

THE RIPPLE EFFECT: INVESTIGATING THE INFLUENCE OF STOCK MARKET LIQUIDITY ON BANK LIQUIDITY IN TEHRAN STOCK EXCHANGE

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Abstract

The banking sector plays an important role in the economy by providing financial and credit services. However, the growth of non-performing loans in recent years has been a major concern for the banking sector. This study investigates the effect of stock market liquidity on the liquidity of banks listed in Tehran Stock Exchange. The results show that stock market liquidity has a positive and significant effect on the liquidity of banks. This is because stock market liquidity provides banks with an opportunity to invest their excess funds and earn a higher return.

Keywords: Banking sector, Liquidity, Stock market liquidity, Non-performing loans, Tehran Stock Exchange.

1. Introduction

The banking sector is one of the most important bridges between supply and demand of monetary resources in the Iranian economy, so that any deficiency in the structure of this sector and its inefficiency will also provide grounds for disruption in other sectors. Also, the growth of banks' non-performing demands in recent years has become more evident as one of the signs of inefficiency of the country's banking sector. It is widely accepted that there is a direct relationship between the percentage of non-performing loans in the banking system and bank bankruptcy and financial crises in both developing and developed countries (Abbassian et al., 2016).

Around the world, the banking industry is one of the most important pillars of any country's economy, and because of its diverse financial and credit services, it plays a decisive role in the economic development and growth of countries and can be referred to as a driving force for accelerating, balancing and organizing the economy. A look at the history of banking confirms that these institutions, in addition to the role of money, have been responsible for financial and monetary transactions in both internal and external trading, and have been both trustees of people and facilitators of monetary transactions since their establishment and formation and have had a great importance in the economy. Therefore, the development and improvement of banking activities, in particular the provision of facilities along with an efficient system, will play a major role in the development of the country's banking industry and economy (Erdorf et al., 2012). Due to its business nature, a bank needs to keep part of its assets in cash in order to meet clients and depositors' needs, which in turn creates opportunity costs for those assets (Lipson et al., 2012). In other words, keeping cash in current accounts, the central

bank, with other banks and statutory reserves reduces the bank's liquidity risk. At the same time, it also deprives the bank of investment opportunities and ultimately reduces the bank's return (Turan et al., 2012). Since liquidity in banks plays an important role in creating investment opportunity in banks, the purpose of this study is to investigate the effect of stock market liquidity on creating liquidity of banks listed in Tehran Stock Exchange.

2. Theoretical foundations

An efficient banking system is one of the necessary and effective tools for the economic development of the country. Banking is one of the most important sectors of the economy today. Banks turn non-productive capital into productive agents by equipping small and large savings and directing them to manufacturing and commercial firms and, on the other hand, they lead the production agents that have low productivity due to lack of capital to full employment or high productivity. Therefore, banks, as one of the important factors of monetary policy, are the executors of economic decisions of central banks (Kanaani Khosroshahi et al., 2014).

One of the most important goals of banks in the Iranian banking system has been to gain maximum market power (market share). Increasing advertisement of the country's banks is one of the symbols of increasing competition for this share (Baker et al., 2013).

One of the major challenges facing the country's banking system in recent years has been the growing trend of overdue claims resulting from unreal, nonprincipled and wrong facility payments so that banks' overdue claims and their worrisome growth have become one of the challenges of the banking system and the economy of the country, which makes the need for urgent, yet fundamental, measures to eradicate this dangerous phenomenon, as increasing of these demands adversely affect the consumption and resource cycle of banks and also cause false liquidity, decrease in monetary value, loss of equity of banks and monetary firms and etc. (Saeedi Kalishami, 2014).

Liquidity is a desirable feature of competitive markets. Liquidity expresses how close a financial asset is to cash. Liquidity expresses how close a financial asset is to cash. Liquidity of a financial asset is measured by the ability to convert that asset into cash at any time without bearing losses. Today, given the economic conditions and fluctuations of the stock market index, liquidity, which is one of the most important decision-making components in the Tehran Stock Exchange, has gained double importance for the proper performance of financial markets (Chang et al., 2010).

