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DEVELOPMENT OF A MODEL FOR INTEGRATED LIQUIDITY MANAGEMENT OF COMMERCIAL BANKS

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Abstract. Liquidity regulation in Uzbekistan has moved close to the Basel III standard, yet in most banks the liquidity coverage ratio, the net stable funding ratio, gap analysis, stress testing and the pricing of funds are still run as separate procedures. This paper develops an integrated liquidity management model (ILMM) that links these elements in one decision framework. The model has three analytical blocks: short-term resilience, structural funding and buffer efficiency. Their indicators are converted into scores with a corridor function that penalises both a shortage and an excess of liquidity, and the scores are aggregated into an Integrated Liquidity Index (ILI). The model is applied to official aggregate data of the Central Bank of the Republic of Uzbekistan for 1 August 2025 and 1 August 2026, supplemented by a three-scenario deposit run-off stress test. All regulatory ratios are well above their minimums: the LCR rose from 206% to 265.4% and the NSFR from 117% to 133.1%. Nevertheless, the ILI declined from 0.83 to 0.75, because improvements in structural funding were outweighed by the accumulation of a liquidity surplus and by a shift of deposits towards maturities of up to one year. Under the severe scenario the system keeps a survival coverage ratio of 2.13, while the buffer in excess of the stress-based requirement is estimated at 97 trillion soums. The results show that compliance with ratios does not by itself mean optimal liquidity, and that the ILI can serve as an early signal for asset and liability committees and for the supervisor.

Keywords: liquidity risk, integrated liquidity management, liquidity coverage ratio, net stable funding ratio, stress testing, asset and liability management, commercial banks, Uzbekistan.

Introduction. A commercial bank exists because it can hold long-term, illiquid claims on borrowers while issuing short-term, liquid claims to depositors. The same maturity transformation that makes banking socially useful also makes it fragile, so liquidity management is not an auxiliary function of a bank but part of its core business model. The crisis of 2007-2009 showed that banks with formally sound capital could fail within days when wholesale funding dried up, and it led the Basel Committee on Banking Supervision to add two quantitative standards, the liquidity coverage ratio (LCR) and the net stable funding ratio (NSFR), to the qualitative principles of sound liquidity risk management (BCBS, 2008, 2013, 2014).

The banking system of Uzbekistan is passing through a period in which these issues have become particularly important. After the liberalisation of the foreign exchange market in 2017 the system went through a rapid credit expansion, which was later absorbed without a crisis (Babasyan et al., 2023). By 1 August 2026 total assets of commercial banks exceeded one quadrillion soums, deposits grew by 33.9% over twelve months, and the loan-to-deposit ratio fell from 159.9% to 133.6% (CBU data reported by UzDaily, 2026a, 2026b). The Central Bank of the Republic of Uzbekistan (CBU) amended its Regulation on liquidity management requirements (No. 2709) in April 2025 so that high-quality

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liquid assets are now divided into Level 1, Level 2A and Level 2B categories, as in Basel III (CBU, 2025a). At the same time, the banking sector remains dominated by banks with state ownership, which hold about 62% of assets and depend to a large extent on long-term external funding (IMF, 2025).

Against this background the practical problem is no longer whether banks meet the minimum ratios; at the aggregate level they meet them with a wide margin. The problem is that each tool of liquidity management usually answers its own question. The LCR measures survival over 30 days, the NSFR measures the one-year structural balance, gap analysis shows maturity mismatches, and stress tests show vulnerability to specific shocks. When these tools are not linked, a bank can be simultaneously overcompliant on one ratio and vulnerable on another dimension, or it can hold a liquidity buffer that is safe but unnecessarily costly for shareholders and borrowers.

The aim of this study is to develop a model of integrated liquidity management for commercial banks that combines regulatory, structural, stress and efficiency dimensions in a single, transparent index, and to test the model on official data for the banking system of Uzbekistan. The study answers three research questions: (1) which indicators should form the core of an integrated model under the current regulatory framework of Uzbekistan; (2) how can these indicators be aggregated so that both a shortage and an excess of liquidity are recognised as deviations from the target state; and (3) what does the model reveal about the liquidity position of the banking system of Uzbekistan in 2025-2026.

The contribution of the paper is twofold. Methodologically, it proposes a corridor scoring function and an Integrated Liquidity Index that treat liquidity as a target range rather than a lower bound. Empirically, it shows that the rise in regulatory liquidity ratios observed in Uzbekistan in 2025-2026 coincided with a weaker integrated position once the maturity structure of deposits and the cost of the surplus buffer are taken into account.

2. Literature review. The modern theory of bank liquidity starts from the model of Diamond and Dybvig (1983), in which banks provide insurance against individual liquidity shocks by issuing demand deposits, and in which the same contract exposes them to self-fulfilling runs. Brunnermeier and Pedersen (2009) distinguished funding liquidity, the ability to raise cash, from market liquidity, the ability to sell assets without large price discounts, and showed that the two can reinforce each other in liquidity spirals. This distinction is directly reflected in the two Basel liquidity standards: the LCR addresses the availability of liquid assets in a stress period, and the NSFR addresses the stability of funding over a longer horizon.

