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THE IMPACT OF LIQUIDITY MANAGEMENT METHODS ON ENSURING FINANCIAL STABILITY

Dadamirzayev G'ulomjon Olimjonovich
Master's student, Asia International University (Bukhara, Uzbekistan)

Abstract: This article examines how the choice of liquidity management methods shapes the financial stability of a banking system. Liquidity management is treated not as a single ratio but as a combination of four instruments: the stock of high-quality liquid assets, the structure and maturity of funding, asset-liability gap management, and forward-looking tools such as stress testing and contingency funding plans. Drawing on prudential statistics published by the Central Bank of the Republic of Uzbekistan for 2024–2025, the study shows that the liquidity coverage ratio (LCR) of the national banking system rose from 159.5% to 196.8% within one year and reached 208% by the end of 2025, while the net stable funding ratio (NSFR) increased from 111.9% to 120%. A decomposition of the LCR indicates that the improvement came mainly from a 50.2% expansion of liquid-asset buffers, which outpaced the 21.8% growth of estimated stressed outflows. The paper argues that buffers alone do not guarantee stability: their effect depends on funding diversification, the quality of internal risk measurement and the credibility of the central bank's liquidity facilities. Practical recommendations are proposed for commercial banks and the regulator.

Keywords: liquidity management, financial stability, LCR, NSFR, high-quality liquid assets, asset-liability management, stress testing, banking system of Uzbekistan.

Annotatsiya: Maqolada likvidlikni boshqarish usullarining bank tizimi moliyaviy barqarorligiga ta'siri tahlil qilingan. Yuqori sifatli likvid aktivlar zaxirasi, resurs bazasi tarkibi, aktiv va passivlar o'rtasidagi muddatli nomutanosiblikni boshqarish hamda stress-testlash usullari alohida ko'rib chiqilgan. O'zbekiston Respublikasi Markaziy bankining 2024–2025-yillar ma'lumotlari asosida LCR ko'rsatkichi 159,5 foizdan 208 foizgacha, NSFR esa 111,9 foizdan 120 foizgacha oshgani ko'rsatib berilgan. Likvidlik buferlari o'sishi kutilayotgan stress chiqimlarga nisbatan tezroq bo'lgani aniqlangan va amaliy takliflar ishlab chiqilgan.

Kalit so'zlar: likvidlikni boshqarish, moliyaviy barqarorlik, LCR, NSFR, likvid aktivlar, stress-test.

Аннотация: В статье исследуется влияние методов управления ликвидностью на финансовую устойчивость банковской системы. Рассмотрены буферы высококачественных ликвидных активов, структура фондирования, управление разрывами между активами и пассивами, а также стресс-тестирование. На основе данных Центрального банка Республики Узбекистан за 2024–2025 годы показано, что коэффициент LCR вырос со 159,5% до 208%, а NSFR — со 111,9% до 120%. Установлено, что рост ликвидных буферов опережал рост ожидаемых стрессовых оттоков; сформулированы практические рекомендации.

Ключевые слова: управление ликвидностью, финансовая устойчивость, LCR, NSFR, ликвидные активы, стресс-тестирование.

Introduction

Banks are, by design, illiquid institutions. They fund long-term loans with deposits that can be withdrawn at short notice, and this maturity transformation is precisely what makes them useful to the economy. The same feature, however, makes them fragile. Diamond and Dybvig showed more than four decades ago that a solvent bank can fail simply because depositors expect others to withdraw first [4]. The global financial crisis of 2007–2009 turned this theoretical insight into a practical lesson: many institutions that met their capital requirements still collapsed or required public support because they could not roll over short-term funding [3; 15].

The regulatory response was the Basel III liquidity framework. The Basel Committee introduced the liquidity coverage ratio (LCR), which requires a bank to hold enough high-quality liquid assets (HQLA) to survive a 30-day stress scenario, and the net stable funding ratio (NSFR), which limits reliance on unstable short-term funding over a one-year horizon [1; 2]. Yet the events of March 2023 showed that compliance with ratios is not the same as sound liquidity management. Silicon Valley Bank, with roughly $209 billion in assets, lost $42 billion of deposits in a single day and failed within 48 hours; it was not subject to the full LCR and NSFR requirements at the time [7; 8].

