



Evaluating the effect of liquidity growth rate volatility and real interest rate uncertainty on the performance of the banking industry

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ABSTRACT

The current study has investigated the effect of liquidity growth rate and real interest rate deviation on the performance of banking industry and credit institutions in Tehran Stock Exchange during the period of January 2011 to March 2021. In this way, autoregressive vector model, Granger causality test and instantaneous reaction functions have been used to explain the mechanism of the effect of liquidity growth rate and real interest rate deviation on the return of the banking industry index and credit institutions. According to the investigations, there is an inverse relationship between the uncertainty of the real interest rate and the return of the banking industry index in the Tehran Stock Exchange market; But the volatility of liquidity growth does not significantly affect the performance of the banking industry index.

Keywords: Liquidity Growth Rate, Uncertainty of Real Interest, Returns of The Banking Industry Index and Credit Institutions, Autoregressive Vector Model, Granger Causality Test

1. Introduction

Commercial banks play an effective role in the growth and development process of an economy. As intermediaries of funds, they are considered as one of the most important sources of business financing, and in this regard, by ensuring the efficient allocation of resources, they provide the necessary funds for various sectors of the economy. In such a way that they direct the flow of surplus funds in the environment of the economy towards productive activities, which in turn stimulates investment and improves economic growth and development. On the contrary, the failure of the banking system in the functioning of financial intermediation can lead to a decrease in economic growth and development. Following the poor performance of the banking system, the bankruptcy of banks and finally the occurrence of a financial crisis like what happened during the financial crisis of 2007 will not be far from expected (Marshall, 2009). This shows the importance of why banks are one of the supervised sectors in today's world. Saunders (1994) notes that the role of banks in an economy is so important that the failure of a large bank is worse than any other financial institution in an economy.

The performance of the banking system depends on several factors that can have internal and external origins. Internal factors are mainly derived from the internal conditions of the bank and competition between banks, and external factors are derived from the financial and macroeconomic conditions surrounding a country. In general, the competitiveness of each bank is different according to its characteristics and advantages, but the financial and macroeconomic conditions facing the banking system as a systematic factor are the same for all banks. Favorable macroeconomic conditions will lead to the development of the banking system, on the one hand, and on the other hand, unstable and unstable economic conditions may destroy the banking system. Because the instability of macroeconomics will affect the credit risk and market of banks strongly, which in turn can lead to poor performance of banks. The country's completely bank-oriented financial system is not exempt from this issue and is always under the influence of macroeconomic variables.

By implementing expansionary and contractionary monetary policies during the last decade and manipulating macroeconomic variables, the governments severely affected the performance of the country's banking system. The increase in the interest rate on account of the banks over the inflation rate and in other words the positive rate of real interest, which is considered as a rare event in recent decades, caused the loss of many banks. One of the important causes of this problem is the liquidity crunch caused by the freezing of banks' assets in the recessionary

atmosphere of Iran's economy, and on the other hand, the payment of fictitious and fictitious profits that lacked the support of the real performance of the banks' portfolios, which led to the banks overdrawing from the Central Bank's powerful resources and increasing the monetary base will be mentioned. In the conditions of negative real interest rate, the motivation of the borrowers for the repayment of reduced received facilities and increases the frozen assets of banks. Of course, during the recession and the positive real interest rate, which is not proportional to the real rate of return of various economic sectors, the borrowers' ability to repay actually decreases, and in this way, the non-current assets of the banks also increase.

While a wide range of empirical studies have examined the impact of macroeconomic factors on the country's capital market, similar analyzes in the context of explaining the effects of macroeconomic indicators on the performance and efficiency of the country's banking industry are relatively rare and limited. Therefore, the purpose of this research is to evaluate the effect of liquidity growth rate volatility and real interest rate deviation on the performance of the banking industry.