Berger and Bouwman (2009) turned the argument around and treated liquidity creation as a central economic function of banks, constructing measures that classify all balance sheet and off-balance sheet items by their liquidity. Their approach implies that a bank which holds excessive liquid assets not only lowers its risk but also reduces the service it provides to the economy. Gatev and Strahan (2006) showed that in periods of market stress deposits tend to flow into banks, giving them a natural hedge against drawdowns on credit lines, while Acharya and Mora (2015) found that during the 2007–2009 crisis this hedge weakened and banks struggled to act as liquidity providers without public support. For an emerging market these findings mean that a deposit inflow cannot be assumed to be permanent and must be tested under stress.

The international regulatory framework consists of the principles for sound liquidity risk management (BCBS, 2008), the LCR with its liquidity risk monitoring tools (BCBS, 2013) and the NSFR (BCBS, 2014). The principles require banks to integrate liquidity costs, benefits and risks into internal pricing, performance measurement and new product approval, to run stress tests regularly and

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to keep a formal contingency funding plan. The quantitative ratios therefore sit inside a broader management system, and treating them as the whole of liquidity management runs against the original design.

Empirical studies show that liquidity management choices have measurable consequences. Cornett et al. (2011) found that during the financial crisis US banks with more illiquid assets increased their holdings of liquid assets and cut new lending, whereas banks funded more heavily by core deposits and equity continued to lend. Vazquez and Federico (2015) showed that banks with weaker structural liquidity and higher leverage before the crisis were more likely to fail afterwards. DeYoung and Jang (2016) demonstrated that US banks actively managed their liquidity towards internal targets similar to the NSFR even before the ratio was introduced, which suggests that structural funding indicators capture something banks already treat as economically relevant.

A separate line of research deals with the interaction between liquidity, capital and profitability. Distinguin et al. (2013) found that banks tend to reduce their regulatory capital ratios when they face higher illiquidity, and DeYoung et al. (2018) showed that the joint dynamics of capital and liquidity differ by bank size, which supports coordinated rather than isolated regulation. Imbierowicz and Rauch (2014) reported that liquidity risk and credit risk do not have a strong reciprocal relationship, but that together they increase the probability of bank default. Bonner and Eijffinger (2016) studied the Dutch liquidity requirement and found that banks close to the requirement paid more for long-term interbank funding and charged higher lending rates, without cutting loan volumes. Bordeleau and Graham (2010) found a nonlinear relationship between liquid assets and profitability of Canadian and US banks: holding more liquid assets improves profitability up to a certain point, beyond which additional liquidity reduces it. This result gives an empirical basis for treating liquidity as a corridor rather than as a quantity to be maximised.

Research on liquidity in Uzbek banks has developed alongside the reforms. Ruziev and Ghosh (2009) described the pre-reform banking sector as dominated by state banks that channelled directed loans to priority sectors, a structure whose features still influence funding patterns. Babasyan et al. (2023) compared the banking transition of Uzbekistan with earlier reformers and concluded that liberalisation after 2017 triggered a stronger credit boom than in earlier transition economies, and that important structural reform gaps remain. Berdiyarov (2021) examined foreign experience in ensuring the liquidity and solvency of commercial banks and proposed building the national assessment system on the financial soundness indicators recommended by the International Monetary Fund.

Recent empirical work provides mixed evidence. Omonov et al. (2026), using quarterly aggregate data for 2016-2024, found no statistically significant effect of liquidity risk on asset quality and no support for the traditional trade-off between liquidity and profitability, while regulatory capital emerged as the most influential variable; they attributed the weak individual effects to strong co-movement of balance sheet variables during rapid growth. Khannaev (2026) analysed monthly panel data on 32 banks for 2020-2023 with a system-GMM estimator and showed that the policy rate, money market rates and narrow money growth transmit to bank performance through different channels, which is directly relevant for the cost of holding liquid assets. The Financial Sector Assessment Program of the IMF (2025) found that privately owned banks in Uzbekistan are generally more liquid and profitable than state-owned banks, and that the high loan-to-deposit ratio of state banks reflects long-term external funding, a risk partly mitigated by the long maturities of borrowing from international financial institutions. The macroprudential framework of the CBU (2023) describes

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liquidity instruments as tools that require banks to hold more liquid assets and shorten loan maturities, thereby limiting fire-sale risk.

The literature provides strong support for each individual element of liquidity management, but it rarely offers an operational model that brings them together for a bank or supervisor in an emerging market. Studies on Uzbekistan either describe the regulatory framework or estimate the statistical effects of liquidity on performance. What is missing is a tool that (a) uses the indicators already required by CBU regulation, (b) recognises both insufficient and excessive liquidity, (c) includes a transparent stress block that can be reproduced from published data, and (d) produces a single signal for management decisions. The model developed below is intended to fill this gap.