The issue of liquidity emerged as a determinant of stock returns in the mid-1980s. Liquidity reflects the effect of order flow on price. This effect can be seen as a discount given by a seller or a reward a buyer receives when executing a market order. Research shows that the liquidity factor affects stock return and investors always pay attention to it (Kanaani Khosroshahi et al., 2014).

Stock market liquidity is just as important as other financial markets. Increased liquidity in the secondary stock market boosts primary supply and reduces the cost and risk of underwriters and marketers. Also, investor costs are reduced by reducing the range of fluctuation and transaction costs, thus reducing the cost and risk of underwriters and marketers, and investor costs are reduced by reducing the range of fluctuation and transaction costs (Hyeesoo et al., 2013). Liquidity reflects the state of the investment environment and the macro economy. From a micro perspective, a liquid capital

market provides the ability to attract different investors with a variety of trading strategies. Therefore, to have a dynamic and growing capital market, it is necessary for the market and banks to have high liquidity. This requires attracting investors and wandering liquidity in society (Ebrahimi et al., 2016). Many studies on the stock market liquidity have been conducted separately, but there has been no study on the stock market liquidity in creating liquidity of bank banks in Iran. This study investigates the effect of stock market liquidity on creating the liquidity of banks listed in Tehran Stock Exchange. In fact, this research is the first example in Iran to understand this relationship. Also, given that one of the concerns of investors is the liquidity of stocks of companies, especially banks, and that this is one of the criteria that investors consider when making a decision to invest, this research is important.

3. Literature

Asgari and Kalhor (2018) investigated the relationship between market share and stock liquidity of companies listed in Tehran Stock Exchange. The statistical population consists of seven industrial groups of companies listed in Tehran Stock Exchange and the sampling method is systematic. The statistical sample of this study consists of 174 companies and the research period is six years from 2004 to 2009. The results of statistical analysis indicate that the relationship between product market share and degree of liquidity is linear and direct, and in companies with information asymmetry, increase in company's product market share has less positive effects on stock liquidity compared to other companies.

Kanaani Khosroshahi (2014) examined the effect of the power of banking market on stock liquidity of stock exchange member banks. The results show a significant and direct relationship between the market power of banks and stock liquidity. In other words, as the market power of banks increased, the stock liquidity of the sample banks studied increased during the research period.

In a study, Ahmadpour and Baghban (2014) examined the relationship between asset liquidity and stock liquidity in the Tehran Stock Exchange. In this study, the relationship between asset liquidity and stock liquidity of company in a sample of companies listed in Tehran Stock Exchange during 2007-2009 was investigated. This study uses the liquidity criteria presented by AMIHU and optimized by Gopalan for correcting its high skewness and the relative difference in bids and asks as indices of stock trading liquidity. The results show that there is a significant positive relationship between asset liquidity and stock liquidity.

In a research, Wahabi (2012) examined the relationship between liquidity and capital structure in companies listed in the Iranian Stock Exchange. Findings showed that there is a positive and insignificant relationship between stock liquidity and capital structure of companies and that profitability and market value of asset / asset book value affect this relationship and the results of this study can help managers of companies listed in stock exchange decide on optimal capital structure.

Toh et al. (2019) in an article examined the impact of stock market liquidity on the creation of bank liquidity in Malaysia. The results of their research show that a stock market enhances the liquidity creation of banks both on and off the banks' balance sheets when the market liquidity increases. Further analysis shows that the positive impact of stock market liquidity is evident on the liquidity creation of publicly listed banks as the banks' cost of equity finance becomes cheaper.

Fernandez Amador et al. (2013) in an article entitled Monetary Policy and its Effect on Stock Market Liquidity provided evidence that the ECB's expansionary monetary policy increased stock market liquidity in three markets of euro area (France, Germany and Italy).

Becker and Stein (2013) in their studies came to the conclusion that high liquidity in a firm is attractive to investors, so that it generates a great deal of unreasonable demand for buying stocks and this false attraction and confidence makes the investors less responsive to the flow of information that focuses on lowering stock prices, leading to mere stock growth.

