

# The Financial Readiness of State-Owned Banks in Uzbekistan To Support Green Projects: A Ratio-Based Analysis

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**Abstract:** This study investigates the financial readiness of state-owned banks to provide support for green financing initiatives, in accordance with Uzbekistan's strategic objectives for a green economy. The paper employs a ratio-based approach to assess the capacity of banks to finance green projects in light of the lack of detailed environmental data. Key financial indicators, including Return on Assets (ROA), Return on Equity (ROE), Capital Adequacy, Liquidity, and Leverage ratios, are analyzed using publicly available financial statements. Subsequently, these indicators are employed to generate a Green Financing Readiness Index, which facilitates a comparative evaluation of the readiness of institutions. The expected results indicate that while certain institutions may exhibit profitability and capital stability, the potential for long-term green investment may be impeded by liquidity constraints and high leverage. The study concludes by providing suggestions for the improvement of institutional and financial capabilities in order to promote sustainable banking in Uzbekistan. This research contributes to the theme of sustainable development finance which is a hot topic in Uzbekistan as of today and bolsters the national initiatives implemented under the "Uzbekistan – 2030" strategy.

**Keywords:** Green Financing; Financial Readiness; State-Owned Banks; Environmental Finance; Uzbekistan – 2030 Strategy; Green Economy; Financial Ratios; Capital Adequacy; Green Investment; Liquidity Constraints; Sustainable Development Finance.

**Introduction:** Green economic growth is emerging as a strategic priority for Uzbekistan these days as it is trying to align itself with global sustainability goals. These efforts are clearly visible in Uzbekistan's "Uzbekistan – 2030" strategy issued on September 11, 2023 based on Presidential Decree No. DP-158 which emphasizes a pivotal transition to a green economy, with a goal of increasing renewable energy capacity to 25,000 MW, intending for renewables to represent 40% of the country's overall energy consumption (CAU, 2023). The initiatives continued in 2025 too, which first started with the declaration of the year being the year of Environmental Protection and Green Economy and

aimed at implementing green technologies, conserving water resources, expanding green spaces, and enhancing waste management practices. These priorities were all formalized in the Presidential Decree titled "On the State Program for the Implementation of the Uzbekistan–2030 Strategy in the Year of Environmental Protection and Green Economy," issued on February 7, 2025 (Yuz.uz, 2025). Also, during the Abu Dhabi Sustainability Week in January 2025, President Mirziyoyev emphasized the initiation of a National Program for Green Financing and a comprehensive Low-Carbon Development Strategy. He emphasized Uzbekistan's objective to incorporate a green component in 50% of all new investment projects

within the next five years, aiming to establish the country as a future center for green energy innovation in the region (Times of Central Asia, 2025). Furthermore, more recently during the first Climate Forum held in Samarqand in April, 2025 President Shavkat Mirziyoyev again highlighted the significance of regional cooperation in addressing global climate issues. He advocated for collaborative solutions and emphasized Uzbekistan's preparedness to assume a leadership position in green development throughout Central Asia (News Central Asia, 2025). In this context, financial institutions, particularly state-owned banks, play a crucial role in financing environmentally sustainable projects and contribute significantly to Uzbekistan's economy. As of 2023, they hold a dominant asset share of 65% of total GDP, with a concerning 69% of bank assets owned by the government (Pulatov and Islamov, 2025). Historically, these banks have primarily focused on lending to state-owned firms and are currently the subject of ongoing corporate governance reforms designed to improve efficiency, transparency, and profitability (EBRD, 2023). However, there is limited available information about if they are financing green projects and how prepared they are to do so. Therefore, this study aims at assessing the financial readiness of these banks to support the green initiatives.

## LITERATURE REVIEW

Green finance is about financial investments directed towards sustainable development projects and activities that promote the advancement of a more sustainable economy. It includes various financial instruments, such as green bonds, green loans, and other products aimed at financing projects with environmental advantages (Yameen et al., 2024). The scholars also highlighted that banking sector is crucial in this area by directing funding to sustainable initiatives and including environmental risk evaluations into their lending practices.

At the same time, Uzbekistan has exhibited a robust commitment to transitioning towards a green economy. The "Strategy on the Transition of the Republic of Uzbekistan to a Green Economy for the Period 2019–2030" breaks down the country's goals for attaining sustainable economic development while reducing environmental implications (Asiapacificenergy.org, 2019). This plan highlights the significance of using green technologies, enhancing energy efficiency, and promoting sustainable agriculture practices. Sangirova et al. (2024) present a comprehensive examination of this strategy, addressing its objectives and execution methods.

