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CONTENTS

DIGITAL TECHNOLOGY INTEGRATION TRENDS AND CHALLENGES IN PEDIATRIC DENTISTRY	15
Tursunov Begzod Sherzodovich, Solijonov Sherzod Qahramonovich	
THE ROLE OF RISKS AND RISK MANAGEMENT IN MANAGING THE SOLVENCY OF INSURANCE COMPANIES	20
Xalikulova Shirin Utkir qizi	
INVESTMENT OPPORTUNITIES IN THE SECURITIES MARKET OF UZBEKISTAN: DIVIDEND YIELD, INSTITUTIONAL REFORMS AND INTERNATIONAL ATTRACTIVENESS.....	25
Akhliyor Ibragimov	
A CONCEPTUAL APPROACH TO ANTI-MONOPOLY CONTROL IN SERVICE INDUSTRIES ADAPTED TO THE CONDITIONS OF UZBEKISTAN.....	30
Bekbutayev Nodirjon Fayzullayevich	
TECHNOLOGICAL FEATURES OF WEAR-RESISTANT SURFACING OF METALLIC COMPONENTS ALLOYED WITH CARBON, MANGANESE, AND SILICON USING FUSED FLUXES.....	35
Khudoyorov Sardor Sadullaevich, Khudoykulov Nurilla Zikirillaevich	
ECONOMIC EFFICIENCY OF IMPLEMENTING INTEGRATED MARKETING COMMUNICATIONS IN ENTERING NEW MARKETS IN UZBEKISTAN	39
Baqoyev Sunnatillo Burxon o'g'li	
ENVIRONMENTALLY EFFICIENT FATLIQUORING AGENTS IN KARAKUL FATLIQUORING TECHNOLOGY.....	46
Rustamov Bobir Ismatovich, Shodieva Dilnoza Turajon qizi	
STRATEGIC PLANNING IN IMPROVING THE METHODOLOGY FOR MANAGING INVESTMENT PROJECTS IN THE TEXTILE INDUSTRY.....	51
Qurbonov Jasurbek Pozilovich	
FOUNDATIONS OF ENGLISH TEACHING BASED ON PROVERBS (UZBEK AND AFGAN WORDS).....	56
Samadi Nooria	
MATHEMATICAL MODELING AND SOLUTION ALGORITHMS OF GEOMETRIC PROBLEMS IN NUMERICALLY CONTROLLED MACHINES.....	60
Khasanov Bobirmirzo Makhmudali ugli, Yusupov Sardorbek Ma'rufovich, Abdullajonov Asadbek Sherzodbek ugli	
INNOVATION IS A KEY FACTOR IN THE DEVELOPMENT OF THE ENERGY INDUSTRY.....	70
Gavkhar Absamatovna Khamdamova	
MARKETING PROBLEMS IN THE INTERNATIONAL INDUSTRIAL ENTERPRISE MARKET AND FOREIGN EXPERIENCE IN SOLVING THEM.....	76
Usmanova Dilfuza Ilhomovna	
FUZZY ROBUST CONTROLLERS FOR GAS PURIFICATION PROCESSES.....	82
Sh. D. Tulyaganov	
METHODOLOGICAL PROBLEMS OF MARKETING IN FURNITURE ENTERPRISES IN THE CONTEXT OF THE IMPLEMENTATION OF THE NEW UZBEKISTAN DEVELOPMENT STRATEGY	87
Musayeva Shoirazimovna	
THE ROLE OF METHODOLOGICAL COMPETENCE IN FUNDAMENTALIZING THE PROFESSIONAL PREPARATION OF FUTURE ECONOMICS TEACHERS	92
Djumanazarova Zamira Kojabayevna	
MAHALLIY BUDJET DAROMADLARI BARQARORLIGINI TA'MINLASH YO'NALISHLARI	97
Isoqov Zafarjon Zokirjonovich	
LIQUIDITY PROVISION IN BANKS THROUGH EFFECTIVE ASSET-LIABILITY MANAGEMENT.....	101
Sulaymanov Samandarboy Adhambek ugli	

