



Financial Openness and Market Liquidity Level in Financial Markets

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ABSTRACT

Financial markets play a key role in a country's economy, but a developing economy could not make any progress without a clear financial system. Various factors affect the level of liquidity in financial markets, and one of them is financial openness. Therefore, this study has examined the impact of openness of financial markets on the level of liquidity over a 38 year period (1980 – 2018). Empirical research results show that in countries under study, financial openness has a positive and significant effect on the liquidity level in financial markets. Gross domestic product per capita (GDP), inflation and market's value also has a positive and significant effect on the liquidity level in financial markets. In other terms, the higher these variables are the higher market liquidity level and vice versa. Also model-based estimation researches show that in Iran only two criteria of Foreign Assets' (FOA) ratio to GDP and Foreign Direct Investment's (FDI) ratio to GDP, has a positive effect on liquidity's level in financial markets

Keywords:

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1. Introduction

Strong and efficient financial markets are one of the most important mechanisms in the economy. Without a financial sector you cannot expect financial nor economic development. In fact the economic system's efficient function in every society depends on the efficient and strong existence of two real and financial sectors. And all an efficient economic system requires is the cooperation of these two sectors. According to the doctrine-Specially McKinnon & Shaw-financial liberalization in the 70s and 80s financial market regulations such as determining interest rate ceilings, high rates of statutory reserves and assignment credits results in low investment rates and more negative effects on economic growth; therefore, according to their point of view, to improve the efficiency of financial markets, they should be deregulated.

The purpose of this policy is to mobilize domestic investment, attract foreign investments and to improve the efficiency of financial resources' use. Classical theories show that financial liberalization result in optimal allocation of savings, increasing the diversity of investment risks, faster growth and reduction in business cycles. However, the process of liberalization in different countries depends on economic levels, development of financial foundations, institutions' structure, the legal system, management and etc. etc. of that country. There is no specific guidance on how to follow a specific stage of liberalization. Therefore, in the last three decades a lot of emerging countries have liberalized their financial markets. Financial liberalization could come both with financial system development and financial crises. On the other hand some economists like Joseph Stiglitz believe that although deficiency in international financial markets are higher than domestic financial markets, financial liberalization could cost a lot; therefore a lot of economists suggest countries to be very cautious while deregulating their financial markets and if their financial markets have been liberalized before, they suggest them to establish reliable controls for capital movements. Overall it can be said that most of the represented theories on financial market liberalization, indicates that in long-term this policy will cause higher investment efficiency and lower stock market volatility. But in short-term, it will cause higher volatility in these markets. (Seyfollahi and Hazeri, (2017) Also, in every financial market, given the extent and depth of the market, there are various tools

to use for investment. Investors invest considering the risk and return of the asset. One of the factors affecting the risk of assets is their liquidity capability. The lower the liquidity capability of a stock, the less investor it will attract, unless it has a higher return on profits. Empirical evidence shows that the factor of liquidity can play a very important part in decision making, in other terms; some investors can quickly need the financial resources of their own investors which in cases like this the liquidity capability can be a very important aspect. Liquidity is the speed at which investments or assets are converted into cash. Securities which are welcomed in securities exchange or stock exchange, owe it to their liquidity speed. (Komijani and Co. 2009) Overall it can be said that financial markets play an undeniably important part in improving the mass and economic activity and with globalizing and merging of countries' economy, the importance of liberalization and openness of financial markets can be felt more than ever. Financial markets liquidity is also one of financial market's positive characteristics and a lot of factors are involved with it. One of the factors that have a big influence on liquidity in financial markets is openness and liberalization on these markets. So according to the presented contents, this research plans to study the effects of financial markets' openness to their liquidity, in Iran and comparing it with the chosen countries. For this, the chosen countries' data and information from 1980 to 2018 has been collected form World Bank, International Monetary Fund (IMF) and other relevant financial institutions and the research's model in mind will be calculated via panel data method. So to answer the question this research presents, first, theoretical basis and related backgrounds have been described, then the research's theories have been compiled over a 38 year period based on extracted data, so empirical results and final conclusions are discussed.

2. Literature Review

Experimental literature about the effects of financial liberalization has been developed in 3 ways, which will be discussed below. One of the reasons for financial markets' instability through liberalization of capital account has been the creation of moral hazards, credit restrictions and excessive borrowing from foreign financial institutions by domestic companies. Ramey found a positive relationship between GDP

growth and capital flow. In their study, Bernstein and Co. reached this conclusion that capital account liberalization depends on the education level of the investment receiving countries and whether they have a good relationship or not. Mody & Mushied In their study suggest that the inflow of capital and the increase in domestic investments have formed a positive relationship with each other, but it also suggests that it fades away over time and what this study wants to really emphasize on is liberalization's long-term positive effects, especially through capital account, and for foreign direct investments, short-term capitals are required as well as taking safe precautions and setting regulations with controlling rules.

