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The Efficiency of the Banking System in the Republic of North Macedonia

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Abstract

The purpose of this research is to analyse the efficiency and stability of the banking system in the Republic of North Macedonia over the period 2004-2024. Using annual data from the National Bank, we estimate a linear regression model in which return on average assets (ROAA) is explained by cost-to-income ratio, employee cost-to-total-income ratio, net interest margin, and non-interest margin. The results reveal that cost-to-income and net interest margin both exert a statistically significant negative effect on profitability, whereas higher investment in human capital improves efficiency. Descriptive indicators confirm a stable system, indicating that in 2024 the capital adequacy ratio stood at 18.9 %, well above the regulatory minimum, while ROAA and ROAE reached 2.2 % and 17.6 %, respectively. Five large banks hold 82 % of total assets, and foreign capital accounts for nearly 80 % of ownership, reflecting a highly concentrated yet well-capitalised sector. Policy implications underscore the importance of further reducing operating costs and diversifying income sources to sustain profitability. Overall, the North Macedonian banking sector remains resilient, liquid, and adequately capitalized, providing a sound basis for continued economic growth.

Keywords: Banking system, efficiency, capital adequacy, monetary policy

Introduction

Monetary policy is an integral part of economic policy and has a central role in stabilizing the economy through the control of price stability. The National Bank of the Republic of North Macedonia has a key role in implementing this policy through instruments such as open market operations, reserve requirements, and short-term loans. The banking system is part of the financial system in which banks participate with their operations.

The North Macedonian banking system consists of a network of financial organizations and legal structures that regulate banking activities in North Macedonia. As part of the wider financial system, it incorporates the National Bank of the Republic of North Macedonia, the Development Bank of North Macedonia, commercial banks, savings houses, and the Deposit Insurance Fund, as well as pertinent laws and regulations. One of the most important roles for the National Bank is the regulation of commercial banks and other financial institutions in an attempt to promote the overall industry effectiveness and profitability. By setting policy and utilizing regulatory indicators like capital adequacy tests, the National Bank gauges the performance of banks and oversees financial system stability. Thus, the aim of this research article is to analyze the efficiency and stability of the banking system in the Republic of North Macedonia using a descriptive and econometric analysis.

Monetary Policy and the Role of the National Bank

Monetary policy is one of the classic tools of economic policy with which governments seek to influence inflation and other macroeconomic variables. Monetary policy was until a certain time subordinated to fiscal policy and other policies used to manage the macroeconomics, but today it can be considered one of the most important policy tools used to achieve various general economic policy goals in a country. However, the main objective of monetary policy in North Macedonia is price stability which ensures long term sustainable economic growth (NBRNM, 2025)[1].

In a market economy, the instruments of monetary policy can influence the goals of economic policy only indirectly. The role of intermediaries, or transmission agents through which this influence is exerted, is played by the so-called inter-

1 See for more details: https://www.nbrm.mk/postavienost_na_monietarnata_politika-en.nspx

mediate targets of monetary policy. In other words, intermediate targets include those objectives that demonstrate a stable and causal relationship with the final goal, have a leading influence on it, and can be affected by the central bank through the so-called operational targets (Trpeski, 2018).

To achieve the primary goal of monetary policy, which is price stability, the National Bank uses various instruments, in which we will refer to those that are most frequently used, such as open market operations, reserve requirement, available deposits, overnight credit available and intraday credit.

Due to the complicated and indirect connection attended by a time lag between the instruments of monetary policy and its final objective, the National Bank monitors the movement of some economic variables, which are operational and intermediate targets. The operational targets are controllable but farther from the final objective, while the intermediate targets are less controllable but nearer to the final objective. By controlling interest rates and thereby the degree of liquidity in the banking system as an operating target, the National Bank attempts to affect the level of the exchange rate, an intermediate monetary policy target.

Banking System in the Republic of North Macedonia

The financial system is a set of financial markets (money market, capital market, foreign exchange market), financial institutions such as deposit (commercial banks, savings banks, credit unions, etc.) and non-deposit (investment funds, insurance companies, pension funds, etc.), financial infrastructure (payment systems), as well as financial instruments (securities and their derivatives).

The banking system is a component of the financial system, within which banks operate through their activities. It represents an integral part of the overall financial framework in North Macedonia. The system is composed of the National Bank of the Republic of North Macedonia, commercial banks, savings institutions, and the Deposit Insurance Fund, alongside relevant banking laws and regulatory bylaws. Because banking plays such a major role in channeling funds to borrowers with productive investment opportunities, this financial activity is important in ensuring that the financial system and the economy run smoothly and efficiently (Mishkin & Eakins, 2006).

