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THE LOAN-TO-DEPOSIT RATIO AND ITS IMPACT ON BANK PROFITABILITY

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Abstract:
This article examines the concept of the Loan-to-Deposit Ratio (LDR) and its impact on bank profitability. LDR is analyzed as an important indicator reflecting how efficiently a bank utilizes its financial resources and its level of liquidity. The article discusses the method of calculating the ratio, the advantages and disadvantages of high and low LDR values, and the influence of economic conditions and regulatory requirements. It highlights that a high LDR can increase interest income but may pose liquidity risks, while a low LDR can ensure safety but limit income opportunities. The article emphasizes strategies for determining an optimal LDR for banks and the importance of risk management. Furthermore, it evaluates the LDR indicator in commercial banks of the Republic of Uzbekistan and its effect on the efficiency indicators of the national banking system.

Keywords: Loan-to-Deposit Ratio (LDR), Return on Assets (ROA), Return on Equity (ROE), Net Interest Margin (NIM), interest income, liquidity.

INTRODUCTION

The banking system, as one of the main pillars of the modern economy, plays a crucial role in the efficient allocation of financial resources and supporting economic activity. The efficiency and stability of this system depend on how wisely banks manage their funds, particularly to what extent they provide deposits attracted from customers as loans. The loan-to-deposit ratio (LDR) is one of the central indicators in assessing bank performance, reflecting the bank's strategy for using financial resources, its liquidity level, and its ability to manage risks. This ratio shows what portion of deposits the bank is directing towards loans, and it is an important tool for analyzing its profit-making opportunities, financial risks, and adaptability to economic conditions. A high LDR may promise higher interest income but can potentially lead to liquidity problems, while a low LDR ensures a safer financial position but limits profit opportunities. The importance of this indicator is linked not only to the banks' internal strategies but also to external economic conditions, regulatory requirements, and market dynamics.

MAIN BODY

Many economists have studied the impact of the Loan-to-Deposit Ratio (LDR) on bank performance. For example, economists Alphonce Tavona Shiri, Silvanos Chirume, and Ziska Fields from the University of KwaZulu-Natal School of Management in South Africa and Zimbabwe Open University (2015) conducted a sample-based study of commercial banks in Zimbabwe covering the eight-year period from 2008 to 2012. They examined the factors affecting commercial bank profitability before and after the hyperinflation period. Their findings revealed a negative relationship between LDR and bank profitability, while capitalization had a strong positive impact on profitability. They also recommended that banks monitor the structure and composition of their revenue-generating asset portfolios to improve profitability.

Independent researcher O. Isakov from Westminster International University (2023) investigated the factors affecting the profitability of commercial banks in Uzbekistan using panel data from 32 commercial banks for the period 2017–2021. His study found that state ownership and operational expenses were negatively and significantly associated with profitability, while the Loan-to-Deposit Ratio (LDR) had a significant positive impact on Return on Equity (ROE).

Economists Putu Bunga Maharani Wibawa Putri and I Made Sadha Suardikha from Udayana University in Indonesia (2020) selected 30 banks listed on the Indonesian Stock Exchange and conducted a study for the period 2014–2018. They examined the effects of LDR and the Capital Adequacy Ratio (CAR) on bank profitability. The study showed that LDR had a positive effect on Return on Assets (ROA), meaning that higher LDR levels lead to increased profitability. Similarly, CAR also had a positive effect on ROA, indicating that higher capital adequacy enhances bank profitability.

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Indonesian economist Muhammad Amir (2022) studied the effect of LDR on Return on Assets (ROA) for Bank Mandiri in Indonesia from 2016 to 2020. The results indicated a strong positive correlation of 0.889 between LDR and ROA, and a linear regression equation was developed to quantify this relationship.

Economists Rana-Al-Mosharrafa and Shahidul Islam from the University of Dhaka in Bangladesh (2020) analyzed the factors influencing bank profitability—specifically ROA, ROE, and Net Interest Margin (NIM)—for Bangladeshi commercial banks during the period 2007–2017. They found that LDR had a positive effect on ROA and emphasized the importance of efficient management of funds, including investments and assessed costs.

