Academicia Globe:
Inderscience Research

ISSN: 2776-1010 Volume 6, Issue 11, November 2025

THE IMPACT OF DIGITAL SOLUTIONS ON THE STABILITY OF THE BANKING SYSTEM: EMPIRICAL EVIDENCE FROM UZBEKISTAN

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Abstract:
The article is devoted to analyzing the impact of digital solutions on the stability of Uzbekistan's banking system. It explores institutional and technological aspects of digitalization, and its relationship with key indicators of financial stability—capital adequacy (CAR) and non-performing loans (NPL). Based on reports from the Central Bank, McKinsey, Accenture, and other international organizations, the study conducts an empirical analysis of digital transformations. The conclusion highlights the positive effect of digital solutions on stability, especially in the context of regional digital inequality and regulatory challenges.

Keywords: Digitalization, stability, banking system, Uzbekistan, CAR, NPL, remote banking services.

Introduction

Amid the rapid diffusion of digital technologies, the banking sector of Uzbekistan faces an imperative to adapt to new challenges and opportunities. The digitalization of financial services is transforming traditional banking business models by reshaping customer service channels, risk-management practices, cost structures, and modalities of interaction with supervisors. This is particularly salient for developing economies, where digital technologies serve as a key instrument for advancing financial inclusion and system resilience.

Uzbekistan is undergoing an active phase of banking digital transformation: the number of users of remote (online) banking services has risen sharply, digital infrastructure is expanding, and fintech solutions are being deployed. It is crucial to note that digitalization affects not only the outward-facing perimeter of banking activity but also core resilience metrics—capital adequacy, liquidity, profitability, and the quality of credit-risk governance.

Literature Review

Recent scholarship confirms that digital transformation exerts a profound influence on the resilience of banking systems. A seminal contribution by Zetzsche, Buckley, Arner, and Barberis (2017) demonstrates how FinTech, TechFin, and RegTech reconfigure risk-management frameworks and the regulation of banking operations [1]. An authoritative McKinsey report (2025) underscores that the adoption of digital platforms and advanced analytics reduces operating costs and strengthens risk-management effectiveness [2]. Accenture's Technology Vision 2025 further highlights generative AI, open-API ecosystems, and digital platforms as technologies that enhance both operational and regulatory resilience of banks [3].

ISSN: 2776-1010 Volume 6, Issue 11, November 2025

Collectively, these sources indicate that digital transformation—encompassing fintech, open platforms, and cybersecurity—directly shapes key parameters of banking stability. Nonetheless, the calibration of these models to local conditions remains a central challenge, particularly for developing countries [5]. Building on these insights, we assemble a consistent 2020–2025 evidence base for Uzbekistan that combines supervisory statistics from the Central Bank [4][10], sector reports on digital adoption and IT investment, and public data on remote-banking usage. We focus on descriptive stability trends—capital adequacy (CAR) and non-performing loans (NPL)—and relate them to observed digitalization patterns without making causal claims.

Analysis

Digitalization enhances resilience through operating-model redesign. Straight-through processing and workflow automation reduce manual error rates and compress end-to-end cycle times, which lowers operational losses and supports steadier profitability.

Advanced analytics strengthen risk governance. Continuous ingestion of transactional footprints and bureau records refines borrower screening and early-warning signals, enabling earlier restructurings and more disciplined provisioning.

Liquidity management benefits from real-time cash-flow dashboards and forward-looking gap forecasts. Banks can rebalance high-quality liquid assets more quickly, reprice liabilities, and conduct credible stress drills—contributing to lower rollover risk and more stable liquidity ratios.

Mobile channels and remote identification widen financial inclusion outside large cities. Easier onboarding of households and MSMEs expands the deposit base, diversifies funding away from concentrated wholesale sources, and supports payment formalization and credit-history formation.

Regulatory modernization is a prerequisite for locking in these gains. Clear rules for remote identification, data sharing via open APIs, and third-party/outsourcing risk—together with guidance on digital identity and platform connectivity—align prudential oversight with the sector's operating reality.