Theoretical literature

The relationship between macroeconomic variables and the stock market has been one of the topics of interest in both developed and developing economies. However, this issue has been more widely explored in developed economies, especially in the United States, the United Kingdom, and Japan. Fama (1981) has reported an unusual negative relationship between stock returns and inflation by examining the relationship between stock returns and the selection of macroeconomic variables. In line with the results of Fama (1981), Geske and Rolle (1983) observed a negative causal relationship between the two, which means that stock returns are a sign of inflationary expectations. Empirical evidence provided by Cowell (1987) suggests that negative stock returns are caused by money demand effects. The research results of James, Korisha and Parch (1985) also support the proposition of reverse causality. In addition, studies by Chen, Rolle and Ross (1986) show a strong relationship between macro variables and expected stock returns in the US market; In this way, macroeconomic variables including structural conditions, industrial production, risk appetite, inflation, market return, consumption and oil price reflect systematic risks and are significantly priced based on stock returns (except for oil prices). Poon and Taylor (1986) conducted a study on the UK capital market in line with the research of Chen, Rolle and Ras (1986). The results of their research show that the

impact of macroeconomic variables in the United States is different from England. On the other hand, from a theoretical point of view, the relationship between liquidity and the amount of money in circulation and the total stock price index in capital markets should be direct; Because increasing the amount of money can increase the demand for investment in capital assets, including stocks. It is worth mentioning that in most of the studies conducted abroad, this relationship has been declared positive, but in the study conducted by Pesando (1974) and Craft and Craft (1977), no significant relationship was found between these two variables. Also, based on the study of Boyle (1990), the relationship between these two variables was shown to be inverse. According to the macroeconomics literature, if the general level of prices increases, the first variable that is affected by the increase in the price level is the real balance of money. In other words, with the increase in the general level of prices, the real supply of money will decrease. In the framework of Keynesian analysis, the decrease in the real supply of money (excess demand for money) causes disruptions in the economy. Based on the Walrasian equilibrium, in order to maintain balance and balance in the economy as a whole, the creation of excess demand for money in the money market will lead to the formation of excess supply in the bond market, which ultimately leads to a decrease in the price of bonds and an increase in the market interest rate. Therefore, theoretically, it is possible that with the increase in the general level of prices, the interest rate will increase in line with the implementation of contractionary monetary policy. Therefore, from a theoretical point of view, there is a positive causal relationship from the inflation rate to the nominal interest rate; In other words, an increase in the inflation rate can cause an increase in the interest rate in the economy. However, how the interest rate affects inflation and also the increase in interest rate causes an increase in production costs and consequently causes an increase in the general level of prices as a result of the inflation rate. On the other hand, economic theories emphasize that an increase in the inflation rate will increase the interest rate. For example, John Baptist Clark (1895) believed that the interest rate should change according to the inflation rate; In other words, the interest rate has a direct relationship with the inflation rate, and if the inflation rate decreases/increases by one percent, the nominal interest rate should also decrease/increase by one percent.

Saeed (2015) has tested the effect of industry-specific, bank-specific and macroeconomic variables on bank profitability in the UK. This study is based on the data of 73 British banks and empirical results show that inflation and GDP growth have a negative effect

on bank profitability, while facilities, deposits, bank size, capital adequacy ratio, interest rate and liquidity have a positive effect on Banks have return on assets (ROA) and return on equity (ROE). Selby and Honig (2019) analyzed the impact of macroeconomic variables on the German stock market for the periods before and after the 2007 financial crisis. Their study shows that macroeconomic variables have much greater effects on stock returns during the financial crisis than in the pre- and post-crisis periods. Nayabakura et al. (2020) investigated the impact of macroeconomic variables including exchange rate, inflation rate, interest rate, money supply, government debt and GDP growth rate on the performance of the banking sector in Tanzania during the period from 2011 to 2019. Their results based on correlation analysis and multiple regression approach indicate the inverse relationship between exchange rate, inflation rate, interest rate and positive relationship between government debt and GDP growth rate with banks' performance. Olukoyo et al. (2021) after investigating the macroeconomic factors that determine the performance of banks in Nigeria, found that the growth of trade and interest rate are the most important factors in predicting the performance of Nigerian banks; In this way, the increase in interest rate and exchange rate can severely weaken the return on assets (ROA) and capital adequacy of banks. Kale and Aken (2022) investigated bank effectiveness and economic growth in OECD member countries. First of all, their study in the period of 2011-2019 showed that the efficiency decreased until 2015 and improved after that. Thus, after 2017, it shows the adaptation of banks to the new-normal economic conditions. In the second stage, the two-way relationship between bank efficiency and economic growth was confirmed. But changes in the banking industry do not seem to be related to changes in GDP. Guin (2023) in a research investigated the effect of the development of the banking industry on the economic growth of Vietnam in the period of 2007-2020. Empirical findings confirm the long-term positive effect of banking development on growth, which indicates the important role of the banking system in a financial system based on a conventional bank in mobilizing and providing capital for the economy, therefore, it helps growth during the economic process.