For Uzbekistan the question has a particular weight. The banking sector is in the middle of a structural transformation: state-owned banks are being privatised, the deposit base is de-dollarising, and the Central Bank of the Republic of Uzbekistan (CBU) has aligned its prudential requirements with Basel III within the powers granted by the 2019 Law on Banks and Banking Activity [20]. According to the CBU, the total consolidated balance of commercial banks stood at about $62.6 billion in 2025, and the first comprehensive Financial Sector Assessment Program (FSAP) by the IMF and the World Bank was carried out in 2024–2025 [10; 13].

The purpose of this article is to assess how specific liquidity management methods affect financial stability, using the Uzbek banking system as an empirical case. The study addresses three questions: (1) which methods form the modern liquidity management toolkit and through which channels they influence stability; (2) how the liquidity position of Uzbek banks changed in 2024–2025 and what drove the change; (3) what limitations remain and how they can be addressed.

Literature review

The literature on bank liquidity developed along three lines. The first explains why liquidity risk exists at all. Diamond and Dybvig modelled the bank run as a coordination failure among depositors and showed that deposit insurance or a lender of last resort can remove the bad equilibrium [4]. Berger and Bouwman later measured liquidity creation directly and found that the largest banks create most of it, which links individual liquidity decisions to system-wide outcomes [5].

The second line studies how funding and market liquidity interact during stress. Brunnermeier and Pedersen demonstrated that funding constraints and falling asset prices reinforce each other: when margins rise, traders sell, prices fall further and liquidity evaporates in a spiral [16]. Brunnermeier's account of the 2007–2008 crunch and Shin's analysis of Northern Rock showed the same mechanism at the level of banks: institutions that relied on wholesale funding were hit first and hardest [3; 15]. Acharya and Mora found that during the crisis US banks were able to keep providing liquidity to the economy only because deposits flowed into them with government support, which underlines the role of the public safety net [17].

The third line concerns management practice. The Basel Committee's 2008 principles placed responsibility on boards for setting liquidity risk tolerance, required banks to project cash flows under stress and to hold contingency funding plans [18]. Matz and Neu describe liquidity management as an integrated process in which the buffer, the funding structure and the measurement system work together rather than in isolation [19]. Empirically, Cornett and co-authors showed that US banks with more illiquid assets and less stable funding cut lending more sharply in 2007–2009, which is direct evidence that liquidity management choices transmit to the real economy [6].

In Uzbekistan, research on the topic has mainly focused on the introduction of Basel III ratios, the reserve requirement policy of the CBU and the liquidity position of individual banks over 2020–2025. Most studies describe the dynamics of indicators but rarely separate the contribution of different methods to the overall result. This article attempts to fill that gap by decomposing the change in the system-wide LCR and by linking each management method to a specific channel of influence on stability.

Methodology

The study combines a qualitative classification of liquidity management methods with a quantitative analysis of prudential indicators. The data come from official publications of the CBU: the banking statistics on liquidity indicators as of 1 April 2024 and 1 April 2025 [12], the Financial Stability Reports for the first half of 2025 and for the full year 2025 [9; 11], and the quarterly money market and liquidity reviews [14]. The IMF FSAP report of 2025 is used as an independent assessment [13].

Three analytical techniques are applied. First, the dynamics of the LCR, NSFR, the HQLA-to-assets ratio and the immediate liquidity ratio are compared against regulatory minimums. Second, the LCR is decomposed into its numerator and denominator. Because the LCR is defined as

$$LCR = \frac{HQLA}{\text{Total net cash outflows over 30 days}} \geq 100\%$$

the implied stressed outflows can be recovered as HQLA divided by LCR. Comparing the growth rates of the two components shows whether an improvement in the ratio came from building buffers or from a reduction in risky funding. Third, the Uzbek results are set against the SVB case to illustrate what happens when the same methods are neglected.

The main limitation is that aggregate data hide differences between individual banks. A high system-wide LCR may coexist with weak positions in some institutions; the CBU itself noted in 2024 that several banks could face negative net cash flows under stress [21]. The conclusions therefore apply to the system as a whole.

