

American Journal of Economics and Business Management

Vol. 9 Issue 9 | **pp.** 1124-1142 | **ISSN:** 2576-5973

Available online @ https://www.globalresearchnetwork.us/index.php/ajebm

Article

Cost, Risk and Value Creation in Uzbekistan's Reforming Banking System – A Three-Block Assessment of Commercial Bank Efficiency, 2020–2025

Absamatov Asqar Ergashovich

1. Independent Researcher at Tashkent State University of Economics

* Correspondence: absamatovasqar@gmail.com

Abstract: This paper assesses the efficiency of commercial banks in Uzbekistan over 2020–2025, the period covered by the national banking-sector reform strategy, using a three-block framework that combines accounting indicators with a DuPont decomposition, frontier efficiency estimated by data envelopment analysis, and risk-adjusted returns compared with the domestic cost of capital. The analysis uses Central Bank statistics for the system and uniform national-standard financial statements for six banks that held 33.0 per cent of system assets at the end of 2025: three banks with state participation, two private banks and Ipoteka-bank, sold to a strategic investor in 2023. Three results stand out. First, system-wide return on equity rose from 10.3 to 12.4 per cent, but the increase came from higher asset utilisation and leverage while the profit margin fell from 25.3 to 18.6 per cent; in every year the system's return on equity stayed below the rate paid on corporate term deposits. Second, the gap between state and private banks is not an operating-cost gap: the state banks with the lowest cost-to-income ratios carry the highest cost of risk, whereas the private banks combine high operating costs with wide margins, low problem loans and returns 9.5–13.5 percentage points above the deposit benchmark. Third, mean technical efficiency across 36 bank-years is 0.892, scale efficiency is uniformly high and all six banks operated under decreasing returns to scale in 2025, so growth by itself is not a source of efficiency. The privatised bank shows the early-stage pattern of a balance-sheet clean-up rather than an efficiency gain. The findings point to funding structure, credit-risk management and asset utilisation, rather than branch and staff costs, as the margins on which efficiency in state-dominated banking systems can be raised.

Keywords: bank efficiency; data envelopment analysis; DuPont decomposition; state ownership; privatisation; cost of risk; value creation; Uzbekistan

Citation: Ergashovich, A. A. Cost, Risk and Value Creation in Uzbekistan's Reforming Banking System – A Three-Block Assessment of Commercial Bank Efficiency, 2020–2025 . American Journal of Economics and Business Management 2026, 9(9), 1124-1142

Received: 13th Jun 2026
Revised: 28th Jul 2026
Accepted: 15th Aug 2026
Published: 28th Sep 2026

Copyright: © 2026 by the authors. Submitted for open access publication under the terms and conditions of the Creative Commons Attribution (CC BY) license (https://creativecommons.org/licenses/by/4.0/)

1. Introduction

Uzbekistan entered the 2020s with one of the most state-dominated banking systems among transition economies. At the start of 2020, thirteen banks with state participation held 84.4 per cent of system assets, and bank lending was financed to a large extent from government funds and foreign credit lines rather than deposits: loans exceeded deposits by a factor of 2.3. The Strategy for Reforming the Banking System for 2020–2025, approved by Presidential Decree PF-5992 of 12 May 2020, set out to change this configuration by privatising state banks, raising the share of non-state banks in assets to 60 per cent by 2025, and shifting the sector towards market-based funding and commercial lending. The six years that followed were a period of rapid balance-sheet growth, falling but still high

inflation and the first large privatisation in the sector, the sale of Ipoteka-bank to OTP Group in .[1]

Whether this growth was efficient is a different question from whether it was large. Between the end of 2019 and the end of 2025 system assets rose 3.4 times to UZS 924.8 trillion and net profit 2.75 times to UZS 15.5 trillion, yet the return on equity of the system moved only from 10.3 to 12.4 per cent, below the weighted average rate on corporate term deposits in every year. The share of banks with state participation fell to 63.5 per cent, short of the strategy's target, and nine state-influenced banks still dominate the balance sheet of the sector. Performance also diverged sharply across banks: in 2024 the eight largest banks, most of them state-owned, held 70.0 per cent of assets but earned 30.0 per cent of profit, with a return on equity of 2.98 per cent, while mid-sized banks earned 14–23 per cent on their capital.[2]

This paper asks three questions. First, how efficient were Uzbek commercial banks over 2020–2025 when efficiency is measured jointly along its cost, risk, frontier and value dimensions rather than through a single ratio? Second, do banks with state participation and private banks differ, and if so in which component of efficiency does the difference arise? Third, what did the first privatisation do to measured efficiency in its initial years? To answer them we apply a three-block framework to six banks that differ by ownership and business model: Uzsanoatqurilishbank (SQB), Asakabank and Turonbank, in which the state retains a controlling stake; the private Hamkorbank and Ipak Yuli Bank; and Ipoteka-bank, state-owned until 2023 and private since. The first block covers accounting indicators of cost, income and risk efficiency and a DuPont decomposition of return on equity. The second estimates frontier efficiency with data envelopment analysis (DEA) in an intermediation specification in which loan-loss provisions enter as an input, so that output produced at the expense of higher credit risk is not rewarded. The third block measures risk-adjusted returns and compares returns with two domestic benchmarks for the opportunity cost of capital. The blocks are then integrated in a rank-sum rating and a two-dimensional efficiency matrix.[3]

The paper contributes to the literature on bank efficiency in transition economies in three ways. It provides the first bank-level, multi-method assessment that covers the whole reform period in Uzbekistan, including the post-privatisation years of Ipoteka-bank, on a uniform national-standard data basis. It shows that the state–private gap in this system is not an operating-cost gap: the state banks with the lowest cost-to-income ratios carry the highest cost of risk and the highest funding costs, and their accounting returns are supported by leverage rather than by asset utilisation. And it documents that scale efficiency is uniformly high while all six banks operated under decreasing returns to scale in 2025, which means that the growth strategy pursued by several banks cannot by itself raise efficiency.[4]

The remainder of the paper is organised as follows. Section 2 reviews the literature. Section 3 describes the institutional setting and system-level trends. Section 4 presents the data and methods. Section 5 reports the results of the three blocks and their integration, Section 6 discusses them and Section 7 concludes.[5][6]

Evidence on Uzbekistan is thin. Nigmonov, using data for 2004–2006, found that the inefficiency of Uzbek banks was mainly technical rather than scale-related. The IMF's Financial Sector Assessment Program of 2025 documented progress in supervision and the remaining dominance of state banks .[7][8] No study has yet combined accounting, frontier and risk-adjusted measures for individual banks over the reform period, or examined the first privatisation in the sector. This paper addresses that gap.[9]

3. Institutional setting and system-level trends

Table 1 summarises the structural change in the banking system between the start of 2020 and the end of 2025. The number of banks rose from 30 to 36 as digital and niche banks were licensed, while the number of banks with state participation fell from 13 to 9. Assets grew 3.4 times in nominal terms; deflated by the consumer price index, annual real growth ranged from 7.4 to 20.8 per cent. In dollar terms assets reached USD 76.9 billion at the end of 2025. The share of state-influenced banks in assets declined from 84.4 to 63.5 per cent, a result of the sale of Ipoteka-bank in 2023 and of Poytaxt Bank in 2024, and of

faster growth of private and digital banks; nevertheless the 60 per cent target of the strategy was not met. The funding structure changed more than the ownership structure. Deposits grew 4.6 times, faster than assets, and the loan-to-deposit ratio fell from 232 to 145 per cent. The ratio remains very high by international standards and differs sharply by ownership: 190 per cent in banks with state participation against 98 per cent in other banks at the end of 2025. State banks thus continue to fund lending from non-deposit sources, government funds and foreign credit lines, and this feature, as we show below, explains much of their higher interest-expense burden.[10]

Table 1. Structural indicators of the banking system of Uzbekistan, end of year

Indicator	2019	2020	2021	2022	2023	2024	2025
Number of commercial banks	30	32	33	32	35	36	36
of which with state participation	13	13	12	12	10	9	9
Total assets, UZS trillion	272.7	366.1	444.9	556.7	652.2	769.3	924.8
Share of banks with state participation in assets, %	84.4	84.9	81.5	78.2	67.7	65.4	63.5
Total assets, USD billion	–	35.0	41.2	49.5	52.9	59.8	76.9
Loans, UZS trillion	211.6	277.0	326.4	390.0	471.4	533.1	604.0
Deposits, UZS trillion	91.0	114.7	156.2	216.7	241.7	308.7	417.3
Capital, UZS trillion	51.0	58.4	70.9	79.6	97.1	114.8	135.3
Loans / deposits, %	232	241	209	180	195	173	145
Real growth of assets, %	–	20.8	10.5	11.5	7.7	7.4	12.0

Source: Central Bank of the Republic of Uzbekistan, Statistical Bulletin, March 2026 (Tables 1.2, 3.7, 5.1.1, 5.1.2); author's calculations. The 2019 column refers to 1 January 2020; dollar values at the official year-end rate; real growth deflated by the December-to-December consumer price index.

