Interest Policy and Required Reserve Formation in Commercial Banks

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Annotation: This article analyzes the mandatory reserve instrument from monetary policy instruments. Based on the selected indicators, the SVAR model was formed on the impact of the mandatory reserve instrument on the interest policy of commercial banks. According to the results of the model, the mandatory reserve percentage for foreign currency deposits of legal entities has a strong influence on the percentage of short-term foreign currency deposits of the population in commercial banks. The statistical significance of the effect of this mandatory reserve norm on the percentage of short-term deposits of legal entities in commercial banks and on the percentage of loans in foreign currency allocated to them is low. Also, the impact of the devaluation of the national currency on the interest policy of commercial banks was insignificant. The reason for this is that commercial banks have not combined the constant devaluation indicator with the interest rate policy. On the contrary, the inflation rate had a high impact on the interest policy of commercial banks. Apart from the influence of the above endogenous indicators on the interest policy of commercial banks, the autocorrelation of interest rates in commercial banks is becoming stronger.

Keywords: monetary policy, mandatory reserve ratio, deposit, credit, interest rate.

INTRODUCTION

The influence of central banks on economic stability through monetary policy has been widely studied since the beginning of the 20th century. In particular, at the beginning of the 20th century, there were central banks in 18 countries around the world, and by the beginning of the 21st century, central banks began to operate in most countries. At the same time, in the last century, instruments of monetary and credit policy of central banks began to appear and developed widely. In particular, there are opinions that, according to some sources, the mandatory reserve policy of central banks began in 1913 when the Federal Reserve System was established in the United States. But the mandatory reserve policy appeared much earlier. In particular, it appeared in the USA in 1863 during the era of national banks. During this period, the main link of the US banking system was located in New York City, and according to the legislation of the banking system, the mandatory reserve ratio for banks located here was set at 25 percent of the deposits they attracted. This reserve amount is deposited in their banks. Banks in sixteen other major cities also had a reserve requirement of 25 percent, and they were required to keep half of that reserve in banks in New York City. For the rest of the banks, the required reserve ratio was 15 percent, and they had to place 2/3 of this reserve in banks in sixteen large cities [3].

LITERATURE REVIEW

Article 30 of the new version of the law "On the Central Bank of the Republic of Uzbekistan" No. 582, as part of the implementation of the monetary policy of the Central Bank, under the obligations

of the banks, the obligatory transfer by the banks to the depositor in the Central Bank It is included as defining the norms of reserves. Also, the Central Bank approves the amount of mandatory reserve requirements, the composition of the obligations of banks to transfer reserves to the depositor, the accounting and reserve procedure, and the averaging coefficient of mandatory reserves. The norms of mandatory reserves are the same for all banks. Mandatory reserves are kept by transferring the funds of banks in special accounts at the Central Bank to the depositor or by maintaining the averaged amount of mandatory reserves calculated based on the amount of the averaging coefficient of the required reserves in the representative account opened at the Central Bank stands up. Averaging coefficient of required reserves consists of a multiplier expressed by a number in the range from 0 to 1.

As we mentioned above, the mandatory reserve policy is used to influence the money supply of developing countries' central banks and market interest rates, in particular, the interest rate in the money market, deposit and loan interest rates of commercial banks. At the same time, the mandatory reserve instrument is also used to influence the foreign exchange rate and demand for it in the financial market. In particular, central banks aim to influence the percentage of foreign currency loans in the domestic economy and the demand of banks for foreign currency deposits by setting the mandatory reserve ratio for foreign currency deposits. The basis of this scientific work is the situation of the above hypothesis in the practice of Uzbekistan. In this scientific research, we focus on the impact of foreign currency reserve requirements on deposits of legal entities on the percentage of foreign currency deposits attracted from corporate clients and on the percentage of foreign currency loans of banks.

Many scientists have conducted scientific research on the reserve policy as part of the monetary policy instruments of the Central Bank. In particular, there are quite controversial scientific debates about the effect of the mandatory reserve ratio on the percentage of deposits and loans in commercial banks. It is appropriate to get acquainted with some of them.

Camilo E. Tovar and others conducted scientific research on the use of the mandatory reserve instrument by central banks in Latin America and its effectiveness. In particular, the central banks of the Latin American countries used the mandatory reserve instrument to influence the cyclical dynamics of private sector lending by commercial banks and to prevent systemic risks [5]. In their opinion, no matter how widely the mandatory reserve instrument is used, the effectiveness of this instrument and its compatibility with the monetary and credit policy have not been sufficiently studied. they focused on studying the effect of mandatory reserve policy on the volume of loans of commercial banks. According to the obtained results, the impact of changes in the mandatory reserve policy on the credit policy of commercial banks will be temporary.

