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## Assessing the Financial Impact of Exchange Rate Movements on Profit Reporting: A Case Study of KDB Bank Uzbekistan

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### ABSTRACT

This study investigates the impact of foreign exchange rate fluctuations on the financial performance of KDB Bank Uzbekistan from 2019 to the third quarter of 2024. Adopting a quantitative approach, the research explores the relationship between currency depreciation, foreign exchange gains and losses, and bank profitability. Descriptive statistics reveal that depreciation of the Uzbek soum was accompanied by increased volatility in bank profitability. The analysis reveals a strong positive link between foreign exchange gains and profit, while foreign exchange losses are consistently associated with declines in performance. Furthermore, regression findings suggest that exchange rate movements, particularly those involving the US dollar, play a significant role in shaping profitability. These findings highlight the strategic importance of robust foreign exchange risk management, especially for financial institutions operating in emerging economies with limited hedging instruments.

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### ABSTRAK

Penelitian ini mengkaji pengaruh fluktuasi nilai tukar mata uang asing terhadap kinerja keuangan KDB Bank Uzbekistan tahun 2019 sampai kuartal ke tiga tahun 2024. Dengan menggunakan pendekatan kuantitatif, penelitian ini menelaah keterkaitan antara depresiasi mata uang soum, keuntungan dan kerugian valuta asing, serta profitabilitas bank. Hasil analisis menunjukkan bahwa pelemahan nilai tukar cenderung beriringan dengan meningkatnya volatilitas laba bank. Ditemukan pula hubungan positif antara keuntungan valuta asing dengan kinerja laba, sementara kerugian valuta asing secara konsisten berkorelasi negatif dengan profitabilitas. Temuan regresi menunjukkan bahwa pergerakan nilai tukar, khususnya terhadap dolar Amerika Serikat, berperan penting dalam memengaruhi kinerja keuangan. Hasil ini menegaskan urgensi pengelolaan risiko nilai tukar yang efektif, terutama bagi lembaga keuangan di negara berkembang dengan keterbatasan instrumen lindung nilai.

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## INTRODUCTION

In the current era of global economic integration, exchange rate fluctuations have become a critical determinant of financial performance, especially for banks operating in emerging markets. Currency volatility can either strengthen or undermine a bank's profitability, depending on its exposure to foreign currencies and the robustness of its risk management systems. For financial institutions such as KDB Bank Uzbekistan, which operates with significant foreign currency activities, understanding the dynamics between exchange rate changes and financial outcomes is essential for sustainable growth.



As Uzbekistan continues its path toward financial liberalization and increased openness to global markets, this relationship becomes even more pertinent.

Exchange rate volatility directly impacts a bank's income through foreign currency transactions, revaluations of foreign-denominated assets and liabilities, and the translation of foreign exchange (FX) gains and losses into financial reports. Since Uzbekistan initiated currency liberalization reforms in 2017, the Uzbek soum (UZS) has experienced a continuous and relatively steep depreciation against major world currencies, particularly the US dollar (USD) and the euro (EUR) (International Monetary Fund (IMF), 2022; World Bank., 2023). The depreciation has introduced both risks and opportunities for domestic banks. On one hand, it increases the cost of foreign debt servicing and reduces the local currency value of foreign earnings. On the other hand, it may enhance competitiveness in foreign markets or lead to translation gains under certain conditions (Cuestas et al., 2024).

The Uzbek banking sector, including institutions like KDB Bank Uzbekistan, has seen growing involvement in cross-border financing, foreign investment facilitation, and international project lending (Central Bank of Uzbekistan, 2023). These activities expose banks to exchange rate risks that may substantially affect their financial performance. In this context, assessing how fluctuations in exchange rates influence a bank's profitability, especially through foreign exchange gains and losses, becomes a critical area of inquiry. Prior studies in other emerging markets have found significant relationships between currency volatility and banking performance (Elhoussein & Osman, 2019; Ali & Ariff, 2020). However, there remains a dearth of such empirical analysis within the context of Uzbekistan.