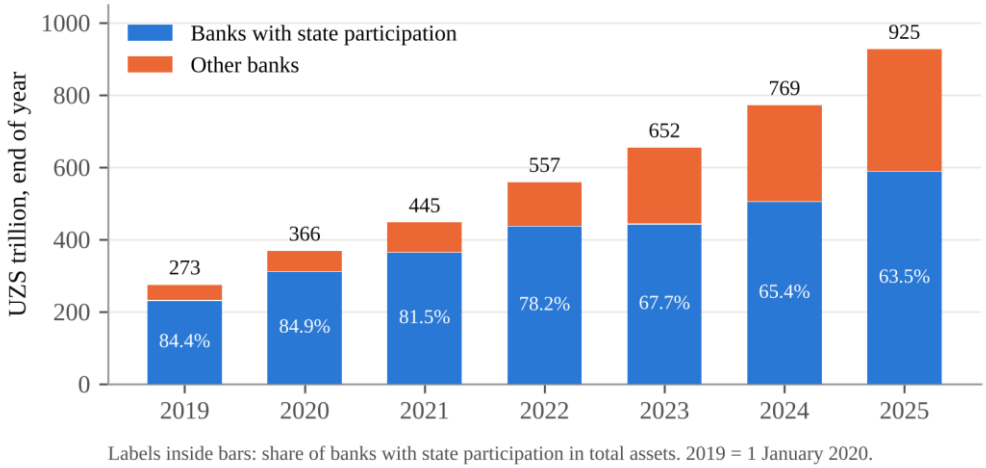


Figure 1. Assets of the banking system by ownership, UZS trillion (end of year)
Source: Central Bank of the Republic of Uzbekistan, Statistical Bulletin, March 2026; author's calculations.

Figure 1 shows that the assets of banks without state participation grew 7.9 times over 2019–2025 while those of state-influenced banks grew 2.6 times. The growth engine of the system is shifting towards the private segment, but in absolute terms state banks still account for almost two thirds of the balance sheet.[11]

The income side of the system's accounts changed in two respects. Interest income rose 3.45 times, from UZS 37.1 trillion in 2020 to UZS 127.7 trillion in 2025, but interest expense rose faster, 3.90 times, so that interest expense absorbed 70.2 per cent of interest income in 2025 against 62.1 per cent in 2020. The rising cost of funds reflects a policy rate held at 13.5–15.0 per cent, a growing share of term deposits and more expensive foreign

borrowing. Banks passed most of it on to borrowers: the ratio of net interest income to total assets stayed within 4.46–4.89 per cent, and net interest income on loans relative to loans rose from 5.07 to 6.29 per cent. At the same time the income mix shifted towards non-interest sources. Net non-interest income rose 5.5 times, from UZS 8.3 trillion to UZS 45.3 trillion, and its share in gross income (net interest income plus net non-interest income) rose from 37.1 to 54.4 per cent, exceeding net interest income for the first time in 2025. Part of this is a real expansion of fee income from payments and cards; part is an accounting effect, because under national standards foreign-exchange gains and losses are recorded gross, and simultaneous growth of both sides inflates net non-interest income. The share of non-interest income should therefore be read with caution, and bank-level data in Section 5 show how much of it is commission income.[12]

On the cost side three groups of items determine the financial result: interest expense, operating expenses and provisions (Table 2). Operating expenses grew 3.7 times over the period, in line with gross income, so that the cost-to-income ratio stayed within 32.7–38.1 per cent and ended the period where it started. Measured by the IMF's financial soundness indicator, which relates all non-interest expenses to the sum of net interest income and gross non-interest income, the cost ratio rose from 45.1 to 52.3 per cent; the widening gap between the two measures reflects the growth of non-operating non-interest expenses, mainly on foreign-exchange operations and revaluation. Operating expenses relative to average assets rose from 2.55 to 3.57 per cent, so the cost of running a unit of assets increased despite a sharp consolidation of the branch network, from 861 branches at the end of 2020 to 288 at the end of 2025, and the expansion of 24/7 self-service outlets from 1,452 to 5,615. A low cost-to-income ratio in this setting is not evidence of operating efficiency; it is a product of wide margins and nominal income growth under inflation.[13]

Table 2. Operating expenses, provisions and asset quality in the banking system, 2020–2025

Indicator	2020	2021	2022	2023	2024	2025
Operating expenses, UZS trillion	8.1	11.0	14.9	19.6	23.7	30.3
Operating expenses / gross income (C/I), %	36.5	38.1	32.7	33.9	35.6	36.3
Non-interest expenses / gross income (IMF definition), %	45.1	47.1	46.5	46.2	51.9	52.3
Operating expenses / average assets, %	2.55	2.71	2.97	3.24	3.34	3.57
Staff costs / non-interest expenses, %	45.2	43.4	34.6	35.6	30.2	29.4
Loan-loss provisions, UZS trillion	6.4	12.2	13.9	18.4	25.9	22.9
Loan-loss provisions / average loans (cost of risk), %	2.60	4.05	3.87	4.27	5.16	4.03
Provisions on other assets, UZS trillion	0.9	0.3	4.2	4.6	7.4	11.7
Total provisions / gross income, %	32.4	43.4	39.7	39.9	50.0	41.6
Non-performing loans / total loans, %	2.09	5.20	3.59	3.53	3.97	2.99
Profit before tax / gross income, %	31.2	18.5	27.6	26.2	14.5	22.1
Net profit, UZS trillion	5.6	3.9	10.0	12.4	7.0	15.5
Return on equity, %	10.29	6.10	13.34	14.24	6.62	12.38
Regulatory capital adequacy, %	18.4	17.5	17.8	17.5	17.4	18.3

Source: Central Bank of the Republic of Uzbekistan, Statistical Bulletin, March 2026 (Tables 5.1.3–5.1.8) and Statistical Bulletin 2021 (Tables 5.1.8a–5.1.8b); author's calculations. Gross income is net interest income plus net non-interest income before operating expenses and provisions.

Provisions were the strongest and most volatile influence on profit. Loan-loss provisions rose from UZS 6.4 trillion to UZS 22.9 trillion, and their ratio to average loans, the cost of risk, from 2.60 per cent in 2020 to 5.16 per cent in 2024 before easing to 4.03 per

cent in 2025; provisions on other assets rose more than thirteen-fold. In 2025 total provisions absorbed 41.6 per cent of gross income, more than operating expenses did. Their path tracks the non-performing loan ratio, which jumped to 5.20 per cent in 2021 when pandemic-related loan holidays expired and fell back to 2.99 per cent in 2025. Figure 2 brings the cost ratios together: over 2020–2025 the burden of interest expense and provisions rose while the operating-cost burden was flat. The binding constraint on the financial result of the system is risk efficiency and the cost of funds, not operating-cost efficiency.[14]

Net profit rose from UZS 5.6 trillion to UZS 15.5 trillion, 2.75 times in nominal and 74 per cent in real terms, but not smoothly: it fell by 37 per cent in real terms in 2021 and by 49 per cent in 2024, in both cases because provisions jumped (1.9 times in 2021, 1.41 times in 2024), and more than doubled in 2022 and 2025. Return on equity accordingly dipped to 6.1 and 6.6 per cent in those two years and recovered to 12.4 per cent in 2025. Capital adequacy was unaffected: regulatory capital never fell below 17.4 per cent of risk-weighted assets. The share of net profit in gross income, the ability of banks to turn income into profit, declined from 25.3 to 18.6 per cent, with a trough of 10.4 per cent in 2024. A decomposition of the UZS 9.9 trillion increase in net profit between 2020 and 2025 shows where the income went: net interest income contributed UZS 24.0 trillion and net non-interest income UZS 37.0 trillion, while higher operating expenses took UZS 22.1 trillion, loan-loss provisions UZS 16.6 trillion, provisions on other assets UZS 10.8 trillion and tax UZS 1.6 trillion. Eighty-four per cent of the UZS 60.9 trillion increase in income was absorbed by costs and provisions; sixteen per cent became profit.[15]

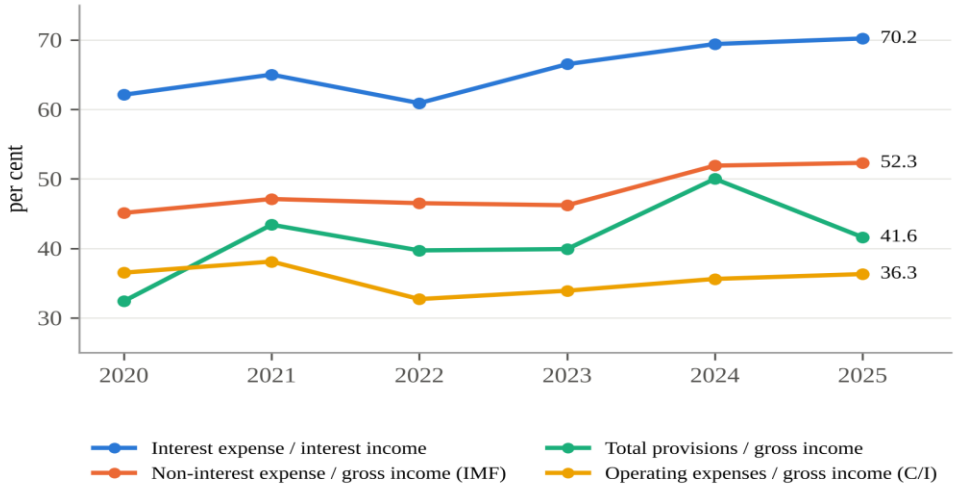


Figure 2. Cost ratios of the banking system, 2020–2025, per cent
Source: Central Bank of the Republic of Uzbekistan, Statistical Bulletin, March 2026; author's calculations.

