

## **IMPROVEMENT OF DEPOSIT POLICY EFFICIENCY ASSESSMENT MODEL IN COMMERCIAL BANKS**

**Toyirov Yunus Alamovich**

*associate professor  
Department of Finance,  
taxation and banking of the  
Samarkand branch  
Tashkent State  
the University of Economics  
E-mail: [Yunus1980@rambler.ru](mailto:Yunus1980@rambler.ru)  
ORCID:0009-0001-4205-3405*

**Abstract.** This article analyzes the improvement of the model for assessing the effectiveness of the deposit policy of commercial banks. During the research, econometric models were applied using data from three major commercial banks: “O‘zsanoatqurilishbank” ATB, “Asakabank” ATB, and “Ipotekabank” ATB. Using the least squares model and structural vector autoregression methods, we studied the factors affecting the deposit base, including the inflation rate, exchange rate of the national currency, money supply, Central Bank refinancing rate, and interest rates in the money market. The results of the study serve as a basis for making scientific and practical conclusions on improving the deposit policy of commercial banks.

**Keywords:** commercial banks, deposit policy, econometric model, inflation, interest rates, national currency, deposit base.

## **СОВЕРШЕНСТВОВАНИЕ МОДЕЛИ ОЦЕНКИ ЭФФЕКТИВНОСТИ ДЕПОЗИТНОЙ ПОЛИТИКИ КОММЕРЧЕСКИХ БАНКОВ**

**Таиров Юнус Аламович**

*доцент кафедры финансов,  
налогообложения и банковского дела  
Ташкентский государственный  
экономический университет  
Самаркандский филиал  
E-mail: [Yunus1980@rambler.ru](mailto:Yunus1980@rambler.ru)  
ORCID:0009-0001-4205-3405*

**Аннотация.** В статье анализируется совершенствование модели оценки эффективности депозитной политики коммерческих банков. В ходе исследования были использованы эконометрические модели на примере трех крупных коммерческих банков – Узсаноатқурилишбанк АТБ, Асакабанк АТБ и Ипотекабанк АТБ. На основе модели наименьших квадратов и методов структурно-векторной авторегрессии исследованы факторы, влияющие на депозитную базу, в том числе на уровень инфляции, курс национальной валюты, денежную массу, ставку рефинансирования ЦБ и процентные ставки на денежном рынке. Результаты исследования служат основой для принятия научных и практических выводов по совершенствованию депозитной политики коммерческих банков.

**Ключевые слова:** коммерческие банки, депозитная политика, эконометрическая модель, инфляция, процентные ставки, национальная валюта, депозитная база.

**TIJORAT BANKLARINING DEPOZIT SIYOSATI SAMARADORLIGINI BAHOLASH  
MODELINI TAKOMINLASHTIRISH****Toyirov Yunus Alamovich***moliya, soliq va bank ishi**kafedra dotsenti**Toshkent davlat iqtisodiyot**universiteti,**Samarqand filiali**E-mail: [Yunus1980@rambler.ru](mailto:Yunus1980@rambler.ru)**ORCID:0009-0001-4205-3405*

**Annotatsiya.** Maqolada tijorat banklarining depozit siyosati samaradorligini baholash modeli takomillashtirilishi tahlil qilingan. Tadqiqot davomida uchta yirik tijorat banki – “O‘zsanoatqurilishbank” ATB, “Asakabank” ATB va “Ipotekabank” ATB misolida ekonometrik modellar qo‘llanilgan. Eng kichik kvadrat modeli va strukturaviy vektorli avtoregressiya usullari asosida depozit bazasiga ta’sir etuvchi omillar, jumladan, inflyatsiya darajasi, milliy valyuta almashuv kursi, pul massasi, Markaziy bank qayta moliyalash stavkasi va pul bozoridagi foiz stavkalarining o‘zaro bog‘liqligi o‘rganilgan. Tadqiqot natijalari tijorat banklarining depozit siyosatini takomillashtirish bo‘yicha ilmiy-amaliy xulosalar chiqarishga asos bo‘lib xizmat qiladi.

**Kalit so‘zlar:** tijorat banklari, depozit siyosati, ekonometrik model, inflyatsiya, foiz stavkalari, milliy valyuta, depozit bazasi.