Karimzadeh, Sharifi and Ghasemian (2012) using the Johanson-Josilius ensemble approach, investigated the long-term relationship between macroeconomic variables and banks' stock price index with the help of seasonal data during the period 2000-2010. They also determined the adjustment speed of the short-term to long-term relationship between the variables of exchange rate, bank interest rate, liquidity volume, gross domestic product, inflation rate and banking

industry index by using the vector error correction method. Based on the obtained results, the inflation rate and exchange rate have a negative effect, and the bank deposit interest rate and GDP have a positive effect on the banks' stock index.

Rezazadeh (2015) has investigated the effect of macroeconomic variables on the volatility of Tehran Stock Exchange stock returns based on the GARCH-X model. The impact of macroeconomic variables, including the growth rate of money supply, inflation rate, growth rate of industrial production and free market exchange rate changes on the instability of the stock market of Tehran Stock Exchange has been investigated in this study. In order to achieve this goal, they have used seasonal data and generalized autoregressive conditional heterogeneous variance models with explanatory variables GARCH-X and vector autoregression (VAR). Their results indicate that the growth rate of money supply and changes in the logarithm of the exchange rate have a positive and significant effect on the volatility of stock returns, and the inflation rate has a positive but insignificant effect on stock returns. Also, the effect of the growth rate of industrial production on the volatility of stock returns has been negative and significant. By using daily data from 2012 to 2018 and the VAR-BEKK model, Bakhdori, Pourazizi and Hosseini (2016) investigated the impact of exchange rate fluctuations and its spillover effects on the index of selected industries in the Tehran Stock Exchange. Based on the results of the research, according to the estimated ARCH and GARCH coefficients, the exchange rate fluctuations on the index of selected industries in the Tehran Stock Exchange (in the three sectors of automobile, coal and machinery) are positive and significant, indicating that the exchange rate fluctuations Currency has a positive effect on the index of selected industries in the Tehran Stock Exchange, and exchange rate fluctuations during the period under review have increased the index of selected industries in the Tehran Stock Exchange. Bagheri et al. (2023) investigated the effect of macro-banking, financial, economic indicators and economic crises on the business cycles of Iran and selected Islamic developing and developed countries. The results of the study of instantaneous response functions and analysis of variance for developed countries showed that one standard deviation from the region of oil price index and exchange rate on the production gap, these variables showed a decrease for two periods and this effect increased with the development of financial markets and Banking health has continued, after 2 periods, the effect of the shock from the area of oil price and exchange rate over time on the production gap of developed countries reaches its minimum. Also for developing countries; One standard deviation from the area of oil price index and

exchange rate on the production gap, these variables showed an increase for two periods, and after 4 periods, there was a decreasing trend.

Research Methodology

The hypotheses of the current research were formulated as follows:

First hypothesis: The uncertainty of the real interest rate has an effect on the banking industry index in the Tehran Stock Exchange market

The second hypothesis: liquidity growth has an effect on the banking industry index in the Tehran Stock Exchange market.

The present research is one of the post-event type of experimental research that examines the effect of fluctuations and turbulences of macroeconomic variables including liquidity growth rate and real interest rate on the banking industry index in Tehran Stock Exchange, using autoregressive estimation model. The purpose of using the vector autoregression model in testing research hypotheses is to explain the uncertain effect of economic indicators (liquidity growth rate and deviation of the real interest rate) and the yield of the banking industry index based on the model of simultaneous equations. In this regard, first, the volatility variables of liquidity growth rate and real profit deviation should be estimated based on the generalized autoregressive conditional heterogeneity variance model, and then the vector autoregression model based on the research hypotheses is estimated. The general VAR model considered in this research is assumed as follows:

$$Y_t = A_1 Y_{t-1} + A_2 Y_{t-2} + \dots + A_p Y_{t-p} + \varepsilon_t$$

$$\begin{bmatrix} \varepsilon_{1t} \\ \varepsilon_{2t} \\ \varepsilon_{3t} \end{bmatrix} + \alpha p \begin{bmatrix} Rbit - p \\ Rbit - p \\ RLt - p \end{bmatrix} + \dots + \begin{bmatrix} Rbit - 1 \\ Rbit - 1 \\ RLt - 1 \end{bmatrix} \alpha 1 = \begin{bmatrix} Rbit \\ \Delta rt \\ RLt \end{bmatrix}$$

where in:

Rbit index of banking industry shares in the stock exchange;

RLt liquidity growth rate;

Δrt deviation of the real interest rate and $\Delta rt = rt - \bar{rt}$ and $rt = it - \pi t$ where rt is the real interest rate and \bar{rt} is the average yield rate of the real sectors of the economy and it is the nominal interest rate πt is the inflation rate.

