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ASSESSING THE IMPACT OF MACROECONOMIC FACTORS ON LIQUIDITY RISK IN UZBEKISTAN'S COMMERCIAL BANKS: AN EMPIRICAL ANALYSIS USING THE SVAR MODEL

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Abstract. This article evaluates the impact of external macroeconomic factors on the liquidity risk of commercial banks in Uzbekistan using a Structural Vector Autoregression (SVAR) model. The study empirically examines the effects of global economic developments, exchange rate dynamics, the Central Bank's policy rate, and inflation on bank liquidity. The SVAR model is estimated using monthly statistical data for the selected period, while impulse response functions are applied to identify the dynamic relationships among the variables. The results indicate that external economic conditions and fluctuations in the national currency exchange rate are among the key factors significantly influencing bank liquidity dynamics. The article presents scientific and practical recommendations aimed at strengthening the liquidity stability of commercial banks, improving their adaptability to external economic fluctuations, and enhancing the effectiveness of risk management strategies.

Keywords: liquidity risk, SVAR model, external macroeconomic factors, exchange rate, Central Bank's policy rate, inflation, commercial banks.

Аннотация. В статье оценивается влияние внешних макроэкономических факторов на риск ликвидности коммерческих банков Узбекистана с использованием структурной векторной авторегрессионной модели (SVAR). В рамках исследования эмпирически анализируется влияние глобальных экономических процессов, динамики валютного курса, основной ставки Центрального банка и инфляции на банковскую ликвидность. SVAR-модель оценена на основе ежемесячных статистических данных за выбранный период, а функции импульсного отклика использованы для определения динамических взаимосвязей между переменными. Результаты показывают, что внешнеэкономические условия и колебания курса национальной валюты относятся к ключевым факторам, оказывающим существенное влияние на динамику банковской ликвидности. В статье представлены научно-практические рекомендации, направленные на укрепление устойчивости ликвидности коммерческих банков, повышение их адаптивности к внешним экономическим колебаниям и совершенствование эффективности стратегий управления рисками.

Ключевые слова: риск ликвидности, SVAR-модель, внешние макроэкономические факторы, валютный курс, основная ставка Центрального банка, инфляция, коммерческие банки.

INTRODUCTION

Assessing liquidity risk in commercial banks is of significant importance from the perspective of ensuring macroeconomic and financial system stability. Regardless of how effectively banks implement internal management mechanisms and prudential requirements, their liquidity position may change considerably under

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the influence of the external economic environment, including economic growth rates, fluctuations in financial markets, and capital flows. Continuous monitoring of external factors enables banks to identify potential liquidity gaps in advance, develop realistic scenarios for stress testing, and plan measures for prompt liquidity management. Furthermore, compliance with liquidity requirements established by the Central Bank and financial supervisory authorities requires timely and appropriate responses to changes in external conditions. Therefore, it is advisable to continuously improve banks' liquidity policies and reserve management strategies by taking external factors into account.

Foreign scientific studies analysing liquidity risk in commercial banks employ a number of important external macroeconomic and financial indicators. These include the growth rate of gross domestic product, reflecting national and global economic activity; the inflation rate; the Central Bank's policy interest rate; the exchange rate and its volatility; external capital flows consisting of foreign direct investment and portfolio investment; international foreign exchange reserves; and the level of external debt. In addition, financial market liquidity conditions, spreads on swap and repo transactions, interbank market interest rates, government bond yields, and sovereign yield spreads are also used as important indicators.

The selection of these indicators is explained by their direct or indirect impact on banks' balance sheets. In particular, sharp fluctuations in the exchange rate lead to the revaluation of foreign-currency-denominated assets and liabilities. A reduction in external capital inflows or capital outflows from the country may affect the volume of deposits and the short-term liquidity position of banks. Conversely, stable capital inflows, moderate inflation, and a balanced interest rate policy contribute to strengthening banks' liquidity capacity.

In foreign empirical studies, the selection of external indicators is primarily based on two important principles. First, there should be an economically justified relationship between the selected indicator and bank liquidity. Second, the data used should be reliable, regularly updated, and available over a long period. Therefore, researchers frequently use monthly or weekly statistical data that allow for international comparisons. Such data are obtained from the official databases of national statistical agencies, central banks, the International Monetary Fund, and the Bank for International Settlements.

In addition, scientific research pays particular attention to identifying the mechanisms through which external factors affect bank liquidity. Structural Vector Autoregression (SVAR), Vector Autoregression (VAR), and panel regression models are employed to account for lagged effects and spillover effects among variables. These methods make it possible to determine the direction, duration, and magnitude of the impact of external macroeconomic shocks on the banking system.

Overall, the scientific selection of external indicators, the systematic assessment of their impact on bank liquidity, and the use of reliable statistical data improve the accuracy and practical significance of research findings. This contributes to the effective management of liquidity risk in commercial banks, enhances resilience to external economic fluctuations, and further strengthens financial stability.