KDB Bank Uzbekistan represents an ideal case for studying this relationship due to its significant engagement in foreign currency operations and its detailed financial disclosures. As a subsidiary of the Korean Development Bank, KDB Uzbekistan maintains strong connections to international capital markets and participates in numerous foreign-funded projects. Its financial statements from 2019 to 2024 (Q3) reveal a pattern of volatility in net profit figures closely tied to fluctuations in FX gains and losses, suggesting a possible causality that warrants further empirical examination. For instance, in 2023, despite a reported FX gain of over 100 billion UZS, net profit remained marginal, likely due to a nearly equivalent FX loss (Fitch Ratings, 2023).

This study builds on recent academic work linking macroeconomic variables to bank performance. Research by Choi & Lee (2021) and Jara & Piña (2023) has demonstrated how exchange rate instability can lead to volatility in banking sector profitability and capital adequacy. Moreover, according to Obstfeld et al. (2019), the effects are more pronounced in developing economies where financial systems are less insulated from external shocks. Uzbekistan, undergoing structural reform and increased openness, fits this profile, making the present study both timely and relevant.

Another motivation for this research is the methodological gap in existing Uzbek banking studies. While several prior studies have utilized quantitative approaches to examine the relationship between exchange rate volatility and banking sector performance, they often relied on aggregate macroeconomic data or industry-level analysis, rather than micro-level financial indicators from individual banks (Hossain & Zakaria, 2021; Ali & Ariff, 2020; Elhoussein & Osman, 2019). In contrast, this study adopts a firm-specific, data-driven approach, analyzing audited financial statements of KDB Bank Uzbekistan over a six-year period (2019–2024). By directly incorporating foreign exchange gains and losses and matching them with annual average USD/UZS and EUR/UZS rates, this research applies OLS regression and correlation analysis to uncover nuanced, institution-level insights. This micro-level methodology provides a more granular understanding of how exchange rate movements influence profitability, a dimension that remains underexplored in the context of Uzbekistan's transition economy



(Hossain & Zakaria, 2021; Lotfalipour & Bazargan, 2014; Kemisola et al., 2016). Furthermore, the use of actual audited figures rather than modelled estimates enhances the empirical robustness and practical relevance of the findings. Using data from audited financial reports and average annual exchange rates from 2019 to 2024, this study seeks to quantify the strength and direction of these relationships.

The findings of this research will contribute to both academic literature and practical financial management. By empirically confirming whether and how exchange rate changes impact profitability, this study may inform better hedging policies, capital allocation decisions, and regulatory oversight. Furthermore, it addresses the growing interest among stakeholders, investors, regulators, and policymakers, in understanding the micro-level consequences of macroeconomic instability in Uzbekistan's banking sector (Asian Development Bank, 2022; Fitch Ratings, 2023). In summary, this study aims to fill a crucial knowledge gap regarding the influence of foreign exchange rate fluctuations on the financial performance of a major bank in Uzbekistan. By focusing on KDB Bank Uzbekistan and utilizing a robust set of financial and macroeconomic data, the research offers both theoretical and practical insights into the risk exposure faced by banks in developing economies. As Uzbekistan continues its integration into the global financial system, understanding these dynamics becomes not just important, but imperative for long-term financial stability and institutional resilience.

## LITERATURE REVIEW

### Exchange Rate Exposure and Its Implications for Bank Profitability

Understanding the effect of foreign exchange rate fluctuations on bank profitability has become increasingly vital, particularly for banks in developing and transition economies where exposure to foreign currency is high and financial instruments to hedge against risk are limited. The theoretical underpinning of this relationship stems from the concept of exchange rate exposure, which includes both transaction and economic exposure. Transaction exposure refers to gains or losses arising from actual currency conversions in operations, while economic exposure reflects the long-term impact on a firm's market value due to sustained currency volatility (Madura, 2020). These exposures are particularly salient for financial institutions like KDB Bank Uzbekistan, which engage extensively in foreign currency operations, lending, and investment facilitation. Since the currency liberalization reforms of 2017, the Uzbek soum has depreciated significantly against major currencies such as the US dollar and the euro, creating both challenges and opportunities for banks. The volatility in exchange rates affects bank profitability through mechanisms such as the revaluation of foreign-denominated assets and liabilities, translation effects in financial statements, and actual gains or losses from currency trading.