Research Findings

The data of this research includes the time series of the monthly data of the index of the banks and credit institutions industry of Tehran Stock Exchange, the growth rate of liquidity and the deviation of the real interest rate for the period of January 2019 to March

2011. The data of the industry index of banks and credit institutions were extracted from the Tehran Stock Exchange database, and the data of the inflation growth rate and the real interest rate were extracted from the economic time series data bank of J.A. Central Bank and the Iranian Statistics Center. In order to create a proper perspective of the research data, the descriptive statistics of the data are presented in Table (1). As can be seen in table (1), the average monthly return of the banking industry index is equal to 2.512% and its standard deviation is equal to 9.81%. The monthly average liquidity growth rate is 3.81%, the monthly average real interest rate is 0.512%. The values of skewness and kurtosis of all data have a significant distance from the skewness and kurtosis of the normal distribution, and the statistical probe of the Jarque-Bera test also confirms the truth of this issue.

In order to estimate the vector autoregression model, the optimal interval of explanatory variables should be determined. In this regard, first, the optimal maximum benefit is estimated using the FPE and Akaike (AIC) criteria. The results of estimating the

maximum optimal interval are presented in Table 2. In this table, the values of FPE and Akaike criteria have been calculated up to the 8th interval, and the maximum value of the optimal interval has been marked with an asterisk (*). The values of FPE and Akaike criteria in interval 2 are lower than the other intervals studied, which indicates that the maximum optimal interval for estimating the autoregression vector model of research variables is interval 2.

To check whether the intervals between the zero interval and the maximum optimal interval can be removed or not, Wald's test was used. The chi-square statistic of the parent test for the first and second intervals is reflected in Table 3.

The test statistic probe shows that the null hypothesis of the test based on the possibility of removing the break can be rejected for both breaks 1 and 2, and thus break 1 cannot be removed. After determining the optimal interval, now the vector autoregression model is implemented for all research variables. The results of vector autoregression model are shown in Table 4.

Table (1): Descriptive statistics of research data

liq	Int	R	Statistics
0.03811	0.00512	0.02512	Average
0.021578	0.003871	0.08871	Median
0.110268	0.025147	0.39470	Maximum
-0.010631	-0.05124	0.21587-	Minimum
0.013009	0.013877	0.098217	SD
1.897136	-1.48971	□.□□□□□	Skewness
9.34712	6.124757	□.□□□□□	Kurtosis
116.8431	98.00224	□□□.□□□□	Jarque-Bera Test
0.0000	0.0000	0.0000	Prob

Table (2) test of maximum optimal interval

آکائییک	FPE	Interval
-84.924	5.3e-45	0
-96.957	3.1e-50	1
-97.055*	2.9e-50*	2
-96.910	3.3e-50	3
-96.647	4.4e-50	4
-96.332	6.2e-50	5
-96.082	8.3e-50	6
-95.910	1.0e-49	7
-95.874	1.2e-49	8

Table (3) Wald test

χ^2(	Interval
860.25	Interval 1
)0.0000(
609.77	Interval 2
)0.0000(

Table (4) autoregression model of research variables

V_{n-ltq}	V_{n-int}	n_r	Variables	
0.0000	0.0001	-0.0003	coefficient	c
0.299	4.553	-0.958	t-student	
0.0010	0.0167	-0.2760	coefficient	$n_r(-1)$
0.664	0.793	-1.136	t-student	
-0.0008	-0.0073	0.2238	coefficient	$n_r(-2)$
-0.810	-0.540	1.442	t-student	
0.0106	0.5418	0.7507	coefficient	$V_{n-int(-1)}$
1.078	3.915	0.471	t-student	
-0.0158	0.2523	-3.5706	coefficient	$V_{n-int(-2)}$
*-1.603	1.820	-2.237	t-student	
0.9043	-0.4765	-6.3828	coefficient	$V_{n-ltq(-1)}$
10.184	-0.381	-0.444	t-student	
0.0838	0.2487	5.5587	coefficient	$V_{n-ltq(-2)}$
0.947	0.200	0.388	t-student	
0.987	0.489	0.891	R^2	
0.986	0.439	0.881	Adj. R^2	
778.07	9.88	84.81	F	
1510.7	1148.4	813.7	Log likelihood	
-21.86	-16.58	-11.69	)AIC(
-21.59	-16.30	-11.41	)SC(
6319.10			Log likelihood	
-91.11			)AIC(
-89.45			)SC(