LITERATURE REVIEW

Today, digital technologies are rapidly penetrating all sectors of the economy. The development of electronic commerce, the emergence and intensification of competition among various payment service providers, the reduction of transaction costs for retail payments, and the introduction of innovative and attractive payment instruments that do not require the direct intermediation of financial institutions are becoming increasingly important[1].

At present, alongside traditional banking services, the importance of digital banking services is steadily increasing[2]. The continuous improvement of banking services creates broad opportunities for banks to increase their revenues, expand their customer base, and enhance their competitiveness in the market.

The development of the financial services industry is accelerating under the influence of digital technologies. Modern trends in the FinTech sector are primarily shaped in response to the changing demands and needs of customers[3]. These technologies enable financial service providers to use data more effectively, increase transparency, process transactions more efficiently, provide remote services, reliably identify customers, and support their life cycle more effectively. As a result, opportunities to provide customers with convenient, fast, and high-quality financial services continue to expand.

In particular, the Decree of the President of the Republic of Uzbekistan No. PF-5992, dated May 12, 2020, "On the Strategy for Reforming the Banking System of the Republic of Uzbekistan for 2020–2025" [4],

1 Yazdonov, U. T., & Babajanov, S. B. (2021). Introduction of Digital Technologies into the Economy and the Need to Establish Public Oversight. In Development Issues of Innovative Economy in the Agricultural Sector (Vol. 147).

2 Umarova, M. (2021). Ways to Improve Digital Banking Services in Uzbekistan. *Economics and Education*, (2), 74-78.

3 Мамадияров З. Т. Risk management related to remote banking services in the context of bank transformation //экономика и финансы (Узбекистан). - 2021. - №. 5. - с. 12-21.

4 President of the Republic of Uzbekistan. (2020, May 12). Presidential Decree No. PF-5992, *On the Strategy for Reforming the Banking System of the Republic of Uzbekistan for 2020-2025*. LexUZ. https://lex.uz/uz/docs/-4811025

established priorities for modernising banking services, creating efficient banking infrastructure, automating banking operations, and improving the efficiency of the banking system through the gradual reduction of functions not directly related to banking activities. The Decree places particular emphasis on the comprehensive transformation of commercial banks with state ownership, the introduction of modern banking standards, information technologies, and software products, the expansion of remote services for the population and small businesses, and the development of low-cost service networks. Furthermore, it envisages improving the accessibility and quality of financial services by creating favourable conditions for the establishment and development of non-bank credit institutions as a complementary component of the national financial system.

Currently, in developed countries, banking services are widely provided through remote and online channels using modern banking technologies. Similarly, the scope of remote and digital banking services in the banking system of Uzbekistan is expanding in accordance with contemporary requirements. The introduction of new banking products and services by commercial banks serves as an important instrument for promoting economic growth, improving customer convenience, and ensuring banks' competitiveness.

Dr. Koen Lewis, Associate Professor at Cardiff University, examined the impact of risk factors on customers' willingness to use remote banking services and identified a significant relationship between these two variables[5]. Users' consideration of potential risks plays an important role in the adoption of new technologies[6]. Particular attention is paid to risk factors in remote banking services because users access their bank accounts remotely. Therefore, it is essential to continuously improve information security, ensure reliable customer identification, and strengthen mechanisms for protecting banking transactions.

L. Vessels and J. Drennan investigated the factors influencing the use of remote banking services and concluded that the perceived level of risk can significantly affect customers' willingness to use these services[7]. The higher the perceived level of risk associated with new technologies, the lower users' confidence in adopting them may become. Therefore, enhancing the security of remote banking services, protecting customer information, and effectively managing risks contribute to strengthening users' trust in digital banking services[8].

Security risk refers to potential losses resulting from damage to the security of electronic banking systems caused by fraud or cyberattacks. Since the 1960s, perceived risk theory has been widely applied in academic research to explain consumer behaviour. According to this approach, risk is defined as the user's subjective assessment of the potential losses that may arise during the use of online banking services[9].

RESEARCH METHODOLOGY

The following methods were used in conducting the scientific research: induction, deduction, synthesis, and comparative analysis. In addition, the current state of liquidity management in commercial banks was examined based on the banks' official statistical data. In this study, the external factors affecting the liquidity of commercial banks were empirically analysed using the example of commercial banks in Uzbekistan. In particular, the factors affecting the month-to-month change in the ratio of banks' highly liquid assets to total assets $(LnLiqAss_t)$ were examined. The month-to-month change in the inflation rate $(LnCPI_t)$, the month-to-month change in the real interest rate in the money market $(LnMMR_t)$, the month-to-month change in the real value of the Central Bank's policy rate $(LnINR_t)$, and the month-to-month change in the volume of money supply in circulation $(LnM2_t)$ were selected as independent variables. In order to identify the interrelationships among the selected indicators and ensure the consistency of the statistical dataset, the natural logarithms of the indicators were calculated, and their rates of change were analysed. The analysis period covered December 2019 to June 2025.