Analysis and results

Liquidity management methods and their channels of influence

Liquidity management in a modern bank rests on several complementary methods. Each of them affects stability through a different channel, and the weakness of one cannot be fully offset by the strength of another. Table 1 summarises the classification used in this study.

Table 1. Liquidity management methods and channels of influence on financial stability

Method	Main instrument	Channel of influence on stability	Key indicator
Asset-side (stock) management	Buffer of HQLA: cash, central bank reserves, government securities	Absorbs sudden outflows without fire sales of assets	LCR, HQLA / total assets
Liability-side management	Diversification of depositors, maturities and currencies; access to interbank and repo markets	Reduces the probability and speed of a run	NSFR, deposit concentration, share of term deposits
Asset-liability (gap) management	Maturity ladder, matching of cash flows, transfer pricing of funds	Limits structural mismatch and interest-rate-driven losses	Cumulative liquidity gap by time bucket
Forward-looking management	Stress testing, early-warning indicators, contingency funding plan	Prepares the bank for shocks before they happen	Survival horizon under stress
System-level management (central bank)	Reserve requirements, repo and swap facilities, emergency liquidity assistance	Prevents contagion between banks	Systemic liquidity surplus / deficit

Source: compiled by the author.

Dynamics of liquidity indicators in Uzbekistan

The liquidity position of the Uzbek banking system improved markedly in 2024–2025. Between 1 April 2024 and 1 April 2025 the volume of HQLA rose from UZS 95.4 trillion to UZS 143.3 trillion, and their share in total assets increased from 14.3% to 17.9% [12]. By the end of 2025 the LCR reached 208% and the NSFR 120%, roughly twice and 1.2 times the regulatory minimum respectively [9].

Table 2. Key liquidity and stability indicators of the Uzbek banking system, 2024–2025

Indicator	Minimum	01.04.2024	01.04.2025	30.06.2025	31.12.2025
HQLA, UZS trillion	–	95.4	143.3	–	–
HQLA / total assets, %	–	14.3	17.9	–	–
Liquidity coverage ratio (LCR), %	100	159.5	196.8	195	208
Net stable funding ratio (NSFR), %	100	111.9	116.2	117	120
Immediate liquidity ratio, %	25	96.5	132.0	–	–
Capital adequacy ratio, %	13	–	–	17.4	18.3
Non-performing loans, % of loans	–	–	–	3.8	3.0

Sources: CBU banking statistics [12]; Financial Stability Reports for H1 2025 and 2025 [9; 11].

Decomposition of the LCR change

To understand which method drove the improvement, the LCR was split into its two components. Dividing HQLA by the LCR gives implied 30-day stressed net outflows of about UZS 59.8 trillion in April 2024 and UZS 72.8 trillion in April 2025.

Table 3. Decomposition of the LCR change, April 2024 – April 2025

Component	01.04.2024	01.04.2025	Change
HQLA, UZS trillion	95.4	143.3	+50.2%
Implied stressed net outflows (HQLA / LCR), UZS trillion	59.8	72.8	+21.8%
Implied total assets (HQLA / share in assets), UZS trillion	667	801	+20.0%
LCR, %	159.5	196.8	+37.3 p.p.

Source: author's calculations based on [12].

The result is telling. Stressed outflows grew almost exactly in line with the balance sheet (21.8% against 20.0%), so the riskiness of funding per unit of assets did not fall. The entire improvement in the LCR came from the asset side: banks increased their liquid buffers about two and a half times faster than their balance sheets. In other words, Uzbek banks in this period relied primarily on stock-based liquidity management, while the gradual rise of the NSFR from 111.9% to 116.2% points to a slower, but positive, shift in the funding structure.

The role of system-level liquidity management

The buffer building at bank level took place against a background of abundant system liquidity. The average liquidity surplus of the banking system was UZS 20.6 trillion in the first quarter of 2025 and UZS 26.3 trillion in the second, an increase of 27.9% [14]. In the fourth quarter the CBU's average net position in absorption operations reached about UZS 30 trillion, while the overnight interbank rate UZONIA stayed near 13.9%, close to the policy rate [14]. From 1 October 2025 the reserve requirement on foreign-currency liabilities was lowered from 10.5% to 9.5%, a measure that both released liquidity and supported de-dollarisation [14]. The CBU's macro stress test for 2025 concluded that system-wide net cash inflows would remain positive under the adverse scenario [9].