In an article, Joseph P. Joyce and Ilan Noy examine the role of International Monetary Fund (IMF) and liberalization of capital flows. In their study, they evaluate the fact that IMF sped-up the 90's' crisis process. Through using the data received from a panel of developing countries, from 1982 to 1998, they examine whether changes in capital control regimes occurred with participation of IMF. They found evidence that proves IMF programs' participation with capital account liberalization cases during the 90s. In an article, Rebecca et al (Rebecca and Co.) examine the intensity of capital flows which occurs following the liberalization of financial markets. They used a panel of various data that belonged to 1973-2000. The main focus of their study was the reaction of foreign direct investments, portfolio investments and other flows of debt to financial liberalization. The financial liberalization variable is obtained through timing of the liberalization and index of development. In another article, Theo Eicher and Leslie Hull study the fact that how reversal of capital flows which happens due to financial liberalization affects the speed of convergence of an economy. They show that financial liberalization shortens the short-term convergence process. Meaning, open economies have to experience significantly less product change, with longer transfers. Being more lenient in reacting to initial shocks is associated with costs, the cost being the increasing of external borrowing to smoothen domestic income fluctuations, which will eventually lead to the rise of domestic interest rates, and the OECD countries' data confirms these findings. One of the main benefits of capital account liberalization that most economists emphasize on is access to

inexpensive external resources that aims to finance domestic projects. Many economists believe that liberalizing the capital account before liberalizing the current account and establishing an efficient and competitive domestic banking system and stable macroeconomic conditions can possibly lead to severe financial and currency crises. If trade restrictions are used on non-economic support from domestic sectors which are facing competition from foreign companies, it will attract foreign capital inflow; therefore this economic rent would cause foreign capital attraction and artificial inflation of profits to these sectors. And because the country has no comparative advantage in this sector, it ultimately reduces growth and public welfare. On the other hand liberalization of current and capital accounts, before clearing the volatile conditions of the domestic economy can lead to the exit of economy and hurt domestic production. If domestic financial markets are crushed, capital account liberalization allows savers to move their funds and investments abroad, to wherever there are higher returns than in the domestic market. Many economists consider the banking system in each country to be an important factor in economic growth and development, because of their community savings' allocation to manufacturing firms. According to them liberalization of the domestic banking system will lead to optimal and efficient allocation of saving and increase in economic growth. Obstfeld (1994), Bencivenga and Smith (1991) and Greenwood & Smith (1997) believes the liberalization of the domestic financial market is seen as a factor to facilitate savers' available assets' management of liquidity improvement, and reduce transaction costs, thereby encouraging investment and economic growth. In fact supporters and advocates of liberalizing domestic financial markets state that with realization of deposits rate, taking inflation into account, the savings in society increases and these funds will be used to invest in high-yield projects. This in itself will boost economic growth.

On the other hand with the elimination of assigned credits, banks are no longer required to lend to specific sectors-often, low-yield- and resources are channeled into high-yield projects. Another benefit of liberalizing domestic banking is the use of advanced foreign banking system technology and experience to cut transaction costs. Contrary to this theory, some economists state that countries with high inflation rates and unstable macroeconomic status and inefficient

financial intermediaries that have a large budget deficit and are bankrupt, liberalizing the banking system might lead to financial crisis. Also non-competitive banking system with inadequate legal structure will lead to insufficient credit allocation. On the other hand there is strong criticism on the real interest rates above average's ability to deepen finances and form new fund for growth and development. One criticism is the financial substitution swap's effect. This effect implies that, in developing countries, non-monetary system owns a large share of the money market. And by examining the effects of financial liberalization on Iran's Economy's stock market and with increasing interest rates, only resources are transferred from non-monetary market to commercial banks and no new savings are formed in the monetary sector. Another criticism of high interests is that they may increase the desire for savings, reduce in demand and ultimately reduce investment. Kaminsky (2002) has done a study on the rise of stock prices and stock price fluctuations after liberalization which shows that stock market will fluctuate more rapidly in developing countries after liberalization, but in the long run they will decrease.