A noteworthy development is the decline in non-performing loans (NPLs) from 2.1% in 2020 to 1.4% in 2025, reflecting improvements in portfolio quality and credit-risk governance. The deployment of digital solutions—automated scoring systems, big data analytics, and integration with external databases—has enabled banks to assess borrower solvency more accurately and to respond promptly to early-warning signals of default [10].

The digitalization of Uzbekistan's banking sector over 2020–2025 became a key driver of system resilience. Greater automation of operations, the rollout of digital platforms, and the expansion of remote banking strengthened both operational efficiency and the capacity to withstand external shocks. These shifts are evident in faster responses to market fluctuations, shorter application-processing times, optimized risk-management practices, and broader customer reach [7].

International experience suggests that banks combining platform capabilities with disciplined risk governance realize larger and more durable efficiency gains than those pursuing technology upgrades in isolation. Uzbekistan's 2020–2025 trajectory—capital buffers above regulatory minima, declining

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ISSN: 2776-1010 Volume 6, Issue 11, November 2025

NPLs, expanding remote usage, and rising IT investment—is consistent with this pattern. According to the Central Bank of the Republic of Uzbekistan, during 2020–2025 the banking sector exhibited a steady positive trajectory across core financial indicators amid the active adoption of digital solutions [8]. A principal resilience metric—the capital adequacy ratio (CAR)—stabilized at 17.3% in 2025, materially above the minimum regulatory requirement of 13%. This indicates an enhanced ability of banks to absorb potential losses and to maintain the confidence of depositors and supervisors. Figure X. Core stability metrics—capital adequacy (CAR) and non-performing loans (NPL). CAR remained above the 13% regulatory minimum, reaching 17.3% in 2025, while NPLs fell from 2.1% in 2020 to 1.4% in 2025. [10]

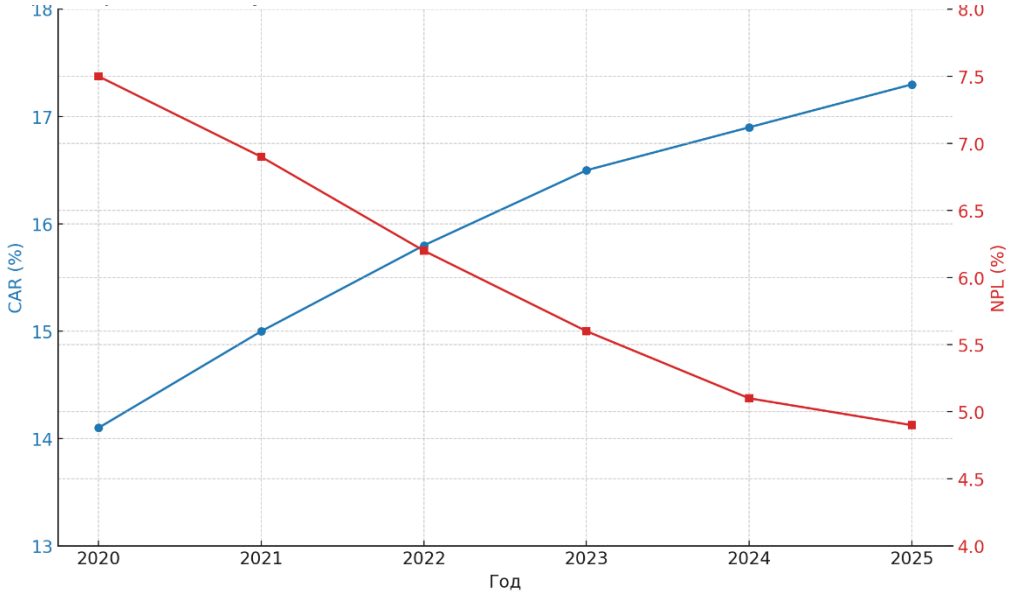

Figure X. Trend in capital adequacy (CAR) and non-performing loans (NPL) in Uzbekistan's banking sector, 2020–2025 [10].