System averages hide large differences between banks. The Central Bank's grouping of banks by asset size for 2024 shows an inverse relation between size and profitability: the eight banks with assets above UZS 30 trillion, most of them with state participation, held 70.0 per cent of system assets and earned 30.0 per cent of net profit, with a return on assets of 0.65 per cent and a return on equity of 2.98 per cent, whereas the groups with assets of UZS 3–30 trillion earned 14.1–22.9 per cent on equity, and the eleven smallest banks, several of them newly licensed digital banks, ended the year with a loss. This pattern, which contradicts the usual presumption of scale economies, motivates the bank-level analysis that follows.[16]

2. Materials and Methods

2.1 Sample and data

Six banks were selected to represent the ownership and business-model variety of the system within a uniform data basis (Table 3). SQB, Asakabank and Turonbank are banks with a controlling state stake; Hamkorbank and Ipak Yuli Bank are private banks focused

on retail and small-business lending; Ipoteka-bank was state-owned until June 2023, when a controlling stake was sold to OTP Group. Together the six banks held 33.0 per cent of system assets at the end of 2025. The sample allows differences between state and private banks and the effect of privatisation to be observed on the same data basis; it is not a random sample of the 36 banks, and the results are read as a structured comparison rather than as population estimates.[17]

Three groups of sources were used. System-level data come from the Central Bank's statistical bulletins (income and expense accounts, profitability, capital adequacy, liquidity, non-performing loans, interest rates and the branch network) and from its bank-level tables of key indicators and problem loans published for each 1 January from 2021 to 2026. Bank-level flows come from the banks' annual financial statements in the Central Bank's national-standard format, the balance sheet and the statement of financial results, obtained from the Unified Corporate Information Portal (openinfo.uz) and the banks' websites. Annual and investor reports were used for qualitative information.

Table 3. Position of the sample banks in the system, 2020 and 2025

Bank	Ownership	Assets 2020, UZS trn	Assets 2025, UZS trn	Average annual asset growth, %	Share in system assets 2020, %	Share 2025, %	Capital 2020, UZS trn	Capital 2025, UZS trn	Loans / deposits 2025, %
SQB	state	49.0	102.4	15.9	13.4	11.1	6.70	11.88	206
Asakabank	state	45.5	61.8	6.3	12.4	6.7	6.43	8.24	190
Turonbank	state	8.7	21.8	20.1	2.4	2.4	1.21	2.09	174
Ipoteka-bank	private since 2023	32.4	54.7	11.0	8.9	5.9	4.27	7.74	127
Hamkorbank	private	10.5	35.9	28.0	2.9	3.9	1.48	6.71	159
Ipak Yuli Bank	private	7.0	28.4	32.5	1.9	3.1	1.19	4.43	110
Banking system		366.1	924.8	20.4	100	100	58.4	135.3	145

Source: Central Bank of the Republic of Uzbekistan, key indicators of commercial banks by bank as of 1 January 2021–2026; author's calculations. End-of-year balances; growth is the compound annual rate; ownership as at the end of 2025.

All bank data are on the same national accounting basis, so banks are comparable with one another and with the system aggregates; total assets reported in the statements were reconciled with the Central Bank's bank-level figures. Flow variables are related to the average of opening and closing balances; for 2020, for which the bank-level opening balances are not published in the same format, closing balances are used. Gross income is defined throughout as net interest income plus net non-interest income, before operating expenses and provisions.[18]

2.2. Accounting indicators and the DuPont decomposition

The first block measures efficiency along four dimensions. Cost efficiency is captured by the cost-to-income ratio (operating expenses to gross income), by operating expenses relative to average assets, and, for international comparison, by the IMF financial-soundness definition (all non-interest expenses to the sum of net interest income and gross non-interest income). Income efficiency is captured by the net interest margin (net interest income to average assets), the ratio of interest expense to interest income, return on assets and return on equity. Risk efficiency is captured by the cost of risk (loan-loss provisions to average loans) and the non-performing loan ratio from the Central Bank's bank-level data. Return on equity is decomposed as

$$\mathrm{ROE} = \frac{\mathrm{NP}}{\mathrm{GI}} \times \frac{\mathrm{GI}}{\bar{A}} \times \frac{\bar{A}}{\bar{E}},$$

where NP is net profit, GI gross income, $\bar{A}$ average assets and $\bar{E}$ average equity. The first factor, the profit margin, measures the share of income that survives costs, provisions and tax and thus summarises cost and risk control; the second, asset utilisation, measures gross income generated per unit of assets and reflects pricing and asset mix; the third is the equity multiplier, the leverage of the bank. The product of the first two factors is the return on assets. An increase in return on equity obtained through the third factor alone is a change in risk, not in efficiency (European Central Bank, 2010).[19]

2.3. Frontier efficiency

The second block estimates technical efficiency by input-oriented DEA. For bank-year o among n observations, with input vector $x_o = (x_{1o}, \dots, x_{mo})$ of m inputs and output vector $y_o = (y_{1o}, \dots, y_{so})$ of s outputs, the CCR efficiency score θ_o^{CCR} is the optimal value θ^* of the linear programme

$$\min_{\theta,\lambda} \theta \quad \text{subject to} \quad \begin{cases} \sum_{j=1}^{n} \lambda_j x_{ij} \le \theta x_{io}, & i = 1, \dots, m, \\ \sum_{j=1}^{n} \lambda_j y_{rj} \ge y_{ro}, & r = 1, \dots, s, \\ \lambda_j \ge 0, & j = 1, \dots, n, \end{cases}$$

where λ_j $(j = 1, \dots, n)$ are the intensity weights of the reference bank-years and θ is the proportional contraction applied to all inputs of bank-year o. The BCC score θ_o^{BCC} is obtained by adding the convexity constraint $\sum_j \lambda_j = 1$ to (2), and scale efficiency is the ratio $\mathrm{SE}_o = \theta_o^{\mathrm{CCR}} / \theta_o^{\mathrm{BCC}}$. The sum of the optimal intensity weights in the CCR solution, $\sum_j \lambda_j^*$, indicates whether the observation operates under increasing (sum below one), constant or decreasing (sum above one) returns to scale (Banker, Charnes and Cooper, 1984). The specification follows the intermediation approach. Inputs are interest expense (the cost of borrowed funds), operating expenses (the cost of labour and physical capital) and loan-loss provision expense (the cost of the credit risk assumed); outputs are the loan portfolio at the end of the year and gross income. Including provisions among the inputs implements the requirement that credit losses be treated as an undesirable by-product of lending: a bank that produces the same loans and income with lower provisions is more efficient. The 36 bank-years (six banks over six years) are pooled against a single inter-temporal frontier, so that every bank-year is evaluated against the best practice observed in any bank in any year; the sample size exceeds three times the number of inputs and outputs, the usual minimum for DEA (Banker et al., 1989). Robustness was checked with two alternative specifications, one adding equity to the inputs and one adding the stock of non-performing loans.[20]

2.4. Risk-adjusted returns and value creation

The third block asks whether returns were stable and whether they covered the opportunity cost of capital. Stability is measured by the risk-adjusted return $\mathrm{RAR}_i = \overline{\mathrm{ROA}}_i / \sigma_i$ and by the Z-score $Z_i = \left(\overline{\mathrm{ROA}}_i + \overline{E/A}_i\right) / \sigma_i$, where $\overline{\mathrm{ROA}}_i$ and $\overline{E/A}_i$ are the 2020–2025 means of the return on assets and the equity-to-assets ratio of bank i and σ_i is the standard deviation of its annual return on assets; the Z-score expresses by how many standard deviations profit must fall before equity is exhausted (Roy, 1952; Laeven and Levine, 2009). Because the shares of Uzbek banks are thinly traded, market-based models of the cost of equity cannot be estimated with confidence. Two domestic benchmarks were used instead: the Central Bank's policy rate (13.5–15.0 per cent at year-ends in the period) and the weighted average rate on corporate term deposits in national currency (15.7–17.2 per cent, annual averages). The true cost of equity exceeds these rates by a risk premium, so a return on equity below the deposit rate is a sufficient, though not a necessary, indication that a bank does not cover its cost of capital; value creation is therefore measured by the spread $\overline{\mathrm{ROE}}_i - \bar{r}_d$ between mean return on equity and the mean deposit rate. Real returns for 2025 are obtained by deflating return on equity by December-to-December consumer price inflation π: $\mathrm{ROE}_{\mathrm{real}} = (1 + \mathrm{ROE}) / (1 + \pi) - 1$.