In his study, Dershenko (2011) examined the impact of liquidity on asset pricing in the UK. His data included 2522 observations on 74 companies between 2001 and 2011 in the London Stock Exchange. He used time-series regression of Fama and French three-factor model and four-factor model with liquidity factor (Fama-French three-factor model adjusted with liquidity factor) to evaluate and compare. The results showed that the liquidity risk had a positive impact on the predicted return on stocks.

4. Methodology

This research is an applied and correlational research. The research design is quasi-empirical and uses a retrospective approach (through past information). In this research, library method is used to collect data and information. The Tehran Stock Exchange's databases, audited financial statements, explanatory notes on banks and the central bank are used. The statistical population of the study consists of the banks listed in Tehran Stock Exchange. The statistical sample is selected by systematic elimination method. The companies must have no change in their financial year between 2014 and 2018 and no operating interruption of more than 6 months. Linear regression models using combined data will be used to test the research hypotheses. The hypothesis testing method in this study will be performed using EViews 7 software. The regression model of the present study aims to investigate the effect of stock market liquidity on the creation of liquidity of banks listed in Tehran Stock Exchange as follows:

$$LC_{it} = \beta_1 SLIQUIDITY_{it} + \beta_2 lev_{it} + \beta_3 size_{it} + \varepsilon \quad (1)$$

LC_{it} : Bank liquidity, which is measured by the mean of the following three variables:

$CATFA/TA$: dividing items on and off balance sheet by total assets of bank

$CATNONFAT/TA$: dividing the items on the balance sheet by total assets of bank

$OFFLC/TA$: dividing the items off the balance sheet by total assets of bank

In other words, each of the above indicators is a method for measuring the bank's liquidity, which is obtained by using the mean of the above three methods as follows:

$$LC_{it} = \text{mean}\left(\frac{CATFA}{TA}, \frac{CATNONFAT}{TA}, \frac{OFFLC}{TA}\right)$$

$SLIQUIDITY_{it}$: Stock market liquidity It is measured using the AMIHU ratio.

: Control vector contains the following two control variables

BANK size (ln TA): is the size of bank obtained using the bank's asset logarithm. Lev: Financial leverage

u_{it} : Error

Descriptive achievements in the present study are discussed in this section. Descriptive findings include descriptive statistics. Due to the fact that the descriptive statistics include the central indices and the dispersion indices, in this section the central indices and the dispersion indices are discussed. The central indices are the mean, median, etc., and the dispersion indices include standard deviation, kurtosis and skewness. Each of these indices is then examined for each of the variables included in this study.

Table 1. Descriptive statistics of the research variables

Variable	Mean	Median	Standard deviation	Skewness	Kurtosis
Liquidity	0.5717	0.5565	0.2006	0.1479	1.891
Liquidity	0.6697	0.6776	0.1706	-0.0713	1.898
Financial leverage	0.6645	0.6795	0.1672	-0.1072	1.973
Company size	7.1951	7.219	0.6324	0.0031	1.7086

Based on the data in Table 1 on each of the research variables, one can examine each of these indicators. It can be seen that the standard deviation represents the dispersion of the majority of the data and in other words, the dispersion of the majority of the data is in the mean value plus and minus the standard deviation. Generally, this section confirms the normal dispersion of data. The coefficient of kurtosis is the index that determines the tilt value. Its value varies between -3 and +3. If the skewness is zero, the distribution is symmetric, which is within the standard range for all the research variables. The kurtosis value is also normal for all of the research variables.

The White test with two criteria of Fisher exact test and chi-square test was used to assess the establishment of presumption of homogeneity, consistency, or stability of the variances. In this test, the null hypothesis of homogeneity of variances versus their heterogeneity is defined as the contrary hypothesis.

The results of the variance homogeneity test are summarized in Table 2.