Empirical evidence from global banking markets consistently suggests that exchange rate fluctuations are a non-negligible determinant of financial performance. Ali & Ariff (2020) in a study of banks across emerging markets, found that unhedged currency exposures significantly influenced net income and return on assets, particularly in countries with liberalized capital accounts. They highlighted that while some banks benefit from speculative FX trading, the unpredictability of exchange movements often leads to net losses when currency risk is not effectively managed. Similarly, Choi & Lee (2021) found that exchange rate volatility had a negative impact on the financial stability of Asian banks, with the severity of the effect dependent on the structure of a bank's balance sheet and its exposure to USD-denominated debt. Their findings are particularly relevant in the context of Uzbekistan, where banking sector reforms have increased openness to global capital flows but have not yet been matched with robust risk management frameworks or deep foreign exchange markets.



### **Empirical Evidence and Structural Challenges in Managing Foreign Exchange Risk**

Within the Central Asian context, recent studies emphasize structural vulnerabilities in the region's financial systems that amplify the effects of exchange rate volatility. Kasyanenko & Omarov, (2023) argue that most banks in Uzbekistan lack access to sophisticated hedging instruments such as forwards, options, or swaps, making them more exposed to currency shocks. Their research shows that banks operating in countries with underdeveloped financial markets tend to rely more on natural hedges or passive management strategies, which may not be sufficient under conditions of rapid depreciation. This is supported by the data from KDB Bank Uzbekistan, which shows significant swings in net profit that correspond with years of high foreign exchange losses. The inability to actively manage exposure to both the USD and EUR, the bank's most relevant foreign currencies, has resulted in inconsistent financial outcomes and heightened risk.

Comparative insights from other developing regions reinforce the idea that exchange rate volatility has a complex and often asymmetric impact on bank profitability. Kemisola et al. (2016) and Mensah et al. (2022), examining data from Sub-Saharan Africa, found that FX gains do not always translate to improved profitability because they are often offset by unrealized or realized losses that emerge later in the financial cycle. Moreover, they emphasized that banks that lack real-time FX monitoring and rapid adjustment strategies tend to suffer the most from currency depreciation, even when overall exposure is moderate. In this sense, their findings mirror those of Kemisola et al. (2016) & Okonkwo et al. (2023), who studied exchange rate exposure among Nigerian banks and found that depreciation in the local currency negatively influenced net margins and impaired capital adequacy over time. These studies collectively underline the importance of dynamic FX risk management and suggest that even well-capitalized banks are not immune to profitability shocks when exchange rate risk is poorly managed.

Another key dimension is the role of regulatory and institutional frameworks in shaping banks' resilience to currency shocks. Kasyanenko & Omarov (2023), Choi & Lee (2021) and Rahim & Nasution (2022), studying ASEAN economies, observed that countries with strong central bank oversight, high transparency requirements, and mandated stress-testing for FX risk were better able to contain the negative effects of currency volatility. Unfortunately, these conditions are only partially present in Uzbekistan. While reforms have introduced better accounting standards and greater reporting obligations, enforcement and market-based instruments for risk hedging remain limited. According to Fitch Ratings, (2023) Uzbek banks are improving in terms of transparency, but face difficulties in managing risk due to shallow capital markets and limited liquidity in derivative instruments. This context magnifies the significance of understanding how specific institutions like KDB Bank respond to exchange rate fluctuations and how their performance metrics, especially net profit, FX gains, and FX losses, correlate with macroeconomic trends in the currency market.

### **Hypothesis Development**

Several studies have emphasized the need for bank-specific, quantitative studies in emerging markets to address the methodological limitations of previous research that relied on aggregate or descriptive data. For example, a recent study by Hossain & Zakaria (2021) used bank-level panel data from South Asia and found strong statistical correlations between exchange rate volatility and performance metrics such as Return On Equity (ROE) and Net Interest Margin (NIM). Their methodological approach supports the need for granular, institution-focused analyses—such as the present study on KDB Bank Uzbekistan, which use actual financial statements and exchange rate data to build empirical models. The use of Ordinary Least Squares (OLS) regression and correlation matrices



to test the impact of currency fluctuations aligns with the best practices in recent econometric literature (Wang & Wang, 2023). Moreover, focusing on annual average exchange rates rather than monthly or quarterly rates is consistent with Goedhart et al. (2015) who found that yearly averaging mitigates the distortionary effects of short-term volatility, thus capturing the long-term relationship between exchange rates and profitability more effectively.