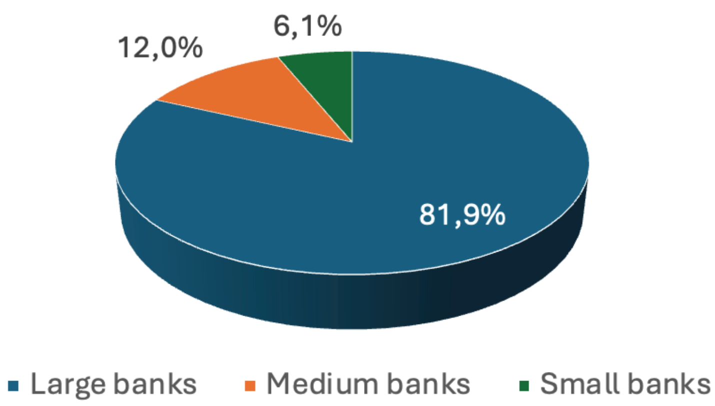
The act of monetary independence was accompanied by the establishment of the National Bank of the Republic of Macedonia as an independent issuing bank, responsible for the stability of the currency, monetary policy, and overall payment liquidity within the country and abroad (Trpeski, 2009)

In the Republic of North Macedonia, there are five banks. In order to increase competition between banks, a more liberal legal regulation for the establishment of banks was set, which reduced the barriers to entry into the banking sector. Such approaches have had a positive result in the economy and the banking system. By the end of 2024, there were thirteen banks and two savings banks in the banking structure.

In the Republic of North Macedonia, there are separate groups by number of banks, the so-called "large banks" which consist of five banks (Komercijalna Banka, Stopanska Banka, NLB Banka AD Skopje, Halk Banka AD Skopje, Ohridska Banka AD Skopje) which participate in the banking assets of the Republic of North Macedonia with 82%, i.e. a group of banks with assets greater than 55,55 billion denars, and a group of "medium-sized banks" consisting of three banks, i.e. they participate in the banking assets with 12%, respectively with assets between 13,8 and 55,55 billion denars until 31.12.2024, and a group of "small banks" are those banks that have less than 13,8 billion denars in the assets of the banking structure until 31.12.2024, i.e. with 6% in the banking assets (Chart 1)[2].

Chart 1.

Structural share of banks by size (2024)



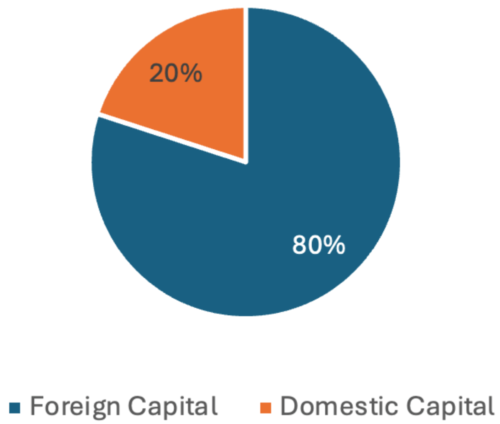
Note: Based on NBRNM data

2 The data in this and following charts are compiled from: https://www.nbrm.mk/podatotsi_i_pokazatieli_za_bankarskiot_sistiem_na_riepublika_makiedonija.nspx

In 2024, the five largest banks controlled 81.9% of total assets, while foreign capital accounted for 79.72% (Chart 2). Regional concentration is most pronounced in Skopje.

Chart 2

Structural share of banks by type of ownership in total assets (2024)



Note: Based on NBRNM data

Efficiency of the Banking System

The efficiency of the banking system in recent decades has been strongly influenced by the high degree of globalization and integration within the financial system (Naumovska & Cvetkoska, 2016; Bilalli, 2021). On the other hand, the stability of the financial system is mainly determined by the stability of the banking sector (Mitreva et al., 2024). Nowadays, the efficiency of bank operations is a critical factor for survival in the face of technological innovation, banking consolidation, and increased competition in the financial services sector.

The indicators that are most commonly used to measure the efficiency of banks are net interest margin (Net interest income/Average interest-earning assets) which measures how effectively a bank earns income from its interest-bearing assets (like loans and investments) relative to the cost of funding those assets (such as deposits). The other indicator is cost-to-income ratio (Operating Expenses / Total Operating Income) which reflects the cost efficiency of a bank and the lower the ratio, the more efficiently the bank is operating. The third indicator is the ratio that compares a bank's net interest income to its non-interest expenses (such as administrative and personnel costs). It shows how well the core lending and deposit-taking functions cover the bank's operating costs that are not related to interest. A higher ratio indicates that the bank is better able to support its operations through its interest-related activities, implying higher efficiency. In order to obtain an appropriate interpretation of the value of these indicators, it is advisable to supplement this analysis with indicators of the profitability of the banking sector such as return on average assets (ROAA) and return on average capital and reserves (ROAE).

