



MACROPRUDENTIAL REGULATION AND MONETARY POLICY EFFECTS ON COMMERCIAL BANK LIQUIDITY IN UZBEKISTAN

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ABSTRACT

This article examines how macroprudential regulation and monetary policy have shaped the liquidity of commercial banks in Uzbekistan between 2022 and early 2026. The study focuses on the joint effect of borrower-based and capital-based macroprudential instruments, the key rate and reserve requirement policy of the Central Bank of Uzbekistan (CBU), and the resulting dynamics of bank liquidity. Using a mixed-method design that combines regulatory analysis with official year-end indicators (2022–2025) and quarterly money-market data (Q1 2025–Q1 2026), the research assesses the adequacy of banks' liquidity buffers and identifies remaining vulnerabilities. The findings show that the system-wide liquidity coverage ratio (208%) and net stable funding ratio (120%) exceed the 100% minimum by a wide margin, that the loan-to-deposit ratio declined by about 50 percentage points between 2023 and 2025, and that interbank rates converged toward the key rate as the central bank absorbed a growing liquidity surplus. However, interbank concentration, dollarization, and uniform liquidity requirements remain sources of risk. The article proposes directions for calibrating liquidity regulation and coordinating monetary and macroprudential instruments.

KEYWORDS: Macroprudential Regulation, Monetary Policy, Bank Liquidity, Liquidity Coverage Ratio, Net Stable Funding Ratio, Reserve Requirements, Interbank Market, Uzbekistan, Financial Stability.

INTRODUCTION

Liquidity is the foundation of banking soundness. Banks transform short-term, liquid liabilities into longer-term, illiquid assets, and this maturity transformation makes them permanently exposed to sudden withdrawals of funding. The global financial crisis of 2007–2009 demonstrated that institutions with adequate capital can still fail when funding markets freeze, which led the Basel Committee on Banking Supervision to introduce the Liquidity Coverage Ratio (LCR) and the Net Stable Funding Ratio (NSFR). At the same time, central banks have become more aware that their policy rates, liquidity operations, and reserve requirements directly affect banks' funding conditions, so that monetary policy and macroprudential regulation increasingly act on the same variables.

These issues are especially relevant for Uzbekistan, where banks dominate financial intermediation. Between 2022 and 2025, annual loan growth ranged between 13% and 21% and deposit growth between 12% and 39%, and the loan-to-deposit ratio rose to an estimated 195% at the end of 2023 before falling to 145% by the end of 2025 (CBU, 2023–2026). State-owned banks hold about two-thirds of banking assets, a considerable share of loans is denominated in foreign currency, and retail and microcredit lending has expanded quickly (CBU, 2023–2026; IMF, 2025a, 2025b). In parallel, the CBU pursues an inflation-targeting framework with a medium-term target of 5%, which the IMF expects to be reached by the end of 2027 with the support of tight monetary and macroprudential policy (IMF, 2025a).

In response, the CBU has built a broad policy toolkit. On the macroprudential side, it introduced a concentration limit for car loans in 2023, debt-service-to-income (DSTI) limits and loan-to-value (LTV)-based capital add-ons in 2024, and capital buffers including a surcharge for domestic systemically important banks (D-SIBs). On the monetary side, it has kept the key rate between 13.5% and 14% since March 2023, changed reserve requirements on foreign-currency liabilities, and absorbed excess liquidity with central bank bonds. Because these instruments operate simultaneously on banks' funding and lending decisions, their combined effect on liquidity cannot be understood by analyzing each of them separately.

This study therefore examines how macroprudential regulation and monetary policy have affected commercial bank liquidity in Uzbekistan. The research aims to describe the evolution of liquidity and funding indicators, to relate these changes to the timing of policy measures, and to identify the vulnerabilities that remain together with the adjustments needed to address them.