He also states this about the effect of financial liberalization on financial market cycles that the ups and downs on the stock market won't intensify in the long run after liberalization, but it may, in the short run lead to larger cycles. In another article, Michel Beine and Bernard Candelon (2007) examine the effect of financial and trade liberalization on the rate of simultaneous movements of securities exchange in emerging countries. Their study choices include 25 countries and the time, 15 years. The authors have assessed the impact of reforms aimed at bringing these countries back to trading and establish financial channels with the rest of the world. Estimating cross-country correlation coefficients, this allows for econometric surveys through using a panel data framework. The results of this study, strongly supports the positive effect of financial trade liberalization on inter-country stock market relations. In an article, Sebastian Edwards et al (Sebastian Edwards and Co. , 2007) examined the stock market cycles in four Latin American and two Asian countries and compared the two's characteristics. The split their sample into two parts, in order to incorporate the differences induced by the financial liberalization processes of the early 90's, and concluded that the cycles in the stock market of emerging countries are shorter In duration and have

a wider domain. They go beyond what exists in developed countries. Following the financial liberalization of Latin American stock markets, they started to behave very much like stock markets in developed countries, while Asian stock markets have been different. Adaptation of cycles across markets, especially for Latin American countries after liberalization, has increased over time. In an article, Jess Lee & Alfred Wong (2009) have evaluated the impact of recent financial reforms in China. According to their study, financial liberalization in China, following its acceptance to the World Trade Organization, has experienced a remarkable speed. The quantities include deregulation in the banking sector, reforms in various financial markets as well as greater freedom for foreign and Chinese investors to interact and work together. This study focuses on the more limited aspect of financial liberalization; the effect on stock market liquidity. Using panel data extracted from the Shanghai stock market, the authors found that the positive and significant effect of liquidity is associated with high amounts of financial liberalization. Not only the quantity of financial liberalization shows improvement in the capital market and efficiency of capital allocation in China, it also shows a decrease in instability of financial stability. This research's findings also show that financial liberalization can shift to economic growth over time. Mousavi and Ne'matpoor (2011), in an article titled "The Impact of Financial Markets Deepening on Iranian Stock Exchange Behavior", examined the effects of deepening financial markets on stock market behavior.

For this purpose, through using seasonal data of the period (2004-08 & 1991-1994) and cointegration analysis, this issue has been investigated. The results show that long-term financial markets development has a positive effect on the total Securities and Exchange stock market price index, but in the short run this policy does not have a significant effect on the total market price index. In another article, titled "Analyzing the role of Economic Liberalization Components on the Financial Markets Performance of MENA Countries (Middle East and North Africa), With Emphasis on Monetary and Financial Liberalization" Sharifi and Co. (2013) examined the role of economic liberalization components on the financial markets performance of some developing MENA countries, using a new panel vector

autoregressive approach emphasizing financial and monetary liberalization, from 1986 to 2009. The results show a significant effect of each of the variables discussed, on the stock price. Based on the presented results of this study, it is recommended that the country's economic policymakers pursue a sustained effort to interact with other international financial markets so that the country's capital market can achieve a market excellence in the region, by providing coherent and dynamic policies and contributing to the financial growth of companies in the stock market, contributing to the enhancement of the country's financial market and, consequently contributing to the country's economic promotion. In an article titled "Investigation Factors Affecting Financial Development in OIC Member Countries", by Mohammadi and Co. (2014), they examined the effects of trade openness and a number of other explanatory variables on financial development of the 36 OIC member countries, during the 1980-2010 periods. Through using private credit and bank credit indexes as dependent variables, models are estimated in the context of pool system and fixed effects method. The results of the study showed that trade openness play a vital role in determining the financial development of private sectors. Hazeri & Seyfollahi (2016) analyzed the impact of financial liberalization on capital market development, using dynamic panel techniques based on a systematic generalized torque method of Arellano-Bond estimator in the MENA (Middle East and North Africa) region, during 2000-2014. The empirical results of this study confirm the expansion of capital market function to the next period; in other words, it confirms the dynamics of capital market over time. The results also acknowledge that financial and trade openness and presence at the international scene helps to promote capital market's value. While if financial liberalization is not accompanied by trade liberalization, its positive effect on capital market development will be weak.

In addition to this, GDP per capita replaces market size as a variable and the capacity to attract foreign capital has a positive and significant effect on capital market development. Boroumand and Co. (2016), in an article titled "Studying the Effects of Financial Liberalization in Iran's Economy's Stock Market" has examined the effects of financial liberalization on stock market in the Iranian economy. So based on this purpose and through using seasonal data from 1994 to 2009, and