LIQUIDITY PROVISION IN BANKS THROUGH EFFECTIVE ASSET-LIABILITY MANAGEMENT

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Abstract: This article is based on investigation of liquidity provision process in commercial banks on the basis of the case of National Bank of Uzbekistan from the point of view of assets and liabilities management. Liquidity is not viewed as a stand-alone measure, but is more likely considered as an outcome of asset profitability, financial stability of funding sources and the maturity of cash flows. The study examines the role of composition of assets, structure of loan portfolio, cost of funding and maturity profile of liabilities on the liquidity position of the bank. In addition, the causes of mismatches between assets and liabilities and its implication on the liquidity performance of the bank are analyzed. The findings show that bank liquidity requires not only compliance with regulatory ratios but also strategic balance sheet management.

Key words: bank liquidity, asset-liability management, balance sheet structure, liquidity risk, bank funding sources.

Annotatsiya: Mazkur maqola O'zbekiston Milliy banki misolida tijorat banklarida likvidlikni ta'minlash jarayonini aktivlar va passivlarni boshqarish nuqtayi nazaridan o'rganishga bag'ishlangan. Likvidlik alohida, mustaqil ko'rsatkich sifatida emas, balki aktivlar rentabelligi, moliyalashtirish manbalarining moliyaviy barqarorligi hamda pul oqimlarining muddatlilik darajasi natijasi sifatida talqin etiladi. Tadqiqotda aktivlar tarkibi, kredit portfeli tuzilmasi, moliyalashtirish qiymati hamda passivlarning muddat profili bank likvidlik holatiga qanday ta'sir ko'rsatishi tahlil qilinadi. Shuningdek, aktivlar va passivlar o'rtasidagi nomuvofiqlik sabablari hamda ularning bank likvidlik ko'rsatkichlariga ta'siri o'rganiladi. Tadqiqot natijalari bank likvidligini ta'minlash faqat tartibga soluvchi me'yorlarga rioya qilish bilangina emas, balki strategik balans boshqaruvini ham talab etishini ko'rsatadi.

Kalit so'zlar: bank likvidligi, aktiv va passivlarni boshqarish, balans tuzilmasi, likvidlik riski, bank moliyalashtirish manbalari.

Аннотация: Данная статья посвящена исследованию процесса обеспечения ликвидности в коммерческих банках на примере Национального банка Узбекистана с позиции управления активами и пассивами. Ликвидность рассматривается не как самостоятельный показатель, а как результат доходности активов, финансовой устойчивости источников фондирования и сроковой структуры денежных потоков. В работе анализируется влияние состава активов, структуры кредитного портфеля, стоимости фондирования и срокового профиля обязательств на ликвидную позицию банка. Кроме того, исследуются причины несоответствия между активами и пассивами и их влияние на показатели ликвидности банка. Результаты показывают, что обеспечение ликвидности требует не только соблюдения регулятивных нормативов, но и стратегического управления балансом.

Ключевые слова: банковская ликвидность, управление активами и пассивами, структура баланса, риск ликвидности, источники фондирования банка.

INTRODUCTION

The ability of banks to keep their liquidity and ensure profitability is a necessary part of financial system stability. Rather than being solely dependent on the volume of liquid assets, the liquidity in banking institutions is influenced by the interaction of the maturities of assets, funding structures and the timing of cash flows (Choudhry, 2011). In this respect, Asset-Liability Management (ALM) is a fundamental framework by which financial institution can coordinate the balance sheet dynamics with the short-term obligation, long-term strategic objectives (Tektaş and Ozkan-Gunay, 2005).

Persistent mismatches between assets and liabilities, apart from ruining liquidity positions also expose banks to heavy interest rate and credit risks. Such mismatches, if left unchecked, can have destabilizing effects on both individual institutions, as well as on the broader financial system (Guzel, 2021). The Global Financial

Crisis (2008) and the liquidity crunch experienced in various emerging markets has put the need for integrated ALM systems involving risk forecasting, liquidity buffers and scenario testing (Kallur, 2016).