RESEARCH METHODOLOGY AND EMPIRICAL ANALYSIS

Methods such as induction, deduction, and synthesis were used in the implementation of scientific research. In the analysis of the mandatory reserve instrument of the monetary and credit policy of the Central Bank of Uzbekistan, the mandatory reserve norms of the Central Bank of the Republic of Uzbekistan and the State Statistics Committee in foreign currency for 2016-2021, deposit and loan interest rates in foreign currency in banks, the inflation rate and the national currency devaluation indicators are obtained.

With the help of these statistical data, the effect of the foreign currency reserve norms of the Central Bank of Uzbekistan on the percentage of loans and deposits of commercial banks is studied. We have also selected indicators such as the inflation rate and national currency devaluation as factors affecting the percentage of loans and deposits of commercial banks. In particular, In particular, as exogenous variables, the mandatory reserve ratio for foreign currency deposits of the Central Bank

($RRCDFCt$), monthly inflation rate (CPIt), monthly devaluation indicators ($DEVt$), and as endogenous variables foreign currency in banks short-term population ($STHDFCt$), and the percentage of deposits of legal entities ($STCDFCt$), as well as the percentage of short-term loans in foreign currency ($STCFCt$). These interest rates were converted into reals on a monthly basis and natural logarithmized.

In developing countries, mandatory reserve norms are high. This can be explained by insurance of the banking system of central banks. For many years, the Central Bank of the Republic of Uzbekistan has maintained high reserve requirements. Only since 2018, the mandatory reserve norms in national currency have been reduced, but the mandatory reserve norms in foreign currency remain high. This is necessary to curb the demand for foreign currency deposits by banks.

Table 1.Mandatory reserve regulations *(2019 year 1 from July – present to the day until)* **[8]**

Obligation type	Mandatory reserve regulations (2019 year 1 from july 2021 year 4 until August)	Mandatory reserve regulations (2021 year 5 from August)
Nationality of legal entities in currency deposits	4	4
Foreign legal entities currency deposits	14	18
Individuals in national currency deposits*	4	4
Physical foreign of persons people currency deposits	14	18
Bank liabilities relatively averaging coefficient application	for deposits in national currency 01.07.2019 - 31.03.2020 period for (0.25) 01.04.2020 - 14.06.2020 period for (0.35) 15.06.2020 - 08/04/2021 period for (0.75) averaging coefficient applied	in national currency deposits for (0.8) averaging coefficient is used

Also, with the opening of the deposit guarantee fund in the banking system of Uzbekistan in 2003, deposits of individuals in banks were exempted from mandatory reserve requirements, and only deposits of legal entities are subject to mandatory reserves. However, starting from 2018, the obligations of commercial banks from individuals were also taken into reserve by the Central Bank. Today, we can see the mandatory reserve norms from the table below.

We think that the mandatory reserve policy of the Central Bank has found its logical basis since July 1, 2019. In particular, from this period, the method of stratification by maturity was abandoned in determining the mandatory reserve norm. One of the main reasons for this was that most of the deposits of legal entities in commercial banks were transaction deposits, and the deposits of legal entities corresponded to a high percentage of the reserve requirement. At the same time, the mandatory reserve norm for deposits of legal entities and individuals in foreign currency is set much higher than the norm for deposits in national currency. This is expected to increase the demand for the national currency and slow down the rate of devaluation of the national currency against the foreign currency. For this purpose, starting from August 5, 2021, the Central Bank increased the mandatory reserve ratio for foreign currency deposits from 14% to 18%.
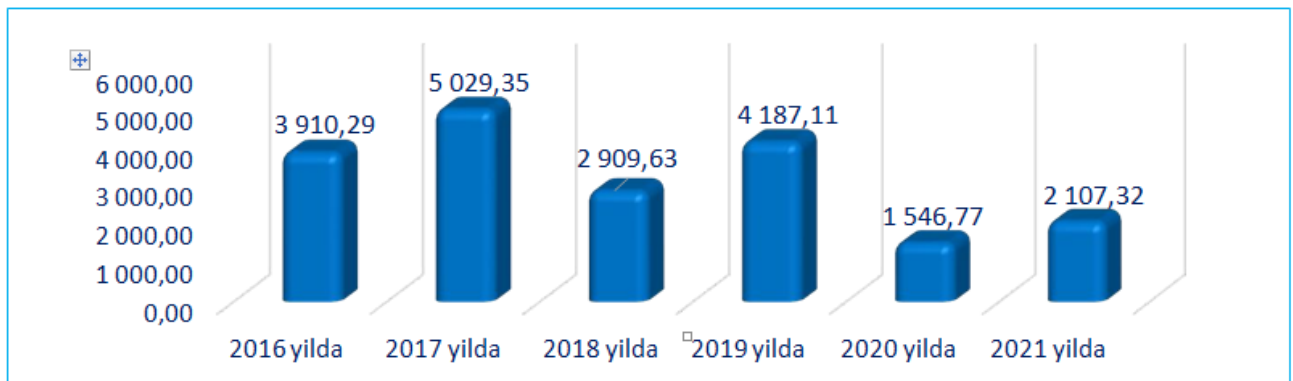
Figure 1. Mandatory reserve balance in the Central Bank, billion soums.