Demirguc-Kunt and Huizinga (2000), in their study "Financial Structure and Bank Profitability," noted that high levels of LDR may increase banks' interest margins but also amplify liquidity risk. Their analysis, based on international banking data, showed that the optimal level of LDR depends on a bank's business model and market conditions. The study also found that high LDRs could lead to increased credit losses during economic crises.

Molyneux and Thornton (1992), in their research on European banks, found that high LDRs were effective in increasing profitability during periods of economic growth but could become risky during downturns due to deteriorating credit quality. Their findings underscore that LDR is sensitive to economic cycles and must be considered in banks' strategic planning.

The Loan-to-Deposit Ratio (LDR) serves as an important indicator for assessing the efficiency of commercial banks in the Republic of Uzbekistan, reflecting their financial resource management strategies, profitability, and stability levels.

For commercial banks, LDR is directly linked to interest income, which constitutes a primary source of bank revenue. A high LDR (e.g., 85–90%) indicates that a significant portion of deposits is being allocated as loans, thereby increasing interest income and improving efficiency. For instance, banks specializing in retail lending (such as mortgage and consumer loans) can meet customer demand and enhance profitability through a high LDR. However, an excessively high LDR (above 90%) can lead to liquidity issues, reducing the bank's ability to meet short-term payment obligations and negatively affecting overall efficiency.

Conversely, a low LDR (below 70%) reflects a conservative banking strategy that ensures financial stability but limits lending opportunities, resulting in reduced profitability.

The specific conditions of Uzbekistan's transition to a developing market economy - including exchange rate fluctuations, inflation, and economic cycles - have a significant impact on LDR strategies. The influence of the Loan-to-Deposit Ratio (LDR) on Uzbekistan's banking system is associated not only with profitability but also with overall financial stability. A high LDR level positively contributes to economic growth by supporting credit distribution to meet the financial needs of businesses and individuals. However, an excessively high LDR increases the risk of liquidity problems for banks, which in turn poses a threat to the stability of the entire system.

Table 1 below presents the quarterly profitability indicators of the Republic's banking system. As seen from the data, over the past five years — covering a 21-quarter observation period - there has been noticeable growth in the banking system's profitability indicators. If we focus on the net interest margin, which is directly affected by changes in the LDR coefficient, a consistent upward trend can also be observed. This suggests that a high LDR - meaning more credit is issued relative to attracted deposits - may have contributed to the increase in the interest margin.

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Table 1

Profitability Indicators of the Banking System of the Republic of Uzbekistan

Quarterly Data of Indicators (billion UZS)	Interest income	Interest expense	Interest margin	Non-interest income	Non-interest expense	Operation expense	Provision for Potential Losses on Loans and Leases	Provision for Potential Losses on Other Assets	Profit (Loss) Before Tax	Tax expense	Net Profit (Loss)
I.2020	8 149	4 988	3 161	3 621	865	1 748	2 376	99	1 695	303	1 392
II.2020	8 882	5 534	3 348	2 536	743	1 775	1 679	68	1 619	389	1 231
III.2020	9 688	6 021	3 667	2 244	814	1 953	1 363	76	1 705	300	1 405
IV.2020	10 348	6 475	3 873	3 400	1 094	2 670	937	630	1 941	326	1 615
I.2021	10 713	6 810	3 902	5 445	1 054	2 070	4 280	114	1 829	356	1 473
II.2021	11 581	7 498	4 083	4 719	1 324	2 670	2 841	-11	1 977	415	1 562
III.2021	12 013	7 986	4 027	3 209	1 114	2 806	1 084	195	2 036	452	1 584
IV.2021	13 085	8 502	4 583	3 879	1 452	3 452	4 015	34	-491	242	-733
I.2022	14 285	8 740	5 545	8 393	2 228	2 756	5 591	807	2 557	660	1 897
II.2022	15 268	9 750	5 518	9 215	3 244	3 353	2 978	1 559	3 600	742	2 858
III.2022	17 081	10 387	6 694	7 445	2 913	3 886	3 377	821	3 141	774	2 367
IV.2022	15 093	8 689	6 404	8 130	3 427	4 882	1 917	1 026	3 282	413	2 871
I.2023	18 833	12 258	6 575	11 742	2 328	3 891	6 665	1 578	3 855	789	3 066
II.2023	20 916	13 774	7 142	8 685	2 802	4 792	3 422	1 036	3 775	762	3 013
III.2023	22 578	15 180	7 397	10 635	3 647	4 928	5 443	1 422	2 593	648	1 945
IV.2023	24 352	16 471	7 882	10 992	4 496	5 952	2 883	609	4 933	576	4 357
I.2024	25 872	18 027	7 845	12 988	3 693	4 760	7 503	1 848	3 029	648	2 381
II.2024	26 825	18 668	8 157	12 299	6 189	5 503	3 270	1 558	3 936	800	3 136
III.2024	28 336	19 823	8 513	13 015	6 208	5 920	4 818	1 382	3 199	643	2 556
IV.2024	30 834	21 156	9 677	16 818	6 529	7 532	10 348	2 595	-509	601	-1 107
I.2025	28 898	20 079	8 819	16 580	5 033	6 123	5 424	8 330	1 821	4 091	672