In Uzbekistan, the recent developments such as liberalisation of foreign exchange policy, growing financial intermediation and regulatory harmonisation led to major transformations in the banking operations. For example, the growth of the total assets and liabilities of the National Bank of Uzbekistan (NBU) between 2021 and 2025 was 61% and 66% respectively, demonstrating an increase in the complexity of the funding and lending structures. Such expansion requires not only to comply with prudent liquidity ratios, but require the strategic use of ALM tools to manage the maturity gaps and interest rate exposures.

Good ALM practices include synchronised maturity schedules, funding sources, Fund Transfer Pricing (FTP) and strict liquidity stress testing (Arora & Kohli, 2018). These mechanisms are of use to the banks in determining potential liquidity gaps and formulating contingency measures. For example, the exposure of NBU to short-term liability has revealed the inadequacy of regulatory ratios such as Liquidity Coverage Ratio (LCR) in capturing the dynamic liquidity needs comprehensively.

The prudent framework existing in Uzbekistan, despite the influence of the Basel III standards, now gives more importance to maturity transformation, internal management of liquidity risk and stress resilience (Abou-El-Sood & El-Ansary, 2017). Within this context, this study examines the role of ALM in the process of ensuring liquidity at the National Bank of Uzbekistan. The objective is to measure the bank's balance sheet alignment and areas to work on enhancing the liquidity management capacity in practice.

LITERATURE REVIEW

The research on bank liquidity management from the perspective of Asset-Liability Management (ALM) has attracted a considerable academic interest especially in the wake of the global financial crises that highlighted the weaknesses in the existing frameworks for risk governance. Literature in this field reflects the conceptual bases as well as evolving practices due to regulatory reforms and economic shocks (both macroeconomic and technological transformation in banking).

The classical perspective sees ALM as a discipline concerned with the coordination of asset inflow and liability outflow (in order to meet obligations as they fall due). Choudhry (2011) defines ALM as a structured method of controlling the interest rate risk, liquidity risk and funding stability of commercial banks. He underlines the fact that liquidity is not only a matter of holding liquid asset, but also a matter of holding a balance between the maturity structures and the time of cash flows.

Furthermore, Tektas and Ozkan-Gunay (2005) shows that ALM if used as a proactive instrument can help banks to survive external shocks by matching the internal policies with the market reality. Their research suggests that successful ALM involves dynamic balancing of assets and liabilities and not static compliance with regulatory ratios.

In the case of developing economies, where financial systems can often be subject to regulatory transitions and concentrated funding bases, ALM is even more important. Maghniwi and Oukassi (2025) studied the role of Moroccan banks during the Covid-19 pandemic crisis and reached the conclusion that sound ALM practices played an important role in controlling profitability and liquidity during the periods of contraction of market confidence. Their work provides empirical evidence for the potential role of ALM in serving as a buffer against liquidity disruptions in countries where the central bank has less support.

Similarly, Tune (2025) in a study on Ethiopian banks showed that banks have been extremely exposed to both liquidity and solvency risks due to the nonexistent and comprehensive ALM frameworks. His findings indicate a continuing gap on internal policy structures and integration of ALM as a balance sheet management practices.

Contemporary literature has been focusing more on integration of quantitative models, machine learning tools and scenario simulations in ALM frameworks. Banihashemi and Kazemi (2025) have used the data envelopment analysis (DEA) and machine learning to analyze the efficiency of ALM in several banks and found that data-driven strategies have improved the decision-making process by identifying the performance gap that was not reflected in the static reports.

Similarly, Davis-Adesegha (2025) emphasise the importance of stress testing and scenario analysis in ALM, especially in times of crisis. Her study found that liquidity resilience in uncertain times is greatly influenced by a bank's capacity to simulate multi-channel shocks - across its interest rates, deposit outflows and asset revaluation - and rearrange its balance sheet accordingly.