ANALYSIS AND RESULTS

A number of statistical analyses were conducted to examine the effects of the selected indicators. In particular, the descriptive statistics of the selected variables were analysed, including the mean, maximum, minimum, and standard deviation values of the data. In addition, the normal distribution of the selected indicators was examined in this study (Figure 1).

5 Koenig-Lewis, N., Palmer, A., Moll, A., 2010. Predicting young consumers' take up of mobile banking services. International Journal of Bank Marketing 28 (5), 410-432.

6 Laforet, S., & Li, X. (2005). Consumers' Attitudes Towards Online and Mobile Banking in China. *International Journal of Bank Marketing*, 23(5), 362-380.

7 Wessels, L., & Drennan, J. (2010). An Investigation of Consumer Acceptance of M-Banking. International Journal of Bank Marketing, 28(7), 547-568.

8 Mamadiyarov, Z. (2021). Analysis of Factors Affecting Remote Banking Services in the Process of Bank Transformation in Uzbekistan. *Financial and Credit Activity: Problems of Theory and Practice*, 1(36), 14-26.

9 Lee, M. C. (2009). Factors Influencing the Adoption of Internet Banking: An Integration of TAM and TPB with Perceived Risk and Perceived Benefit. Electronic Commerce Research and Applications, 8(3), 130-141.

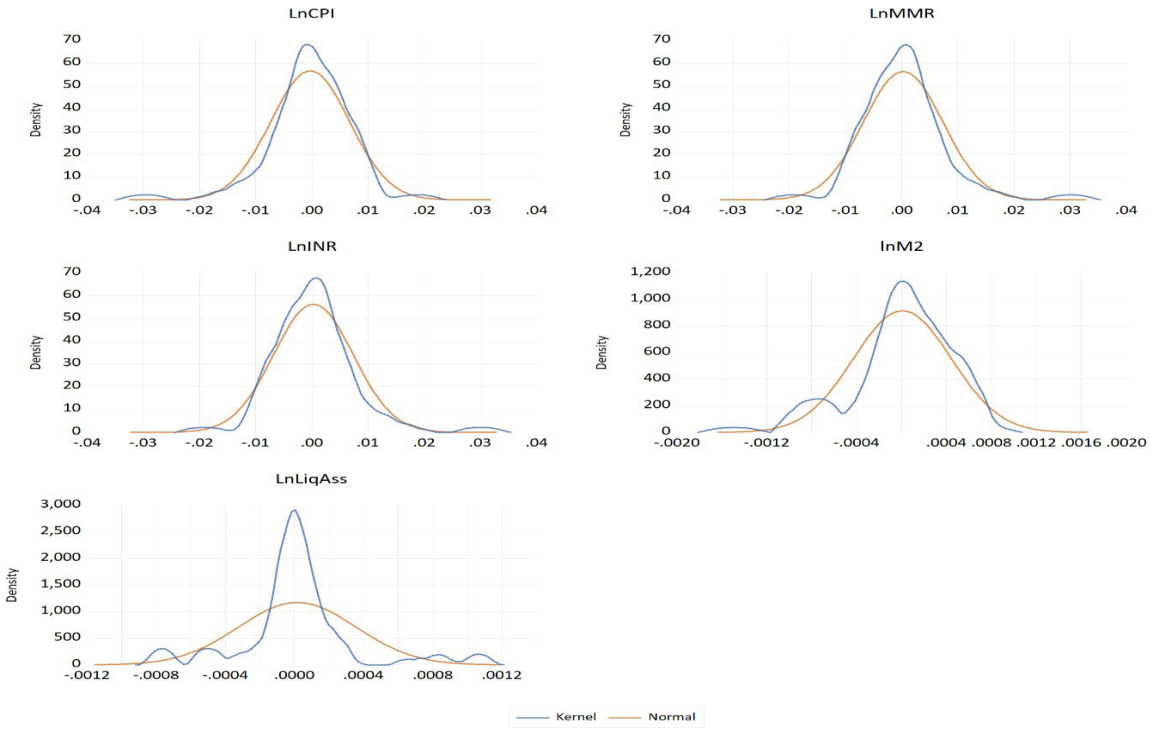

Figure 1. Normal Distribution of the Selected Indicator[10].

The Jarque–Bera coefficient was used to test the normality of the data distribution. The analysis showed that all selected indicators followed a normal distribution. This was confirmed by the statistically significant Jarque–Bera coefficients calculated for all selected variables, with probability values of less than 0.05.

At the initial stage of the analysis, descriptive statistics for the selected indicators were calculated (Table 1).

Table 1

Descriptive Statistics of the Indicators[11].

	$LnCPI_t$	$LnMMR_t$	$LnINR_t$	$LnM2_t$	$LnLiqAss_t$
Mean	0.784848	0.462816	0.463857	0.018014	0.321626
Median	0.800000	0.443562	0.444094	0.021750	0.323317
Maximum	2.800000	1.554608	1.553163	0.086556	0.420012
Minimum	-0.300000	-1.547213	-1.554021	-0.064792	0.228730
Std. Dev.	0.597750	0.595517	0.596992	0.030279	0.039862
Observations	66	66	66	66	66

As can be seen from the descriptive statistics of the indicators, the average month-to-month change in the inflation rate was 0.78%, with fluctuations ranging from −0.3% to 2.8%, while the standard deviation was 0.6%.