The relevance of this research extends beyond Uzbekistan. In emerging and transition economies, shallow money markets, dollarization, and a strong role for state-owned banks mean that liquidity conditions are shaped more by regulation and central bank operations than by market forces. Accordingly, the findings aim to provide practical and policy-oriented insights for regulators, bank managers, and researchers interested in the coordination of monetary and macroprudential policy.



LITERATURE REVIEW

The theoretical foundations of bank liquidity were established by Diamond and Dybvig (1983), who showed that banks provide valuable liquidity insurance but are, for the same reason, vulnerable to self-fulfilling runs. Brunnermeier and Pedersen (2009) demonstrated that market liquidity and funding liquidity reinforce each other, so that small shocks can generate liquidity spirals. Acharya and Naqvi (2012) added that abundant liquidity is not unambiguously benign: when deposit inflows are strong, banks may underprice risk and expand credit excessively, which creates the seeds of later stress.

Regulatory responses to these insights are embodied in Basel III. The LCR requires banks to hold enough high-quality liquid assets (HQLA) to withstand a 30-day stress scenario (Basel Committee on Banking Supervision, 2013), while the NSFR requires stable funding of assets over a one-year horizon (Basel Committee on Banking Supervision, 2014). Adrian and Shin (2010) showed that the balance sheets of financial intermediaries expand in booms and contract in downturns, so that aggregate liquidity is itself procyclical.

A second strand of research examines how monetary policy is transmitted through bank balance sheets. Bernanke and Gertler (1995) described the bank lending channel, through which policy rates change banks' funding costs and lending supply. Kashyap and Stein (2000) found that the lending response to monetary tightening is stronger for U.S. banks with less liquid balance sheets, and Jiménez et al. (2012) showed with loan-level data that banks with lower liquidity and capital reduce credit supply more after rate increases. These results imply that liquidity buffers moderate the effect of monetary policy on credit.

Evidence on macroprudential instruments is also substantial. Cerutti, Claessens, and Laeven (2017), using data for 119 countries, found that macroprudential tools are associated with lower credit growth, particularly household credit, but are less effective in financially open and developed economies. Borio and Zhu (2012) argued that capital regulation and monetary policy interact through a risk-taking channel, and Gambacorta and Shin (2018) showed that better-capitalized banks enjoy lower funding costs and stronger loan growth, thereby altering monetary transmission.

In developing economies, reserve requirements provide an additional instrument. Federico, Vegh, and Vuletin (2014) documented that developing countries tend to use them countercyclically, which places them between monetary and macroprudential tools. Levy Yeyati (2006) emphasized that financial dollarization increases balance-sheet vulnerability and complicates the lender-of-last-resort function, which is directly relevant for foreign-currency liquidity management.

Evidence on Uzbekistan comes mainly from official sources. The CBU's financial stability reports document strong liquidity ratios and a declining loan-to-deposit ratio (CBU, 2023–2026), while the IMF's assessment against the Basel Core Principles finds that liquidity requirements are not calibrated to banks' risk profiles or systemic importance and that the deposit outflows assumed in the CBU's liquidity stress tests, at 2–3%, are not sufficiently conservative (IMF, 2025b). The 2025 Article IV consultation also recommends additional macroprudential measures for rapidly growing microcredit (IMF, 2025a).

Despite this body of work, important gaps remain. Most empirical studies concern advanced economies with deep financial markets, and their conclusions may not apply to a transition economy with a large state-owned banking segment, a shallow interbank market, and substantial dollarization. Moreover, existing research typically treats liquidity regulation, macroprudential tools, and monetary policy separately. This study addresses these gaps by analyzing the three together in the context of Uzbekistan, using official supervisory and money-market data.

RESEARCH METHODOLOGY

This study employs a mixed-method research design that combines qualitative and quantitative approaches to assess how macroprudential regulation and monetary policy have affected the liquidity of commercial banks in Uzbekistan. The design links regulatory analysis, indicator-based assessment, and policy-episode comparison.