2.5. Integration

The three blocks are integrated in two ways. An integral rating ranks the six banks on seven indicators averaged over 2020–2025 (cost-to-income ratio, return on equity, net interest margin, cost of risk, non-performing loan ratio, mean CCR score and risk-adjusted return on assets), lower values being better for the cost-to-income ratio, cost of risk and non-performing loans, and averages the ranks. A two-dimensional efficiency matrix places the banks by mean frontier efficiency (threshold 0.9, i.e. a potential input saving of more than 10 per cent) and by value creation (mean return on equity minus the deposit benchmark, threshold zero).

3. Results

3.1. Profitability and the structure of income and expenses

Table 4 reports net profit and return on equity for the six banks. Three groups emerge. The private banks earned high and stable returns: Hamkorbank's return on equity ranged between 23 and 38 per cent and Ipak Yuli Bank's between 21 and 31 per cent, and their net profit rose 5.0 and 3.7 times over the period. Among the state banks SQB kept its return close to the system average (11.9–17.2 per cent), whereas Asakabank and Turonbank saw their returns fall from 5.3 and 9.5 per cent in 2020 to 3.1 and 1.2 per cent in 2025; their capital earned next to nothing. Ipoteka-bank followed a third path: its return on equity peaked at 21.0 per cent in 2022, fell to 12.1 per cent in 2023, the year of the change of control, turned into a loss of UZS 240 billion in 2024 and recovered to 5.3 per cent in 2025.

Table 4. Net profit and return on equity of the sample banks

Bank	Net profit, UZS billion						Return on equity, %		
	2020	2021	2022	2023	2024	2025	2020	2023	2025
SQB	798	998	589	912	1,303	1,880	11.9	11.0	17.2
Asakabank	341	100	73	151	42	254	5.3	2.3	3.1
Turonbank	115	102	53	58	23	25	9.5	3.1	1.2
Ipoteka-bank	483	694	1,156	819	–240	400	11.3	12.1	5.3
Hamkorbank	339	451	735	1,200	1,427	1,705	22.9	37.9	28.7
Ipak Yuli Bank	251	366	470	740	911	929	21.1	30.8	23.2
Banking system	5,642	3,885	9,993	12,380	6,966	15,502	10.3	14.2	12.4

Source: banks' annual financial statements in the Central Bank format (openinfo.uz and banks' websites); Central Bank bank-level data; author's calculations. Bank-level ROE is net profit over the average of opening and closing equity; the system figure is the Central Bank's.

The Ipoteka-bank loss was not caused by shrinking income. In 2024 the bank earned UZS 3,633 billion of net interest income and UZS 5,256 billion of gross income; the loss arose because loan-loss provisions were raised from UZS 2,119 billion to UZS 3,825 billion, equivalent to 10.9 per cent of the loan book. This is the first instance in Uzbekistan of the pattern observed after bank privatisations elsewhere: a re-assessment of asset quality and a balance-sheet clean-up under the new owner. The years 2024–2025 are therefore too early to judge the effect of privatisation on efficiency. The provisions built in 2024 lower future credit costs and reveal the bank's underlying profitability, but the 2025 return of 5.3 per cent is still far below that of the long-established private banks.

Table 5 compares the structure of income and expenses in 2020 and 2025. The burden of funding costs rose sharply in the state banks: interest expense absorbed 86.7 per cent of interest income at Asakabank, 81.2 per cent at Turonbank and 68.6 per cent at SQB in 2025, against 52.9–59.3 per cent in the private banks. As a result the net interest margin of Asakabank and Turonbank fell to 1.2 and 1.7 per cent of average assets, while Hamkorbank and Ipak Yuli Bank earned 7.5 and 7.6 per cent. Operating costs relative to gross income rose in the state banks other than SQB, from 19 to 40 per cent at Asakabank

and from 54 to 69 per cent at Turonbank, and this was due less to cost growth than to the contraction of gross income. Commission income accounts for 25–33 per cent of gross income in the private banks, whereas in the state banks, with the exception of Asakabank in 2025, most non-interest income comes from foreign-exchange operations: at SQB net income from foreign-exchange operations was UZS 1,478 billion in 2025, 18 per cent of gross income. Finally, net profit retained 34–37 per cent of gross income in the private banks but only 4–8 per cent at Asakabank and Turonbank, where almost all income generated is consumed by funding, operating and risk costs.

Table 5. Structure of income and expenses of the sample banks, 2020 and 2025, per cent

Bank	Year	Net interest income / gross income	Net non-interest income / gross income	of which commission income	Interest expense / interest income	Operating expenses / gross income	Loan-loss provisions / loans	Net profit / gross income
SQB	2020	53.6	46.4	12.8	55.5	25.6	3.01	26.3
SQB	2025	41.3	58.7	8.6	68.6	24.9	3.80	22.9
Asakabank	2020	42.9	57.1	9.6	71.4	19.5	3.62	15.0
Asakabank	2025	21.6	78.4	36.2	86.7	39.7	3.17	7.9
Turonbank	2020	73.0	27.0	21.7	60.5	53.9	0.28	31.1
Turonbank	2025	45.7	54.3	23.7	81.2	68.9	1.32	3.5
Ipoteka-bank	2020	71.7	28.3	16.6	56.4	33.9	2.53	24.8
Ipoteka-bank	2025	58.4	41.6	9.8	67.5	30.2	11.25	6.3
Hamkorbank	2020	60.7	39.3	26.0	56.8	38.5	3.13	30.7
Hamkorbank	2025	52.3	47.7	25.1	52.9	40.5	2.47	36.6
Ipak Yuli Bank	2020	66.3	33.7	28.3	47.6	40.6	3.05	30.4
Ipak Yuli Bank	2025	70.8	29.2	33.3	59.3	53.1	1.33	33.7
Banking system	2020	62.9	37.1	–	62.1	36.5	2.60	25.3
Banking system	2025	45.6	54.4	–	70.2	36.3	4.03	18.6

Source: banks' annual financial statements in the Central Bank format; Central Bank Statistical Bulletin, March 2026; author's calculations. Commission income relative to gross income; loan-loss provisions relative to end-of-year loans; commission income is not separately reported for the system.

3.2. Efficiency indicators

Table 6 presents the full set of efficiency indicators, averaged over 2020–2025 and for 2025, and distinguishes three efficiency profiles. The first is that of SQB and Ipoteka-bank: a low cost-to-income ratio (26.6 and 28.7 per cent on average), operating expenses below the system average relative to assets (2.05 and 2.74 per cent), but a high cost of risk (4.04 and 6.56 per cent). These banks are cost-efficient but risk-inefficient. The second profile belongs to Hamkorbank and Ipak Yuli Bank: a high cost-to-income ratio (39.6 and 43.7 per cent) and operating expenses of 5.39–5.81 per cent of assets, compensated by wide net interest margins (7.52 and 8.13 per cent) and low problem loans (1.38 and 2.22 per cent). This is the high-cost, high-margin, low-risk model typical of retail and small-business lending. The third profile, Asakabank and Turonbank, combines a thin margin (2.24 and 2.95 per cent), a heavy interest-expense burden (74.4 and 68.0 per cent of interest income) and low returns (return on equity of 2.3 and 4.1 per cent); at Turonbank a high cost-to-income ratio (58.4 per cent on average, 68.9 per cent in 2025) is added.