The improvement in liquidity metrics—reflected in a lower proportion of short-term liabilities relative to high-liquidity assets—signals a more prudent asset–liability management stance. This shift is plausibly linked to the adoption of digital cash-flow analytics and liquidity-gap forecasting instruments [5].

A noteworthy development is the decline in non-performing loans (NPLs) from 7.5% in 2020 to 4.9% in 2025. This trajectory reflects an improvement in portfolio quality and more effective credit-risk management. The deployment of digital solutions—such as automated scoring systems, big-data analytics, and integration with external databases—has enabled banks to assess borrower solvency more precisely and to respond promptly to early signs of default.

Digitalization not only reduces costs; it also enables product differentiation, enhances the customer experience, and supports the deployment of predictive-analytics models. In addition, the growth of platform ecosystems (marketplace banking) allows banks to integrate with fintech firms and to build

ISSN: 2776-1010 Volume 6, Issue 11, November 2025

more resilient business models that are better adapted to a changing economic environment. Taken together, these factors underscore the expanding role of digital solutions in strengthening the financial resilience of Uzbekistan's banks.

Enhancements in liquidity indicators, coupled with a reduction in the NPL ratio from 7.5% to 4.9%, also signal greater system resilience, attributable in part to the deployment of digital instruments for risk management.

The rise in IT-infrastructure investment—from $80 million to $180 million during the period under review —contributed to lower transaction costs and a faster capital-turnover cycle. These effects are especially pertinent under conditions of heightened volatility and inflation, given that digital services enhance flexibility, scalability, and the timeliness of decision-making. In the empirical narrative, we treat sector-level IT-investment growth as contextual evidence rather than a bank-level regressor; it serves to frame the timing and intensity of the digital rollout. In the empirical narrative, we treat sector-level IT-investment growth as contextual evidence rather than a bank-level regressor; it serves to frame the timing and intensity of the digital rollout. [6].

Figure X. Core stability metrics—capital adequacy (CAR) and non-performing loans (NPL). CAR remained above the 13% regulatory minimum, reaching 17.3% in 2025, while NPLs fell from 2.1% in 2020 to 1.4% in 2025.

Concurrently, the rollout of mobile banking platforms and remote customer-identification systems has widened financial inclusion, especially in areas with constrained branch access. This, in turn, strengthens banks' liability base and mitigates reliance on a narrow cohort of corporate borrowers.

Accordingly, digitalization constitutes both a catalyst for modernization and a component of system-wide resilience: it mitigates operational and credit risks, strengthens transparency, and expedites banks' adjustment to evolving supervisory requirements. However, realizing these resilience gains depends on institutional support—ranging from cybersecurity to the refinement of the regulatory environment.

Recommendations

1. Sustain investment in digital infrastructure and biometric technologies.
2. Strengthen cybersecurity and build IT workforce capabilities.
3. Advance the regulatory framework in line with international best practices (e.g., PSD2, GDPR).
4. Promote digital inclusion in the regions through telecom infrastructure and digital literacy programs.

The analysis indicates that digitalization exerts a materially positive effect on the resilience of Uzbekistan's banking system. The expansion of remote banking, process automation, and the adoption of fintech solutions have helped reduce operational risks, strengthen capital positions, and advance financial inclusion. At the same time, challenges persist—most notably the digital divide, heightened cyber risks, and the need to adapt the regulatory framework. Durable resilience gains from digital solutions are achievable only with adequate institutional enablers, prudent regulation, and sustained improvements in digital literacy—areas that call for coherent, system-level public support. To consolidate progress, banks should standardize data quality and model-risk governance; set service-

ISSN: 2776-1010 Volume 6, Issue 11, November 2025

level targets and concentration limits for critical vendors; run joint liquidity and cyber tabletop exercises with the supervisor; and address regional readiness through simplified remote onboarding for low-risk segments and targeted digital-literacy programs.

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