Similarly, the average month-to-month change in the real money market interest rate was 0.46%. During the study period, its maximum value reached 1.55%, while the minimum value was −1.55%, with a standard deviation of 0.59%.

The average month-to-month change in the real value of the Central Bank's policy interest rate was 0.46%, fluctuating between −1.55% and 1.55%, with a standard deviation of 0.6%. The average month-to-month change in the money supply was 0.02%, ranging from −0.06% to 0.08%, with a standard deviation of 0.03%.

The dependent variable used in the analysis—the month-to-month change in the ratio of the bank's highly liquid assets to total assets—had an average value of 0.32%, fluctuating between 0.23% and 0.42%, with a standard deviation of 0.04%.

10 Developed by the author using the EViews software based on the official statistical data of the Central Bank of the Republic of Uzbekistan for the period from December 2019 to June 2025.

11 Developed by the author using the EViews software based on the official statistical data of the Central Bank of the Republic of Uzbekistan for the period from December 2019 to June 2025.

In the next stage of the analysis, the correlation matrix of the selected indicators is presented (Table 2).

Table 2
Correlation Matrix of the Indicators[12].

	$LnCPI_t$	$LnMMR_t$	$LnINR_t$	$LnM2_t$	$LnLiqAss_t$
$LnCPI_t$	1				
$LnMMR_t$	-0.69	1			
$LnINR_t$	-0.72	0.89	1		
$LnM2_t$	0.29	-0.35	-0.38	1	
$LnLiqAss_t$	**-0.46**	**0.32**	**0.37**	**0.78**	**1**

The correlation among the selected indicators was also analysed in this study. The results show that the month-to-month change in the ratio of the bank's highly liquid assets to total assets has a negative correlation with the month-to-month change in the inflation rate, with a correlation coefficient of ρ = −0.46. Likewise, the bank liquidity indicator has a positive correlation with the month-to-month change in the real money market interest rate, with a correlation coefficient of ρ = 0.32.

The results indicate that an increase in inflation has a negative effect on bank liquidity. In other words, rising inflation may reduce households' purchasing power and weaken aggregate demand, which, in turn, may adversely affect borrowers' debt repayment capacity (Figure 2).