## Role of State-Owned Banks

State-owned banks in Uzbekistan play a crucial role in funding the nation's green efforts. The World Bank's research "Prime Picks for a Green Pivot: Uzbekistan State Funds for Climate Action" underscores the capacity of these institutions to support climate initiatives via targeted investments in environmentally sustainable projects (World Bank, 2024). The International Finance Corporation (IFC) highlights the initiatives of banks such as Uzpromstroybank to incorporate green finance into their operations, indicative of a wider trend among Uzbek financial institutions (IFC, 2021).

Regardless of the advancements, challenges remain in the execution of green banking practices in Uzbekistan. Gulomkodiroya (2023) highlights the lack of established definitions and assessment frameworks for green banking, which obstructs effective implementation. Conversely, there are prospects in the growth of financial instruments such as green bonds and sukuks, as outlined by the Organisation for Economic Co-operation and growth (OECD), which recommends strategies for their advancement in the Uzbek economy (OECD, 2023).

## International support

International organizations have played a supportive role in Uzbekistan's green transition so far. Starting with The Asian Development Bank (ADB), It has approved and facilitated the programs aimed at accelerating Uzbekistan's climate transition, focusing on policy reforms and institutional strengthening (ADB, 2023). Additionally, the United Nations Development Programme (UNDP) has initiated policy dialogues to support green recovery and the transition to a green economy in Uzbekistan (UNDP, 2021). All of these initiatives show how supportive the allies of the country on its development towards the green economy

## International insights

A bank's ability and willingness to fund green projects depend on how profitable it is. Banks that make money have more money on hand and a cushion to cover any losses that might come from new or long-term investments. In fact, several studies show that banks that are involved in green finance do better. For instance, a study from Indonesia found that banks that offered green credit made more money without putting their financial stability at risk (Sutrisno et al., 2024). In the same way, survey-based research in Nigeria shows that adopting green banking practices can make businesses more profitable, mostly by improving their reputation and attracting customers (Inegbedion, 2024). These results support the idea that sustainable finance can help banks make money in the

long run and open up new business opportunities. The literature also points out some important things to keep in mind. Some real-world evidence suggests that green lending may lower profits at first because it costs more or yields less. A recent study of Indonesian banks found that having more green loans was linked to a lower short-term return on assets (Riyanti et al., 2025). Reviews of studies from around the world show that the results are also mixed. Some banks make money from green initiatives, while others have problems like higher transaction costs and credit risks in new green sectors. It's important to note that the results can vary depending on the type of bank. For example, in China, large state-owned banks have seen improvements in their performance thanks to green credit programs, while some smaller joint-stock banks saw small drops in profits at first (Zhang et al., 2021, as cited in Fang & Wei, 2022). Most people seem to agree that high profits and a focus on sustainability tend to go hand in hand, which makes it easier for banks to offer more green financing (Sutrisno et al., 2024; Inegbedion, 2024).

Most people agree that banks need enough capital buffers to be able to pay for long-term green projects. Green investments, like infrastructure for renewable energy, often take longer to pay off and may seem riskier, so banks need to have enough money to lend for these kinds of projects without breaking any rules. Studies that look at real-world data show that banks with a lot of money are better able to support sustainable finance. An Indonesian study, for example, says that "strong bank fundamentals such as capital" have a big effect on banks' profitability and stability in green lending (Sutrisno et al., 2024, p. 483). When a bank has a higher Capital Adequacy Ratio (CAR), it can lend more money and absorb more losses. This is important when funding big or new green projects that might not make money right away. On the other hand, banks that don't have enough capital may not be able to lend money to new businesses because of rules or the need to keep capital on hand to stay solvent. Another important part of being ready for green finance is liquidity. Banks that have a lot of cash on hand and stable funding can invest in long-term green projects with less risk of running out of money. Banks need to deal with maturity mismatches when they give out long-term loans for infrastructure or clean energy. This means that they need a strong base of deposits or the ability to issue green bonds to keep lending. There aren't many direct academic studies of bank liquidity and green finance, but most people agree that managing liquidity risk is a key part of sustainable banking (Mazzucato & Semieniuk, 2018). Banks that have more money on hand are better able to deal with

green investments that take longer to pay off and bring in cash. Uzbekistan has a lot of state-owned banks, which means that the government can support them and give them access to sovereign funds. This could make it easier for them to lend money for green projects. However, these banks still need to manage their assets and liabilities well so they don't run into problems when they grow their green portfolios.