Table 6. Efficiency indicators of the sample banks, 2020–2025 average and 2025

Bank	Period	C/I, %	Operating expenses / average assets, %	Interest expense / interest income, %	Net interest margin, %	ROA, %	ROE, %	Cost of risk, %	NPL ratio, %
SQB	2020–2025	26.6	2.05	60.0	3.91	1.57	12.6	4.04	2.52
SQB	2025	24.9	2.15	68.6	3.57	1.98	17.2	3.78	2.53
Asakabank	2020–2025	31.8	1.56	74.4	2.24	0.31	2.3	3.43	4.21
Asakabank	2025	39.7	2.14	86.7	1.16	0.42	3.1	3.28	3.62
Turonbank	2020–2025	58.4	2.76	68.0	2.95	0.58	4.1	1.68	2.52
Turonbank	2025	68.9	2.50	81.2	1.66	0.13	1.2	1.41	3.41
Ipoteka-bank	2020–2025	28.7	2.74	62.6	5.98	1.37	10.2	6.56	4.41
Ipoteka-bank	2025	30.2	3.59	67.5	6.94	0.75	5.3	11.31	3.55
Hamkorbank	2020–2025	39.6	5.39	52.3	7.52	4.94	30.1	2.64	1.38
Hamkorbank	2025	40.5	5.85	52.9	7.55	5.28	28.7	2.74	0.80
Ipak Yuli Bank	2020–2025	43.7	5.81	53.7	8.13	4.23	26.1	3.32	2.22
Ipak Yuli Bank	2025	53.1	5.68	59.3	7.58	3.61	23.2	1.41	1.12
Banking system	2020–2025	35.5	3.06	65.7	4.63	1.60	10.5	4.00	3.56
Banking system	2025	36.3	3.57	70.2	4.51	1.83	12.4	4.03	2.99

Source: banks' annual financial statements in the Central Bank format; Central Bank bank-level data and Statistical Bulletin, March 2026; author's calculations. Net interest margin, ROA and operating expenses relative to average assets, ROE to average equity, cost of risk to average loans; NPL ratio at year-end; the 2020–2025 column is the simple mean of annual values.

The year-by-year path of the cost-to-income ratio confirms that these profiles are stable. The ratio of SQB and Ipoteka-bank stayed within 21–34 per cent throughout, and Hamkorbank's moved only from 38.5 to 40.5 per cent. Two banks deteriorated. Turonbank's ratio rose from 53.9 to 68.9 per cent and Ipak Yuli Bank's from 40.6 to 53.1 per cent, for different reasons. At Ipak Yuli Bank the cause is growth: with assets expanding by more than 32 per cent a year, spending on network and staff ran ahead of income, the familiar temporary tension between growth and efficiency. At Turonbank the cause lies on the income side: over 2020–2025 assets grew 2.50 times and operating expenses 2.46 times, but gross income only 1.92 times, and the net interest margin narrowed from 3.10 to 1.66 per cent, because growth was financed with expensive funds and placed in low-margin loans.

3.3. Sources of return on equity

Table 7 reports the DuPont decomposition for the system and the six banks. At the system level the increase in return on equity from 10.3 to 12.4 per cent did not come from the profit margin, which fell from 25.3 to 18.6 per cent; it came from asset utilisation, which rose from 6.99 to 9.83 per cent, and from the equity multiplier, which rose from 5.84 to 6.77. Banks learned to extract more gross income from a unit of assets, through high lending rates and non-interest income, and to lever their capital more, but a smaller share of income reached the bottom line. The 2024 dip to 6.6 per cent was entirely a margin effect; the other two factors were unchanged.

Table 7. DuPont decomposition of return on equity, 2020 and 2025

Bank, year	Profit margin (NP/GI), %	Asset utilisation (GI/average assets), %	Return on assets, %	Equity multiplier, times	Return on equity, %
Banking system, 2020	25.3	6.99	1.77	5.84	10.3
Banking system, 2025	18.6	9.83	1.83	6.77	12.4
SQB, 2020	26.3	6.18	1.63	7.32	11.9
SQB, 2025	22.9	8.63	1.98	8.68	17.2
Asakabank, 2020	15.0	5.00	0.75	7.08	5.3
Asakabank, 2025	7.9	5.39	0.42	7.38	3.1
Turonbank, 2020	31.1	4.25	1.32	7.20	9.5
Turonbank, 2025	3.5	3.62	0.13	9.81	1.2
Ipoteka-bank, 2020	24.8	6.00	1.49	7.58	11.3
Ipoteka-bank, 2025	6.3	11.88	0.75	7.09	5.3
Hamkorbank, 2020	30.7	10.55	3.24	7.08	22.9
Hamkorbank, 2025	36.6	14.43	5.28	5.45	28.7
Ipak Yuli Bank, 2020	30.4	11.86	3.61	5.84	21.1
Ipak Yuli Bank, 2025	33.7	10.70	3.61	6.43	23.2

Source: Central Bank Statistical Bulletin, March 2026 (system); banks' annual financial statements and Central Bank bank-level data (banks); author's calculations. Averages of opening and closing balances; the product of the factors may differ from ROE because of rounding. System ROE for 2021 and 2023 computed on the same basis is 6.0 and 14.0 per cent.

Across banks the decomposition separates the ownership groups cleanly (Figure 3). The high returns of the private banks rest on two factors, a high profit margin (36.6 per cent at Hamkorbank and 33.7 per cent at Ipak Yuli Bank in 2025) and high asset utilisation (14.43 and 10.70 per cent), while their multipliers (5.45 and 6.43) are below those of the state banks; the fall in Hamkorbank's multiplier from 7.08 to 5.45 shows a bank capitalising its profits and reducing leverage. The state banks show the opposite picture. Asset utilisation at Asakabank and Turonbank is two to four times lower than in the private banks (5.39 and 3.62 per cent), and their profit margins fell to 7.9 and 3.5 per cent in 2025; the contraction of Turonbank's margin from 31.1 per cent explains the whole of the decline in its return on equity from 9.5 to 1.2 per cent. SQB raised its return on equity the way the system did, through asset utilisation (from 6.18 to 8.63 per cent) and a higher multiplier (from 7.32 to 8.68). Ipoteka-bank nearly doubled its asset utilisation (from 6.00 to 11.88 per cent) under the new owner's pricing and asset policy, but its margin shrank from 24.8 to 6.3 per cent because income was diverted to provisions; once the provisioning burden normalises, this utilisation ratio could lift its return towards private-bank levels.

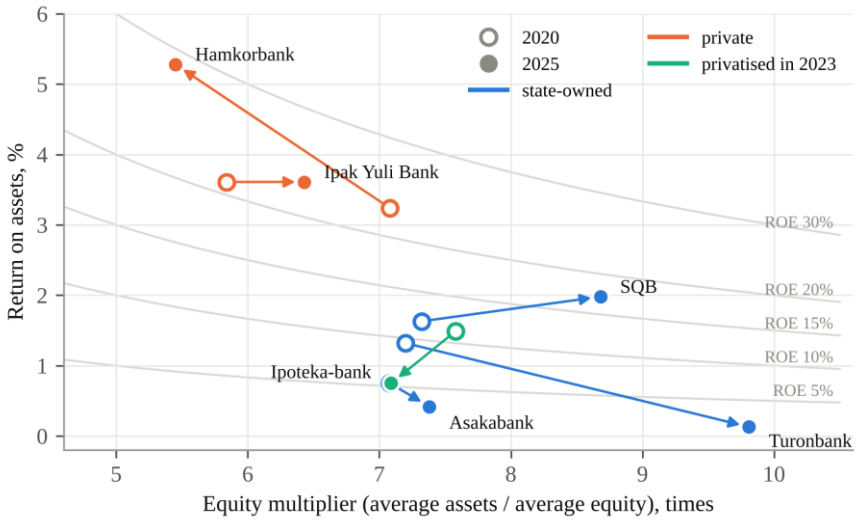


Figure 3. Return on assets and equity multiplier of the sample banks, 2020 and 2025 (grey curves: combinations with equal return on equity)
Source: Table 7. Hollow markers denote 2020, filled markers 2025; arrows show the direction of change.

In Figure 3 the private banks sit in the high-return-on-assets, low-multiplier region and the state banks in the low-return, high-multiplier region; over 2020–2025 Hamkorbank moved up and to the left, Turonbank and Asakabank down and to the right. The main source of the efficiency gap is therefore not capital structure but asset utilisation and the quality of cost and risk control. Raising return on equity through leverage, the path visible in the state banks, erodes the capital buffer and is not sustainable.

3.4. Frontier efficiency

The DEA results are reported in Table 8 and Figure 4. Eight of the 36 bank-years lie on the frontier, and mean technical efficiency under constant returns to scale is 0.892: on average the banks could have produced their loans and income with 11 per cent fewer inputs. The ranking by mean CCR score is SQB (0.985), Hamkorbank (0.936), Asakabank (0.893), Ipak Yuli Bank (0.888), Ipoteka-bank (0.854) and Turonbank (0.798). SQB's leadership should be read with the largest-unit effect in mind: the largest bank in a sample tends to be efficient by construction under variable returns to scale, and SQB's BCC score is 1.000 in every year while its CCR score falls to 0.922 in 2023. Hamkorbank's high frontier efficiency is informative in a different way. The feature that appears as a high cost-to-income ratio in the accounting block is not penalised by DEA, because the bank generates proportionately more income and loans from its costs. Turonbank and Ipoteka-bank are the least efficient, for different reasons: Turonbank's inefficiency is pure technical inefficiency (BCC 0.879), an excess of inputs, whereas Ipoteka-bank's low scores in 2024–2025 (0.688 and 0.733) reflect its provisioning burden.