Methodology. The empirical part relies only on published official figures. Aggregate indicators of the banking system on 1 August 2025 and 1 August 2026 (loans, deposits, deposits by maturity, high-quality liquid assets, LCR, NSFR, immediate liquidity ratio, capital adequacy) were released by the CBU and reported by UzDaily (2026a, 2026b). Year-end indicators for 1 January 2025 and 1 January 2026 were taken from the Financial Stability Reports of the CBU (2025b, 2026). Values for 1 August 2025 that were published only as growth rates were restored from the reported levels and annual growth rates; these restored values are marked in Table 1. Regulatory minimums are those of CBU Regulation No. 2709 (CBU, 2025a).

Table 1.

Key liquidity indicators of the banking system of Uzbekistan[1]

Indicator	01.08.2025	01.08.2026	Change	Minimum
Loans, trillion soums	576.1*	644.6	+11.9%	–
Deposits, trillion soums	360.5*	482.7	+33.9%	–
demand deposits	106.8*	142.0	+33.0%	–
deposits up to 1 year	120.5*	175.7	+45.8%	–
deposits over 1 year	133.0*	164.9	+24.0%	–
Loan-to-deposit ratio, %	159.9	133.6	-26.3 p.p.	–
banks with state share	211.5	170.0	-41.5 p.p.	–
other banks	105.1	95.0	-10.1 p.p.	–
HQLA, trillion soums	145.9	222.8	+52.8%	–
HQLA / total assets, %	17.8	22.7	+4.9 p.p.	–
LCR, %	206.0	265.4	+59.4 p.p.	100
NSFR, %	117.0	133.1	+16.1 p.p.	100

[1] Source: CBU data published by UzDaily (2026a, 2026b); minimums from CBU Regulation No. 2709. Restored from the reported 2026 level and annual growth rate.

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Immediate liquidity ratio, %	121.8	98.7	-23.1 p.p.	25
Capital adequacy ratio, %	17.5	18.4	+0.9 p.p.	–

The integrated liquidity management model (ILMM) consists of an input level, three analytical blocks and an integration layer (Figure 1). The input level contains the liquidity policy approved by the bank's supervisory board, as required by Regulation No. 2709, the risk appetite, balance sheet and cash flow data, the maturity structure of deposits, the register of high-quality liquid assets and information on the monetary operations of the CBU.

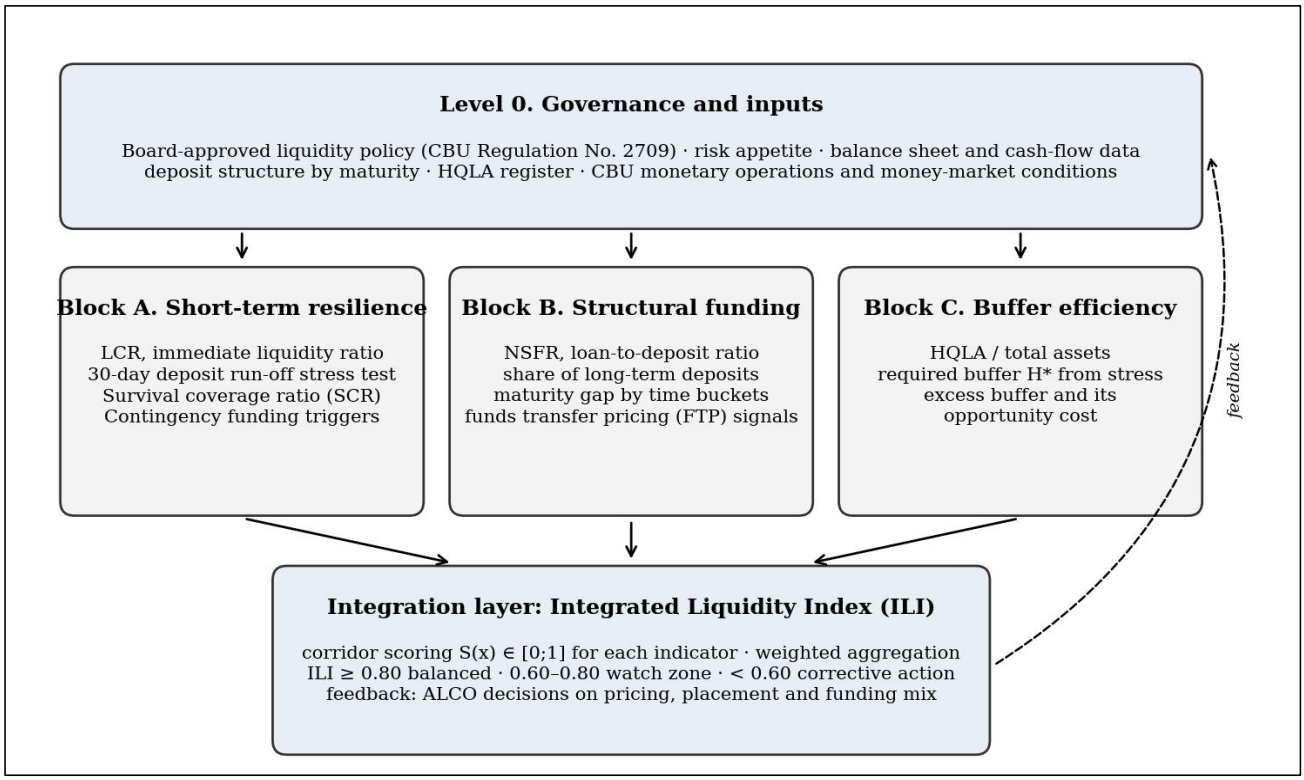


Figure 1. Structure of the integrated liquidity management model (ILMM)