Table 4 shows the results of simultaneous time series regression of all research variables on their first and second breaks and the breaks of other research variables, in such a way that the coefficient of each variable is presented first and then the t-student statistic of that coefficient is presented. It is worth mentioning that in the auto-regression model, due to the absence of the cumulative effect of the variables in the system of equations, it is not possible to interpret the coefficients based on the significance of the t-student statistic. Therefore, the interpretation of the results of vector autoregression model is based on the three tools of Granger causality, analysis of variance and reaction functions.

In order to evaluate the quality of the model, the results of homogeneity of variance, normality and autocorrelation of the model residuals are presented in Table 5. In the first part of this table, the homogeneity of the variance of the disturbance components of the model has been examined. The chi-square statistical probe shows that the null hypothesis of this test, i.e. homogeneity of variance of disturbance components, has not been rejected and the residuals of the model do not have the problem of heterogeneity of variance. The next assumption that has been tested is the normality of the distribution of disturbance components of the model. The Jarak-Bera test statistic probe is more than

5%, and therefore the null hypothesis of this test, i.e. the normality of the model residuals, is not rejected. In the final part, the serial autocorrelation between disturbance components based on the first to third endowments has been investigated. The results indicate that at the 95% confidence level, the null hypothesis of the test, i.e. the absence of autocorrelation in all intervals, is not rejected. These results indicate that the coefficients of the estimated vector autoregression model are largely free of bias and have high reliability for analyzing the relationships between research variables.

In addition to the classical assumptions, the stability of the system of simultaneous equations of the vector autoregressive model should also be investigated. This is done by examining the roots of solving the equations of this system; In this way, it is checked whether the roots of the solution of the equations are placed in a circle with a radius of one or not. It is desirable to have a model whose roots do not lie on the circle, because if the roots are equal to one, the model will suffer from a single root problem. As shown in diagram 1, none of the roots of the model equations were placed on the circle. In order to investigate more precisely, the roots of the simultaneous equations of the estimated vector autoregression model have been presented in Table

No. 6. As it is known, the roots are not equal to one, so the vector regression model itself is a reliable estimate.

Table (5) of the classic hypothesis test

Homogeneity of variance test (null hypothesis: homogeneity of variance)			
df	Prob	χ^2 (
858	0.0967	1970.403	
Jarque-Bera normality test			
df	Prob	χ^2 (
8	0.1425	17.19643	
Autocorrelation test			
df	Prob	F	
449,36(	0.0521	1.450351	1وقفه
587,72(	0.1149	1.220078	2وقفه
586,108(	0.6844	0.926013	3وقفه

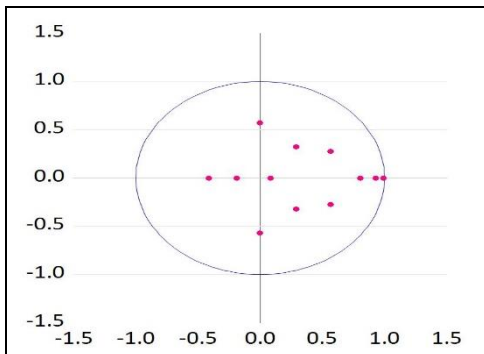


Diagram (1) inverse diagram of the roots of vector autoregression model equations

Table (6) roots of vector autoregression model equations

-0.412	-0.002 + 0.570933i	0.564 - 0.275513i	0.993
-0.187	0.288 - 0.321762i	0.564+ 0.275513i	0.931
0.083	0.288 + 0.321762i	-0.002 - 0.570933i	0.804