The literature is also aware that ALM is not an isolated process, but is interwoven with the wider mechanisms of governance. Huang (2025) synthesizes both empirical and theoretical works on liquidity governance and suggest that ALM should be institutionalized as part of enterprise wide risk management. She identifies that the

integration of ALM and strategic planning (such as FTP - fund transfer pricing and capital optimization) provide more sustainable liquidity profiles.

Abou-El-Sood and El-Ansary (2017) make an important addition by examining ALM in Islamic banking systems which have different structures of assets and liabilities subject to different constraints. Their research concludes that notwithstanding the differences in regulation the fundamentals of ALMs are universal, most notably in the area of liquidity matching, risk diversification and the balancing of balance sheet growth against capital buffers.

In Uzbek economic literature, considerable attention has also been devoted to the issues of ensuring liquidity in commercial banks and managing assets and liabilities. In particular, Sh. Abdullaeva interprets bank liquidity as the ability of a bank to meet its obligations fully and on time, emphasizing that its sustainability is directly linked to the structure of assets and the quality of the funding base. According to the scholar, liquidity is determined not only by the volume of highly liquid assets, but also by the maturity alignment between assets and liabilities.

From our perspective, the author supports this approach; however, under the conditions of a modern banking system, assessing liquidity solely on the basis of static balance sheet indicators is considered insufficient. Therefore, in line with international practice, it is concluded that liquidity should be evaluated through dynamic cash flow analysis and Asset–Liability Management (ALM) mechanisms.

Moreover, B. Juraev highlights the role of deposit policy and funding stability in managing liquidity in commercial banks. He argues that a high share of demand deposits represents a potential source of liquidity risk and may lead to mismatches in the financing of long-term assets.

In our view, the author substantiates this argument through empirical analysis conducted using the case of the National Bank. In particular, it is identified that the high proportion of demand deposits intensifies maturity mismatches between assets and liabilities. This finding demonstrates that the theoretical conclusions proposed by Juraev remain highly relevant in practical banking operations.

In addition, U. Usmonov, in his works on bank management, considers the coordinated management of assets and liabilities as a key factor in ensuring the financial stability of banks. According to him, under conditions of rapid loan portfolio expansion, inconsistencies in the maturity and cost structure of funding sources significantly increase liquidity risks.

From our standpoint, while supporting Usmonov's approach, the author argues that in contemporary conditions ALM should not be viewed merely as a tool for limiting risks, but rather as a strategic balance sheet management instrument. Especially in the context of ongoing transformation processes in Uzbekistan's banking system, the institutional implementation of ALM mechanisms plays a decisive role in ensuring sustainable bank liquidity.

Across the reviewed literature, a common theme is that ALM works best when incorporated in the strategic and operational banking architecture, as opposed to being seen as a compliance commitment. While existing studies have worked towards the theoretical advancement and empirical understanding, there is a significant gap in the case studies from an applied perspective in the context of post-Soviet transitional economies, including the Republic of Uzbekistan.

This research works to supplement the literature due to this gap. Through a concentrated case study of the National Bank of Uzbekistan (2021-2025), it looks at to what extent ALM mechanisms have been operationalized in a rapidly reforming banking system, and what implications this has had for liquidity provision.

RESEARCH METHODOLOGY

This research focuses on bank liquidity based on the Asset-Liability Management (ALM) by studying the financial performance and the balance sheet structure of the National Bank of Uzbekistan (NBU) from the period 2021-2025. The methodological framework is based on the idea that liquidity is not an isolated performance indicator, but the result of dynamic interaction between composition of assets, structure of liabilities and maturity match of a given bank (Choudhry, 2011; Novickyte & Petraityte, 2014).

The study starts by giving a thorough categorization of the elements of the balance sheet in order to single out those elements that directly or indirectly affect the liquidity position of the bank. On the asset side, it is analyzed in:

- The loan portfolio maturity and composition;
- Landbanki placements and funds of bank;
- Investments in securities;
- Reserves in Central Bank.

In the liability side, the following are considered:

- Demand and time deposits;
- Short term obligations; Interbank borrowing and other short term obligations;
- Wholesale funding sources;
- Off-balance sheet exposures.