Block A (short-term resilience) answers the question whether the bank can survive an acute outflow. It includes the LCR, the immediate liquidity ratio and a survival coverage ratio obtained from an internal deposit run-off stress test. Block B (structural funding) answers the question whether the balance sheet is funded sustainably. It includes the NSFR, the loan-to-deposit ratio and the share of deposits with maturities over one year; at bank level it is complemented by a maturity gap table and by funds transfer pricing, which passes the cost of liquidity to business lines. Block C (buffer efficiency) answers the question whether the liquidity buffer is larger than needed. It compares the actual stock of high-quality liquid assets with a stress-based requirement and estimates the opportunity cost of the difference. The integration layer converts all indicators into comparable scores, aggregates them into

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the Integrated Liquidity Index and feeds the result back to the asset and liability committee (ALCO), which adjusts deposit pricing, placement of surplus funds and the funding mix.

Traditional scoring rewards any increase in a liquidity ratio. Following the evidence on the nonlinear relationship between liquidity and profitability (Bordeleau and Graham, 2010) and the view of liquidity creation as a central function of banks (Berger and Bouwman, 2009), each indicator x in the model is compared with a target corridor [L; U], a lower critical value m and an upper critical value z. The score is defined as follows:

$S(x) = 0, \quad \text{if } x < m;$

$S(x) = (x - m) / (L - m), \quad \text{if } m \le x < L;$

$S(x) = 1, \quad \text{if } L \le x \le U;$

$S(x) = \max\{0; 1 - (x - U) / (z - U)\}, \quad \text{if } x > U \qquad (1)$

The lower critical value m equals the regulatory minimum where one exists, so a bank in breach of a requirement receives a score of zero. The upper critical value z marks the level at which surplus liquidity is regarded as a full deviation from the target state. For the share of long-term deposits no upper penalty is applied, and for the loan-to-deposit ratio the corridor works in the opposite direction, with a penalty for values that are too high (dependence on non-deposit funding) and for values that are too low (weak intermediation). The Integrated Liquidity Index is the weighted sum of the scores:

$ILI = \Sigma\, w_k \cdot S_k, \quad \Sigma\, w_k = 1, \quad 0 \le ILI \le 1 \qquad (2)$

The corridors and weights proposed for the banking system of Uzbekistan are shown in Table 2. The corridors for the LCR and NSFR start above the regulatory minimum to leave room for management action and are set around the levels at which, according to the CBU, the system operated during 2024-2025. Structural indicators receive 45% of the total weight, short-term resilience also 45%, and buffer efficiency 10%, because the efficiency dimension is additionally reflected in the upper penalty of the LCR corridor. The index is interpreted in three zones: ILI $\ge$ 0.80 means a balanced position, 0.60 $\le$ ILI < 0.80 is a watch zone that requires ALCO attention, and ILI < 0.60 calls for corrective action.

Table 2.

Parameters of the corridor scoring function and weights of the ILI[2]

Indicator	Block	Lower critical m	Corridor [L; U]	Upper critical z	Weight
LCR, %	A	100	15-200	300	0.20
Immediate liquidity ratio, %	A	25	50-100	200	0.10
Survival coverage ratio (severe), times	A	1.0	1.2-2.0	3.5	0.15
NSFR, %	B	100	115-140	200	0.20
Loan-to-deposit	B	50	80-110	170	0.15

[2] Source: developed by the author; minimums for the LCR, NSFR and immediate liquidity ratio follow CBU Regulation No. 2709.

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ratio, %					
Share of deposits over 1 year, %	B	20	40-60	-	0.10
HQLA / total assets, %	C	10	15-20	35	0.10

The survival coverage ratio (SCR) links the stock of liquid assets to a 30-day outflow of deposits under three scenarios. For each scenario s the outflow is calculated from the deposit structure and scenario run-off rates, and the liquid asset stock is reduced by a haircut that reflects possible losses on the sale of securities:

$$OF_s = r_{d,s} \cdot D_d + r_{st,s} \cdot D_{st} + r_{lt,s} \cdot D_{lt} \quad (3)$$

$$SCR_s = HQLA \cdot (1 - h_s) / OF_s \quad (4)$$

where D_d, D_{st} and D_{lt} are demand deposits, deposits with a maturity of up to one year and deposits over one year; r are run-off rates; h is the haircut. The baseline scenario assumes run-off rates of 10%, 5% and 2% with no haircut; the moderate scenario 20%, 10% and 5% with a 5% haircut; the severe scenario 30%, 20% and 10% with a 10% haircut. The rates are deliberately more conservative than the Basel run-off factors for stable retail deposits, which reflects the high share of short-term funding and the recent history of foreign exchange volatility. The SCR under the severe scenario enters the ILI.