Due to the lack of independent interpretability of vector autoregression model coefficients, research hypotheses are tested using three tools: Granger causality, instantaneous reaction functions and analysis of variance. A) Granger causality test Since the effect of only the first and second intervals of the research variables on the endogenous variables is studied in the vector autoregression model, it is not possible to comment on the general relationship of the variables because the cumulative effect between the variables is ignored. For this reason, the Granger causality test is used to investigate the existence of a relationship between research variables. In fact, this test examines which of the variables precedes the other variables in terms of time and the reason for it. Table 7 shows the results of the Granger causality test for each of the vector autoregression model equations. The chi-square statistic of the two tests for the totality of each equation indicates that there is a causal relationship between the variables only in the first equation, which is the endogenous variable of banking industry return (n_r), because the test statistic of this equation is less than 5%, and thus the null hypothesis of the test is based. The non-existence of cause and effect relationship between dependent variable and explanatory variables is rejected at 95% confidence level. The chi-square statistic of the Granger causality test of each of the explanatory variables of this equation shows that the real interest rate volatility variable is the cause of changes in the banking industry's efficiency at the 95% confidence level. Meanwhile, the chi-square test of the liquidity volume growth rate variable was not significant, and thus there is no cause and effect relationship between it and the efficiency of the banking industry. Based on the results of this test, the coefficients of the vector autoregression model can be interpreted to some extent.

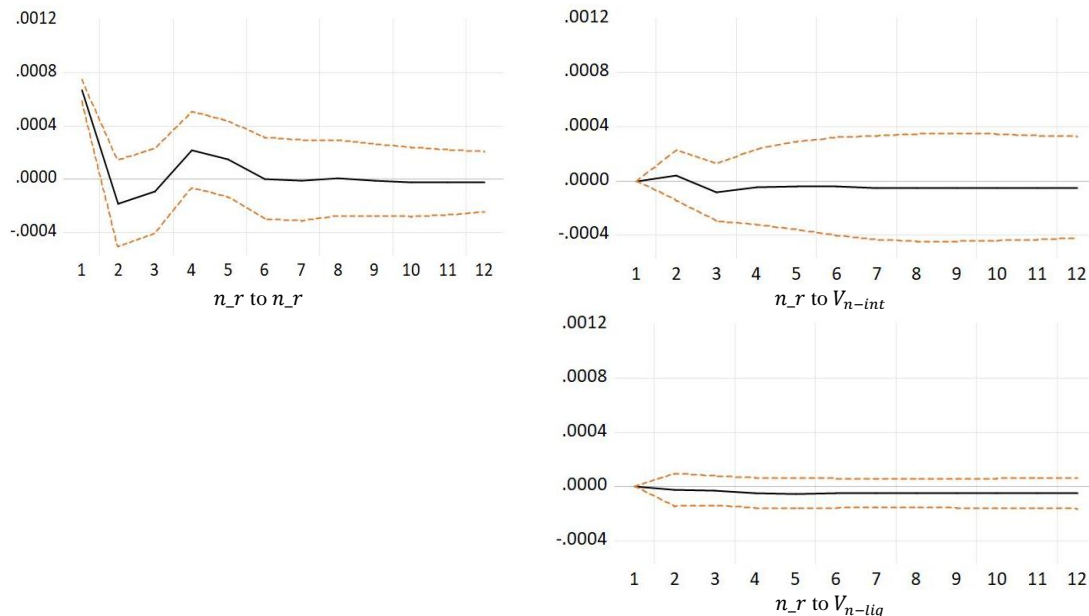
Table (7) Granger causality test of endogenous variables of vector autoregression model

(V_{n-int})				(n_r)			
prob	df	χ^2	variables	prob	df	χ^2	variables
0.729	2	0.632	n_r	0.046	2	6.153	V_{n-int}
0.018	2	8.071	V_{n-int}	0.844	2	0.339	V_{n-liq}
0.401	2	1.826	V_{n-liq}	0.000	4	6.014	Overall
0.301	6	10.770	Overall				
(V_{n-liq})							
prob	df	χ^2	variables				
0.707	2	0.694	n_r				
0.288	2	2.488	V_{n-int}				
0.670	2	0.801	V_{n-liq}				
0.542	6	2.897	Overall				

Based on the output of the self-regression model, the return of the banking industry has an inverse relationship with the volatility of the real interest rate; However, the hypothesis of the effect of liquidity growth on the return of the banking industry index in the Tehran Stock Exchange market is rejected according to the results of the Granger causality test and the output of the auto-regression model. b) Instantaneous reaction functions In this section, using instantaneous reaction functions, the shock effect of each of the research variables on the return of the banking industry index in the stock exchange is investigated. The basic assumption in instantaneous reaction functions is that only the impulse or shock of a variable on the yield variable of the banking industry index in the stock exchange is studied, and in this case, other variables are assumed to be fixed in the system. In diagram 2, the reaction of the banking industry index's return to the impulse of the research variables is imagined. As it is known, the yield of the banking industry index shows a negative reaction to a shock as

much as one standard deviation of its own type, but this reaction gradually subsides from the sixth month. The return of the banking industry index responds to the real interest rate shock with a delay of two months, and creating a shock equal to one standard deviation from the real interest rate leads to a decrease in the return of the banking industry index. This issue is also in line with not rejecting the hypothesis of the research based on the effect of real interest rate volatility on the return of the banking industry index in the stock exchange.