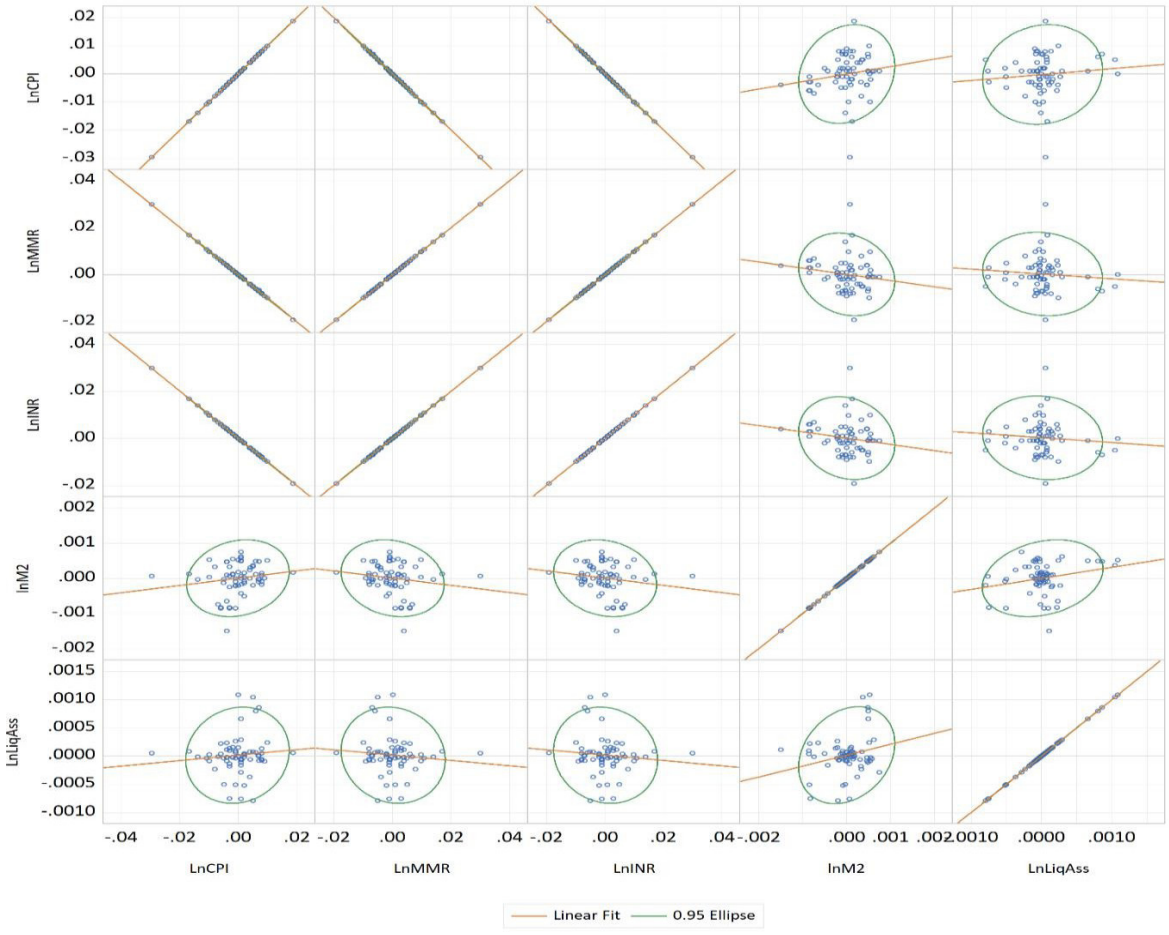

Figure 2. Correlation Matrix of the Indicators[13].

12 Prepared based on the author's calculations.

13 Developed by the author using the EViews software based on the official statistical data of the Central Bank of the Republic of Uzbekistan for the period from December 2019 to June 2025.

This, in turn, has a negative impact on bank liquidity. Moreover, an increase in money market interest rates may have a twofold effect on bank liquidity. First, higher money market interest rates make it more difficult for banks experiencing liquidity shortages to obtain additional liquidity, thereby exacerbating their liquidity problems. Second, if banks have sufficient liquid assets, they can earn higher returns by providing liquidity to other banks at increased interest rates. Since these assets are considered low-risk, this contributes to an overall increase in the bank's liquid assets. According to the findings of this study, the selected bank is one of the largest commercial banks; therefore, an increase in money market interest rates has a positive effect on the bank's liquidity.

The correlation between the month-to-month change in the ratio of the bank's highly liquid assets to total assets and the month-to-month change in the real value of the Central Bank's policy interest rate is also very close to its correlation with the money market interest rate, with a correlation coefficient of ρ = 0.37. The underlying economic relationship is likewise similar to that observed for the money market interest rate.

Furthermore, the correlation between the dependent variable and the month-to-month change in the money supply is ρ = 0.78, representing the strongest relationship among the selected indicators. An increase in the money supply may improve bank liquidity by expanding the volume of financial resources available within the banking system.

In other words, an expansion in the money supply may increase the liquidity available to commercial banks through monetary policy transmission mechanisms.

In this study, two different models were employed to examine the impact of external factors on the month-to-month change in the ratio of the bank's highly liquid assets to total assets. Specifically, the Least Squares model and the Structural Vector Autoregression (SVAR) model were used.

First, the selected indicators were analysed using the Least Squares with Breaks model (Table 3).

Table 3
Assessment of External Factors Affecting the Level of Highly Liquid Assets Based on the Least Squares with Breaks Model[14].

Dependent Variable: $LnLiqAss_t$
Method: Least Squares
Sample (adjusted): 2020M02 2025M06 Included observations: 65 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
$LnCPI_t$	0.709225	0.545742	1.299561	0.1987
$LnMMR_t$	0.214521	0.566509	0.378671	0.7063
$LnINR_t$	0.487162	0.791146	0.615768	0.5404
$LnM2_t$	0.172331	0.098867	1.743054	0.0864
C	1.86E-05	4.19E-05	0.443943	0.6587
R-squared	0.692206	**Mean dependent var**	-	1.67E-05
Adjusted R-squared	0.531687	**S.D. dependent var**	-	0.000343
S.E. of regression	0.000337	**Akaike info criterion**	-	-13.07793
Sum squared resid	6.82E-06	**Schwarz criterion**	-	-12.91067
Log likelihood	430.0327	**Hannan-Quinn criter**	-	-13.01193
F-statistic	1.523578	**Durbin-Watson stat**	-	2.751681
Prob (F-statistic)	0.206784	-	-	-

When the Least Squares with Breaks model was used to analyse the impact of external factors on the level of the bank's highly liquid assets, the results indicated that, at the 5% significance level, the selected external factors did not have a statistically significant effect on the level of highly liquid assets during the period 2020M02–2025M06. This can be explained by the fact that changes in external factors do not affect a bank's financial condition instantaneously. Rather, the effects of changes in external factors emerge after a certain time lag.

Therefore, the subsequent analysis was conducted using a model that accounts for time lags. Specifically, the Structural Vector Autoregression (SVAR) model was employed to evaluate the impact of external factors on the bank's liquidity level. Before estimating the SVAR model, the Augmented Dickey–Fuller (ADF) test was performed using the selected variables. The purpose of the Augmented Dickey–Fuller test was to examine the

14 Developed in EViews software based on the author's calculations.

presence of unit roots in the variables and determine whether the selected indicators were stationary or non-stationary (Table 4).