**Introduction**

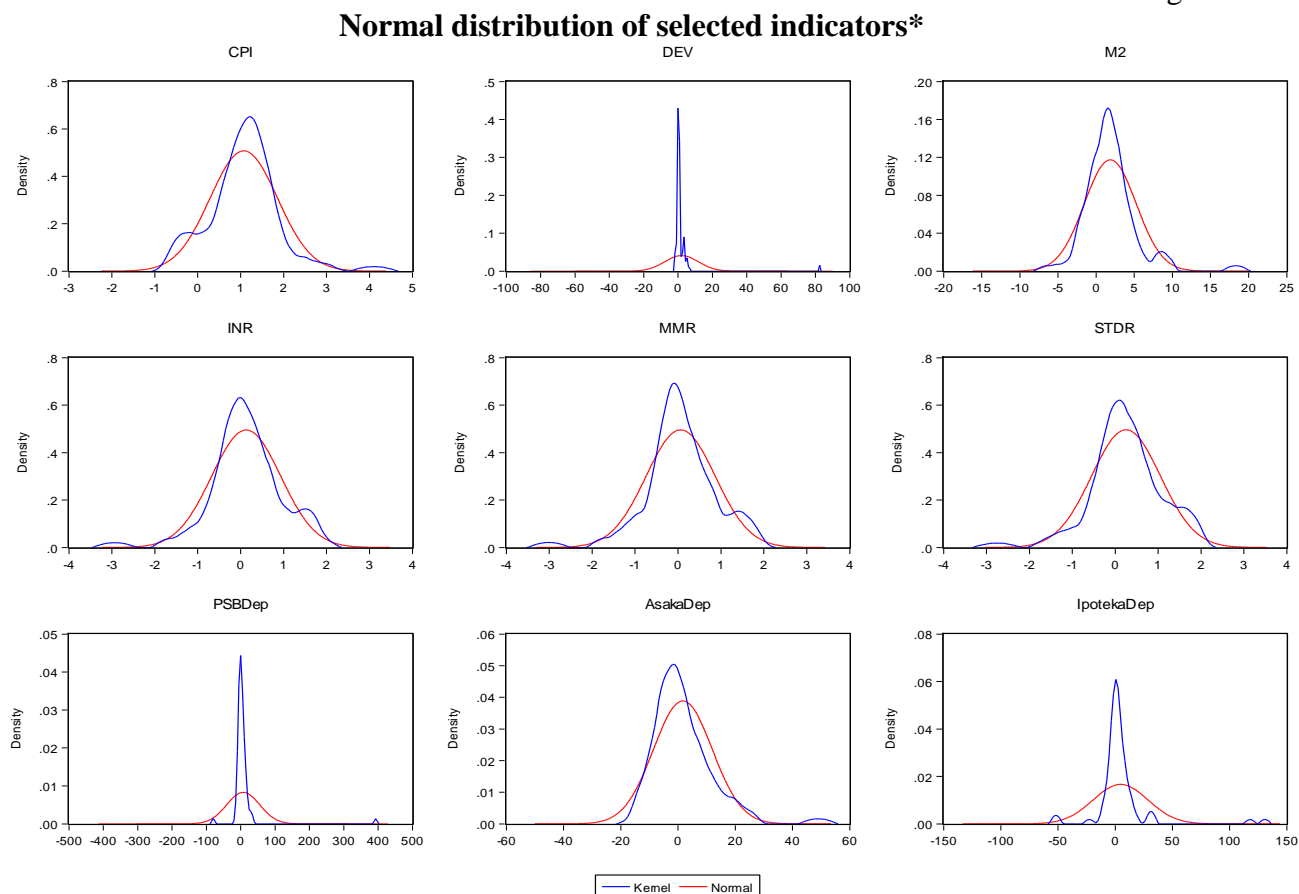
Due to the transformation processes occurring in the global economy and the banking system, it is necessary to enhance the role and significance of deposit policy in ensuring the resource stability of commercial banks and to analyze the factors affecting the deposit base. Specifically, factors such as changes in the exchange rate of the national currency, increasing inflationary pressure, and changes in the money supply influence the stability of deposits in commercial banks.

Therefore, we will analyze the role of factors affecting the deposit base and the interest rates of commercial bank deposits. In our research, we developed econometric models based on statistical data from three banks. Specifically, we selected “O‘zsanoatqurilishbank” ATB, “Asakabank” ATB, and “Ipotekabank” ATB, and applied the least squares model and structural vector autoregression models.

In this regard, as endogenous factors influencing the deposit bases of commercial banks ( $PSBdep_t$ ,  $AsakaDep_t$ ,  $IpotekaDep_t$ ) and the percentage of short-term deposits ( $STDR_t$ ) in the least square model, the change in the inflation rate in the economy ( $CPI_t$ ), the change in the national currency exchange rate ( $DEV_t$ ), the change in the money supply ( $M2_t$ ), Central Bank refinancing the change of the interest rate ( $INR_t$ ) and the change of the interest rate in the money market ( $MMR_t$ ) were obtained. The statistical data of the selected indicators for the period 2017M1-2022M12 were obtained in months, in real value and growth.

At the initial stage of econometric analysis, we conducted several statistical calculations. These include descriptive statistics of the selected data—where we empirically analyze the mean values, maximum and minimum values, and deviation from the mean (standard deviation). Additionally, we analyzed the normal distribution of the parameters selected in this study.