using vector self-regression (VAR) method and cointegration analysis, the issue has been studied upon. The results show that, in the long run, liberalization of financial markets by the development of the financial system has a positive effect on the total price of stock market index; but in the short run this policy does not have any significant effect on the total price of stock index. Chichi (2012) in a research titled "Financial Development and Economic Growth with a Post Keynesian Approach: A Case Study of Hong Kong" studied the relationship between financial development and economic growth in Hong Kong from 1990 to 2004, using the vector auto-regression method. The results indicate that in both short run and long run, there is a positive relationship between financial development and economic growth in Hong Kong. Also financial market and the diversity of financial structure's role in different countries' economies is an important factor. Adoosi (2014), in a study titled "Does Economic Growth Boost Financial Development?" examined whether economic growth boosts or enhances financial development, by using time series data and GMM methodology over the years 1981 to 2010, for 24 African countries. The results show that economic growth promotes financial development in the 24 African countries under study. Also human capital and inflation, in that order, are positively and negatively correlated with financial development. From 1992 to 2011, Bayar (2014), in a study titled "Financial Development and Economic Growth in Developing Asian Countries" examines the effects of financial sector's development on economic growth in developing Asian countries (7 countries); using panel-data type method. His results show that the development of the banking sector and the capital market has a positive effect countries' economic growth. In another research, titled "Stock Market Development and Economic Growth", the relationship between stock market development and economic growth has been examined for 17 emerging markets and 10 developed economies, from 2000 to 2011 with dynamic panel data through using the GMM method. Research results show that there is a significant direct relationship between stock market development and economic growth, and also with investment behavior reinforcement there is a significant but this time, indirect relationship between them. Researches show that stock market development counts as an important driver of economic growth. Kujukaro and Co. (2014), in a study titled "Financial Development and Economic Growth in Transient

Economies: New empirical evidence from CEE (Central and Eastern Europe) and CIS (The Commonwealth of Independent States) countries” has examined the role of financial development in economic growth, belonging to the era, 1990 to 2008, during the first two decades after the transition began, through using GMM approach in the former communist countries of Central and Eastern Europe, and the CIS countries. The results show that, private sector credit has a positive effect on growth. However, high inflation can reduce the positive effect of private credit. High interest rates and restrictive banking competition also reduces growth. Diane Anda and Co. (2017) in an article titled “Does Publishing Negative News About Market Liquidity Improves It?” examined the impact of publishing negative news on the cost of capital and liquidity of corporate stocks. In this study of data from active New York Stock Exchange companies used from 1995 to 2010, the authors came to the conclusion that publishing bad and negative news improves market’s liquidity. In their study, Lee and Chau (2018) studied the impact of financial openness in emerging markets on the liquidity of domestic financial market. The results show that high rates of financial market openness, increases the liquidity of the domestic financial market. The impact on the emerging countries’ financial markets had been greater than the developed countries’.

In order to study the effect of financial markets’ openness on the liquidity level of these markets in Iran and in comparison with emerging economies, the hypotheses are the followings.

H1: The impact of financial market openness on the liquidity of these markets in Iran is low compared to emerging countries.

H2: Foreign assets’ ratio to GDP per capita has a significant effect on the level of liquidity of financial markets in Iran and emerging countries.

H3: The ratio of FDI to GDP per capita has a significant effect on the degree of liquidity of financial markets in Iran and emerging countries.

H4: The ratio of external commitments to GDP per capita has a significant effect on the level of liquidity of financial markets in Iran and emerging countries.

H5: In the countries under study and among the indicators of financial openness, the ratio of FDI to GDP per capita has the greatest impact on the level of financial markets’ liquidity.

3. Methodology

As stated earlier, the goal of this study is to study the impact of openness of the financial sector on the degree of liquidity of financial markets in Iran and emerging countries. The statistical of this study includes Iran and emerging economies. These emerging countries include Turkey, China, Russia, Brazil, Malaysia, Indonesia and Thailand. In order to obtain the information needed to process the research theories over the period 1980-2018, World Bank, IMF and Central Bank databases all have been used. Also before estimating the model, we will examine the data validity, because if the data isn’t valid and durable, it will cause false regression. ANOVA (Analysis of Variance) and autocorrelation tests are performed for the model and its results presented. In order to estimate the model under study, we first determine whether the model should be estimated as panel or pooled, through using the F-Limer test. Then, if the (0H) (Null Hypothesis) theory is rejected and the model is panel estimation, then the Hausman test is used to detect its type (fixed or random effects). In this research, the model in mind is as follows.

$$Liq_{it} = \mu_i + \alpha'X_{it} + \gamma FO_{it} + \varepsilon_{it}$$

Where the dependent variable Liq_{it} is the variable symbol for financial market liquidity level and FO_{it} is the independent variable symbol for financial market openness. (FOA is the ratio of foreign assets to gross domestic product. FOAL is the ratio of the total sum of foreign assets and foreign liabilities to gross domestic product. FOL is the ratio of foreign liabilities to gross domestic product. FDI is the ratio of foreign direct investment to gross domestic product) X_{it} represent the explanatory variables of the model that are considered control variables. The control variables being GDP per capita, inflation rate and the total stock market value. Gdp per capita is obtained by dividing gdp by the population of countries.