Liquidity contribution, stability and risk profile of each category are assessed in accordance with segmentation methods commonly applied in ALM models (Guzel, 2021; Tektas & Ozkan-Gunay, 2005).

An important part of the analysis entails the estimation of maturity mismatches between liabilities and assets. The analysis uses gap analysis to see how much short-term liabilities are being used as a source of financing long-term assets thereby putting the bank at the risk of liquidity and interest rate (Arora & Kohli, 2018). Particular consideration is paid to the fact that the level of short-term liabilities at NBU has been increasing, as opposed to the relative stability of the loan book exposure and longer tenors. The analysis will make it possible to identify the existence of liquidity gaps and inform about the presence of sufficient liquid assets to cover future obligations (Kallur, 2016).

As a complement to the traditional balance sheet analysis, the paper takes into account cash flow analysis, tracing:

- Anticipated interest, fee, and investment returns;
- Projected outflows on operation expenses, deposit withdrawals and debt service.

This flow-based viewpoint is a better representation of liquidity dynamics that are not apparent in stagnant reports and this perspective is in line with the liquidity monitoring practices advocated by the Basel Committee on Banking Supervision (2010).

The internal ALM infrastructure of the bank is also analyzed in the research as:

- Limits on liquidity risk and early warning indicators;
- Scenario planning and contingency funding plans;
- Pricing Transfer Funds (FTP) mechanisms;
- Risk-adjusted balance sheet strategy governance.

These internal controls are reviewed on the effectiveness of enhancing liquidity resilience, particularly in stress situations. Specific emphasis is put on capital adequacy, resource concentration, and exposure to credit risks, which are demonstrated to impact the stability of liquidity (Abou-El-Sood and El-Ansary, 2017).

The methods of analysis will be the following in the study:

- Break down of the balance sheet structure in order to identify liquidity-sensitive elements;
- Trend analysis of five fiscal years to see the changes in funding and lending trends;
- Time-series analysis of important liquidity indicators, such as the loan to deposit ratio, maturity gap and short-term liabilities, as a percentage of total liabilities;
- Funding stress simulated using scenarios to assess the ability of the bank to take in the shocks (Peykani et al., 2023).

This methodological design offers a multi-dimensional approach to the liquidity risk management using ALM by synthesizing structural, temporal and policy-based analysis. The example of National Bank of Uzbekistan not only provides the insight into how strategic liquidity can be preserved in the conditions of transition of the financial system, but also provides the overall knowledge about the best practices of commercial banks in such a context in the emerging markets.

ANALYSIS AND RESULTS

In order to evaluate how the asset-liquidity management processes worked to achieve liquidity within commercial banks, an empirical study has been performed on the National Bank of Uzbekistan 2020-2025 financial statements. The analysis will be based on the structural changes in the balance sheet of the bank, proportionality of assets and liabilities and how this relates to the liquidity conditions.

The findings suggest that there was a stable upward trend on the asset base of the National Bank over the period of observation. Specifically, credit and leasing activities took the major portion of the total assets and grew continuously since 2020 to 2025. Although this aspect led to expansion of the income-generating capacity of the bank, the fact that the long-term assets had a rising proportion meant that the bank depended on an appropriately structured base of liability to maintain enough liquidity.

Analysis of the liability structure indicates that even though there was a dramatic increase in the deposit base, demand deposits still constituted a large percentage of total liabilities. The boom in the transactional deposit especially in the 2022-2024 years exacerbated liquidity strains in the short run. Meanwhile, the growth of the time deposits and the issue of bank papers helped bring the effectual stabilization of the liability framework, which to some degree had discouraged the liquidity risks of the short-term financing (Figure 1).