Figure 1.



\* Developed by the author based on selected statistical data.

The Jacques-Bera coefficient was used to check the normal distribution of the data. The analysis shows that all the selected indicators have a normal distribution. It was found that the Jacques-Bera coefficient calculated for all the selected indicators is reliable and their probability is less than 0.05.

72 observations were made using the selected indicators. Below we analyze descriptive statistics of ten selected indicators.

Table 1.

**Descriptive statistics of indicators\***

	CPI	DEV	M2	INR	MMR	STDR	PSBDep	AsakaDep	IpotekaDep
<b>Mean</b>	1.06	2.06	1.85	0.14	0.07	0.26	7.37	1.70	4.70
<b>Median</b>	1.10	0.47	1.60	0.05	0.01	0.19	1.25	-1.12	1.22
<b>Maximum</b>	4.10	82.5	18.3	1.83	1.75	1.77	393.0	48.9	130.6
<b>Minimum</b>	-0.50	-1.72	-6.27	-2.93	-3.00	-2.75	-79.4	-14.4	-52.6
<b>Std. Dev.</b>	0.78	9.74	3.39	0.79	0.79	0.80	48.0	10.2	23.9
<b>Skewness</b>	0.58	7.96	1.66	-0.51	-0.54	-0.55	7.25	1.67	3.20
<b>Kurtosis</b>	5.30	66.1	9.68	5.20	5.29	4.83	59.5	7.92	19.0
<b>Probability</b>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Observations</b>	72	72	72	72	72	72	72	72	72

\*Developed by the author based on selected statistical data.

According to the results of monitoring, the average indicator of the change in the volume of deposits of Uzsanotkurilishbank ATB is equal to 7.37%, and this indicator was the maximum of 393.20% and the minimum of -79.492% during the observed period. The standard deviation of this indicator was equal to 48.0 percent.

Also, the average indicator of the change in the volume of Asakabank ADB deposits is

equal to 1.70%, and this indicator was the maximum of 48.9% and the minimum of -14.4% during the observed period. The standard deviation of this indicator was equal to 10.2 percent.

The average indicator of the change in the volume of deposits of ADB "Ipotekabank" is equal to 4.70%, and this indicator was the maximum of 130.6% and the minimum of -52.6% during the observed period. The degree of deviation of this indicator from the average was equal to 23.9 percent.

It was determined that the standard deviation of the change in the volume of deposits of Uzsanotkurilishbank ADB is greater than the indicators of other commercial banks. Also, the average indicator of the change in the volume of deposits of Uzsanotkurilishbank ADB and its fluctuation was seen to be greater than the indicators of other commercial banks.

Table 2

**Correlation matrix between selected indicators\***

	<b>CPI</b>	<b>DEV</b>	<b>M2</b>	<b>INR</b>	<b>MMR</b>	<b>STDR</b>	<b>PSBDep</b>	<b>AsakaDep</b>	<b>IpotekaDep</b>
<b>CPI</b>	1								
<b>DEV</b>	0.0734	1							
<b>M2</b>	-0.0453	0.5780	1						
<b>INR</b>	-0.9825	-0.0874	0.0433	1					
<b>MMR</b>	-0.9717	-0.1038	0.0456	0.9897	1				
<b>STDR</b>	-0.9868	-0.0737	0.0687	0.9842	0.9836	1			
<b>PSBDep</b>	-0.1634	0.0404	0.0602	0.1568	0.1494	0.1442	1		
<b>AsakaDep</b>	0.04119	-0.0259	0.1281	-0.0326	-0.0542	-0.0346	-0.0530	1	
<b>IpotekaDep</b>	0.04355	0.1341	0.1970	-0.0906	-0.0877	-0.0790	-0.0248	-0.1007	1

\*Developed by the author based on selected statistical data

Among the selected banks, the correlation between the deposit base of Uzsanotkurilishbank ATB and the inflation rate is -0.16. Although this relationship is weak, but the relationship between the testers is visible. That is, the increase in the level of inflation in the economy reduces the real value of the deposits of Uzsanotkurilishbank ADB.

Although the relationship between the deposit base of Uzsanotkurilishbank ATB and the devaluation of the national currency and the increase in the money supply is weak, it is logically constructed and equals 0.04 and 0.06, respectively. Also, the relationship between the deposit base of this bank and the interest rates was seen, according to which, the correlation between the change in the amount of bank deposits and the refinancing rate of the Central Bank is equal to 0.15, and the correlation with the interest rate in the money market is equal to 0.14. That is, the increase in interest rates in the money market increases the percentage of deposits, and this, in turn, facilitates the attraction of deposits.