At the first stage, a qualitative review is applied to the regulatory framework, including the CBU's regulation on liquidity management (Regulation No. 2709 of 2015), capital adequacy rules, borrower-based measures, reserve requirement decisions, and key rate decisions. Documents of the CBU and the IMF are used to construct a chronology of policy measures and to identify the channels through which each is expected to influence bank liquidity.

The quantitative component relies on two datasets. The first contains year-end indicators for 2022–2025 from the CBU's financial stability reports: the LCR, the NSFR, the share of HQLA in total assets, the loan-to-deposit ratio, loan and deposit growth, and the non-performing loan (NPL) ratio, complemented by the year-end key rate and December year-on-year inflation, which are used to compute the real key rate. The second dataset contains quarterly indicators for Q1 2025–Q1 2026 from the CBU's money market and liquidity reviews: the average structural liquidity surplus, required reserves, central bank operations, and the spread between the overnight interbank rate (UZONIA) and the key rate. Two values (the HQLA share for 2022 and the loan-to-deposit ratio for 2023) are derived from changes reported in subsequent publications and are marked in Table 1.

The analysis proceeds in three steps. First, descriptive techniques are used to assess the level and trend of each indicator relative to regulatory minima. Second, a policy-episode comparison relates changes in indicators to the timing of macroprudential and monetary measures. Third, Pearson correlation coefficients describe the co-movement of credit, funding, liquidity, and policy variables. Three working hypotheses guide the analysis: H1, tighter borrower-based macroprudential measures are associated with slower credit growth, a lower loan-to-deposit ratio, and stronger liquidity buffers; H2, higher real policy rates are associated with stronger deposit growth and liquidity coverage; and H3, central bank absorption operations at the key rate narrow the gap between interbank rates and the key rate.

The approach has limitations. The annual series contain only four observations, so correlations are indicative rather than statistically conclusive; the study does not use bank-level data and cannot identify causal effects; and indicators that official reports state inconsistently, such as return on assets, are excluded. The results are therefore interpreted as associations that are consistent or inconsistent with the hypotheses and are triangulated across regulatory documents, annual indicators, and quarterly money-market data.

ANALYSIS AND RESULTS

This section presents the empirical findings of the study. The analysis is based on official year-end indicators for 2022–2025 and quarterly money-market data for Q1 2025–Q1 2026, and it focuses on the interaction between liquidity buffers, funding structure, and the policy measures described above.

Table 1 summarizes the key indicators. The results indicate that banks hold liquidity far above the regulatory minimum of 100% for both the LCR and the NSFR, which has applied since 2019 (IMF, 2025b), and far above the 10% minimum for HQLA in total assets. At the end of 2025 the system-wide LCR was 208%, the NSFR was 120%, and HQLA accounted for 21% of total assets, although the buffers of D-SIBs were lower, with an LCR of 182%. The year 2023 stands out: the LCR fell by 47 percentage points to 165% (141% for D-SIBs), as loans grew by 21% while deposits grew by only 12%.

Table 1. Key liquidity, funding and policy indicators of the banking system of Uzbekistan, 2022–2025

№	Indicator	2022	2023	2024	2025	Δ 2022–25
1	LCR (%)	212	165	194	208	–4
2	NSFR (%)	116	112	115	120	+4
3	HQLA / assets (%)	19.4*	14.9	17.3	21.0	+1.6
4	Loans / deposits (%)	180	195*	173	145	–35
5	Loan growth (%)	18	21	13	13	–5
6	Deposit growth (%)	39	12	28	35	–4
7	NPL ratio (%)	3.6	3.5	4.0	3.0	–0.6
8	Key rate (%)	15.0	14.0	13.5	14.0	–1.0
9	Inflation, Dec y/y (%)	12.3	8.8	9.8	7.3	–5.0
10	Real key rate (%)	2.7	5.2	3.7	6.7	+4.0

Note: * derived by the author from year-on-year changes reported by the CBU; Δ is the change between 2022 and 2025 (percentage points for ratios and rates); key rate is the year-end value; real key rate = key rate minus December year-on-year inflation. Sources: CBU (2022–2026, 2023–2026); author's calculations.