The stress-based requirement for liquid assets H* is defined as the severe outflow increased by a management safety margin k and grossed up for the haircut. The excess buffer E and its annual opportunity cost C are then:

$$H^* = k \cdot OF_{severe} / (1 - h_{severe}), \quad E = HQLA - H^*, \quad C = E \cdot \Delta i \quad (5)$$

where k = 1.2 and Δi is the spread between the yield on loans and the yield on liquid assets. Since the actual spread depends on the currency and on the mix of liquid assets, which includes interest-bearing instruments of the CBU and government securities, the opportunity cost is reported for spreads of 2, 4 and 6 percentage points. The model is implemented in a spreadsheet form, so it can be recalculated by a bank on its own data or by the supervisor on reporting data.

Results. Figure 2 shows that the LCR and NSFR of the banking system were well above the minimum of 100% at all four reporting dates. The LCR increased from 194% on 1 January 2025 to 208% on 1 January 2026 and then to 265.4% on 1 August 2026, while the NSFR rose from 115% to 120% and then to 133.1%. The sharp increase in 2026 coincided with an increase in high-quality liquid assets by 52.8% in twelve months, to 222.8 trillion soums, and with deposit growth almost three times faster than loan growth.

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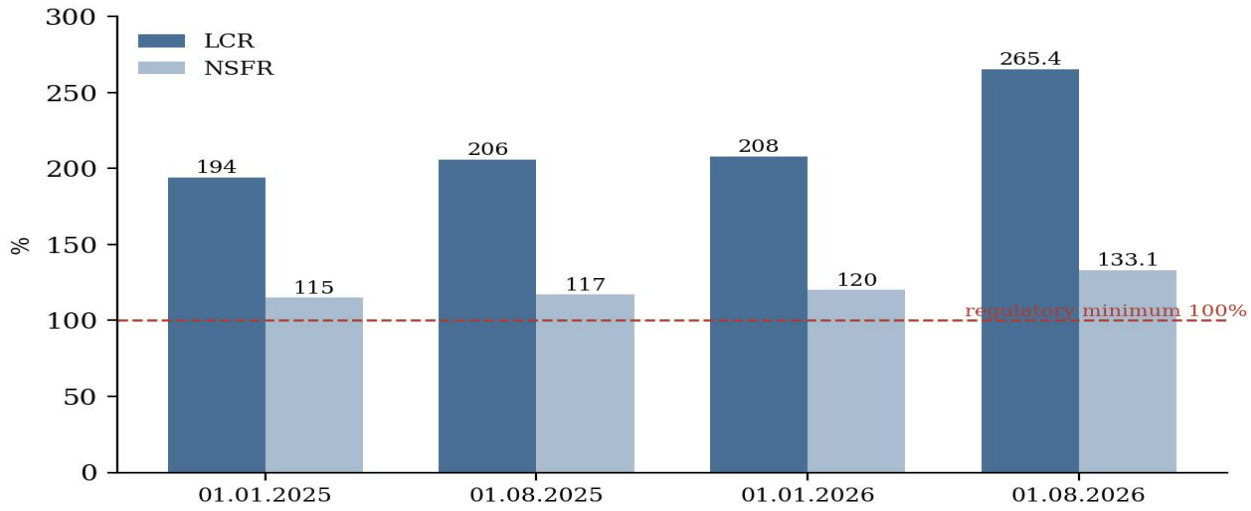


Figure 2. LCR and NSFR of the banking system of Uzbekistan, %[3]

The structural picture is less uniform. The loan-to-deposit ratio fell from 159.9% to 133.6%, but for banks with state participation it remained at 170%, twice as high as for other banks (95%). The deposit base also became shorter: the share of deposits with maturities of up to one year increased from 33.4% to 36.4%, and the share of deposits over one year decreased from 36.9% to 34.2%. The immediate liquidity ratio declined from 121.8% to 98.7%, although it remained four times above the minimum of 25%.

Table 3.
Results of the 30-day deposit run-off stress test[4]

Scenario	Outflow 2025, trn soums	SCR 2025, times	Outflow 2026, trn soums	SCR 2026, times	Surplus 2026, trn soums
Baseline	19.4	7.54	26.3	8.48	196.5
Moderate	40.1	3.46	54.2	3.90	157.4
Severe	69.4	1.89	94.2	2.13	106.3

Even under the severe scenario, which assumes the loss of almost one fifth of all deposits within 30 days and a 10% haircut on liquid assets, the system retains liquid assets 2.13 times larger than the outflow in 2026, compared with 1.89 times in 2025. The absolute severe outflow, however, grew by 36% (from 69.4 to 94.2 trillion soums), faster than the deposit base as a whole, because the most

[3] Source: CBU (2025b, 2026); CBU data published by UzDaily (2026b).
[4] Source: author's calculations based on Table 1 and formulas (3)-(4).

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runnable categories expanded the most. These results are consistent with the conclusion of the CBU (2026) that the net cash flow of the system remains positive under its own liquidity stress test.