Inflation is also calculated using the consumer price index (CPI).

The total value of the stock market is the same as the value of the stock market transactions in a given year.

Before estimating the model, unit root test is performed to check the validity or inaccuracy of the model variables so that the estimation equation is not false regression. To do this, several tests are embedded in the Eviews software. In this part we use Fischer’s

generalized Dickey-Fuller test and unit root test's results for all the variables included in the model, are reported in the Table 1.

As shown in Table 1, all model variables are static and valid at the level of variables. In other words, all of the variables doesn't have a single unit test root and

are filled with (0N). Since four variables are presented to measure financial openness in this study, 4 models are estimated separately and the results are presented. In addition to this, we estimate all of these models separately for emerging countries and Iran in the years from 1980 to 2018, and will compare their result.

Table 1: Unit Root Test's Results

Status	Variables	Variable Levels	Result
With the Width of the Origin and Process	Amihud Illiquidity Index	56.8 (0.00)*	I(0)
With the Width of the Origin and Process	Volume of Trade	53.5 (0.00)*	I(0)
With the Width of the Origin and Process	Stock Market Value	58.5 (0.00)*	I(0)
With the Width of the Origin and Process	Inflation Rate	61.1 (0.00)*	I(0)
With the Width of the Origin and Process	Per capita Income	44.3 (0.04)*	I(0)
With the Width of the Origin and Process	Foreign Direct Investment's Ratio to GDP	47.6 (0.02)*	I(0)
With the Width of the Origin and Process	The Ratio of Foreign Assets and Liabilities to GDP	62.3 (0.00)*	I(0)
With the Width of the Origin and Process	Foreign and External Liabilities' Ratio to GDP	68.9 (0.00)*	I(0)
With the Width of the Origin and Process	Foreign Assets' Ratio to GDP	40.7 (0.05)*	I(0)

Source: Research's Findings.

*: The rejection of the null hypothesis (H0) is because there is a unit root at the significant 5% level.

4. Results

4.1. Model Estimation for Selected Emerging Countries

The research model for selected emerging countries can be estimated as either Panel or Pooled-type data. To detect this, the F-Limer test is used. Since the Joint effects model is a constrained model, due to the existence of one common source of origin for all countries, versus the fixed effects model, the F-Limer test could be used to select between the two of them. In fact, the test statistic is used to determine the presence or absence of a separate source of origin for each country. The null hypothesis of this test is the pooled-type data model estimation. Therefore, if the calculated F-Limer statistic is larger than the F-Limer value of the table at a significance level of 5% or even 1%, then the null hypothesis is rejected and country-specific effects are accepted. In other words, the fixed effects model cannot be ruled out against the common effects model. To perform this test, we first estimate the model as fixed effects and then we perform the fixed effects' redundancy test. This test is performed in the Eviews software and the results are presented in

Table 2. The results show that in all of the estimation models the null hypothesis can be rejected and the model is estimated as panel-data type estimation. Now in the second step, it should be determined which method (fixed effects or random effects) is suitable for panel-data type estimation. To do this, The Hausman test (1980) is used. The null hypothesis in the Hausman test means that there is no relation between the disturbance of equation and explanatory variables and, in fact they are independent of each other. Meanwhile, the opposite theory implies that there a correlation between the disturbance and the explanatory variables. The results of this test are also reported in Table 2. Hausman test's results show that in all models the random effects estimation method has to be rejected and the final model is estimated as constant effects. Therefore, the final estimation method of the models will be the panel-data type method with fixed effects. So we use LR (likelihood-ratio) and Wooldridge tests to test the similarity of the variance of disorders and their lack of autocorrelation, in that order; because in the panel-data type method such as series data, one can discuss the heterogeneity of the variance between the disorders as well as the

autocorrelation. In principle, if the time period studied in the panel data is longer than the number of sections, the discussion of autocorrelation between the disruptive components is expected to be relevant. Also, if the number of sections exceeds the time period studied, it can be expected that the disruption components have variance heterogeneity. This is, of course, just a rule of thumb before doing the test. To test the heterogeneity of the variance between the disorders, two separate constrained regression and unconstrained regression models are estimated. The constrained model includes assumptions of variance homogeneity or an identical and independent distribution of the disorders, while the unconstrained model assumes that the variance of the disorders is not equal across cross sections (variance heterogeneity). After estimating both models, the variance

heterogeneity hypothesis is tested based on the test statistic of the likelihood-ratio (LR) and using the following calculation formula.

$$LR = 2(L_{UR} - L_R)$$

To test autocorrelation, Wooldridge test was used. In this test's null hypothesis it is assumed that there is no autocorrelation. Therefore, if probability is more than 5%, the null hypothesis of there being no autocorrelations is accepted. The results of the autocorrelation and variance heterogeneity test are also presented in Table 2. It can be seen that the disorders of regression have no heterogeneity of variance and autocorrelation.