Source: Based on data from the Statistical Bulletin of the Central Bank of the Republic of Uzbekistan. www.cbu.uz

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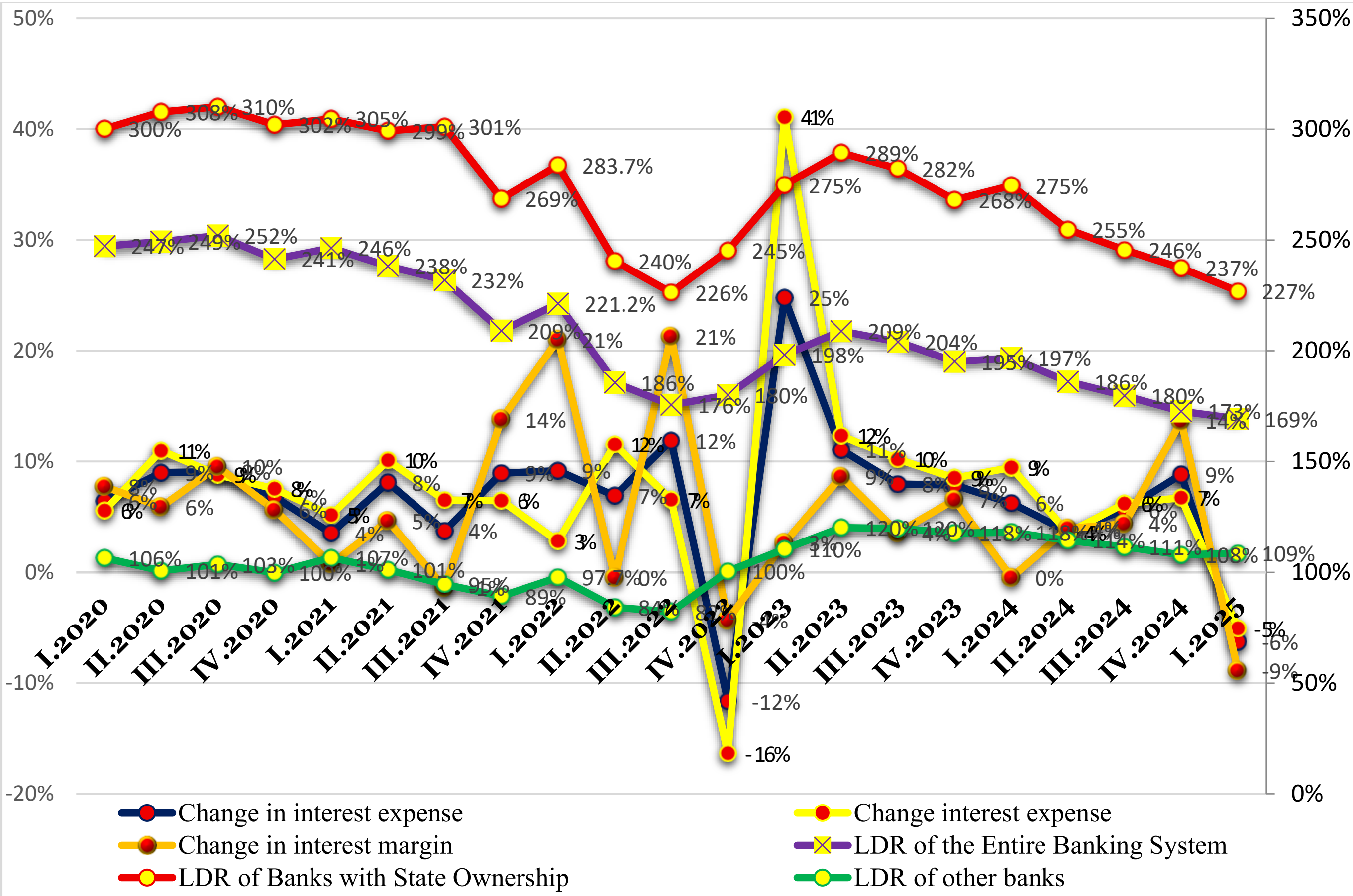