Table 8. DEA efficiency scores of the sample banks (input-oriented, single inter-temporal frontier)

Bank	Technical efficiency (CCR) by year						Mean, 2020–2025			Returns to scale, 2025
	2020	2021	2022	2023	2024	2025	CCR	BCC	Scale	
SQB	1.000	0.991	1.000	0.922	1.000	0.998	0.985	1.000	0.985	decreasing
Asakabank	1.000	0.937	0.910	1.000	0.745	0.764	0.893	0.962	0.928	decreasing
Turonbank	1.000	0.792	0.739	0.820	0.670	0.766	0.798	0.879	0.910	decreasing
Ipoteka-bank	0.923	0.874	1.000	0.906	0.688	0.733	0.854	0.869	0.984	decreasing
Hamkorbank	0.863	0.917	0.953	1.000	0.968	0.913	0.936	0.978	0.957	decreasing
Ipak Yuli Bank	0.875	0.851	0.933	0.882	0.871	0.915	0.888	0.947	0.939	decreasing
Mean	0.943	0.894	0.922	0.922	0.823	0.848	0.892	0.939	0.951	

Bank	Technical efficiency (CCR) by year						Mean, 2020–2025			Returns to scale, 2025
	2020	2021	2022	2023	2024	2025	CCR	BCC	Scale	
Efficient bank-years	3	0	2	2	1	0	8	17		

Source: author's calculations from the banks' annual financial statements and Central Bank bank-level data. Inputs: interest expense, operating expenses, loan-loss provision expense; outputs: loans at year-end, gross income. Scale efficiency is the CCR/BCC ratio; returns to scale from the sum of intensity weights in the CCR solution.

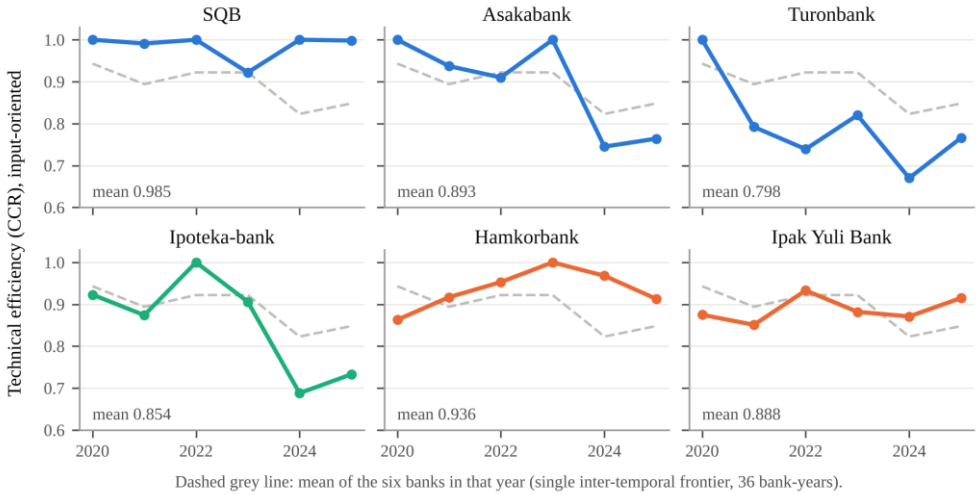


Figure 4. Technical efficiency (CCR) of the sample banks by year, 2020–2025
Source: Table 8.

The time profile of efficiency mirrors system profitability. Mean CCR efficiency fell from 0.943 in 2020 to 0.894 in 2021, recovered to 0.922 in 2022–2023, dropped to 0.823 in 2024 and stood at 0.848 in 2025. Against the inter-temporal frontier, 2020, the year of pandemic-related forbearance and deferred provisioning, remains the best-practice year. Scale efficiency is high for every bank (0.910–0.985), so most of the measured inefficiency is technical, that is, managerial, rather than a matter of size; this agrees with the earlier finding of Nigmonov (2010) for 2004–2006. In 2025 all six banks operated under decreasing returns to scale: growth as such cannot be a source of efficiency for them.

The ranking is robust to the specification. When equity is added to the inputs, the two leaders, SQB and Hamkorbank, are unchanged, and the rank correlation across bank-years with the baseline is 0.62 ($p < 0.001$); the number of efficient observations rises to 16 and Asakabank falls to last place, the usual loss of discriminating power when variables are added to a small sample. When the stock of non-performing loans is added as an input the results are practically unchanged (rank correlation 0.96), which indicates that the provisions variable already captures credit risk adequately. The DEA scores correlate strongly and negatively with the cost-to-income ratio (–0.61, $p < 0.001$), moderately and negatively with the non-performing loan ratio (–0.37, $p < 0.05$) and moderately and positively with return on equity (0.33, $p < 0.05$), while the correlation with the cost of risk is insignificant (0.15). Frontier efficiency thus mainly reflects cost efficiency and asset quality, whereas accounting profitability additionally depends on leverage and pricing; the two methods measure different facets of performance and complement one another.

3.5. Risk-adjusted returns and value creation

Table 9 turns to the stability of returns and to value creation. Risk adjustment changes the profitability ranking only partly. By the ratio of mean return on assets to its standard deviation Ipak Yuli Bank leads (8.6): its high return came with the smallest fluctuation (0.49 percentage points). Hamkorbank (4.7) and SQB (4.6) are almost level, and Asakabank, Turonbank and Ipoteka-bank score 1.3–1.4. Asakabank has the highest Z-score (59.6), but this reflects high capitalisation (13.0 per cent of assets) and a profit that is

stable because it is close to zero; here the Z-score measures solvency, not efficiency. Ipoteka-bank's low Z-score (15.0) reflects the volatility of return on assets produced by the 2024 loss.

Table 9. Risk-adjusted returns and value creation, 2020–2025

Bank	Mean ROA, %	Standard deviation of ROA, p.p.	$\overline{ROA}/\sigma$	Z-score	Mean ROE, %	ROE minus deposit rate, mean, p.p.	Real ROE 2025, %
SQB	1.57	0.34	4.6	40.9	12.6	–4.0	9.2
Asakabank	0.31	0.22	1.4	59.6	2.3	–14.3	–3.9
Turonbank	0.58	0.45	1.3	30.4	4.1	–12.5	–5.6
Ipoteka-bank	1.37	1.02	1.3	15.0	10.2	–6.4	–1.8
Hamkorbank	4.94	1.06	4.7	20.4	30.1	+13.5	20.0
Ipak Yuli Bank	4.23	0.49	8.6	41.2	26.1	+9.5	14.8
Banking system	1.60	0.45	3.5	36.8	10.5	–6.1	4.7

Source: author's calculations from the banks' annual financial statements, Central Bank bank-level data and Statistical Bulletin, March 2026. Z-score $Z_i = \left(\overline{\mathrm{ROA}_i} + \overline{E/A_i}\right)/\sigma_i$, where σ_i is the population standard deviation of annual ROA over 2020–2025; deposit rate is the annual weighted average rate on corporate term deposits in national currency; real ROE deflated by the December-to-December consumer price index.

The value-creation results are unambiguous (Figure 5). The return on equity of the banking system was below the rate on corporate term deposits in each of the six years, by 6.1 percentage points on average, and in 2025 the system's return (12.4 per cent) was below even the policy rate (14.0 per cent). Taken as a whole, the system does not cover the opportunity cost of its shareholders' capital: accounting profit is positive, economic profit negative. Only the private banks create value, Hamkorbank by 13.5 and Ipak Yuli Bank by 9.5 percentage points above the deposit rate on average. SQB is on the threshold (–4.0 percentage points on average) and in 2025 its return of 17.2 per cent exceeded the deposit rate for the first time. At Asakabank and Turonbank the gap is –14.3 and –12.5 percentage points; state capital loses a sizeable part of its value every year. After inflation, the 2025 real return on equity of Asakabank, Turonbank and Ipoteka-bank is negative (–3.9, –5.6 and –1.8 per cent).

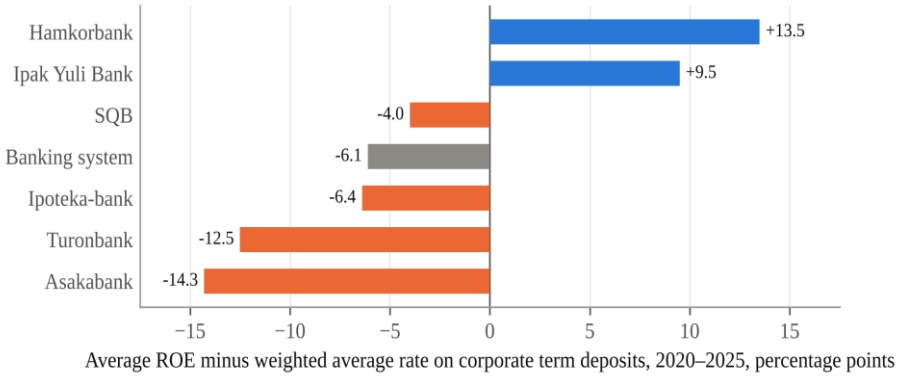


Figure 5. Mean return on equity minus the corporate term-deposit rate, 2020–2025, percentage points
Source: Table 9.