Table 2: Model Estimation Results for Selected Emerging Countries

	Dependent Variable: Illiquid ¹				Dependent Variable: Total Stock Value (TV)			
C	2.13 (0.01)*	2.28 (0.12)	3.3 (0.08)	2.56 (0.00)*	4.2 (0.06)	4.53 (0.05)*	4.82 (0.05)*	3.9 (0.03)*
FOA	0.063 (0.17)				0.08 (0.04)*			
FOL		-0.082 (0.03)*				0.12 (0.00)*		
FOAL			-0.075 (0.02)*				0.19 (0.03)*	
FDI				-0.12 (0.05)*				0.28 (0.02)*
MV	-0.063 (0.00)*	-0.057 (0.04)*	-0.083 (0.01)*	-0.097 (0.05)*	0.175 (0.04)*	0.163 (0.02)*	0.186 (0.00)*	0.19 (0.00)*
PGDP	-0.055 (0.01)*	-0.035 (0.00)*	-0.065 (0.04)*	-0.086 (0.05)*	0.131 (0.00)*	0.12 (0.01)*	0.139 (0.04)*	0.16 (0.01)*
P	-0.087 (0.08)*	-0.052 (0.10)*	-0.076 (0.07)*	-0.063 (0.15)*	0.11 (0.02)*	0.142 (0.03)*	0.12 (0.00)*	0.15 (0.00)*
R2	0.15	0.12	0.14	0.18	0.65	0.67	0.69	0.72
R ² Adjusted	0.13	0.10	0.12	0.15	0.62	0.63	0.66	0.69
F-Limer Test	19.5 (0.00)**	16.3 (0.00)**	15.7 (0.00)**	13.1 (0.01)**	14.5 (0.00)**	17.2 (0.00)**	16.25 (0.00)**	17.15 (0.01)**
Hausman Test	106.5 (0.00)**	110.7 (0.00)**	109.3 (0.00)**	111 (0.00)**	102.8 (0.00)**	110.5 (0.00)**	105.6 (0.00)**	101.2 (0.00)**
Wooldridge Test Statistic	3.47 (0.14)©	3.23 (0.16)©	2.98 (0.19)©	3.05 (0.18)©	2.25 (0.27)©	3.39 (0.15)©	2.2 (0.27)©	2.38 (0.25)©
Likelihood-Rate (LR)	15.8 (0.32)©	12.5 (0.43)©	14.7 (0.38)©	12.6 (0.43)©	14.45 (0.37)©	15.82 (0.32)©	14.25 (0.36)©	13.3 (0.40)©

*: Indicating the coefficient is significant, in the significance 5% level.

** : Indicates the rejection of null hypothesis in the relevant tests at the significant 5% level and proposes a model estimation using panel-data type and fixed effects.

©: Indicating no rejection of the null hypothesis of the relevant tests at the significant 5%.

¹The dependent variable of this research is the illiquidity Amihud index, which is considered as a criterion for measuring the liquidity of the stock market.

Based on the model estimation results, if the Amihud Illiquidity index is the dependent variable of the model, it is observed that at the 5% significant level, three of four criteria of financial openness have a significant negative impact on the Amihud Illiquidity index. In other words, financial openness has a negative relationship with the illiquidity index and as a result of increasing financial openness, the level of liquidity in the financial markets also increases. GDP per capita also has a negative impact on the Amihud illiquidity index, and the higher the GDP per capita in selected emerging countries, the lower the Amihud illiquidity index and lower the liquidity level of financial markets. At the significant 5%, inflation had a negative impact on the Amihud illiquidity index, but this effect was not statistically significant. Market value also has a negative effect on the Amihud illiquidity index but this effect is statistically significant at the 5% level of significance. Therefore, high market value can also increase the liquidity level of financial markets and vice versa. Also, the coefficient of determining the estimated regressions were between 0.12 and 0.18, indicating that 12 to 18% of the variation in the dependent variable was explained by the explanatory variables included in the model. Now, if the dependent variable of the model is the trading volume, it can be shown that at the 5% level of significance, all four indicators of financial openness have a significant and positive impact on market trading volume as an indicator of market liquidity. Therefore, the greater openness of the financial markets of the selected countries will increase the liquidity level of the financial markets. According to the model estimation results in Table 2, market value, GDP per capita and inflation also has a positive effect on financial markets' trading volume (liquidity level of financial markets) and these effects were statistically significant at the 5% significant level. In this case, the coefficient of determining the estimated regression is somewhere between 0.65 and 0.72 and shows that 65-72% of the changes in the dependent variable are explained by the explanatory variables included in the model.