The data reveal a clear improvement in funding structure after 2023. Deposits grew by 28% in 2024 and 35% in 2025, more than twice as fast as loans (13% in both years), and the loan-to-deposit ratio fell from an estimated 195% to 145%. Deposits reached UZS 417.3 trillion at the start of 2026, their share in bank liabilities rose by 6 points to 53%, and deposits with maturities above one year grew by 31%, which is consistent with the rise of the NSFR from 112% to 120%. Credit composition, however, moved toward households: loans to individuals grew by 24% against 8% for legal entities, and their share in the loan portfolio rose to 36% (CBU, 2023–2026).

The timing of macroprudential measures is consistent with H1. A concentration limit of 25% of the loan portfolio for car loans was set in August 2023; in January 2024 the DSTI rules were amended and higher risk weights were applied to loans to borrowers without official income; and in July 2024 DSTI limits were extended to all loans to individuals, with the cap lowered from 60% to 50% from January 2025 and capital requirements for mortgage and car loans linked to LTV and DSTI (CBU, 2023–2026; IMF, 2025b). The share of loans to borrowers without official income fell from 23% in the first half of 2024 to 13% in the second half, while loan growth slowed from 21% in 2023 to 13% in 2024 and 2025. Across the four years, loan growth correlates positively with the loan-to-deposit ratio ($r = 0.84$), which in turn correlates negatively with the HQLA share ($r = -0.86$), so that slower credit expansion coincides with stronger liquid buffers. Asset quality and capital moved in the same direction: at the start of 2026 the NPL ratio had fallen to 3.0%, and the capital adequacy ratio reached 18.3% and the CET1 ratio 14.7%, well above the minimum CET1 requirements of 8.5–9.5% (CBU, 2023–2026).

The evidence on H2 is weaker. The key rate was lowered to 14% in March 2023, reduced to 13.5% in July 2024, and raised back to 14% in March 2025, where it was held through July 2026. Because inflation fell from 12.3% to 7.3%, the real key rate rose from 2.7% in 2022 to 6.7% in 2025 (CBU, 2022–2026). Nevertheless, the annual real key rate shows only weak correlations with deposit growth ($r = -0.25$) and the LCR ($r = -0.20$), whereas deposit growth and the LCR move almost one-to-one ($r = 0.998$). This indicates that, at the annual frequency, liquidity coverage follows deposit inflows rather than the policy rate directly, and that four observations are too few to isolate the effect of the key rate. H2 is therefore not supported by the annual data.

Quarterly data allow a closer look at monetary transmission. Figure 1 (panels c and d) shows that the structural liquidity surplus rose from UZS 20.6 trillion in Q1 2025 to UZS 55.4 trillion in Q1 2026. In Q4 2025 budget operations accounted for UZS 31 trillion of the UZS 32 trillion surplus, whereas in Q1 2026 their contribution fell to UZS 12.3 trillion while the surplus continued to grow, indicating that it is not driven by fiscal flows alone. The CBU absorbed the surplus mainly with seven-day central bank bonds issued at the key rate (UZS 104.6 trillion in August–September and UZS 357.6 trillion in Q4 2025) while average required reserves rose from UZS 14.2 trillion to UZS 17.9 trillion (CBU, 2025–2026). As absorption expanded, the gap between UZONIA and the key rate narrowed from 1.2 percentage points in Q2 2025 and 0.9 points in Q3 to 0.1 points in Q4 2025 and 0.3 points in Q1 2026 (Figure 1d). This pattern is consistent with H3 and suggests that liquidity operations, rather than the key rate alone, anchor money-market conditions when the system has a large structural surplus.