The Central Bank of the Republic of Uzbekistan kept a large resource of commercial banks as a mandatory reserve. In particular, in 2016, the mandatory reserve balance was 3,610.29 billion soums, and in 2017, as a result of the sharp devaluation of the national currency, this balance was 5,029.35 billion soums. in the following years, the reduction of the mandatory reserve in the national currency, in turn, reduced the balance of the mandatory reserve. In particular, in 2019, the total mandatory reserve balance was 4187.11 billion soums, and in 2020 and 2021, it was 1546.77 billion soums and 2107.32 billion soums, respectively. did In recent years, the reduction of the mandatory reserve balance was also caused by the introduction of the averaging coefficient.

The data of Figure 2 shows the effect of the mandatory reserve norm for foreign currency deposits of legal entities on the percentage of foreign currency deposits attracted from the population and legal entities in the banking system, as well as the percentage of short-term foreign currency loans. In Uzbekistan, there is a strong correlation between the percentage of foreign currency deposits of residents and the percentage of deposits they attract from legal entities in commercial banks.
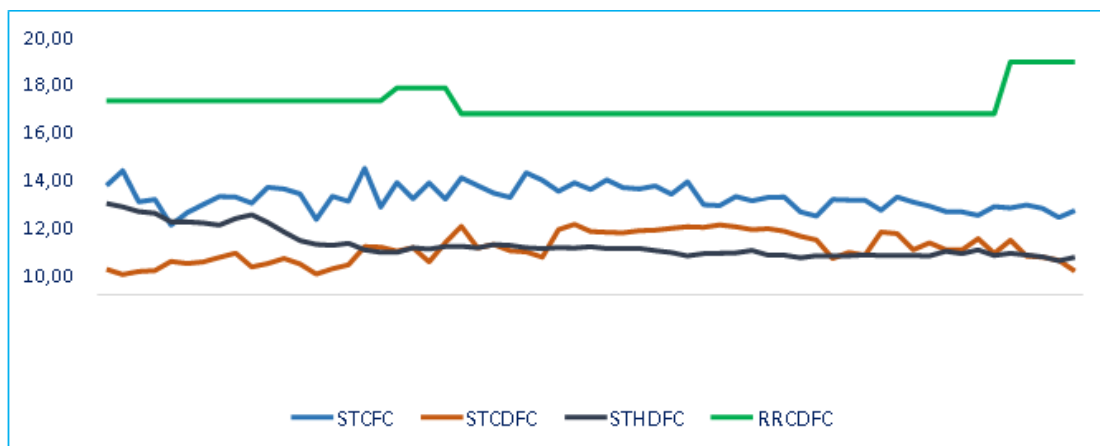

Figure 2. The effect of the reserve requirement on bank interest policy [8]