Table 1

Banking system indicators

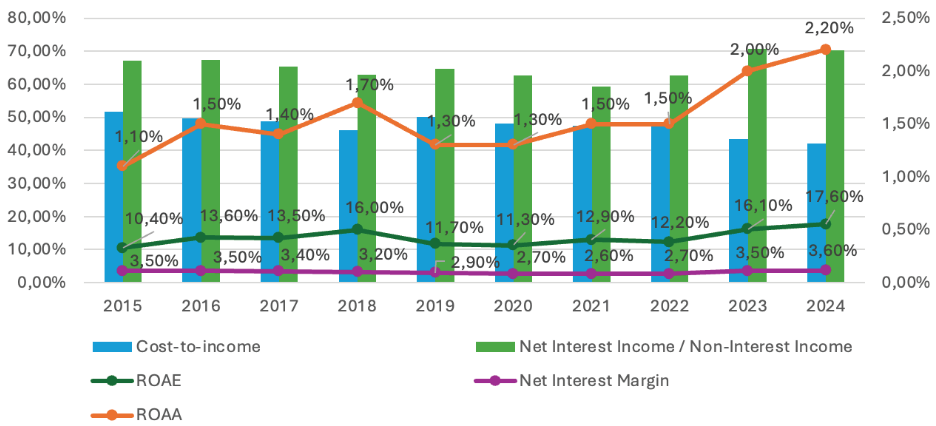
Indicator	**2023**	**2024**
ROA	2.00%	2.20%
ROE	16.13%	17.60%
Adequacy of capital	18.10%	18.90%

Note: Based on NBRNM data

Between 2023 and 2024, all three financial indicators show positive developments, reflecting improved performance and stability. Return on Assets (ROA) increased from 2.00% to 2.20%, indicating more efficient use of assets to generate profit. Return on Equity (ROE) rose from 16.13% to 17.60%, suggesting higher profitability for shareholders. Additionally, the Capital Adequacy Ratio grew from 18.10% to 18.90%, demonstrating a stronger capital position and greater ability to absorb financial shocks. Overall, these trends suggest enhanced financial health and resilience in 2024 (Table 1). Although the banking sector's profitability is stable, it is still exposed to various types of risks that are present in the operation of financial institutions, considering the global developments (Gogova-Samonikov & Josifova, 2021).

Chart 3.

The Efficiency of Banking system



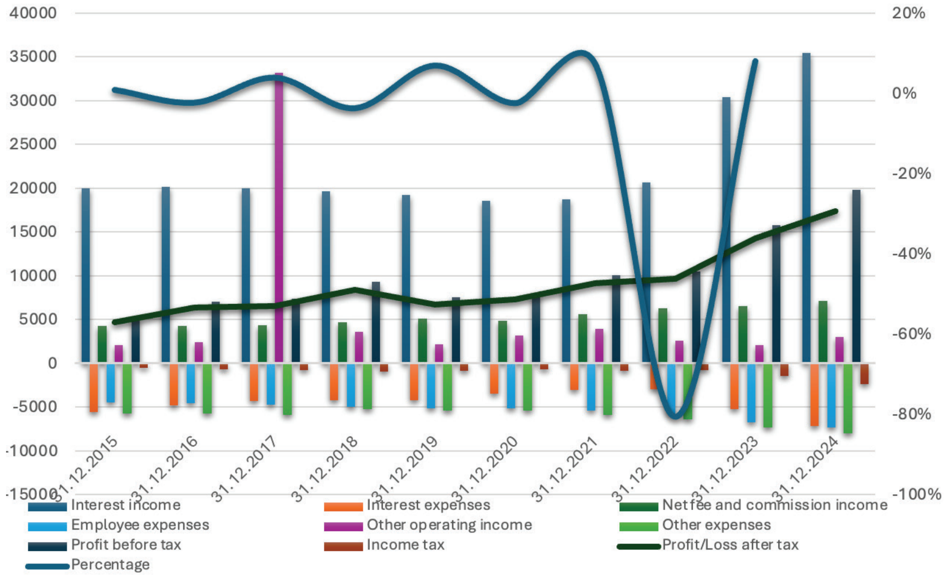
Note: Based on NBRNM data

Chart 3 shows a positive trend in the performance and efficiency of the banking sector from 2015 to 2024. Over this period, Return on Assets (ROAA) and Return on Equity (ROAE) both improved significantly, reaching 2.20% and 17.60% respectively in 2024, indicating stronger profitability. Net Interest Margin remained relatively stable around 3.5%, reflecting consistent income from core lending activities. Meanwhile, the Cost-to-Income ratio gradually declined, falling below 45% by 2024, suggesting improved operational efficiency. Additionally, the Net Interest Income to Non-Interest Income ratio remained high, reinforcing the banking sector's reliance on interest-based earnings. Overall, the chart reflects enhanced profitability, cost efficiency, and a solid income structure in the banking system over time.