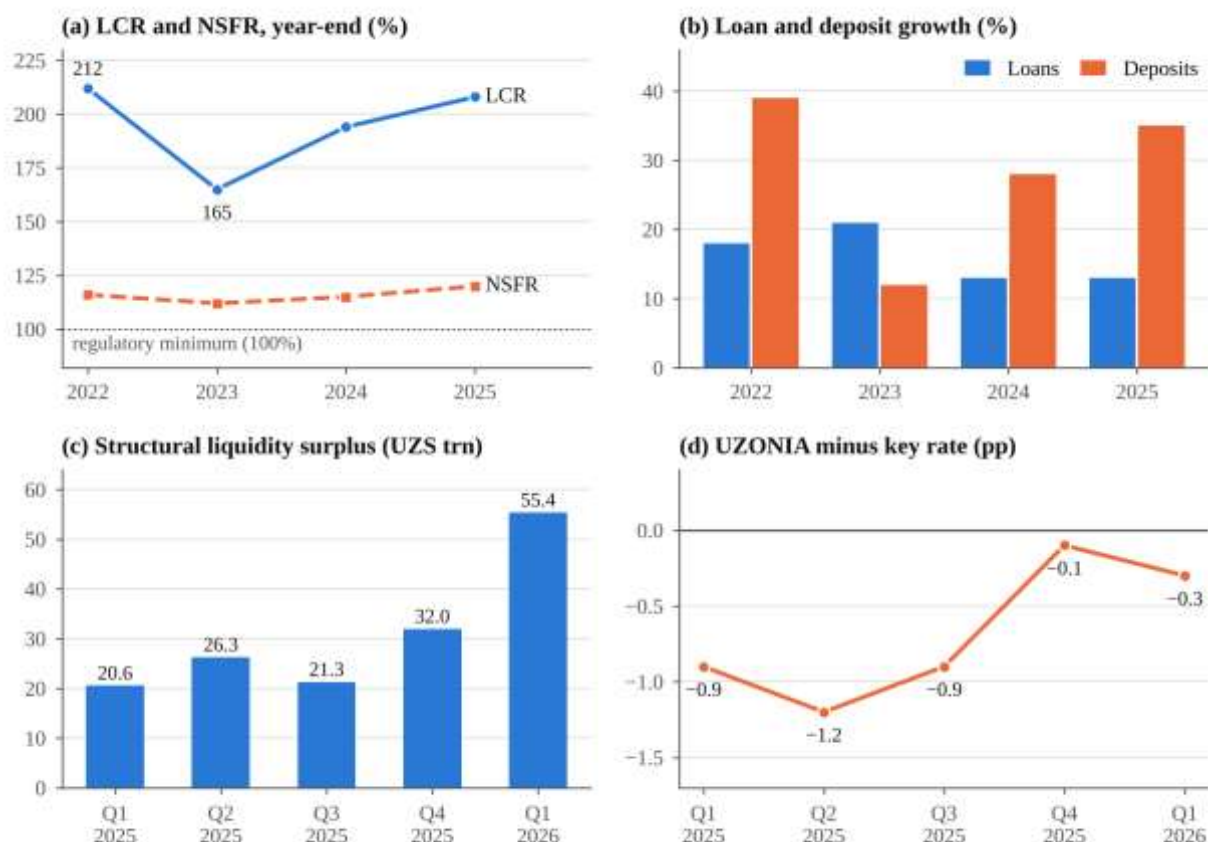


Figure 1. Liquidity buffers, funding growth and money-market conditions in the banking system of Uzbekistan

Source: compiled by the author from CBU (2023–2026, 2025–2026). Panel (d) shows the quarterly average UZONIA minus the key rate; for Q1 2025 it is the average of the monthly gaps reported by the CBU.