Table 4.
Scores and Integrated Liquidity Index of the banking system[5]

Indicator / block	Value 2025	Score 2025	Value 2026	Score 2026
LCR, %	206.0	0.94	265.4	0.35
Immediate liquidity ratio, %	121.8	0.78	98.7	1.00
SCR (severe), times	1.89	1.00	2.13	0.91
NSFR, %	117.0	1.00	133.1	1.00
Loan-to-deposit ratio, %	159.9	0.17	133.6	0.61
Share of deposits over 1 year, %	36.9	0.85	34.2	0.71
HQLA / total assets, %	17.8	1.00	22.7	0.82
Block A: short-term resilience	-	0.92	-	0.68
Block B: structural funding	-	0.69	-	0.80
Block C: buffer efficiency	-	1.00	-	0.82
Integrated Liquidity Index (ILI)	-	0.83	-	0.75

The index moved from the balanced zone (0.83) in 2025 to the watch zone (0.75) in 2026. The decline was not caused by a shortage of liquidity. Block B improved from 0.69 to 0.80, mainly because the loan-to-deposit ratio moved closer to the target corridor. Block A, on the other hand, fell from 0.92 to 0.68: the LCR exceeded the upper boundary of the corridor by 65 percentage points, and the SCR moved above 2.0. Block C fell from 1.00 to 0.82 because the share of liquid assets in total assets exceeded 20%. In other words, the model interprets the situation in 2026 as a shift from a liquidity position constrained by structural funding to a position constrained by surplus liquidity.

The breakdown by ownership adds an important qualification. For banks with state participation the loan-to-deposit ratio of 170% gives a structural score of zero in both years, while for other banks the ratio of 95% is inside the corridor. The system-level improvement in Block B therefore conceals a persistent structural gap in state banks, whose funding relies on non-deposit sources (IMF, 2025).

Table 5.
Stress-based liquidity requirement, excess buffer and opportunity cost[6]

Indicator	01.08.2025	01.08.2026
Actual HQLA, trillion soums	145.9	222.8
Stress-based requirement H*, trillion soums	92.6	125.6

[5] Source: author's calculations using formulas (1)–(2) and the parameters in Table 2. Block scores are weighted averages of their indicators.
[6] Source: author's calculations using formula (5), k = 1.2, h = 10%.

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Excess buffer E, trillion soums	53.3	97.2
Excess as % of HQLA	36.5	43.6
Opportunity cost at Δi = 2 p.p., trn soums per year	1.1	1.9
Opportunity cost at Δi = 4 p.p., trn soums per year	2.1	3.9
Opportunity cost at Δi = 6 p.p., trn soums per year	3.2	5.8

The excess buffer almost doubled in a year and reached 43.6% of all high-quality liquid assets. For comparison, the net profit of the banking system for January–July 2026 amounted to 12.3 trillion soums (UzDaily, 2026b). Depending on the spread, the annual opportunity cost of the excess buffer is equivalent to roughly 9% to 28% of annualised profit at the 2026 run rate. The figure should be read as an upper estimate of forgone income rather than an accounting loss, because a large part of liquid assets earns interest and because the requirement H* covers only deposit outflows.

Two checks were performed. First, when all seven indicators receive equal weights, the ILI falls from 0.82 in 2025 to 0.77 in 2026, so the direction of change does not depend on the weighting scheme. Second, when the upper critical value of the LCR corridor is raised from 300% to 400%, the 2026 LCR score increases to 0.67 and the ILI to 0.82, while the 2025 value stays at 0.83. The conclusion that the integrated position did not improve in 2026, despite sharply higher regulatory ratios, therefore holds under a wide range of assumptions; the size of the decline depends on how strictly the supervisor or the bank penalises excess liquidity [29].

The first finding is that high regulatory ratios in Uzbekistan in 2026 reflect not only stronger resilience but also an imbalance between the growth of deposits and the growth of lending. Deposits increased by 33.9% and loans by 11.9%, and the difference was placed largely in liquid assets. This pattern is in line with Omonov et al. (2026), who found no evidence that liquidity in the Uzbek system was a binding constraint on profitability or asset quality. The integrated model makes the same observation operational: when liquidity is abundant, the relevant management question shifts from survival to efficient use of funds.

The second finding concerns the maturity of the new funding. The fastest growth was observed in deposits with maturities of up to one year, while the share of deposits over one year declined. Gatev and Strahan (2006) and Acharya and Mora (2015) show that deposit inflows can reverse when conditions change, and the NSFR of 133.1% does not reveal this trend because short-term retail deposits receive relatively high available stable funding factors. The ILMM captures the shift through the long-term deposit share and the stress block, which grow more sensitive exactly when the deposit base becomes shorter. For bank managers this means that part of the excess buffer should be regarded as a reserve against the potential outflow of recently attracted short-term deposits, and that the funds transfer pricing system should reward long-term deposits more strongly.