3.6. Integral rating and the efficiency matrix

Table 10 combines seven indicators in a rank-sum rating. Hamkorbank ranks first (mean rank 2.00), Ipak Yuli Bank second (2.57) and SQB third (3.00); Asakabank and Ipoteka-bank share fourth and fifth place (4.43) and Turonbank is last (4.57). The leaders

reach the top through different strengths, Hamkorbank through returns, margin and asset quality, SQB through cost efficiency and frontier efficiency, which shows that efficiency can be achieved by more than one business model. The rating is strongly associated with ownership: the two private banks occupy the top three together with the largest state bank, and two of the three state banks are in the bottom three.

Table 10. Integral efficiency rating of the sample banks (2020–2025 averages; rank in parentheses)

Bank	C/I, %	ROE, %	Net interest margin, %	Cost of risk, %	NPL ratio, %	Mean CCR	$\overline{ROA}/\sigma$	Mean rank	Overall rank
SQB	26.6 (1)	12.6 (3)	3.91 (4)	4.04 (5)	2.52 (4)	0.985 (1)	4.6 (3)	3.00	3
Asakabank	31.8 (3)	2.3 (6)	2.24 (6)	3.43 (4)	4.21 (5)	0.893 (3)	1.4 (4)	4.43	4–5
Turonbank	58.4 (6)	4.1 (5)	2.95 (5)	1.68 (1)	2.52 (3)	0.798 (6)	1.3 (6)	4.57	6
Ipoteka-bank	28.7 (2)	10.2 (4)	5.98 (3)	6.56 (6)	4.41 (6)	0.854 (5)	1.3 (5)	4.43	4–5
Hamkorbank	39.6 (4)	30.1 (1)	7.52 (2)	2.64 (2)	1.38 (1)	0.936 (2)	4.7 (2)	2.00	1
Ipak Yuli Bank	43.7 (5)	26.1 (2)	8.13 (1)	3.32 (3)	2.22 (2)	0.888 (4)	8.6 (1)	2.57	2

Source: Tables 6, 8 and 9; author's calculations. Lower values are better for C/I, cost of risk and the NPL ratio, higher values for the other indicators; the mean rank is the simple average of the seven ranks.

Figure 6 places the banks in the efficiency matrix. Hamkorbank alone occupies the first quadrant, efficient and value-creating; its priority is to scale a working model. SQB is in the second quadrant, close to the frontier but short of covering its cost of capital; its problem is not costs but a cost of risk of 4.04 per cent and a low-margin portfolio linked to state programmes, so the levers are credit-risk management, diversification and pricing. Ipak Yuli Bank is in the third quadrant, creating value with a lower frontier score; for it the task is to align the pace of growth with cost efficiency and to bring operating expenses (5.81 per cent of assets) down through digital delivery. Asakabank, Turonbank and Ipoteka-bank are in the fourth quadrant and need comprehensive change: cheaper deposit funding and higher asset utilisation in all three, cost reduction at Turonbank and restoration of asset quality at Ipoteka-bank.

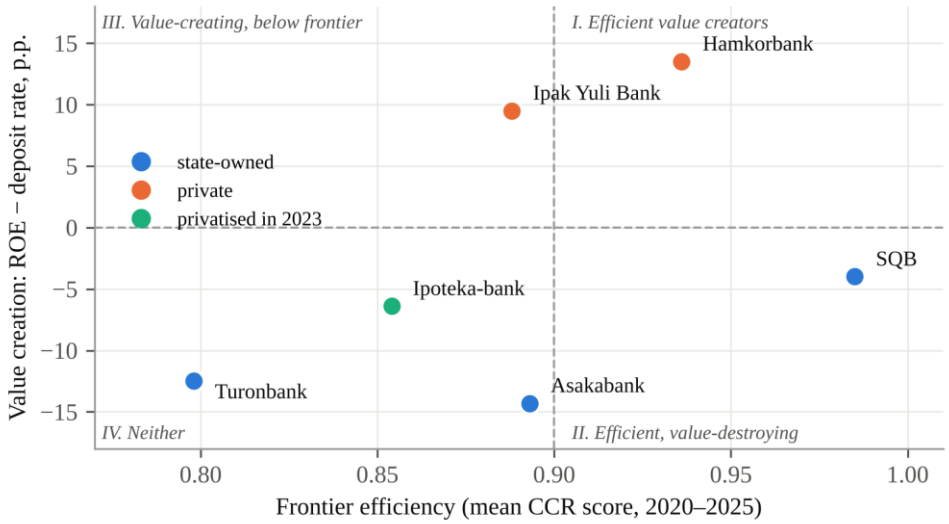


Figure 6. Efficiency matrix of the sample banks: frontier efficiency and value creation, 2020–2025

Source: Tables 8 and 9. Thresholds: mean CCR score of 0.9; ROE equal to the corporate term-deposit rate.

4. Discussion

The results speak to four strands of the literature. The first concerns ownership. The finding that two of the three state banks are the least efficient on almost every dimension, while the private banks earn returns well above the cost of capital, is in line with the transition-economy evidence of Bonin, Hasan and Wachtel (2005), Fries and Taci (2005) and Cornett et al. (2010) and with the Chinese experience documented by Berger, Hasan and Zhou (2009). What the three-block design adds is the location of the gap. It is not in operating costs: SQB and Ipoteka-bank have the lowest cost-to-income ratios in the sample, and even Asakabank's operating expenses are only 1.56 per cent of assets. The gap lies in the funding structure, with loan-to-deposit ratios of 174–206 per cent and interest expense absorbing 69–87 per cent of interest income in the state banks, in asset utilisation, which is two to four times lower than in the private banks, and in credit risk. These are management and business-model variables. The low profitability of state banks is usually attributed to lending under government programmes, but asset utilisation, funding mix, the rising cost-to-income ratio and the lowest frontier scores at Asakabank and Turonbank can be improved without a change of owner, which has implications for how the remaining state banks are prepared for sale.

The second strand is the relation between cost efficiency and risk. The accounting profiles reveal a trade-off that a single ratio would hide: the banks with the lowest cost-to-income ratios (SQB, 26.6 per cent; Ipoteka-bank, 28.7 per cent) carry the highest cost of risk (4.04 and 6.56 per cent), whereas the banks with the highest operating costs have the lowest problem loans. This is the pattern Berger and DeYoung (1997) describe under the skimping hypothesis, in which low monitoring expenditure makes a bank look efficient until credit losses appear, and it matches the finding of Fiordelisi, Marques-Ibanez and Molyneux (2011) that cost efficiency and risk are jointly determined. The DEA specification with provisions as an input confirms the point from the other side: the correlation of frontier scores with the cost of risk is insignificant, and Hamkorbank's high operating costs are not penalised because they purchase income and asset quality. In Uzbekistan's conditions, with a system-wide cost of risk of 4.0 per cent and total provisions absorbing 42 per cent of gross income in 2025, the largest reserve of efficiency lies in asset quality rather than in staff and branch costs, a conclusion that also holds for the system as a whole.

The third strand concerns the interpretation of return on equity. The decomposition shows that the system's accounting returns improved through asset utilisation and leverage while the profit margin fell, and that the state banks' returns are leverage-supported, with multipliers of 7.4–9.8 against 5.5–6.4 in the private banks. This is the configuration that the European Central Bank (2010) warned against when it argued that return on equity should not be read without its risk component, and it suggests that the equity injections which have kept the regulatory capital ratio of the system above 17 per cent have been used to carry more balance sheet rather than to earn more on each unit of it. Growth itself is not the remedy: scale efficiency is high everywhere, all six banks operated under decreasing returns to scale in 2025, and the fastest-growing bank in the sample, Ipak Yuli Bank, saw its cost-to-income ratio rise from 40.6 to 53.1 per cent as network and staff costs ran ahead of income. The scale result agrees with Nigmonov (2010) and with the broader finding that inefficiency in emerging-market banking is predominantly technical.

The fourth strand is privatisation. Ipoteka-bank's trajectory, with a return on equity of 21.0 per cent in 2022, a loss in 2024 driven by provisions equal to 10.9 per cent of loans and a 5.3 per cent return in 2025, reproduces the dynamic effect identified by Berger et al. (2005): performance deteriorates after a change of control as the new owner re-assesses asset quality, and improves later. Asset utilisation at the bank almost doubled between 2020 and 2025, which suggests that pricing and asset policy changed quickly, while the profit margin will recover only when provisioning normalises. Two or three post-privatisation years are not enough to measure the efficiency effect of the sale, and the Ipoteka-bank case argues for building an asset-quality review into the preparation of the remaining state banks for sale rather than leaving it to the buyer.