Banks must manage risk well in order to do green finance and keep their finances stable. Green projects add new types of risk, such as the risks that come with using new technology and making new policies in renewable energy projects, as well as the bigger effects of climate change on borrowers (physical and transition risks). The literature makes it clear that banks need to improve their risk assessment frameworks to take these things into account. Climate-related risk management has become a hot topic in banking, and early evidence shows that it works. Cucinelli et al. (2023) say that a strong risk management function is very important for European banks to make people more aware of climate risks and to turn sustainability goals into real lending policies. Banks that take environmental risks into account (for example, by doing climate scenario analysis and stress tests) are better able to make smart decisions about financing green projects because they can better price risks and set aside money for long-term exposures. But a lot of banks, especially those in developing markets, are still in the early stages of this integration. A study that looked at banks' climate strategies in Europe found big differences. Only a small number of banks fully aligned their governance and risk models with climate goals (Toma & Stefanelli, 2022). To make data, knowledge, and tools better for evaluating environmental risks in developing countries, they need to build their capacity (Babic, 2024). To help Uzbekistan's state-owned banks make a green transition, they need to improve their risk management practices. This could mean following the Task Force on Climate-related Financial Disclosures guidelines or setting up their own internal green credit standards. This includes teaching employees how to evaluate the viability of green projects and how to factor climate risk into credit decisions and capital planning.

#### • The Role of State-Owned Banks in Green Finance

State-owned banks can be very important in financing sustainability, but they need to find a way to balance policy goals with financial strength. In academic writing, it is said that public banks often have a developmental mandate that lets them put money into green projects that private investors may not be able to do (Campiglio, 2016; Geddes et al., 2018). State banks can "create markets" and get private co-financing by

taking on higher-risk or longer-term green investments. They can do this, for example, by using co-lending or guarantee schemes to lower the risk of renewable energy projects (Geddes et al., 2018; Mazzucato & Semieniuk, 2018). This has been seen in many situations. For example, national investment banks in Germany, China, and other countries have given important funding for clean energy, often starting sectors like solar and wind power by taking on the risks at first (Mazzucato & Semieniuk, 2018). In Uzbekistan, the state-owned banks, which provide most of the country's credit, also have a big part to play in reaching climate goals. Because they are owned by the public and get money from the government, they may be able to look at the long term and be patient when paying for green infrastructure. However, studies also show that state-owned banks often have problems with governance and efficiency, like politicized lending or lower profitability, which could make it harder for them to be sustainable (Berger et al., 2005; Geddes et al., 2018). If these banks have loose budget rules or focus on directed lending without properly pricing risk, they could end up with a lot of bad loans even as they try to be more environmentally friendly. Because of this, many people say that state-owned banks need to improve their governance, transparency, and performance incentives in order to be ready for financial challenges (OECD, 2021). OECD (2023) says that the privatization and reform of some Uzbek state banks may make it harder for them to do green financing by making business rules stricter. In the end, the literature says that state-owned banks will be most helpful in making the green transition happen when they have a strong public-sector mission and good financial fundamentals and risk controls.

## METHODOLOGY

### Research Approach

The financial preparedness of state-owned institutions in Uzbekistan to support green financing is assessed through a quantitative, ratio-based approach in this study. In light of the lack of public data about actual green loans or environmental investments, we employ key financial ratios—derived from the financial statements of banks—as proxy measures to evaluate preparedness. The relevance of these ratios to financial strength, stability, and the ability to implement long-term, sustainability-oriented initiatives is the basis for their selection.

### Data Collection

The analysis is predicated on the financial statements of designated state-owned banks in Uzbekistan that are publicly available. The balance sheet and income statement for the most recent available year(s) are

included in these documents.