From a conceptual standpoint, the independent variables in most of these studies are the foreign exchange rates themselves, particularly USD/local currency and EUR/local currency. These are treated as exogenous macroeconomic factors that directly influence the dependent variables—namely, net profit, foreign exchange gains, and foreign exchange losses. Theoretically, a depreciation of the domestic currency increases the cost of foreign liabilities, reduces the real value of foreign income, and may amplify unrealized FX losses unless properly hedged. Conversely, it may enhance competitiveness in the international arena or result in accounting gains when foreign-denominated assets are revalued. This dual nature of currency movements highlights the non-linear and sometimes contradictory effects on profitability. In the case of KDB Bank Uzbekistan, the correlation analysis reveals a strong positive relationship between FX gains and net profit, and a strong negative relationship with FX losses. These empirical patterns support the hypothesis that currency fluctuations are a major driver of performance variability in foreign-exposed banks. Based on the reviewed literature and the empirical tendencies observed in the Uzbek banking sector, this study proposes the following hypothesis:

H<sub>1</sub>: Foreign exchange rate fluctuations significantly affect the financial performance of KDB Bank Uzbekistan, as measured by net profit, foreign exchange gains, and foreign exchange losses.

This hypothesis bridges theoretical expectations with empirical investigation and aligns with the literature's emphasis on the importance of bank-level analysis in transition economies (Ali & Ariff, 2020; Kasyanenko & Omarov, 2023). It also lays the groundwork for the methodological approach of this study, which employs descriptive statistics, correlation, and regression analysis to provide robust empirical validation of the stated hypothesis.

## RESEARCH METHODOLOGY

This study adopts a quantitative research methodology to examine the relationship between foreign exchange rate fluctuations and the financial performance of KDB Bank Uzbekistan over the period from 2019 to the third quarter of 2024. The research design is based on the collection and statistical analysis of secondary data obtained from publicly available annual and quarterly financial reports of KDB Bank and historical exchange rate data sourced from the Central Bank of Uzbekistan and reputable financial databases. Quantitative methods are appropriate for this research due to the objective nature of the data and the study's aim to identify measurable correlations and causations. A descriptive approach is initially used to present the trends in foreign exchange rates, net profits, and foreign exchange gains and losses. The core of the analysis then involves inferential statistical techniques, particularly correlation and regression analysis, to determine the strength and nature of relationships between the independent variables (exchange rates) and the dependent variables (net profit, FX gains, FX losses).

The primary variables used in this study include the average annual exchange rates for the US dollar (USD/UZS) and the euro (EUR/UZS) as independent variables. These were calculated from daily exchange rate data using arithmetic means. The dependent variables include annual net profit, foreign exchange gain, and foreign exchange loss, all denominated in Uzbek soums (UZS). These figures were extracted directly from KDB Bank Uzbekistan's audited financial reports from 2019 to 2023 and from



the third-quarter interim report for 2024. The data were first organized into a panel format to allow year-by-year comparison and to establish a clear timeline of trends. Descriptive statistics, including means and standard deviations, were used to summarize the financial performance indicators and exchange rate movements over time. Pearson correlation coefficients were then calculated to assess the strength and direction of linear relationships between exchange rates and each of the dependent financial indicators. Finally, an Ordinary Least Squares (OLS) regression analysis was conducted using exchange rates as predictors of net profit, to quantify the impact of exchange rate movements on profitability.

To ensure the reliability and validity of the results, all financial figures were cross-verified against official disclosures from the bank. Exchange rate data were sourced from the Central Bank of Uzbekistan and validated through external databases such as Investing.com and XE.com. Regression diagnostics were performed to test for multicollinearity, heteroskedasticity, and normality of residuals, using standard statistical tools in Python and StatsModels. The study includes six annual observations from 2019 to the third quarter of 2024, based on publicly available audited financial data of KDB Bank Uzbekistan. While the sample size is relatively small ( $n = 6$ ), it encompasses the entire population of relevant years within the study scope and thus provides a comprehensive and focused insight into the bank's performance across varying macroeconomic conditions. Acknowledging this limitation, the study emphasizes exploratory insights rather than definitive predictions, and results are interpreted with caution. Ethical considerations were minimal, as all data were publicly available and no human participants were involved. However, to maintain academic integrity, all data sources have been properly cited and acknowledged. The use of estimated figures, where necessary, has been explicitly disclosed and justified based on reasonable assumptions and historical ratios.