The reaction of the yield of the banking industry index to impulses such as the growth of liquidity volume does not seem very clear and meaningful. In such a way that after a mild decrease, a steady trend is formed in the reaction of the return of the banking industry index. This ambiguity was also present in the results of the Granger causality test and vector autoregression model, which is a confirmation of the rejection of the hypothesis of the effect of liquidity growth on the return of the banking industry index.



Graph (2) Instant response graph of the banking industry index

Summary and conclusion

The present study evaluated the effect of liquidity growth rate volatility and real interest rate deviation on banking industry performance using autoregressive vector model, Granger causality test and instantaneous reaction functions. In this research, based on the results of the VAR model, an inverse relationship has

been obtained between the uncertainty of the real interest rate and the return of the banking industry index in the Tehran Stock Exchange market. This means that if the volatility of the real interest rate increases, it will help to reduce the yield of the banking industry index after two months. In the conditions of a negative real interest rate, the motivation of the borrowers to repay the received

facilities is reduced and causes the increase of the frozen assets of the banks. Of course, during the recession and the positive real interest rate, which is not proportional to the real rate of return of various economic sectors, the borrowers' ability to repay the facilities is actually reduced, and in this way, the amount of non-current assets of the banks increases. It is clear that the increase in the real interest rate in the money market if it is based on increasing economic growth and increasing efficiency in different sectors and industries, it is fully accepted in the banking system without usury and has financial logic; Because the calculation of the fixed profit of the banks is based on the yield of the end of the financial year of the total portfolio of assets and the determination of the share of the common profit of the banks and their attorney's fees in the investment deposits, the calculation and the positive difference is paid to the depositor. However, in the conditions where the efficiency in different economic sectors has not increased and with the policy of determining the interest rate in banks, the inflation rate has decreased and a deep recession has prevailed in the economy, the increase in the interest rate of the banks and the negative difference between the fixed interest and the interest on account led to the payment of interest. It has become an illusion by the banks and by calculating the high rate of overdraft penalty from the central bank, the accumulated loss of the banks has increased exponentially. Chen, Roll and Ras (1986), Pool and Malik (2003), Kandir (2008) and Abbasian and Muradpour (2017) reported an inverse relationship between interest rates and stock returns. The results of the estimation of the second hypothesis show that the volatility of liquidity growth does not significantly affect the performance of the banking industry index. Theoretically and based on the background of foreign research, it was expected that the relationship between the amount of money in circulation and the total stock price index in Tehran Stock Exchange would be positive; Because an increase in the amount of money can increase the demand for buying capital assets, including stocks. It should be noted that in most of the studies conducted abroad, this relationship was declared positive, but in the study conducted by Pesando in 1974 and Kraft and Kraft in 1977, it was concluded that there is no significant relationship between these two variables and the study conducted by Boyle in 1990 also evaluates the relationship between these two variables inversely. Contrary to Abbasian and Muradpour (2007) and Fedajnejad and Farahani (2016) who reported a negative and significant effect and Rezazadeh (2016) reported a positive and significant effect of liquidity volume on stock returns. Paying attention to the category of real profit in the economy and proportionalizing the profit to the existing economic conditions, as well as trying

to increase the independence of the Central Bank; In order to guarantee the independence of Rai Central Bank in dealing with unregulated banking and non-banking financial institutions, these are among the practical suggestions of this research. Also, regarding future studies, issues such as investigating the effect of political uncertainty on investors' evaluation of the value of the banking industry; Investigating the relationship between the multi-rate currency and political and economic uncertainties; Investigating the mediating role of liquidity growth on the relationship between inflation expectations and the banking industry index; Investigating the non-linear relationship between exchange rate fluctuations on the banking industry index and also investigating the effect of political uncertainty on the fluctuations and correlation of the money market are suggested.

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