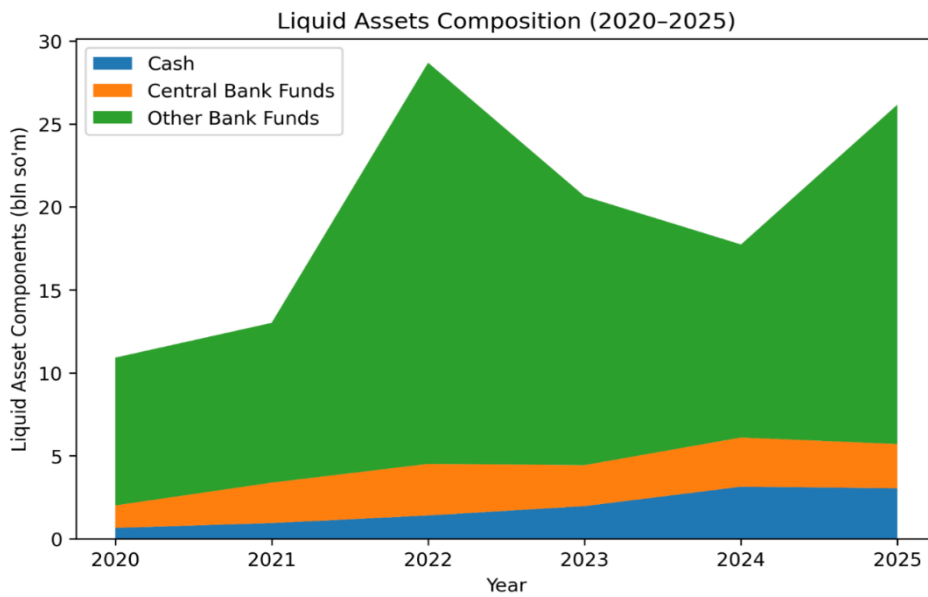


Figure 1. Composition of Liquid Assets of the National Bank of Uzbekistan (as of January 1, 2025)¹

On Figure 1, it can be seen that the liquid asset of the National Bank of Uzbekistan has been changing during the years 2020-2025. The yearly relations of cash reserves held, deposits with the central bank, and demand deposits with other banks give an idea of a steady and slow process in the evolution of the bank liquidity management policy (Figure 2).

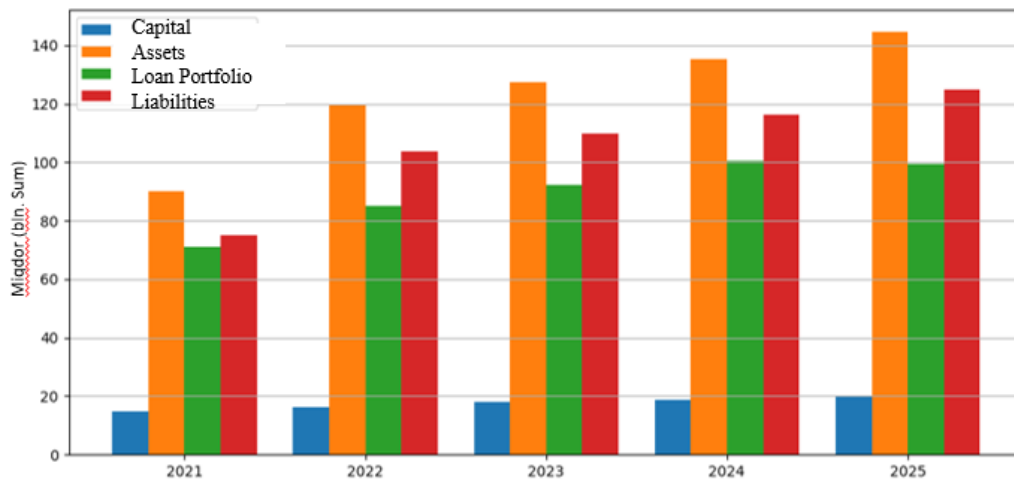


Figure 2. Key Performance Indicators of the National Bank of Uzbekistan Composition²

According to the analysis of the liability structure of the National Bank of Uzbekistan, the total obligations grow by 166 percent as at January 1, 2025 than at January 1, 2021. Meanwhile, the proportion of loans in its asset base increased significantly, and total lending grew to 140 percent in the same time. These dynamics point to the active credit policy of the bank and indicate that the level of profitability of its assets increased as well as the level of liquidity over a specific period.