Reserve requirement policy has also been used to manage foreign-currency liquidity. The required reserve ratio on foreign-currency liabilities was lowered from 18% to 14% in July 2024, with the averaging ratio raised from 80% to 100%, which released about UZS 3 trillion; it was cut further to 9.5% in October 2025 and to 8.5% in January 2026, while the reserve base was widened in April 2025 (CBU, 2025; 2025–2026). These changes accompanied a decline in dollarization: the share of foreign-currency deposits fell from 25% to 21% in 2025, and the share of foreign-currency loans fell to 39%, compared with 48% at the end of 2022 (CBU, 2023–2026). The reserve requirement thus acted as a hybrid instrument, relaxing foreign-currency liquidity constraints while the broader tightening of monetary conditions continued.

Despite these favorable aggregates, the results reveal vulnerabilities. First, liquidity is concentrated: in Q1 2026 overnight transactions accounted for 89% of interbank turnover, the number of banks providing liquidity fell from 12 to 9 and of those absorbing it from 7 to 5, and the three largest absorbers accounted for 81% of absorption (CBU, 2025–2026). Second, the surplus has been volatile, declining in Q3 2025 before more than doubling, so banks cannot take its persistence for granted. Third, nine



state-owned banks hold 67% of banking assets, and the IMF considers liquidity requirements insufficiently calibrated to risk profiles and the stress assumption of 2–3% deposit outflows too mild (IMF, 2025b), although the CBU's own adverse scenario shows that HQLA would cover expected net outflows even for the most stressed banks (CBU, 2023–2026).

Overall, the empirical results indicate that the combined tightening of borrower-based macroprudential measures and monetary conditions has coincided with stronger liquidity buffers and a healthier funding structure, but that the monetary effect operates mainly through the money market and liquidity operations rather than through annual aggregates. The results thus suggest that coordinated macroprudential and monetary tightening supports liquidity resilience, while concentration, dollarization, and uniform calibration of requirements limit it.

CONCLUSION AND RECOMMENDATIONS

This study has examined how macroprudential regulation and monetary policy have affected the liquidity of commercial banks in Uzbekistan. The analysis shows that banks' liquidity is comfortably above regulatory minima, with a system-wide LCR of 208%, an NSFR of 120%, and HQLA equal to 21% of assets at the end of 2025, and that the funding structure has improved as deposit growth outpaced credit growth and the loan-to-deposit ratio declined from an estimated 195% to 145%.

The results are consistent with H1 and H3 and do not support H2 on annual data. Borrower-based measures introduced in 2023–2024 coincide with slower credit growth and stronger liquid buffers, and UZONIA converged toward the key rate as central bank absorption operations expanded despite a rapidly growing structural surplus. By contrast, the annual real key rate does not explain deposit growth or liquidity coverage, which suggests that its influence is exerted mainly through money-market conditions.

From a policy perspective, the study highlights the need to move from uniform liquidity requirements toward risk-sensitive calibration while maintaining strong supervisory oversight. Jointly communicated sequencing of reserve requirements, central bank operations, and borrower-based measures can reduce the risk that one instrument offsets another.

Based on the findings, several practical recommendations are proposed. First, the CBU should calibrate the LCR and NSFR requirements to banks' risk profiles and systemic importance, including add-ons for D-SIBs and separate monitoring of foreign-currency liquidity. Second, liquidity stress tests should use more conservative assumptions for deposit outflows and credit line drawdowns and include concentration and foreign-currency scenarios. Third, the authorities should develop term repo and interbank deposit segments to reduce the dependence of the market on overnight transactions and a few large participants. Fourth, the monitoring of household and microcredit exposures should continue, given the rising share of retail lending.

Finally, future research may extend the analysis with bank-level quarterly supervisory data, which would allow difference-in-differences designs around specific macroprudential measures and the estimation of the bank lending channel by bank liquidity and ownership. As longer quarterly series become available, vector autoregression and local projection methods could identify the effects of key rate and reserve requirement shocks on interbank liquidity.

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