The model employs the whole population of 9 state-owned banks in Uzbekistan. The most important indicators are: Return on Assets (ROA), Return on Equity (ROE), Liquidity Ratio (liquid assets against total assets), Capital Adequacy (represented by some form of a capital or risk measurement in the dataset), and Leverage (Debt/Equity). These ratios represent profitability, asset quality/risk, liquidity, and firm solvency respectively – elements important to the ability of the bank to lend in the long term. Specifically:

- **ROA and ROE: Measure of profitability.** Greater ROA/ROE shows greater capacity for generating earnings, which can go towards new lending or compensating for losses. (ROE is connected with ROA through leverage:  $ROE \sim ROA \times (Assets/Equity)$ .)
- **Capital Adequacy: Banks' cushions** (e.g. Tier-1 capital ratio or equity in assets). Greater capital adequacy implies the bank is able to accept greater risk (lend more) prior to violating regulatory constraints, important for supporting large projects. In the dataset a "COR" value is provided; we infer that it is an inverse risk, or capital, ratio (where lower values represent greater asset quality, or capital adequacy, and spikes are indicative of provisioning for losses).
- **Liquidity Ratio:** It is the proportion of liquid assets. The higher the liquidity ratio, the higher the availability of funds for granting new loans (for funding projects) and the capacity for the bank to weather short-run outflows.
- **Leverage (Debt/Equity, D/E):** High D/E is indicative of high leverage (low equity compared with debt), and that is high risk and low solvency. For preparedness, low leverage (high equity) is desired, as it indicates that the bank has the ability to support expansion with its own funds.



Dimension	Ratio	Formula	Relevance to Green Financing
Profitability	Return on Assets (ROA)	Net Income / Total Assets	Indicates the bank's ability to generate returns from its asset base, crucial for funding new green initiatives.
Profitability	Return on Equity (ROE)	Net Income / Shareholder's Equity	Reflects the return generated for shareholders; higher ROE suggests stronger financial performance.
Capital Strength	Equity-to-Asset Ratio	Total Equity / Total Assets	Serves as a basic proxy for capital adequacy and risk-bearing capacity.
Liquidity	Current Ratio	Current Assets / Current Liabilities	Measures the bank's ability to meet short-term obligations, relevant for liquidity management during green lending.
Leverage	Debt-to-Equity Ratio	Total Liabilities / Shareholder's Equity	Assesses financial leverage; lower leverage implies more flexibility to fund green projects.

### Green Financing Readiness Index (GRFI)

**Index Design:** The GRFI is an aggregate indicator created in order to capture the overall preparedness of the bank for green finance. We consolidate the five components (ROA, ROE, Liquidity, Capital Adequacy, Leverage) under the belief that the prepared bank is profitable, sufficiently capitalized, liquid, and cautiously leveraged. We normalize each indicator such that higher value is better for green finance preparedness (e.g., high ROA is desirable, high D/E is undesirable – hence we reverse leverage). We then combine the indicators into an overall index value (on a 0-1 scale for convenience).

**Weighting strategy:** One important decision is how to weight each component in the index. Two popular methods were:

**Equal Weights:** Assigning equal weightage. It is an intuitive and transparent approach. Interestingly, many composite measures resort to equal weights since expert views often converge on approximately equal weights, and strongly unequal weights may be difficult to defend. Equal weights give all aspects (profitability, availability, etc.) the same weight in being crucial for preparedness.

**Statistically Derived Weights (PCA-based):** Applying principal component analysis and infer weights from the variability in the data. PCA identifies the linear mix of indicators best accounting for variance among banks. Were we to apply PCA, such indicators that strongly co-move (e.g., ROA and ROE) would accrue higher implicit weight in the 1st principal component, maximizing the discrimination among banks. This can identify the common factor in health. On the other hand, the disadvantage lies in interpretability since PCA weights may drastically weight in favor of one factor and in effect disregard others, leading to an unbalanced index that may not coincide with policymaker objectives.

**Chosen weighting:** We build the GRFI mainly using

equal weights for the five indicators, for simplicity and for policy relevance. This decision has the purpose that each dimension of readiness is represented. As an exercise in robustness, we analyzed PCA output: the first principal component of our dataset explained ~41% and was dominated by the profitability and leverage variables (ROA, ROE, D/E), whereas liquidity and capital metrics loaded on following components. It indicates that a single-factor index would overweight profitability/leverage and underweight liquidity or capital adequacy. Because all these facets matter for green finance capacity, equal weights would be better suited in order to maintain the index balanced. Also, equal weights are simpler for stakeholders to understand.

**Index calculation:** We normalized all proportions in the 2017–2023 dataset. For ROA, ROE, and for Liquidity, we linearly scaled values from 0 (worst value observed) to 1 (best value observed). For Capital Adequacy (applying the inverse if we presume greater COR = greater risk exposure or loss), and for Leverage (D/E), we inverted the scale (so very high value for D/E would receive a low score on that component). For instance, Xalq Bank in 2021 reported negative equity (since D/E was -0.5, due to a large loss decreasing the capital) – we consider that the worst for leverage (zero value on that component). We calculate GRFI after normalization as the straightforward average of the five component scores.