The third finding is the persistent structural gap of state-owned banks. A system average hides two different business models: private banks with loans below deposits, and state banks whose lending is funded to a large extent by external and government resources. This agrees with the IMF (2025) assessment and with the long-standing role of state banks described by Ruziev and Ghosh (2009) and

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Babasyan et al. (2023). For these banks Block B of the model is the priority, and the privatisation programme should be accompanied by targets for the gradual reduction of the loan-to-deposit ratio towards the corridor.

The results also relate to the international debate on the joint regulation of liquidity and capital. The capital adequacy ratio increased from 17.5% to 18.4% over the same period, so the system accumulated capital and liquidity at the same time. According to Distinguin et al. (2013) and DeYoung et al. (2018), such joint dynamics are not automatic, and a model that monitors liquidity in isolation from the cost of funds can lead to decisions that strengthen one buffer at the expense of the return that finances the other. The efficiency block of the ILMM is designed to make this trade-off visible to the ALCO.

Several limitations should be noted. The empirical test uses aggregate data, so it cannot capture differences between individual banks beyond the ownership split. The stress block considers only deposit outflows and ignores off-balance sheet commitments, external borrowings and inflows from maturing loans, which is why it complements rather than replaces the regulatory LCR. The corridors and weights are expert-based; they can be calibrated more precisely on bank-level panel data, for example by estimating the level of liquidity at which profitability begins to decline, as done by Bordeleau and Graham (2010). Finally, the observation period covers only two dates for the full set of indicators, so the results describe a change in position rather than a long-term trend.

Conclusion. The study developed a model of integrated liquidity management for commercial banks that brings together short-term resilience, structural funding and buffer efficiency. Its key feature is corridor scoring, which treats both a shortage and a surplus of liquidity as deviations from the target state, and the aggregation of all indicators into an Integrated Liquidity Index with three decision zones. The model uses indicators already required by CBU Regulation No. 2709, so it can be introduced without new reporting forms.

Applied to official data for the banking system of Uzbekistan, the model showed that between 1 August 2025 and 1 August 2026 the regulatory ratios improved considerably (LCR from 206% to 265.4%, NSFR from 117% to 133.1%), the structural position became stronger, and the system remained resilient to a severe deposit outflow. At the same time, the ILI declined from 0.83 to 0.75, signalling a growing surplus of liquid assets, estimated at about 97 trillion soums above the stress-based requirement, and a shortening of the deposit base. The structural gap of banks with state participation remains the main weak point of the system.

Several practical recommendations follow. For commercial banks: to include the ILI in the internal liquidity policy approved by the supervisory board, to set target corridors for each indicator alongside the regulatory minimums, to link the funds transfer pricing system to the model so that long-term deposits and long-term assets are priced according to their contribution to structural liquidity, and to review the placement of surplus funds quarterly. For the CBU: to consider publishing bank-group indicators of deposit maturity structure together with the LCR and NSFR, and to use a corridor-based index as a supplementary supervisory tool that identifies not only liquidity shortages but also inefficient accumulation of liquidity. For state-owned banks: to link privatisation and restructuring plans with a gradual reduction of the loan-to-deposit ratio.

Further research may calibrate the corridors on bank-level data, extend the stress block to off-balance sheet and foreign currency flows, and test whether changes in the ILI predict subsequent changes in lending and profitability of Uzbek banks.

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References

1. Acharya, V. V., & Mora, N. (2015). A crisis of banks as liquidity providers. The Journal of Finance, 70(1), 1-43. https://doi.org/10.1111/jofi.12182
2. Babasyan, D., Gu, Y., & Melecky, M. (2023). Late banking transitions: Comparing Uzbekistan to earlier reformers. World Development Perspectives, 30, 100493. https://doi.org/10.1016/j.wdp.2023.100493
3. Basel Committee on Banking Supervision. (2008). Principles for sound liquidity risk management and supervision. Bank for International Settlements. https://www.bis.org/publ/bcbs144.htm
4. Basel Committee on Banking Supervision. (2013). Basel III: The liquidity coverage ratio and liquidity risk monitoring tools. Bank for International Settlements. https://www.bis.org/publ/bcbs238.htm
5. Basel Committee on Banking Supervision. (2014). Basel III: The net stable funding ratio. Bank for International Settlements. https://www.bis.org/bcbs/publ/d295.htm
6. Berdiyarov, B. (2021). Uzbekistan in banking practice: Opportunities to use foreign experience to ensure liquidity and solvency of commercial banks. In Proceedings of the 5th International Conference on Future Networks and Distributed Systems (ICFNDS 2021). ACM. https://doi.org/10.1145/3508072.3508141
7. Berger, A. N., & Bouwman, C. H. S. (2009). Bank liquidity creation. The Review of Financial Studies, 22(9), 3779-3837. https://doi.org/10.1093/rfs/hhn104
8. Bonner, C., & Eijffinger, S. C. W. (2016). The impact of liquidity regulation on bank intermediation. Review of Finance, 20(5), 1945-1979. https://doi.org/10.1093/rof/rfv058
9. Bordeleau, É., & Graham, C. (2010). The impact of liquidity on bank profitability (Bank of Canada Working Paper No. 2010-38). Bank of Canada. https://doi.org/10.34989/swp-2010-38
10. Brunnermeier, M. K., & Pedersen, L. H. (2009). Market liquidity and funding liquidity. The Review of Financial Studies, 22(6), 2201-2238. https://doi.org/10.1093/rfs/hhn098
11. Central Bank of the Republic of Uzbekistan. (2023). The Central Bank of Uzbekistan macroprudential policy framework. Tashkent: CBU. https://cbu.uz/upload/medialibrary/7a9/p6d86u365m2ot1l7mt71ojji81wvlprj/CBU_MPPF_En.pdf
12. Central Bank of the Republic of Uzbekistan. (2025a). Regulation on requirements for liquidity management of commercial banks (registered by the Ministry of Justice on 13.08.2015, No. 2709; amendments No. 2709-7 of 21.04.2025). https://lex.uz/docs/2720361; commentary: https://cbu.uz/ru/press_center/reviews/2359998/
13. Central Bank of the Republic of Uzbekistan. (2025b). The Financial Stability Report for 2024 has been published (press release, 30 May 2025). https://cbu.uz/en/press_center/releases/2489245/
14. Central Bank of the Republic of Uzbekistan. (2026). Financial Stability Report for 2025 published (press release, 7 July 2026). https://cbu.uz/en/press_center/releases/4124365/
15. Cornett, M. M., McNutt, J. J., Strahan, P. E., & Tehranian, H. (2011). Liquidity risk management and credit supply in the financial crisis. Journal of Financial Economics, 101(2), 297-312. https://doi.org/10.1016/j.jfineco.2011.03.001
16. DeYoung, R., Distinguin, I., & Tarazi, A. (2018). The joint regulation of bank liquidity and bank capital. Journal of Financial Intermediation, 34, 32-46. https://doi.org/10.1016/j.jfi.2018.01.006

