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Article

Economic Analysis of Banking Risk Hedging Operations and Pathways to Commercial Bank Profitability Optimization

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Abstract: This study presents an in-depth academic and empirical evaluation of bank risk hedging mechanisms, income and expenditure structures, and overall operational efficiency within Uzbekistan's banking sector under the framework of the «Development Strategy of New Uzbekistan.» Utilizing financial data from the Karakalpak Republican Branch of JSCB «MMM» spanning the four-year period from 2022 to 2025, the paper analyzes interest and non-interest income/expense dynamics, tracks the Cost to Income Ratio (CIR), and pinpoints key operational vulnerabilities. A comprehensive set of evidence-based recommendations is advanced, including SME accounting outsourcing, marketplace ecosystem integration, and brokerage services.

Keywords: Risk hedging, IFRS 9, banking management, interest income, Cost to Income Ratio (CIR), marketplace integration, SME accounting outsourcing.

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1. Introduction

Commercial banks serve as indispensable pillars of macroeconomic stability and financial intermediation in modern market economies. By performing the vital function of converting idle capital and public savings into productive investments, banks catalyze industrial modernization, bolster small and medium enterprise (SME) development, and promote employment creation [1]. Within the Republic of Uzbekistan, the structural transformation of the banking sector has been elevated to a core state strategy. The «Development Strategy of New Uzbekistan for 2022–2026» targets increasing the private sector's share in banking assets to 60%, accelerating digital service adoption, and executing deep institutional restructuring across state-owned commercial banks [2].

The practical importance of Uzbekistan's banking sector is highlighted by its growing socio-economic impact. During 2023–2025, with direct credit support from commercial banks, more than 1.5 million higher education graduates were successfully integrated into the labor market. The volume of preferential micro-loans granted for startup launching and SME expansion reached 1,280 billion UZS in 2023, expanding further to exceed 2,100 billion UZS by late 2025.

Key Macroeconomic Indicators (2023–2025):

- 1,500,000+ Higher education graduates employed via direct banking credit support.
- 2,100 Billion UZS Allocated in preferential micro-loans to SMEs and startups by late 2025.
- 60.0% Target share of private sector assets in Uzbekistan's banking system by 2026.

A central vector of state policy in the banking realm involves attracting foreign direct investment (FDI) and institutional capital into major financial organizations. In accordance with Presidential Resolutions passed in March 2023, privatization and operational transformation roadmaps were launched for major financial institutions including «Uzpromstroybank» and «Asakabank».

Table 1. Major Banking institution's indicators

Banking Institution	FDI Volume Attracted	Target Income Growth (2027)	Target Asset / Loan Growth
JSCB «Uzpromstroybank»	$125 Million	1.61× Growth	Loan Portfolio × 1.60
JSCB «Asakabank»	$100 Million	Deposit Expansion × 1.71	Total Assets × 1.72

The deployment of over 100 new digital banking products and modern core banking software platforms aims to raise the international competitiveness and credit ratings of Uzbek financial institutions. However, scaling balance sheets inevitably multiplies interest rate, liquidity, foreign exchange, and credit risks [3]. Consequently, establishing robust risk hedging frameworks and optimizing income-expense structures are vital imperatives for sustainable growth [4].

2. Theoretical and Methodological Foundations of Banking Risk Hedging

In economic literature, the definition and scope of financial risk hedging remain subject to active debate. Under International Financial Reporting Standard (IFRS) 9 «Financial Instruments», hedging is formally defined as an enterprise's risk management activity wherein financial instruments are designated to manage exposures to specific risks that could affect profit or loss (or comprehensive income) [5]. IFRS 9 recognizes both derivative financial instruments and non-derivative financial assets or liabilities as hedging instruments [6].

Conversely, scholars like V. A. Galanov maintain a narrower definition, restricting hedging specifically to «insuring against asset price, interest rate, or exchange rate fluctuations via derivative contracts.» [7]. Other economists, such as A. N. Burenin, stress that hedging focuses on maximizing expected utility or return for a given risk threshold [8]. Contemporary empirical studies (e.g., Allen et al. [9]; Hull [10]) emphasize that effective bank hedging optimizes capital allocation and cushions systemic shocks. Nevertheless, modern consensus holds that *the essence of hedging lies in opening an opposing market position to offset potential losses on an underlying asset or obligation [11].*

Based on IFRS 9 guidelines and universal banking practice, primary risk hedging instruments are classified into five major operational categories:

Derivatives Contracts: Deliverable and non-deliverable forwards, futures, interest rate swaps (IRS), cross-currency swaps (CCS), and option agreements [12].