**GRFI interpretation:** The greater the GRFI (the closer it is to 1), the healthier the bank in that year and the greater the potential for it to increase lending (green lending included) without threatening stability. The lower the GRFI, the greater the presence in one or all areas (e.g. low profit, low capital) and the lower the ability to accept new investment projects. We monitored the path of the GRFI for each bank and compare between banks.

### DISCUSSIONS

Financial preparedness is very uneven among the state-

owned banks, yet there needs to be overall improvement. According to the analysis by the GFRI, few banks (maybe two or three out of the nine) now have high preparedness (scores ~0.7) to increase green lending substantially in the absence of other reforms or support. Others were middling, and some were in fragile positions in recent years. This implies that the system's green project finance capacity is uneven in nature – that concentration of green finance among the stronger banks may ensue, unless weaker banks become stronger or the weaker banks' roles are reallocated. Policymakers should note that pressuring all banks uniformly to finance green projects may not be successful; rather, lead banks may be identified for green programs (most probably the stronger banks) while the weaker banks need to be supported.

Due to recent injections of capital and accumulated earnings, state banks currently comfortably satisfy regulatory requirements for the amount of capital. Should the economy continue growing and the extension of credits reach ~15-20%/year (as it already has), banks will require corresponding increases in capital. Green projects may involve higher risk weights (new technology projects, for instance, may be viewed as riskier until successful), tending to erode the capital faster. Capital planning for green lending should be incorporated into the banks' plans – perhaps building up capital ahead of the anticipated increases in the economy. The government could consider enabling the banks to access the capital market (e.g., IPO, in combination with foreseen privatisation) for green finance funding, instead of exclusively relying on state budget backing.

Finally, some green investments, such as renewable energy plants, have long tenors, and more significantly, new risk profiles. Banks therefore must have robust credit risk appraisal to ensure that these do not lead to large future NPLs. The analysis of the 2020 COR spikes shows that when underwriting standards are weak, there is a sudden need for huge provisions which crippled earnings and capital. The country's banks must therefore build expertise in evaluating green projects. This could be done perhaps via technical assistance, so that loans to these are sound. Finally, climate-related risks, both physical and transition risks, should be integrated into risk management. This could also be turned into an opportunity: investment in banks that proactively manage environmental risks might be preferred by the rating agencies or funding could be cheaper from green investors or multilaterals, further enhancing their readiness

Overall, three leading state-owned banks — NBU, Uzpromstroybank, and Agrobank — are found to have the greatest financial preparedness to endorse green

initiatives. Their substantial asset bases, robust loan portfolios, and comparatively stable capital positions indicate they are more suitably equipped to participate in long-term green financing. Asaka Bank and Xalq Bank may exhibit moderate preparedness, as certain financial metrics do not meet optimal standards, potentially constraining their capacity to finance larger or more hazardous green initiatives.

Smaller financial institutions including Turon Bank, Microcreditbank, and Aloqa Bank are anticipated to possess inadequate preparedness owing to their reduced capital reserves and asset bases, necessitating policy assistance or collaborations for engagement in green finance.

In summary, although some prominent banks seem financially equipped, the overall sector's preparedness may necessitate strategic reforms, enhanced transparency, and greater connection with national green development objectives.

## CONCLUSION

Overall, Uzbekistan state banks are on the path towards incremental improvement but still short of the financial strength seen in advanced banking systems or regional champions. The Green Financing Readiness Index built from 2017–2023 indicators identifies where the gaps remain - in particular, in profitability and stable asset quality - while recognizing areas such as the provision of sufficient capitalization. With implementation of the above recommendations, Uzbekistan can make its banks solid pillars in the country's green finance. It will need a concerted effort: banks enhancing internal practices, and regulators ensuring an enabling framework (regulatory agility, capacity building, and perhaps incentives) for green finance.

Finally, enhancing the GFRI of these banks is not the ultimate aim, but the means for the ultimate aim – the achievement of the green economy in 2030, where the banks help channel the needed capital into green projects. With healthier balance sheets, Uzbekistan's banks will be able to capture the opportunities of green finance, whether in the form of funding solar parks in the desert, energy-efficient manufacturing modernizations, electric urban public transport, and contributing to the country's goals while ensuring their own long-term survival in an environmentally cleaner world.

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