Internationally, the system's position is one of high cost and medium returns. Measured on the IMF definition, Uzbekistan's cost ratio of 52.3 per cent in 2025 is well above the average of eight emerging-market systems in our comparison set (43.6 per cent) and close to the average of nine advanced systems (56.5 per cent), while its return on equity of 12.4 per cent is above the advanced-economy average (10.9 per cent) and far below the emerging-market average (18.3 per cent); its non-performing loan ratio (2.99 per cent) is close to the emerging-market average (2.65 per cent) and its capital adequacy (18.3 per cent) matches both groups. Given the level of inflation and interest rates in Uzbekistan, the return gap is larger than the nominal figures suggest.

Several implications follow for the strategy that succeeds the 2020–2025 programme. For the state banks the priorities are a shift of funding towards deposits, which would compress the interest-expense ratios of 81–87 per cent that now consume the margins of Asakabank and Turonbank; credit-risk management and risk-based pricing to bring the cost of risk below the system level; and performance conditions attached to any further state capital, so that injections raise return on assets rather than the equity multiplier. For the supervisor and the owner the results argue for sequencing privatisation with asset-quality reviews and for strengthening the consistency of national-standard disclosure, since the financial statements of several banks filed on the public portal contain blank subtotals and inconsistent interest-expense lines that complicate comparison. For the private banks the challenge is to preserve margins and asset quality while bringing operating costs down as they scale.

The study has limitations. The sample covers six banks and 36 bank-years; the DEA frontier is estimated from a small sample, so scores are relative to the best practice within it, and the largest bank's position should be read with the caveat noted above. A second-stage regression of efficiency scores on their determinants with the bootstrap of Simar and Wilson (2007) would require a larger panel. The data are on national accounting standards, which record foreign-exchange results gross and inflate non-interest income, and the statements of some banks are internally inconsistent in individual years. Averages for 2020 use closing balances only. Finally, the benchmarks for the cost of equity are lower bounds; the true cost of capital, and therefore the value destroyed in the state banks, is higher than the figures reported here.

5. Conclusion

This paper has assessed the efficiency of commercial banks in Uzbekistan over the 2020–2025 reform period with a framework that combines accounting indicators and a DuPont decomposition, frontier efficiency estimated by DEA with loan-loss provisions as an input, and risk-adjusted returns compared with the domestic cost of capital, for six banks that differ by ownership and business model.

The banking system grew 3.4 times in assets and 2.75 times in net profit, but its profit growth was unstable, interrupted in 2021 and 2024 by provisioning waves, and its return on equity rose from 10.3 to 12.4 per cent only through higher asset utilisation and leverage while the profit margin fell from 25.3 to 18.6 per cent. The operating cost-to-income ratio was stable at around 36 per cent, but the broader IMF cost ratio rose from 45 to 52 per cent and operating expenses relative to assets from 2.55 to 3.57 per cent; provisions absorbed 42 per cent of gross income in 2025. In every year the system's return on equity stayed below the rate paid on corporate term deposits, so that the system as a whole did not cover the opportunity cost of its capital.

At the bank level the differences follow ownership, but their source is not where it is usually sought. The state banks with the lowest cost-to-income ratios have the highest cost of risk and the highest funding costs, their asset utilisation is a fraction of that of the private banks, and their returns are supported by leverage; Asakabank and Turonbank earned 2.3 and 4.1 per cent on equity against a deposit benchmark of 15.7–17.2 per cent, and their real returns in 2025 were negative. The private banks operate a high-cost, high-margin, low-risk model that yields returns 9.5–13.5 percentage points above the deposit rate and ranks first and second on the integral rating. Mean technical efficiency is 0.892, scale efficiency is uniformly high and all banks operated under decreasing returns to scale

in 2025; inefficiency is managerial, and growth alone will not remove it. The privatised Ipoteka-bank shows the early-stage pattern of a balance-sheet clean-up, with a provisioning-driven loss in 2024 and a sharp rise in asset utilisation, and its efficiency effect cannot yet be judged.

For policy, the results shift the emphasis of efficiency programmes in state-dominated banking systems away from branch and staff costs and towards funding structure, credit-risk management and asset utilisation, and they argue for performance conditions on state capital and for asset-quality reviews ahead of privatisation. For research, the natural next steps are a larger panel that permits a two-stage analysis of the determinants of frontier efficiency, and a re-assessment of the privatised bank once its provisioning cycle is complete.

REFERENCES

[1] O. O. Akdeniz, H. A. Abdou, A. I. Hayek, J. C. Nwachukwu, A. A. Elamer, and C. Pyke, "Technical efficiency in banks: A review of methods, recent innovations and future research agenda," Review of Managerial Science, vol. 18, no. 11, pp. 3395–3456, 2024.

[2] P. P. Athanasoglou, S. N. Brissimis, and M. D. Delis, "Bank-specific, industry-specific and macroeconomic determinants of bank profitability," Journal of International Financial Markets, Institutions and Money, vol. 18, no. 2, pp. 121–136, 2008.

[3] R. D. Banker, A. Charnes, and W. W. Cooper, "Some models for estimating technical and scale inefficiencies in data envelopment analysis," Management Science, vol. 30, no. 9, pp. 1078–1092, 1984.

[4] R. D. Banker, A. Charnes, W. W. Cooper, J. Swarts, and D. Thomas, "An introduction to data envelopment analysis with some of its models and their uses," Research in Governmental and Nonprofit Accounting, vol. 5, pp. 125–163, 1989.

[5] J. R. Barth, C. Lin, Y. Ma, J. Seade, and F. M. Song, "Do bank regulation, supervision and monitoring enhance or impede bank efficiency?" Journal of Banking & Finance, vol. 37, no. 8, pp. 2879–2892, 2013.

[6] A. N. Berger and C. H. S. Bouwman, "How does capital affect bank performance during financial crises?" Journal of Financial Economics, vol. 109, no. 1, pp. 146–176, 2013.

[7] A. N. Berger, G. R. G. Clarke, R. Cull, L. Klapper, and G. F. Udell, "Corporate governance and bank performance: A joint analysis of the static, selection, and dynamic effects of domestic, foreign, and state ownership," Journal of Banking & Finance, vol. 29, nos. 8–9, pp. 2179–2221, 2005.

[8] A. N. Berger and R. DeYoung, "Problem loans and cost efficiency in commercial banks," Journal of Banking & Finance, vol. 21, no. 6, pp. 849–870, 1997.

[9] A. N. Berger, I. Hasan, and M. Zhou, "Bank ownership and efficiency in China: What will happen in the world's largest nation?" Journal of Banking & Finance, vol. 33, no. 1, pp. 113–130, 2009.

[10] A. N. Berger and D. B. Humphrey, "Efficiency of financial institutions: International survey and directions for future research," European Journal of Operational Research, vol. 98, no. 2, pp. 175–212, 1997.

[11] A. N. Berger and L. J. Mester, "Inside the black box: What explains differences in the efficiencies of financial institutions?" Journal of Banking & Finance, vol. 21, no. 7, pp. 895–947, 1997.

[12] J. P. Bonin, I. Hasan, and P. Wachtel, "Bank performance, efficiency and ownership in transition countries," Journal of Banking & Finance, vol. 29, no. 1, pp. 31–53, 2005.

[13] B. Casu, C. Girardone, and P. Molyneux, Introduction to Banking, 2nd ed. Harlow, U.K.: Pearson Education, 2015.

[14] Central Bank of the Republic of Uzbekistan, Statistical Bulletin, March 2026. Tashkent, Uzbekistan: Central Bank of the Republic of Uzbekistan, 2026.

[15] A. Charnes, W. W. Cooper, and E. Rhodes, "Measuring the efficiency of decision making units," European Journal of Operational Research, vol. 2, no. 6, pp. 429–444, 1978.

[16] M. M. Cornett, L. Guo, S. Khaksari, and H. Tehranian, "The impact of state ownership on performance differences in privately-owned versus state-owned banks: An international comparison," Journal of Financial Intermediation, vol. 19, no. 1, pp. 74–94, 2010.

[17] A. Demirgüç-Kunt and H. Huizinga, "Determinants of commercial bank interest margins and profitability: Some international evidence," World Bank Economic Review, vol. 13, no. 2, pp. 379–408, 1999.

[18] K. Djalilov and J. Piesse, "Determinants of bank profitability in transition countries: What matters most?" Research in International Business and Finance, vol. 38, pp. 69–82, 2016.

[19] European Central Bank, Beyond ROE—How to Measure Bank Performance: Appendix to the Report on EU Banking Structures. Frankfurt am Main, Germany: European Central Bank, 2010.
[20] M. J. Farrell, "The measurement of productive efficiency," Journal of the Royal Statistical Society: Series A (General), vol. 120, no. 3, pp. 253–290, 1957.