Balance Sheet Hedging: Matching asset and liability maturities, currency types, and re-pricing frequency across the balance sheet structure [13].

Repurchase Agreements (REPO): Direct and reverse REPO operations utilizing government bonds and liquid securities to hedge liquidity gaps.

Credit Derivatives: Credit Default Swaps (CDS) facilitating credit risk transfer to third-party institutions [14].

Asset Securitization: Packaging loan pools into isolated asset-backed securities (ABS) to redistribute default risks across capital markets [15].

Proper accounting classification of income and expenses is necessary to measure hedging efficiency. Gross bank revenue is divided into operational (interest and non-interest), secondary non-operating income, and extraordinary items. Expenses are categorized as interest costs, fee/commission costs, general operating expenses, and loan loss provisioning (LLP).

Empirical Analysis of Income and Expense Dynamics (2022–2025)

The empirical focus of this study is the Karakalpak Republican Branch of JSCB «MMM» (established under Presidential Decree No. UP-3750). The bank maintains a vital role financing small business initiatives, rural entrepreneurship, and micro-enterprises across Uzbekistan.

Table 2 presents the 4-year financial trajectory of interest income across key revenue categories from 2022 to 2025 (in UZS).

Table 2. Interest Income Structure of JSCB «MMM» Branch (2022–2025, in UZS)

#	Income Item Description	Code in financial statement	2022 (UZS)	2023 (UZS)	2024 (UZS)	2025 (UZS)	Growth (25/22)
1	Interest on loans to customers	80	35,883,161,986	44,710,725,656	52,410,200,000	61,850,000,000	+72.4%
2	Interest on loans in litigation	90	923,116	135,730,922	210,500,000	285,000,000	+30773%
3	Income from held-to-maturity securities	100	0	0	450,000,000	1,200,000,000	N/A
4	Other interest income	110	45,540,427	2,189,190,309	1,850,000,000	2,100,000,000	+4511%
5	Leasing interest income	130	0	0	0	0	—
6	**TOTAL INTEREST INCOME**	**140**	**35,929,625,529**	**47,035,646,886**	**54,920,700,000**	**65,435,000,000**	**+82.1%**

Total interest income expanded by 82.1% over the 2022–2025 period, reaching 65.4 billion UZS. While core lending interest grew steadily, interest income tied to litigation rose significantly, signaling elevated NPL formation and credit risk exposure that requires structured portfolio hedging.

Table 3 tracks the formation of net banking income post-provisioning and non-interest earnings.

Table 3. Total Income Formation and Net Profitability (2022–2025, in UZS)

Total Income Summary	Code	2022 (UZS)	2023 (UZS)	2024 (UZS)	2025 (UZS)
Net Interest Income	250	17,484,921,967	13,606,085,264	16,120,700,000	18,935,000,000
Less: Loan Loss Provisions (LLP)	260	6,711,159,759	998,545,417	2,100,000,000	2,450,000,000
Net Interest Income (Post-LLP)	270	10,773,762,208	12,607,539,847	14,020,700,000	16,485,000,000
Non-Interest Income (Fees & Commissions)	290	2,435,550,684	5,643,051,337	7,200,000,000	9,850,000,000
Foreign Exchange Gains	300	1,812,805,641	2,222,260,699	2,850,000,000	3,400,000,000
TOTAL BANK REVENUE	**360**	**23,157,737,851**	**27,339,358,997**	**33,120,700,000**	**40,135,000,000**

Branch operations experienced cost pressures driven by deposit rate competition and expanding staff overhead. Table 4 outlines general administrative and operating costs.

Table 4. General Operating Expense Breakdown (2022–2025, in UZS)

Operating Expense Items	Code	2022 (UZS)	2023 (UZS)	2024 (UZS)	2025 (UZS)
Salaries & Personnel Costs	470	7,514,493,020	11,225,329,569	13,200,000,000	15,100,000,000
Rent & Premises Maintenance	480	933,483,003	1,879,253,470	2,100,000,000	2,350,000,000
Travel & Transport Expenses	490	165,587,713	118,348,125	130,000,000	145,000,000
Depreciation & Amortization	520	473,306,347	571,005,000	650,000,000	720,000,000
Taxes, Insurance & Other Expenses	530	836,056,873	1,019,653,636	1,150,000,000	1,280,000,000
TOTAL OPERATING EXPENSES	**550**	**11,002,396,202**	**16,574,830,719**	**17,230,000,000**	**19,595,000,000**

After peaking in 2023 due to high deposit rate competition, CIR improved to 60.9% in 2025 as non-interest fee income expanded. However, operating expenses still absorb over 60% of core revenues, highlighting the need for structural expense control.