## RESULT AND DISCUSSION

This study provides empirical evidence on the relationship between exchange rate fluctuations and bank profitability by focusing on KDB Bank Uzbekistan over the 2019–2024 period. The descriptive statistics indicate consistent depreciation of the Uzbek soum against both the USD and EUR, with USD/UZS increasing from 8,835.78 in 2019 to 12,484.92 in 2024. During the same period, the bank experienced volatile net profits, with sharp declines in years marked by high foreign exchange losses, such as in 2023 and 2024. These findings directly support transaction exposure theory, which holds that firms exposed to foreign-denominated transactions are vulnerable to losses in times of unfavorable currency movement (Madura, 2020).

A descriptive table (Table 1) consolidates the key financial and exchange rate data. It includes net profit, FX gains and losses, net FX impact, and a calculated measure of the contribution or detriment of FX operations to overall profitability. The results show that in most years, FX gains exceeded losses, thus supporting net income. However, 2024 deviated sharply, with FX losses surpassing gains by over 216 billion UZS, an indicator of negative profitability pressure from exchange rate movements.



Table 1: Descriptive Summary (2019–2024 Q3)

Year	USD/UZS	EUR/UZS	Net Profit	FX Gain	FX Loss	Net Impact	FX	Adjusted Profit	FX Effect
2019	8,835.78	9,874.02	134.3B	99.8B	15.5B	+84.3B		50.0B	+
2020	10,056.99	11,477.13	78.9B	47.0B	36.7B	+10.3B		68.6B	+
2021	10,612.31	12,534.35	145.4B	103.0B	45.6B	+57.4B		88.0B	+
2022	11,050.98	11,629.82	37.2B	22.0B	15.5B	+6.5B		30.7B	+
2023	11,653.54	12,685.78	10.3B	101.6B	82.5B	+19.1B		-8.7B	+
2024	12,484.92	13,574.23	77.8B	85.7B	302.6B	-216.9B		294.7B	-

The correlation analysis (Table 2) revealed a strong positive relationship between foreign exchange gains and net profit ( $r = 0.92$ ), while foreign exchange losses were strongly negatively correlated with profitability ( $r = -0.80$ ). This outcome aligns with the empirical findings of Ali & Ariff (2020), who demonstrated that currency-related gains significantly enhance bank performance in emerging markets; however, such benefits are often offset when volatility triggers unhedged losses. Furthermore, the negative relationship between depreciation in USD/UZS and net profit ( $r = -0.73$ ) is consistent with Choi and Lee’s (2021) conclusion that exchange rate volatility reduces the financial stability of banks in Asia, particularly when institutions hold liabilities in foreign currency.

Table 2: Correlation Matrix

Variable	Net Profit	FX Gain	FX Loss	USD/UZS	EUR/UZS
Net Profit	1.00	0.92	-0.80	-0.73	-0.61
FX Gain	0.92	1.00	-0.51	-0.36	-0.15
FX Loss	-0.80	-0.51	1.00	0.91	0.89
USD/UZS	-0.73	-0.36	0.91	1.00	0.99
EUR/UZS	-0.61	-0.15	0.89	0.99	1.00

The regression analysis (Table 3) further substantiated these correlations. Although the small sample size ( $n = 6$ ) limits statistical significance, the OLS model explained 64.1% of the variance in net profit using USD/UZS and EUR/UZS as independent variables. The coefficient for USD/UZS was negative (-86,110), reinforcing the theoretical expectation that soum depreciation increases the cost of foreign obligations, thereby eroding profitability. The positive coefficient for EUR/UZS (+66,160), though weaker, may suggest certain hedging effects or earnings in EUR-denominated transactions, a pattern that deserves deeper qualitative analysis. These findings corroborate the theoretical framework of economic exposure, where long-term financial performance is sensitive to shifts in exchange rate dynamics (Adler & Dumas, 1984).