4.2. Model Estimation for Iran

In this section, the impact of financial openness on the level of financial markets' liquidity level in Iran is studied upon and is compared with emerging countries using data from 1980 to 2018 and through using ordinary least squares (OLS) regression. The model estimation results presented in Table 3 show that if the

dependent variable of the model is Amihud illiquidity, in the 5% level of significance, only two measures of foreign assets' ratio to GDP per capita and foreign direct investment's ratio to GDP per capita has a significant and negative impact on the Amihud illiquidity index. In other words, the more open the financial markets are, the lower the Amihud illiquidity index and higher the liquidity level of financial markets. GDP per capita's effect on Amihud illiquidity index has been negative and it is statistically significant at the 5% level of significance. Therefore, the higher the GDP per capita in the selected emerging countries, higher the liquidity level of financial markets. Also at the significant 5% level, inflation has a significant and negative impact on the Amihud illiquidity index and the high level of inflation increases the level of liquidity of the financial markets. Market value also showed a negative impact on the Amihud illiquidity index and this effect was statistically significant at the 5% level of significance. Therefore, higher market value can increase the liquidity level of financial markets.

Based on model estimation results, the coefficient of determining the estimated regression was between 0.14 and 0.10, indicating that 10 to 14 percent of the variation in the dependent variable was explained by the explanatory variables included in the model. Also The Durbin Watson (DW) statistic was close to 2, indicating that disorders of regression are not correlated. We now assume that the volume of variable trading depends on the model. In this case, and at the 5% level of significance, like the pervious case, only FOA and FDI indices have a positive and a significant effect on the volume of market transactions (trading), and the high level of these two indices increases the level of liquidity in financial markets. Also, market value, GDP per capita and inflation had a positive effect on the volume of transactions and trading in financial markets and these effects were statistically significant at the 5% level of significance. In other words, higher market value, GDP per capita and inflation in the study period in Iran has led to a higher level of liquidity in the country's financial markets. For the overall evaluation of estimation models, it can be said that the coefficient of determining the regression estimation is between 0.76 and 0.65, indicating that 65 to 76% of the variations in the dependent variables are explained by the explanatory variables included in the model. Also the DW statistic was close to 2 which indicate no correlation of regression disorder.

Table 3: Model Estimation Results for Iran

	Dependent Variable: ILLIQ				Dependent Variable: Total Stock Value (TV)			
C	3.3 (0.00) *	3.5 (0.09)	2.28 (0.08)	3.86 (0.01) *	3.25 (0.01) *	2.39 (0.11)	3.42 (0.05) *	3.88 (0.08)
FOA	-0.001 (0.04) *				0.025 (0.05) *			
FOL		-0.056 (0.08)				0.08 (0.12)		
FOAL			-0.068 (0.13)				0.08 (0.07)	
FDI				-0.08 (0.05) *				0.12 (0.03) *
MV	-0.085 (0.00) *	-0.057 (0.00) *	-0.072 (0.03) *	-0.092 (0.01) *	0.115 (0.00) *	0.127 (0.02) *	0.145 (0.05) *	0.18 (0.03) *
PGDP	-0.025 (0.03) *	-0.013 (0.03) *	-0.019 (0.04) *	-0.020 (0.02) *	0.089 (0.01) *	0.078 (0.03) *	0.056 (0.05) *	0.087 (0.00) *
P	-0.11 (0.04) *	-0.108 (0.00) *	-0.13 (0.05) *	-0.135 (0.01) *	0.17 (0.02) *	0.165 (0.03) *	0.185 (0.00) *	0.125 (0.02) *
R ²	0.11	0.10	0.12	0.14	0.69	0.72	0.65	0.76
R ² Adjusted	0.098	0.087	0.105	0.13	0.66	0.68	0.62	0.73
F	20.25 (0.00) **	21.3 (0.00) **	22.5 (0.00) **	20.4 (0.00) **	21.8 (0.00) **	22.6 (0.00) **	20.9 (0.00) **	19.7 (0.00) **
DW	1.9	1.85	1.88	1.93	2.01	1.95	1.82	1.87

*: Indicating the coefficient is significant in the significant 5% level.