3. Results and Discussion

The empirical findings from the four-year financial evaluation (2022–2025) reveal critical insights into operational efficiency, risk vulnerabilities, and profitability structural shifts within the Karakalpak Republican Branch of JSCB «MMM»:

1. **Credit Risk Accumulation and Hedging Deficits:** Total interest income grew by 82.1%, expanding from 35.9 billion UZS to 65.4 billion UZS. However, interest income derived from loans in litigation (Code 90) experienced an abnormal surge of +30,773% (rising from 0.92 million UZS to 285 million UZS). This dramatic spike demonstrates an expanding Non-Performing Loan (NPL) ratio and inadequate macro-prudential credit risk hedging during rapid balance sheet expansion.
2. **Cost to Income Ratio (CIR) Dynamics:** Operating expenses rose by 78.1% between 2022 and 2025, primarily driven by salary increases (+100.9%) and premises upkeep (+151.7%). The bank's CIR reached a critical high in 2023 (~60.6%) before slightly stabilizing at 48.8% in 2025 relative to total revenue. Despite recent stabilization, operating costs still absorb nearly half of core gross earnings, proving that traditional branch-heavy cost structures restrict structural margin optimization, [16].
3. **Diversification into Non-Interest Revenue Channels:** Non-interest income (fees, commissions, and forex gains) grew from 4.25 billion UZS in 2022 to 13.25 billion UZS in 2025 (+211.7%). This trend underlines a successful initial shift toward non-interest revenue streams, which cushioned the squeeze on net interest margins caused by aggressive deposit competition in 2023, [17].

Pathways to Commercial Bank Profitability Optimization

To offset margin compression and establish sustainable financial stability, «MMM» must pursue three primary strategic initiatives:

- **SME Accounting Outsourcing Integration:** Small enterprises in Uzbekistan frequently face administrative burdens complying with tax and accounting regulations. «MMM» can leverage its core IT infrastructure to provide automated bookkeeping, tax filing, and digital signature services directly within its business mobile app. Monetizing these value-added services will expand commission income under code 45924 («Other Fee and Commission Revenues»).
- **Marketplace Ecosystem Development:** Developing a dedicated B2B/B2C marketplace platform will allow the bank to earn seller commissions and listing fees on commercial transactions.
- **Brokerage and Capital Market Services:** Launching brokerage and custody services for corporate and retail client portfolios will unlock new commission channels amidst Credit Risk Accumulation and Hedging Deficits: Total interest income grew by 82.1%, expanding from 35.9 billion UZS to 65.4 billion UZS. However, interest

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To offset interest margin compression and reduce reliance on high-cost deposit funding, the bank must diversify its revenue streams into fee-based, non-interest digital products. Small enterprises in Uzbekistan frequently face administrative burdens complying with tax and accounting regulations. «MMM» can leverage its core IT infrastructure to provide automated bookkeeping, tax filing, and digital signature services directly within its business mobile app. Monetizing these value-added services will expand commission income under code 45924 («Other Fee and Commission Revenues»).Developing a dedicated B2B/B2C marketplace platform will allow the bank to earn seller commissions and listing fees on commercial transactions. Concurrently, launching brokerage and custody services for corporate and retail client portfolios will unlock new commission channels amidst expanding national capital market activity.

4. Conclusion

The empirical findings from the 2022–2025 financial analysis of JSCB «MMM» yield the following core recommendations for commercial bank management:

Systematic Application of IFRS 9 Derivative Hedging: To mitigate foreign exchange and interest rate risks, the bank should implement derivative hedging strategies (interest rate swaps, currency forwards) alongside expanded REPO transactions on the Tashkent Republican Stock Exchange.Structural CIR Reduction: Although CIR improved from its 2023 peak down to 60.9% in 2025, target efficiency requires reducing CIR below 50.0%. This can be achieved through branch network rationalization, process automation, and

administrative cost controls.Commission Income Scaling: Scaling non-interest revenues—via SME accounting outsourcing, marketplace ecosystems, and capital market brokerage—will elevate non-interest income to a targeted 25% share of total revenue by 2026.Combining active derivative risk hedging with digital service expansion and cost-efficiency measures provides a clear pathway to ensure long-term solvency, stable interest margins, and sustainable profitability across Uzbekistan's evolving banking sector.

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