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HOUGHTON STREET REVIEW JOURNAL
ISSN: 2058-5519|Impact factor-15.9
http://houghtonstreetreview.com/index.php/hsr

17. DeYoung, R., & Jang, K. Y. (2016). Do banks actively manage their liquidity? Journal of Banking & Finance, 66, 143–161. https://doi.org/10.1016/j.jbankfin.2015.11.013
18. Diamond, D. W., & Dybvig, P. H. (1983). Bank runs, deposit insurance, and liquidity. Journal of Political Economy, 91(3), 401-419. https://doi.org/10.1086/261155
19. Distinguin, I., Roulet, C., & Tarazi, A. (2013). Bank regulatory capital and liquidity: Evidence from US and European publicly traded banks. Journal of Banking & Finance, 37(9), 3295–3317. https://doi.org/10.1016/j.jbankfin.2013.04.027
20. Gatev, E., & Strahan, P. E. (2006). Banks' advantage in hedging liquidity risk: Theory and evidence from the commercial paper market. The Journal of Finance, 61(2), 867–892. https://doi.org/10.1111/j.1540-6261.2006.00857.x
21. Imbierowicz, B., & Rauch, C. (2014). The relationship between liquidity risk and credit risk in banks. Journal of Banking & Finance, 40, 242–256. https://doi.org/10.1016/j.jbankfin.2013.11.030
22. International Monetary Fund. (2025). Republic of Uzbekistan: Financial Sector Assessment Program. Financial System Stability Assessment (IMF Country Report No. 25/145). Washington, DC: IMF. https://doi.org/10.5089/9798229015103.002
23. Khannaev, S. (2026). Monetary policy and bank performance in times of crisis: Evidence from Uzbekistan during COVID-19 and the Russia–Ukraine war. Cogent Economics & Finance, 14(1), 2650864. https://doi.org/10.1080/23322039.2026.2650864
24. Omonov, A. A., Izbosarov, B. B., & Ghani, E. K. (2026). Does liquidity risk impact asset quality and financial stability? Evidence from Uzbekistan commercial banks. Journal of Risk and Financial Management, 19(7), 510. https://doi.org/10.3390/jrfm19070510
25. Ruziev, K., & Ghosh, D. (2009). Banking sector development in Uzbekistan: A case of mixed blessings? Economic Change and Restructuring, 42(4), 293–318.
26. UzDaily. (2026a). Uzbekistan bank deposits rise 33.9% year-on-year (based on data of the Central Bank of Uzbekistan). https://www.uzdaily.uz/en/uzbekistan-bank-deposits-rise-339-year-on-year/
27. UzDaily. (2026b). Aktivy bankov Uzbekistana prevysili 1 kvadrillion sumov [Assets of Uzbek banks exceeded 1 quadrillion soums] (based on data of the Central Bank of Uzbekistan, 23 September 2026). https://www.uzdaily.uz/ru/aktivy-bankov-uzbekistana-prevysili-1-kvadrillion-sumov-23-09-2026/
28. Vazquez, F., & Federico, P. (2015). Bank funding structures and risk: Evidence from the global financial crisis. Journal of Banking & Finance, 61, 1–14. https://doi.org/10.1016/j.jbankfin.2015.08.023
29. Alieva, S. S., & Urunova, M. G. (2023). Theoretical Fundamentals of Improving Financial Health in Enterprises.