“The correlation between the deposit base of Asakabank ATB and the level of inflation is equal to -0.04, and although this correlation is weak, a correct correlation is seen. That is, the increase in the level of inflation in the economy increases the real value of the deposits of "Asakabank" ADB.

The correlation between the deposit base of ASB "Asakabank" and the devaluation of the national currency and the increase in the money supply is weak and equals -0.02 and 0.13, respectively. Also, the relationship between this bank's deposit base and interest rates was seen, according to which, the correlation between the change in the bank deposit volume and the Central Bank refinancing percentage is -0.03, and the correlation with the money market interest rate is -0.05. With this, we can say that the deposit policy of "Asakabank" ADB is not tied to indicative interest rates.

The correlation between the deposit base of ATB "Ipotekabank" and the inflation rate is equal to 0.04, and this correlation is weak. That is, the increase in the level of inflation in the economy also increases the real value of the deposits of ADB "Ipotekabank".

The correlation between the deposit base of ADB "Ipotekabank" and the devaluation of

the national currency and the increase in the money supply is weak and is equal to 0.13 and 0.20, respectively. Also, the relationship between the deposit base of this bank and interest rates was seen, according to which, the correlation between the change in the amount of bank deposits and the refinancing percentage of the Central Bank is equal to -0.09 and the correlation with the interest rate in the money market is equal to -0.08. With this, we can say that the deposit policy of "Ipotekabank" ADB is not tied to indicative interest rates, like the deposit policy of "Asakabank" ADB.

We conduct our econometric analysis using a least squares model. First, we will consider the strength of the factors affecting the deposit base of Uzsanoatkurilishbank ATB.

**Table 3**

**Parameters of the factors affecting the change in the volume of deposits of  
Uzsanoatkurilishbank ATB calculated in the least square model**

Dependent Variable: PSBDeposit

Method: Least Squares

Sample (adjusted): 2017M01 2022M12

Included observations: 72 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
CPI	-49.60185	53.39614	-0.928941	0.3564
DEV	0.115956	0.750881	0.154427	0.8778
INR	6.077175	65.15573	0.093272	0.9260
MMR	12.51215	59.43391	0.210522	0.8339
M2	0.880197	2.155054	0.408434	0.6843
STDR	-57.59739	59.98231	-0.960240	0.3405
C	71.49842	70.58386	1.012957	0.3148

\*Developed by the author based on selected statistical data.

According to the results of the analysis, when checking with a probability of 5%, it was found that there is no effect of the selected indicators on the change in the volume of ADB deposits of "Uzsanoatkurilishbank".

**Table 4**

**The parameters of the factors affecting the change in the volume of deposits of Asakabank  
ATB calculated in the least square model\***

Dependent Variable: AsakabankDeposit

Method: Least Squares

Sample (adjusted): 2017M01 2022M12

Included observations: 72 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
CPI	8.499636	11.21717	0.757735	0.4513
DEV	-0.202985	0.157741	-1.286823	0.2027
INR	19.16342	13.68756	1.400061	0.1663
MMR	-20.87915	12.48555	-1.672265	0.0993
M2	0.695011	0.452722	1.535182	0.1296
STDR	9.052830	12.60076	0.718436	0.4751
C	-11.72597	14.82787	-0.790806	0.4319

\*Developed by the author based on selected statistical data.

Using the least square method, we analyze the factors affecting the deposit base of "Asakabank" ATB. According to the results of the analysis, we can see that there is no influence of the selected indicators on the changes in the volume of deposits of "Asakabank" ATB JSC.

Table 5

**The parameters of the factors affecting the change in the volume of ADB deposits of "Ipotekabank" calculated in the least square model**

Dependent Variable: IpotekabankDeposit

Method: Least Squares

Sample (adjusted): 2017M01 2022M12

Included observations: 72 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
CPI	-66.05713	25.27972	-2.613049	0.0111
DEV	-0.010896	0.355495	-0.030651	0.9756
INR	-47.71340	30.84714	-1.546769	0.1268
MMR	25.11424	28.13822	0.892531	0.3754
M2	1.656065	1.020283	1.623144	0.1094
STDR	-44.52046	28.39785	-1.567741	0.1218
C	88.48919	33.41702	2.648028	0.0101

\*Developed by the author based on selected statistical data

According to the results of the analysis, when checking with a probability of 5%, only the level of inflation in the economy has an effect on the change in the volume of these bank deposits. In particular, a one percent increase in the inflation rate reduces the volume of ADB deposits of "Ipotekabank" by -0.66 percent. Through this model, the remaining indicators with a probability of 5% did not have an effect on the volume of "Ipotekabank" ADB deposits.

"Lag" is not used in this model due to the fact that we could not determine the effect of the selected indicators on the change in the deposit volume of commercial banks using the smallest method. Therefore, it is appropriate to conduct our analysis using other models.

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