Table 4
Results of the Augmented Dickey-Fuller (ADF) Test[15].

№	Indicators	t-Statistic	Probability	Conclusion
	$LnCPI_t$	-7.741189	0.0000	I (0)
	$LnMMR_t$	-7.750315	0.0000	I (0)
	$LnINR_t$	-7.739230	0.0000	I (0)
	$LnM2_t$	-8.528492	0.0000	I (0)
	$LnLiqAss_t$	-8.711697	0.0000	I (0)

As can be seen from the results above, all the selected variables were found to be stationary. This indicates that the selected variables satisfy the necessary condition for applying the Vector Autoregression (VAR) model. This can also be observed in the results presented in Figure 3.

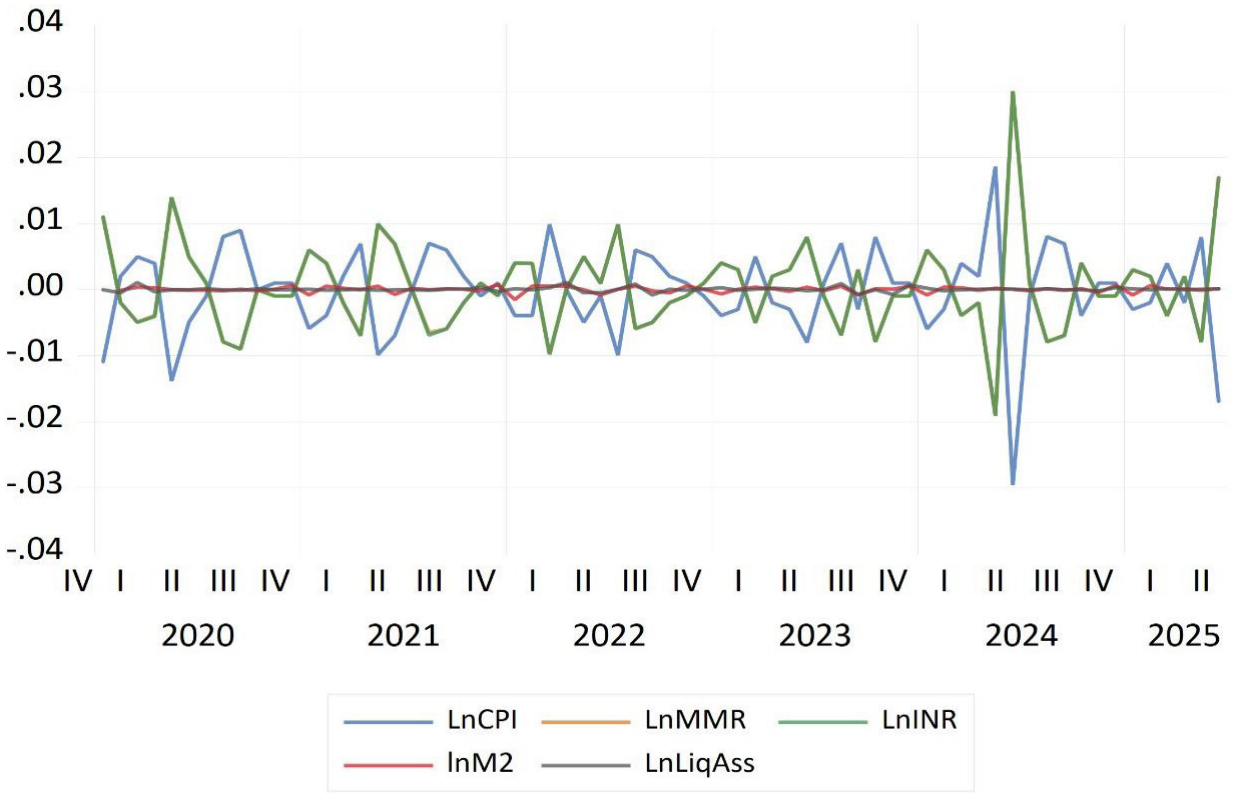

Figure 3. Dynamics of Changes in the Selected Indicators[16].

In the next stage of the analysis, it is appropriate to determine the optimal lag length for the Structural Vector Autoregression (SVAR) model used to assess the impact of external factors on the bank's liquidity level (Table 5).

15 Developed based on the author's calculations.
16 Developed by the author using the EViews software based on the official statistical data of the Central Bank of the Republic of Uzbekistan for the period from December 2019 to June 2025.

Table 5
Lag Length Selection Criteria for the SVAR Model[17].