Analytically, to maintain liquidity and advance the quality of attracted funds, a complex strategy aimed at fortification of the deposit base is necessary. Specifically, the proposal of customized service packages that would promote the long-term deposits with a maturity that is more than three years seems economically reasonable. It might be relevant to offer preferential terms to the clients who deposit large amounts of money over a long period of time on selected banking services to contribute to the improvement of the qualitative stability of deposits.

1 www.nbu.uz Data from the official website of the National Bank for Foreign Economic Activity of Uzbekistan

2 www.nbu.uz Data from the official website of the National Bank for Foreign Economic Activity of Uzbekistan

These would not only enhance the resilience of the deposit base, but would also assist in keeping a more predictable liquidity position. A large amount of the level of demand deposits is likely to increase the amount of uncovered portion of the loan portfolio, which can have a negative impact on the liquidity of the banks. Hence, the excessive dependency on the callable deposits is also one of the important factors to be considered in the liquidity management.

A maturity analysis of assets and liabilities indicates that the long term loans at the national bank have largely been funded by the short and medium term sources of funds. This organization makes the bank more vulnerable to the fluctuations in the market in the short-term. Regardless, these mismatches have been partly neutralized by the consistent increase in highly liquid assets-cash holdings, central bank balances, placements with other banks, and liquid securities.

The results also show that the National Bank has depended mainly on asset diversification and increase in its asset-liability base to guarantee liquidity. Short-term solvency has been facilitated by the increase in the investment securities portfolio and increase in interbank placements. Simultaneously, the utilization of long-term fund financing tools, including subordinated debt and issued securities, has helped to enhance the stability of the liability structure better.

The findings, on the whole, show that the management of asset and liabilities forms the basis of maintaining liquidity at the National Bank; although, more sophisticated methods of assets and liabilities management still need to be developed. The growth of the percentage of reliable sources of funds, the formation of loan portfolio according to the deposit maturity, the reinforcement of the structural balance between the assets and the liabilities become the major conditions of the maintenance of the bank liquidity in the medium term and in the long term.

CONCLUSIONS AND SUGGESTIONS

The evaluation of the existing information demonstrates that the National Bank of Uzbekistan has increased the level of its activities dramatically over the past several years. The total assets grew by 61 percent, the total liabilities by 66 percent, and the loan portfolio by almost 40 percent between 2021 and 2025. These developments affirm an increasing expansion of the balance sheet and lending operation of the bank.

The proportion of loans to the total assets was rather high and contributed to profitability; nevertheless, the similar increase in liabilities-especially in deposits-was one important factor in fulfilling liquidity requirements. Net profit had generally positive trends during the period in question, but in 2024, a minor decline was recorded. This decrease can be associated with an escalation of the cost of funding, exposure to the greater risk of credit, or a change in the external economic environment.

Regarding the development in the future, it is necessary to reinforce the liquidity and financial stability through a number of specific actions. First, the use of emphasis to stabilize the deposit base needs to be taken up more. Such incentives as special pricing and service packages to large clients would help in increasing the quality and predictability of funding.

Second, the asset structure ought to be reformed so that lending activities are not overly concentrated. An increased proportion of securities and other liquid assets would increase flexibility of the balance sheet and decrease the liquidity pressure. Third, there should be a better monitoring of the risks of short-term funding, and this would be supported by more frequent in-house review of liquidity gaps.

Simultaneously, the risk of credit management is to be coordinated with the rate of loan portfolio expansion. Better planning of high-risk sectors and the use of segment-based risk limits would be beneficial in avoiding additional maturity mismatches. Besides this, the reliability of the liability structure would be reinforced by increasing availability of long-term financing by working with global financial institutions and issuing longer-term debt instruments.

To conclude, the current asset and liability management practices of the National Bank have enabled it to stay liquid in the circumstances of high growth in its balance sheets. Simultaneously, it is also necessary to increase the proportion of stable and long-term sources of funds to maintain liquidity and financial resilience in the long-term perspective.

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