However, the logical connection between the Central Bank mandatory reserve ratio and the above two indicators is not noticeable. In particular, from the 8th month of 2018 to the 8th month of 2021, although the mandatory reserve norm for foreign currency deposits of legal entities remained unchanged, the percentage of foreign currency deposits attracted by citizens and legal entities during that period was in a downward trend. Also, the increase in the mandatory reserve ratio of legal entities for deposits in foreign currency from 14% to 18% from 20218 had an insignificant effect on the interest policy of commercial banks.
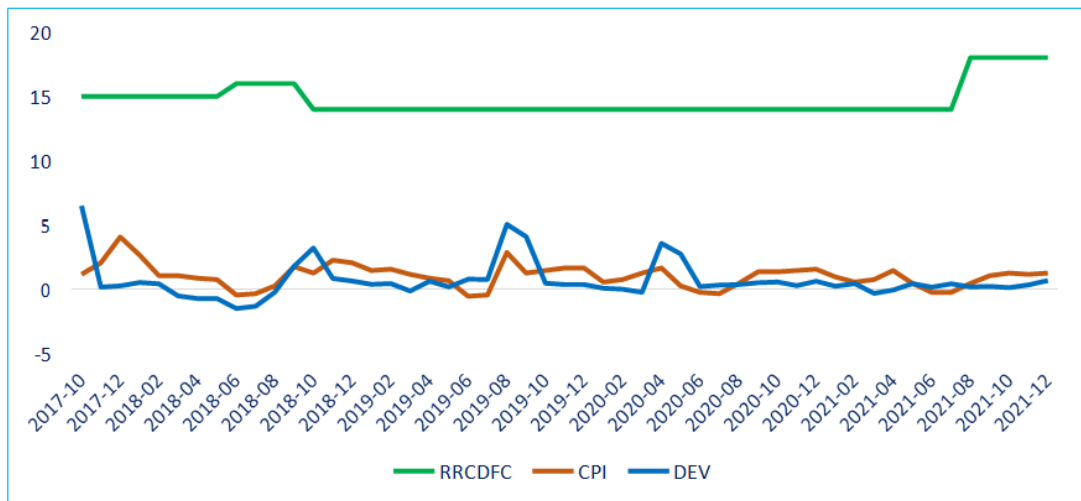
Figure 3. The effect of the mandatory reserve ratio in foreign currency on inflation and devaluation indicators [8]

In our scientific research, we analyzed from 10 months of 2017. Because since September 5, 2017, the liberalization of the foreign exchange policy ensured free determination of the national currency exchange rate in the financial market. Mandatory reserve ratio is one of the most powerful instruments in the Central Bank's monetary and credit policy instruments. Because the determination of the mandatory reserve ratio affects all commercial banks at the same time. Also, the determination of the mandatory reserve ratio should affect the level of inflation in the country and the national currency devaluation indicator of the mandatory reserve ratio for foreign currency deposits of legal entities. we can see from the data in the above figure that there is a strong correlation between the inflation rate and the devaluation indicator. However, there is no significant correlation between the mandatory reserve norm for foreign currency deposits of legal entities and the above two indicators.

Our use of econometric analyzes in the study of the impact of the change in the mandatory reserve norm for foreign currency deposits of legal entities on the interest policy of commercial banks will lead to a further increase in the quality of the work. Based on this, the impact of the foreign currency reserve requirements of the Central Bank of Uzbekistan on the percentage of loans and deposits of commercial banks is studied using statistical data for the period 2017M1:2021M12. In particular, In particular, as exogenous variables, the mandatory reserve ratio for foreign currency deposits of the Central Bank ($RRCDFC_t$), monthly inflation rate (CPI_t), monthly devaluation indicators (DEV_t) were taken, while as endogenous variables foreign currency deposits in banks were taken short-term population ($STHDFC_t$), and the percentage of deposits of legal entities ($STCDFC_t$), as well as the percentage of short-term loans in foreign currency ($STCFC_t$). These interest rates were converted into reals on a monthly basis and natural logarithmized.

Table 2. Selected of indicators descriptive statistics

	LNRRCDF	**LNCPI**	**LNDEV**	**LNSTCDFC**	**LNSTHDFC**	**LNSTCFC**
Mean	4.606576	4.615928	4.625433	4.597274	4.597418	4.600514
Maximum	4.622355	4.645352	5.206781	4.614201	4.613214	4.616874
Minimum	4.576256	4.600158	4.590440	4.565362	4.566917	4.570038
Std. Dev.	0.008452	0.008271	0.078042	0.008740	0.008372	0.008406
Observations	60	60	60	60	60	60

Table from the data apparently as being viewed period legal of individuals foreign in currency deposits for mandatory reserve percent in the natural logarithm in the situation standard dispersion 0.0084 has been if his medium level 4.60 equal to has been also national currency course monthly devaluationattention which looks if we in it standard dispersion to 0.07 and average change to 4.62 equal to has been In economics face giving of inflation standard the variance is moderate is 0.0082 , and its maximum deviation from the variance in the considered period is 4.64 and minimum 4.60 has been Commerce in banks legal and physical of individuals foreign in currency deposits percentage standard dispersion suitable respectively 0.0084 and 0.0083 to were equal, their average deviation from the standard deviation is 4.59, respectivelyand 4.60 has been

Table 3. of indicators correlation matrix

	LNRRCDF	LNCPI	LNDEV	LNSTCDFC	LNSTHDFC	LNSTCFC
LNRRCDF	1					
LNCPI	-0.9932	1				
LNDEV	-0.0726	0.0760	1			
LNSTCDFC	0.9818	-0.9941	-0.0929	1		
LNSTHDFC	0.9886	-0.9943	-0.0322	0.9829	1	
LNSTCFC	0.9863	-0.9953	-0.0801	0.9917	0.9909	1

Analyzing the data in the table, the correlation between the mandatory reserve ratio of legal entities for foreign currency deposits and the percentage of short-term foreign currency deposits of legal entities was equal to 0.98, while the foreign currency reserves allocated to legal entities the correlation with the percentage of loans was equal to 0.98. Also, the correlation between the mandatory reserve norm for foreign currency deposits of legal entities and the percentage of foreign currency deposits attracted from the population was equal to 0.98, while the correlation between the mandatory reserve norm and national currency devaluation was equal to -0.07 has been.