A counter-example: Silicon Valley Bank

The SVB case shows what happens when one method dominates and the others are neglected. At the end of 2022 the bank held about $175 billion of deposits, of which roughly $151 billion were above the insurance limit [8]. Its assets were concentrated in long-dated securities that lost value as US interest rates rose. On 9 March 2023 depositors withdrew $42 billion, and requests for a further $100 billion were queued for the next morning; the bank ended the day with a negative cash balance of about $958 million [7; 8]. SVB had liquid securities on its books, but without diversified funding, realistic stress scenarios or a tested contingency plan, the buffer could not be turned into cash fast enough.

Discussion

The Uzbek data and the SVB case point to the same conclusion from opposite directions: the impact of liquidity management on stability depends on the balance between methods, not on any single ratio. A large HQLA buffer is the most visible and the easiest method to report, but it is also the most expensive. Liquid assets earn less than loans, so a system that keeps the LCR above 200% pays for its safety through lower margins and, potentially, slower credit growth. The 2025 figures suggest that Uzbek banks could afford this cost: system profit reached UZS 15.5 trillion, 2.2 times higher than in 2024, while liquidity improved at the same time [22].

The slower progress of the NSFR deserves attention. The ratio measures whether long-term assets are financed by stable sources, and a value of 120% leaves less headroom than the LCR. Deposits in Uzbekistan remain relatively short, and part of the funding of large state-owned banks still comes from government and international financial institutions. The IMF's FSAP assessment found that under an adverse scenario the capital of many banks, especially state-owned ones, would fall below the minimum, which would also put pressure on their funding [13]. Strengthening liability-side management, through longer retail deposits, a deeper local bond market and less concentration on a few large depositors, is therefore the next step that would turn high buffers into durable stability.

A third point concerns the interaction between bank-level and system-level methods. The persistent liquidity surplus in 2025 made it easier for banks to accumulate HQLA, because surplus funds could be placed in the CBU's absorption instruments at a return close to the policy rate. In a tighter environment, when the surplus turns into a deficit, banks will need to rely more on their own funding strategies and on the repo market. The CBU's emergency liquidity assistance framework, whose regulation was updated in January 2025, is an important backstop, but its availability should not weaken incentives for prudent internal management [23].

Finally, the SVB experience warns against treating stress tests as a formality. The bank's models did not anticipate how quickly a concentrated, digitally connected depositor base could move money. For Uzbek banks, where mobile banking is spreading fast, the speed of potential outflows is likely to rise, and stress scenarios calibrated on historical run-off rates may underestimate it.

Conclusion and recommendations

The study confirms that liquidity management methods influence financial stability through distinct channels, and that their effect is greatest when they are used together. In Uzbekistan the system-wide LCR rose from 159.5% to 208% and the NSFR from 111.9% to 120% between 2024 and 2025. The decomposition shows that this improvement was driven by a 50.2% expansion of liquid-asset buffers, while stressed outflows grew in line with the balance sheet. The banking system has therefore become more resilient to short-term shocks, but the structure of its funding has changed less than the headline ratios suggest.

On this basis the following recommendations are proposed.

1. **For commercial banks:** shift the emphasis from building buffers to improving the funding structure. Banks should set internal limits on deposit concentration, extend the average maturity of retail deposits through product design and pricing, and use internal funds transfer pricing so that business units bear the real cost of liquidity.

2. **For risk management units:** recalibrate stress scenarios to the speed of digital withdrawals. Scenarios should include outflows within one to three days, not only over 30 days, and contingency funding plans should be tested in practice, including operational access to CBU repo facilities.

3. **For the regulator:** complement the system-wide LCR and NSFR with indicators that reveal dispersion across banks, and publish them regularly. Supervisory attention should focus on institutions whose ratios are close to the minimum, even when the system average is high.

4. **For the development of markets:** deepen the market for government and corporate bonds in national currency. A liquid secondary market makes HQLA genuinely convertible into cash and gives banks an alternative source of stable funding.

Further research could extend this analysis to the level of individual banks and estimate econometrically how liquidity indicators affect lending and profitability over a full business cycle.

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