Table 3: OLS Regression Results

Item	Values
R-squared:	64,1%
Adjusted R-squared:	40,1%
Coefficient (USD/UZS):	-86,110 ( $p = 0.128$ )
Coefficient (EUR/UZS):	+66,160 ( $p = 0.205$ )



Moreover, the empirical results support the regional studies by Kasyanenko, A., & Omarov, (2023), who highlighted that banks in Uzbekistan often lack access to financial derivatives and face regulatory constraints in managing currency risk. The substantial FX losses in 2024 (over 302 billion UZS) underscore the consequences of passive or incomplete hedging strategies, which were similarly observed in Sub-Saharan Africa by Elhoussein & Osman (2019) and Kemisola et al. (2016) These authors noted that even when banks report FX gains, those gains do not consistently translate into stronger net income due to unpredictable counter-losses or volatility in other financial accounts.

The findings also reflect the insights from Hossain & Zakaria (2021), who emphasized the importance of regulatory infrastructure and risk monitoring. In Uzbekistan, despite macroeconomic reforms, the relatively shallow derivative market and absence of mandatory stress-testing for FX exposure continue to limit banks resilience. KDB Bank's performance variations across the studied years suggest that profitability remains significantly influenced by macroeconomic currency trends rather than by robust internal controls or market-based hedging.

Lastly, the patterns observed in this study reinforce the hypothesis that exchange rate fluctuations significantly affect the financial performance of KDB Bank Uzbekistan. The strong positive relationship between FX gains and net profit validates the theoretical premise that favorable currency movements benefit banks with foreign-denominated revenues. Conversely, the consistent pressure from FX losses, especially in high-volatility years, highlights the bank's exposure to transactional risks that are difficult to control in developing financial environments. The regression results, despite limited sample size, offer directionally strong support to the hypothesis, reflecting similar findings in prior studies on Asian and African banking sectors.

The empirical results of this study are theoretically grounded and consistent with global and regional literature on exchange rate risk and bank performance. The findings validate the significance of transaction and economic exposure theories in the context of a transitional economy like Uzbekistan and confirm that foreign exchange rate movements remain a primary determinant of bank profitability. As such, the study not only contributes to the empirical literature but also reinforces the urgent need for enhanced risk management practices in Uzbekistan's evolving banking sector.

## CONCLUSION

This study set out to investigate the impact of foreign exchange rate fluctuations on the financial performance of KDB Bank Uzbekistan from 2019 to the third quarter of 2024. By examining the relationships between exchange rate trends, foreign exchange gains and losses, and net profit, the analysis revealed that depreciation of the Uzbek soum (UZS) against major currencies, particularly the US dollar, had a clear and measurable effect on the bank's profitability. The findings consistently showed that years with high FX losses corresponded to significantly lower net profits, despite occasional FX gains. This underlines the bank's sensitivity to currency volatility and the importance of managing foreign exchange exposures effectively.

The correlation analysis demonstrated strong positive relationships between FX gains and net profit, while FX losses and currency depreciation were negatively associated with performance. Regression analysis further confirmed that fluctuations in USD/UZS and EUR/UZS exchange rates explain a substantial portion of the variance in net profit, with the dollar having a more pronounced influence. Although the small sample size limited the statistical significance of the regression coefficients, the directionality and strength of the observed relationships provide meaningful insights



into how macroeconomic variables can affect micro-level bank performance in emerging economies like Uzbekistan.

Given these findings, the study recommends that KDB Bank Uzbekistan and similar institutions adopt more robust foreign exchange risk management strategies. This could include hedging instruments, tighter internal controls, and scenario planning for currency depreciation shocks. At the policy level, regulators may consider encouraging greater transparency in FX exposure reporting and supporting financial products that reduce banks' vulnerability to exchange rate movements. Future research should expand the sample across multiple banks and extend the timeframe to strengthen the generalizability and statistical robustness of the results. Overall, this research provides a valuable foundation for understanding the financial consequences of exchange rate fluctuations in Uzbekistan's evolving banking sector.

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