Figure 1. The Impact of the Loan-to-Deposit Ratio on Changes in Interest Income, Expenses, and Margin Indicators

Source: Based on data from the Statistical Bulletin of the Central Bank of the Republic of Uzbekistan. www.cbu.uz

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Above, we discussed the impact of the Loan to Deposit Ratio (LDR) on bank efficiency indicators, including Return on Assets (ROA), Return on Equity (ROE), and Net Interest Margin (NIM). We noted that many foreign banks' operations have been studied by international economists and researchers, who found strong correlations between LDR and these efficiency indicators. An increase in LDR directly affects the improvement of these performance metrics.

Now, we attempt to analyze the impact of this coefficient — the LDR, i.e., the ratio of loans to deposits — on the efficiency indicators of the banking system of the Republic of Uzbekistan through graphical methods. The Uzbek banking system has a peculiar and unusual LDR profile. Previously, we noted that a high LDR around 85–90% ensures high profitability but somewhat affects bank liquidity. However, when LDR exceeds 90%, although it may bring significantly higher income to banks, it also poses a threat to their liquidity.

Moreover, in the Uzbek banking system, the LDR coefficient over the last five years has included periods where it exceeded 250% for the entire banking system, and in banks with state ownership, it even exceeded 300%. Clearly, these values are almost two to three times higher than the normative LDR ratios, demonstrating the atypical nature of LDR in Uzbekistan's banking sector. In contrast, banks without state ownership saw their LDR peak at around 120%. The high state ownership in Uzbekistan's banking system has led to an overall elevated LDR ratio.

Referring to Figure 1 above, we can conclude that the positive and strong correlation between LDR and bank efficiency indicators observed in foreign banks also exists in Uzbekistan, but the correlation is not as strong. Although there is a relatively uniform change in LDR across the entire banking system, state-owned banks, and other banks, the efficiency indicators of the banking system show sharp fluctuations.

This analysis was conducted considering the specific conditions of the Republic of Uzbekistan, where LDR directly affects banks' interest income and expenses, and consequently, the net interest margin. Taking into account Uzbekistan's economic development, government programs, support for entrepreneurship, and factors such as current inflation, although the nominal values of interest income, interest expenses, and net interest margin have shown steady growth during the observation period, their quarterly growth rates vary. This variation helps us assess how changes in the LDR coefficient influence efficiency indicators.

Looking at the graph, we notice that interest income and interest expenses are highly sensitive to changes in the LDR coefficient. For example, in the second, third, and fourth quarters of 2022, the LDR for the entire banking system decreased from 221% in Q1 2022 to 186%, 176%, and 180%, respectively. Correspondingly, in Q4 2022 compared to the previous quarters, interest income declined by 12%, interest expenses by 16%, and net interest margin fell by 4% (see Table 2).