Table 2. Variance homogeneity test

Type of test	Test statistic	Sig. level	Test result
Fisher	2.106446	0.0000	Acceptance of the assumption of homogeneity of variances
Chi-square	26.53813	0.0000	Acceptance of the assumption of homogeneity of variances

Based on the results summarized in Table 2 on the White test, it can be seen that:

1. The Fisher test statistic was 2.106446 and its corresponding test level was approximately zero.

2. The chi-square test statistic was 26.53813 and the corresponding significance level was approximately zero.

Given that the test level in both Fisher and Chi-square tests was less than 5%. Therefore, at the 95% level of confidence, the null hypothesis on stability, homogeneity, or equality of variances can be accepted as another presumption of using compound linear regression to determine the relationship between variables.

Hypothesis: Stock market liquidity has a significant effect on creating the liquidity of the banks listed in the Tehran Stock Exchange.

Since the present research data are panel data, in this type of data, the F-Limer test was used to select between panel data and combined data. The results of this test are summarized in Table 3.

Table 3. Results of the F-Limer test

F statistic	Sig. value	Test result
6.59173	0.0004	

Given the significance value which is less than 0.05, the panel data method is therefore accepted. In the panel data method, Hausman test was used to select between fixed effects and random effects methods.

Table 4. Results of the Hausman test

Statistic Test	Statistic	Prob
Cross-section Random	4.205165	0.1221

The chi-square statistic obtained from the calculations is 4.205165 and its Prob value is greater than 0.05 so the null hypothesis of using random methods is not rejected and as a result the random effects method is accepted.

Table 5. Analysis results

Variable	Coefficient	Standard deviation	t statistic	Sig. level
Liquidity	0.231075	0.079724	2.898444	0.0039
Financial leverage	0.518708	0.170699	3.038731	0.0025
Company size	0.15117	0.141214	2.070515	0.0053
Constant coefficient	1.532327	0.079990	19.15645	0.000
Coefficient of determination	0.438733	f statistic	8.	401190
Adjusted coefficient of determination	0.434122	Sig. level		0.0000
Durbin-Watson: 2.323722				

The results of the test to assess the stock market liquidity on creating liquidity of the banks listed in Tehran Stock Exchange are summarized in Table 5, as shown in Table 5, the significance level for assessing the effect of liquidity on liquidity is less than 0.05; on the other hand, the t-statistic is 2.0898444, so it can be said that the stock market liquidity has a significant effect on creating liquidity of the banks listed in the Tehran Stock Exchange. Since the coefficient of the test is 0.231075, it can be said that there is a positive and direct relationship between stock market liquidity and the liquidity creation of banks listed in Tehran Stock Exchange. The coefficient of determination (R^2) is 0.438733 which means that the change in liquidity has been able to explain 43.87 units of liquidity variations. The value of the Durbin-Watson test indicates that there is no autocorrelation between the error components.

Therefore, it can be said that stock market liquidity has a significant effect on creating liquidity of the banks listed in the Tehran Stock Exchange.

5. Conclusion

The purpose of this study was to investigate. The results showed that the research hypothesis, stock market liquidity has a significant effect on creating liquidity of the banks listed in the Tehran Stock Exchange, is confirmed due to having a significance level less than 0.5. Therefore, it can be said that stock market liquidity has a significant effect on creating liquidity of the banks listed in the Tehran Stock Exchange. In other words, the liquidity of banks will be overshadowed if the liquidity and its fluctuation change in the banks. Also, as the amount of liquidity in banks increases, the amount of liquidity changes in the same direction. The results of the study are consistent with the studies of Asgari and Kalhor (1979), Toh et al. (2019) and Fernandez Amador et al. (2013).

6. Research limitations

A. The present study was conducted using the data of the banks listed in the Tehran Stock Exchange and other companies were excluded from the statistical population due to the specific nature of their activity, therefore, the results cannot be generalized to all companies.

B. Another limitation of the research is the error of data collection by the researcher which may be somewhat effective in generating wild and influential observations.

7. Suggestions

✓ Allocating appropriate financing tools to increase bank liquidity in order to improve liquidity conditions in the banks listed in the Tehran Stock

Exchange

✓ Using assets with high capability of liquidity to improve liquidity conditions

✓ Investigating the role of bank credit risks on liquidity conditions of banks

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