VAR Lag Order Selection Criteria

Lag	LogL**	LR	FPE	AIC	SC	HQ
0	2027.718	NA	3.16e-35	-65.24896	-65.07742	-65.18161*
1	2062.514	62.85771	2.31e-35	-65.56497	-64.53571	-65.16086
2	2088.477	42.71244*	2.28e-35*	-65.59602*	-66.70904*	-64.85515
3	2109.359	30.98709	2.71e-35	-65.46320	-62.71851	-64.38557

As shown by the results above, the optimal lag length for our model is 2, according to the Likelihood Ratio (LR) test, the Final Prediction Error (FPE) criterion, the Akaike Information Criterion (AIC), and the Schwarz Information Criterion (SC). In contrast, the Hannan–Quinn Information Criterion (HQ) suggests an optimal lag length of 1. Therefore, for the purposes of this analysis, the optimal lag length is taken to be 2.

The results obtained from the Structural Vector Autoregression (SVAR) model, estimated with an optimal lag length of 2, are presented in Table 6.

Table 6
Results of the SVAR Model on the Impact of External Factors on the Bank's Liquidity Level: Vector Autoregression Estimates (with Restrictions)[18].

$LnCPI_t$	$LnMMR_t$	$LnINR_t$	$LnM2_t$	$LnLiqAss_t$
$LnCPI_{t-1}$ 0.000000	0.000000	0.000000	0.000000	-0.351192
---	---	---	---	(0.42912)
				[-0.81840]
$LnCPI_{t-2}$ 0.000000	0.000000	0.000000	0.000000	0.293291
---	---	---	---	(0.47458)
				[0.61800]
$LnMMR_{t-1}$ 0.000000	0.000000	0.000000	0.000000	-0.161033
---	---	---	---	(0.43640)
				[-0.36900]
$LnMMR_{t-2}$ 0.000000	0.000000	0.000000	0.000000	-0.109749
---	---	---	---	(0.41606)
				[-0.26378]
$LnINR_{t-1}$ 0.000000	0.000000	0.000000	0.000000	-0.180167
---	---	---	---	(0.62167)
				[-0.28981]
$LnINR_{t-2}$ 0.000000	0.000000	0.000000	0.000000	0.400962
---	---	---	---	(0.65585)
				[0.61136]
$LnM2_{t-1}$ 0.000000	0.000000	0.000000	0.000000	0.394973
---	---	---	---	(0.08757)
				[4.51051]
$LnM2_{t-2}$ 0.000000	0.000000	0.000000	0.000000	0.357195
---	---	---	---	(0.08818)
				[4.05055]
$LnLiqAss_{t-1}$ 0.000000	0.000000	0.000000	0.000000	-0.546269
---	---	---	---	(0.10345)
				[-5.28032]
$LnLiqAss_{t-2}$ 0.000000	0.000000	0.000000	0.000000	-0.396263
---	---	---	---	(0.10195)
				[-3.88693]
C -0.000237	0.000234	0.000234	3.08E-06	2.31E-05
(0.00088)	(0.00089)	(0.00089)	(5.5E-05)	(3.6E-05)
[-0.26856]	[0.26373]	[0.26381]	[0.05602]	[0.64420]

17 Developed based on the author's calculations.
18 Developed based on the author's calculations.

The model results indicate that, among the selected variables, only the monthly change in the money supply has a statistically significant effect on changes in the level of the bank's highly liquid assets. Specifically, a 1% increase in the money supply by the Central Bank compared with the previous month increases the level of the bank's highly liquid assets by 0.39% with a one-month lag and by 0.36% with a two-month lag. Thus, changes in the money supply have a statistically significant and economically meaningful impact on bank liquidity.

The impulse response functions illustrating the effects of external factors on changes in the level of highly liquid assets, based on the SVAR model, are presented below.

Within the scope of this study, the principal macroeconomic factors affecting the liquidity of commercial banks were evaluated using the Structural Vector Autoregression (SVAR) model. The impulse response functions presented in the figures illustrate the short- and medium-term responses of banks' highly liquid assets to various external shocks. Overall, the responses to all variables are more pronounced during the initial periods and gradually converge towards a stable level over time. This indicates that the liquidity of commercial banks is responsive to macroeconomic changes in the short run but demonstrates greater stability in the long run (Figure 4).