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Table 2
Loan to Deposit Ratio (LDR) and Efficiency Indicators of the Banking System of the Republic of Uzbekistan

Quarterly Indicators (in %)	I.2020	II.2020	III.2020	IV.2020	I.2021	II.2021	III.2021	IV.2021	I.2022	II.2022	III.2022	IV.2022	I.2023	II.2023	III.2023	IV.2023	I.2024	II.2024	III.2024	IV.2024	I.2025
Compared to the previous quarter:																					
Change in Interest Income	6	9	9	7	4	8	4	9	9	7	12	-12	25	11	8	8	6	4	6	9	-6
Change in Interest Expense	6	11	9	8	5	10	7	6	3	12	7	-16	41	12	10	9	9	4	6	7	-5
Change in Interest Margins	8	6	10	6	1	5	-1	14	21	-0	21	-4	3	9	4	7	-0	4	4	14	-9
Loan to Deposit Ratio:																					
For the entire banking system	247	249	252	241	246	238	232	209	221	186	176	180	198	209	204	195	197	186	180	173	169
For state-owned banks	300	308	310	302	305	299	301	269	284	240	226	245	275	289	282	268	275	255	246	237	227
For other banks	106	101	103	100	107	101	95	89	98	84	82	100	110	120	120	118	118	114	111	108	109
Profitability Indicators of the Banking System:																					
Return on Assets (ROA) before Tax	2,4	2,3	2,2	2,2	2,0	2,0	2,0	1,3	2,3	2,7	2,6	2,5	2,8	2,7	2,4	2,6	1,8	2,1	2,0	1,4	2,1
Return on Equity (ROE)	10,7	9,9	10,0	10,3	9,9	10,0	10,0	6,1	10,6	13,1	12,9	13,3	15,1	14,7	12,7	4,2	9,6	11,0	10,5	6,6	11,6
Ratio of Net Interest Income to Total Assets	4,4	4,3	4,2	3,8	4,2	4,0	4,0	3,7	4,9	4,5	4,9	4,3	4,7	4,8	4,6	4,4	4,7	4,6	4,4	4,4	4,4
Ratio of Net Interest Income from Loans to Total Loans	5,7	5,6	5,4	5,1	5,5	5,4	5,3	5,1	6,5	6,4	7,3	6,2	6,4	6,5	6,3	6,2	6,6	6,5	6,3	6,4	6,4
Ratio of Net Interest Income to Total Liabilities	5,4	5,3	5,1	4,6	5,0	4,8	4,8	4,4	5,9	5,3	5,8	5,1	5,5	5,6	5,4	5,2	5,6	5,5	5,2	5,2	5,2
Ratio of Net Interest Margin to Total Assets	4,5	4,5	4,5	4,5	4,2	4,2	4,2	4,2	5,0	4,8	5,5	4,9	4,7	4,8	4,9	4,9	4,8	4,8	4,8	4,9	4,5

Source: Official website of the Central Bank of the Republic of Uzbekistan, www.cbu.uz Compiled by the author based on data from the Central Bank's statistical bulletin.

We did not assess the impact of the Loan to Deposit Ratio (LDR) on other profitability indicators of the banking system, such as Return on Assets (ROA) and Return on Equity (ROE), because the ROA and ROE coefficients for the banking system were calculated using monthly averages of net profit figures. This makes it somewhat difficult to accurately evaluate the effect of LDR on profitability indicators.

CONCULSIONS AND RECOMMENDATIONS

The Loan to Deposit Ratio (LDR) is one of the key indicators for assessing the efficiency of commercial banks in the Republic of Uzbekistan. It plays a crucial role in maintaining a balance between banks' profitability, liquidity, and financial stability. Analyses show that LDR enables banks to improve efficiency through interest income; however, its optimal level varies depending on economic conditions, regulatory requirements, and the bank's business model.

Banks should adapt their LDR strategies according to economic cycles. For example, a conservative approach should be applied during periods of high inflationary pressure, while in times of economic recovery, expanding lending activities should be prioritized.

For commercial banks in the Republic of Uzbekistan, an effectively managed LDR is an important tool for enhancing efficiency and ensuring financial stability. A properly managed LDR strategy enables banks to support economic growth, meet customer needs, and maintain stability during adverse economic conditions.

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