity index.

Suggestions:

1- Since liquidity of the share is one of the fundamental criteria for investors in choosing the share, the investors are recommended to take into account this relationship and the influence of product market power on it.

2- Financial managers of the firms are also recommended to consider the relationship between market power and liquidity of the shares in order to increase the extent of liquidity of the shares.

3- Taking into account the significance of shares liquidity in the capital market, the potential investors are recommended to consult with the analysts and practitioners in order to choose appropriate indices for buying shares.

REFERENCES