Using the above analysis, we formed the SVAR model on the impact of the Central Bank's mandatory reserve instrument on the interest rate policy of commercial banks. According to the results of the model, the mandatory reserve percentage for foreign currency deposits of legal entities has a strong influence on the percentage of short-term foreign currency deposits of the population in commercial banks.

The statistical significance of the effect of this mandatory reserve norm on the percentage of short-term deposits of legal entities in commercial banks and on the percentage of loans in foreign currency allocated to them is low.

Also, the impact of the devaluation of the national currency on the interest policy of commercial banks was insignificant. The reason for this is that commercial banks have not combined the constant devaluation indicator with the interest rate policy. On the contrary, the inflation rate had a high impact on the interest policy of commercial banks. Apart from the influence of the above endogenous indicators on the interest policy of commercial banks, the autocorrelation of interest rates in commercial banks is becoming stronger.

CONCLUSION AND DISCUSSION

Today, the mandatory reserve policy of the Central Bank should act as a protective buffer for commercial banks, manage their liquidity, regulate the money supply, and perform secondary coordinating functions. Also, it is not appropriate to maintain a large amount of mandatory reserves by central banks. Because one of the functions of the reserve requirement is to impose an additional

"tax" on commercial banks. Therefore, commercial banks compensate for this "tax" by increasing the percentage of loans. This leads to a decrease in aggregate demand and aggregate supply.

It would not be wrong to say that the reduction of the mandatory reserve ratio by the Central Bank in recent years has led to a positive situation in the banking system. In particular, in 2016, the average mandatory reserve ratio was 15 percent, in 2019 it was 8.8 percent, but as a result of the increase in the mandatory reserve ratio for foreign currency deposits from 2021, the average mandatory reserve ratio in that year is 9.71 percent.

The reduction of the required reserve ratio, in turn, affected the average balance of the required reserve. In particular, in 2016, the average mandatory reserve balance was 3.9 trillion soms, and since 2018, it has been in a downward trend, and in 2021 it was 1.9 trillion soms.

In our work, we formed the SVAR model on the impact of the Central Bank's reserve requirement instrument on the interest policy of commercial banks. According to the results of the model, the mandatory reserve percentage for foreign currency deposits of legal entities has a strong influence on the percentage of short-term foreign currency deposits of the population in commercial banks. In particular, the increase in the percentage of legal entities' mandatory reserve for deposits in foreign currency by 1% in the previous month reduces the percentage of short-term foreign currency deposits of the population in commercial banks by -0.11% in the next month. The statistical significance of the effect of this mandatory reserve norm on the percentage of short-term deposits of legal entities in commercial banks and on the percentage of loans in foreign currency allocated to them is low.

Also, the impact of the devaluation of the national currency on the interest policy of commercial banks was insignificant. The reason for this is that commercial banks have not combined the constant devaluation indicator with the interest rate policy. On the contrary, the inflation rate had a high impact on the interest policy of commercial banks. In particular, a 1% increase in the level of inflation in the previous month will increase the percentage of short-term foreign currency deposits of legal entities in commercial banks by 0.47% in the next month, and the percentage of short-term foreign currency deposits of the population in commercial banks by 0.69%, and the percentage of short-term foreign currency loans allocated to legal entities. It was determined to increase by 0.66 percent.

Apart from the influence of the above endogenous indicators on the interest policy of commercial banks, the autocorrelation of interest rates in commercial banks is becoming stronger. In particular, a 1% increase in the short-term foreign currency deposit interest of legal entities in a commercial bank in the previous month will increase this interest rate by 0.59% in the next month, and a 1% increase in the short-term foreign currency deposit interest of the population in a commercial bank in the previous month will increase this interest rate to 0. It was determined to increase to 83 percent. Also, a 1% increase in the interest rate of short-term foreign currency loans allocated to legal entities in the previous month will increase this interest rate by 0.30% in the following month, according to a scientific study. The reason why autocorrelation is so strong is that commercial banks do not carry out macro-level analysis sufficiently, but draw conclusions for the next months depending on the changes in the previous months.

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