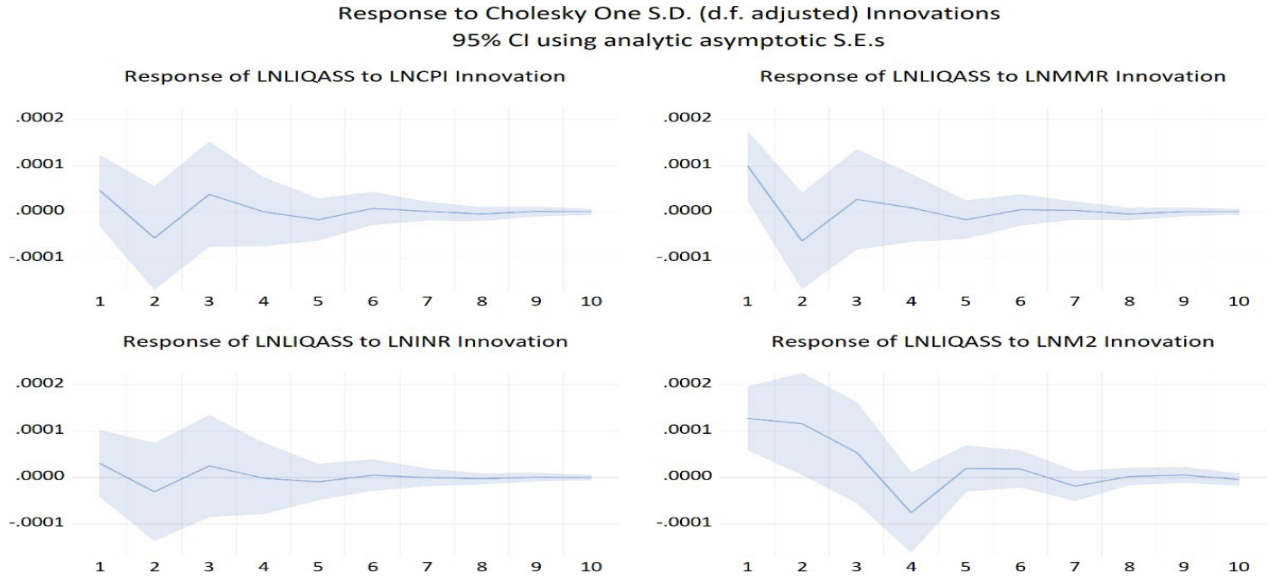

Figure 4. Impulse Response of Changes in the Bank's Highly Liquid Assets to Internal Factors[19].

The first graph, illustrating the response of bank liquidity to an inflation shock, shows positive but relatively small fluctuations. During the initial periods, an inflation shock leads to a slight increase in the ratio of highly liquid assets; however, from the third to the fourth period, this effect gradually diminishes and converges towards zero. This finding suggests that an increase in the inflation rate encourages commercial banks to increase the share of highly liquid assets in the short run, whereas the effect weakens over the longer term. This can be explained by the fact that inflationary pressures are gradually offset through adjustments in interest rates and asset returns.

The second graph, representing the impact of a shock to the real money market interest rate, initially exhibits a negative response. In other words, an increase in real interest rates is associated with a decline in bank liquidity. From an economic perspective, this occurs because higher interest rates encourage banks to allocate their resources to higher-yield investments rather than maintaining them as liquid assets. However, from approximately the fourth to the fifth period, the response becomes positive, reflecting market adjustment and the long-term stabilising effect of interest rate policy.

The third graph, showing the response to a shock in the Central Bank's policy interest rate, exhibits an initial positive reaction followed by negative fluctuations. An increase in the policy interest rate raises the cost of bank funding, prompting banks to adopt a more cautious approach in the short run by temporarily increasing the proportion of highly liquid assets. Over time, however, this effect weakens, the share of highly liquid assets declines, and the response gradually converges towards zero. This indicates that interest rate policy is effective in regulating bank liquidity in the short term, but its influence becomes more limited over the long term.

19 Developed by the author using the EViews software based on the official statistical data of the Central Bank of the Republic of Uzbekistan for the period from December 2019 to June 2025.

The fourth graph, illustrating the liquidity response to changes in the money supply, shows a pronounced negative reaction in the initial periods, followed by gradual convergence towards equilibrium. An expansion of the money supply may increase the overall level of liquidity within the financial system, thereby reducing banks' need to maintain high levels of liquid assets. As time passes, however, this effect stabilises as banks adjust and rebalance the structure of their balance sheets.

CONCLUSION AND SUGGESTIONS

The analysis of external factors affecting the level of the bank's highly liquid assets using the Least Squares with Breaks model revealed that, at the 5% significance level, the selected external factors did not have a statistically significant effect on the level of highly liquid assets during the period 2020M02–2025M06. This finding can be explained by the fact that changes in external factors do not immediately affect a bank's financial condition; rather, their effects become evident only after a certain time lag.

The model results further indicate the presence of autocorrelation in the bank liquidity indicator selected as the dependent variable. Specifically, a 1% increase in the bank's liquidity level reduces the liquidity level in the following month by 0.54%, while the effect amounts to −0.40% with a two-month lag. These results suggest that if a bank's liquidity remains high for a certain period, it may increase the bank's confidence and encourage a greater allocation of resources to relatively higher-risk assets and operations.

Consequently, temporary liquidity imbalances may emerge, suggesting that maintaining a consistently stable liquidity level may require additional liquidity management measures. The effects of the remaining explanatory variables on bank liquidity were found to be statistically insignificant.

Overall, the Structural Vector Autoregression (SVAR) analysis demonstrates that the liquidity of commercial banks responds significantly to macroeconomic factors, although these responses are primarily short-term in nature. In particular, monetary policy indicators, namely the money market rate (MMR) and the Central Bank's policy interest rate (INR), play an important role in determining bank liquidity. However, changes in inflation and the money supply have relatively stable and neutral effects on liquidity in the long run. These findings indicate that liquidity management mechanisms within the banking system have become more developed and that commercial banks have become increasingly adaptable to market-based economic conditions.

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