**: Indication the significance of the whole regression in the 5% level of significance.

5. Discussion and Conclusions

Like we said before one of the factors that affect the liquidity of financial markets is the subject of openness and liberalization in these markets. The liberalization of financial markets will have different economic effects depending on how it is implemented and the economic in which it is liberalized, but the point is that the subject of financial liberalization will be undeniable. Since in this study, 4 variables are presented to measure financial openness, 4 models are estimated separately and the results have been presented. The conclusions were that according to the estimated results of the model in emerging economic countries, considering that the Amihud illiquidity index is a dependent variable at the 5% level of significance, except for FOA, other financial openness indicators had a significant negative impact on the Amihud illiquidity and as a result of, the financial openness increases, the liquidity level in the financial market also increases. Also, in the 5% level of significance, GDP per capita, inflation and market value also had a negative effect on Amihud illiquidity and this effect is statistically significance at the 5%. Therefore, the high volatility of these variables can increase the liquidity level of financial markets and vice versa. According to the results of the research, the coefficients of determination of the estimated

regressions were between 0.12 and 0.18 indicating that 12 to 18% of the variation in the dependent variable was explained by the explanatory variables included in the model. Now, if the dependent variable of the model is the trading volume, at the 5% level of significance, all four financial openness indicators have a significant and positive impact on the volume of trading (Liquidity level of financial markets). Again like we said before, the greater openness of emerging economies' financial markets will increase the liquidity level of this financial sector.

According to the model estimation results in Table 2, market value, GDP per capita and inflation also had a positive effect on trading volume and liquidity level of financial markets and these effects were statistically significant at the 5% level of significance. In this case, the coefficient of determination of the estimated regression is between 0.72-0.65 and indicates that 65-72% of the changes in the dependent variable are explained by the explanatory variables included in the model. Regarding Iran, ordinary least squares (OLS) regression was used for the period 1985-2018 and the effect of financial openness on the level of liquidity of financial markets in Iran was estimated. Model-estimated results showed that if the Amihud illiquidity index is the dependent variable of the model, at the 5% level of significance, only two measures of foreign assets ratio to GDP per capita and foreign direct

investment's ratio to GDP per capita has a significant and negative impact on the Amihud illiquidity index. In other words, the more open the financial markets are, the lower the Amihud illiquidity index and higher the liquidity level of financial markets. The effect of GDP per capita on Amihud illiquidity level is negative and it is statistically significant at the 5% level of significance. Therefore, the higher the mentioned variables in the country are, higher the level of liquidity in financial markets. In addition to this, the coefficient of determination of the estimated regression was between 0.14 and 0.10, indicating that 10 to 14% of the variations in the dependent variable were explained by the explanatory variables included in the model. Also The Durbin Watson statistic was close to 2 which indicate no correlation of regression disorder. However, if the volume of trading is the dependent variable in the model, at the 5% level of significance, like the previous case, only two FOA and FDI indices had a significant positive effect on market trade volumes and the with these two indices being high, the liquidity level in financial markets will increase too. Also, market value, GDP per capita and inflation have a positive effect on the volume of financial markets trading and transactions and these effects are statistically significant at the 5% level of significance. In other words, high market value, GDP per capita and inflation in the study period and in Iran has had led to a higher level of liquidity in the country's financial markets. In addition to this, the coefficient of determination of the estimated regression in this case is between 0.65-0.76 and indicates that 65 to 76% of the variations in the dependent variable are explained by the explanatory variables included in the model. The coefficient of determination is low in the case where the illiquidity Amihud index is the dependent variable of the model, but in the case where the transaction volume variable is considered as the dependent variable of the model, the value of the coefficient of determination is acceptable. The results of this study are similar to the results of the study of Lee and Wang (2009), Bean and Kondlen (2007), Hazari and Seifollahi (2016), Boroumand et al. (2016) and Lee and Chao (2018) and in other words the results Confirms these studies.

Based on this research, the followings could be recommended.

- 1) Given the positive impact of FDI's ratio to GDP per capita on financial markets' liquidity

level, the government should adopt effective policies to attract foreign investment, particularly in the stock exchange and banking industry and support foreign investment in these areas.

- 2) One of the most important factors affecting foreign investment in the stock exchange and banking industry is the bureaucracy and legal obstacles to the presence of foreign investors in these areas. So the government should, as far as it can, minimize the legal and bureaucratic hurdles in the area.
- 3) Exchange rate volatility is another factor that has a negative impact on foreign investment in the Iranian economy, both in stock markets and bank. The central bank should adopt exchange rate management policies to encourage foreign investor to invest in stock and insurance.
- 4) According to the results of this research, the impact of financial markets' openness in Iran is low on the liquidity level of these markets and compared to emerging countries. The main reasons for this are economic instability and restrictions on the entry of foreign investors in the stock exchange and the issuance of securities to foreigners. Therefore, before liberalization, it is necessary to create economic stability, regulatory and precautionary infrastructures to distribute securities to foreigners in the country.

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