Additionally, for a more detailed analysis on the efficiency of the banking sector, the trends and patterns of other remaining components that influence the net interest income are also considered and displayed in (Chart 4).

Chart 4.

Banking system efficiency according to other variables



Note: Based on NBRNM data

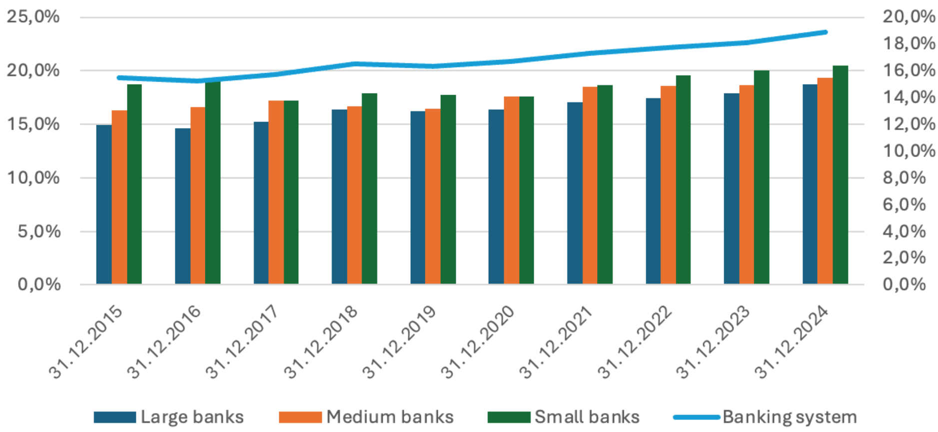
Regulation and Supervision

To maintain an efficient and stable banking system, the National Bank, in performing its supervisory function, applies a series of supervisory standards based on international standards and practices established by the Basel Committee on Banking Supervision. In its supervisory activities, the National Bank particularly controls the fulfillment of the obligations it prescribes in terms of solvency and capital adequacy. Capital adequacy, i.e., maintaining an adequate level of capital that will enable coverage of the risks to which banks are exposed in the course of their operations. The capital adequacy ratio, as the ratio between own funds and risk-weighted assets, cannot be lower than 8%. The capital adequacy ratio (CA) represents the ratio between the guaranteed capital (GC) and the bank's risk-weighted assets (RWA).

CA= (G.C)/RWA=8%

Chart 5.

Capital adequacy ratio of banks



Note: Based on NBRNM data

The banking system remained stable in 2024, maintaining high capitalization and a stable solvency position. However, the higher volume of activities in 2024, namely those for which a higher risk weight is applied in the calculation of capital adequacy, contributed to the moderate annual decrease in solvency indicators. As of 2024, the capital adequacy ratio was 18.9% for the banking system.

Econometric Analysis

A linear regression analysis is also employed to assess the impact of key financial indicators on return on assets (ROAA), including all banks in the Republic of North Macedonia for the period 2004-2024. The independent variables included are Cost to Income Ratio (CIR), Employee Cost to Total Regular Income (ECTI), Net Interest Margin (NIM), Non-Interest Margin (NNIM). The data were obtained from the National Bank of the Republic of North Macedonia and represent annual observations.

The following equation represents the econometric model:

$$ROAA = \beta_0 + \beta_1 CIR + \beta_2 ECTI + \beta_3 NIM + \beta_4 NNIM + \varepsilon_t$$

Where ε_t is the disturbance term, capturing other indicators that may affect ROAA but that are not considered in this model.

Results of the Regression Model

The following table presents the regression results from which a statistically significant model can be observed that explains a substantial portion of the variance in ROAA based on the F-statistic. Three out of the four independent variables were statistically significant at the 1% significance level, such as Cost to Income Ratio (CIR), Employee Cost to Total Regular Income (ECTI) and Net Interest Margin (NIM), whereas Non-Interest Margin (NNIM) is not statistically significant (Table 2).

Table 2.

Regression results

Variable	**Coefficient**	**Std. Error**	**t**	**Sig.**
Constant	6.852	2.524	2.715	0.022
CIR	-0.063	0.017	-3.712	0.004
ECTI	0.021	0.005	4.653	0.001
NIM	-0.021	0.004	-5.144	0.000
NNIM	-0.036	0.040	-0.890	0.394
Goodness of fit				
R-squared	0.858			
F	15.148 (0.000)			

Cost-to-Income Ratio has a negative and statistically significant impact on ROAA, = -0.063. This implies that higher cost-to-income ratios are associated with lower profitability, underlining the importance of operational efficiency.

Employee Cost to Total Regular Income ratio shows a positive and statistically significant impact on ROA = 0.021, suggesting that greater investment in human capital is positively related with improved bank efficiency and financial performance.

Net Interest Margin also exhibits a negative and significant relationship with ROA with a coefficient = -0.021. Although this is contrary to traditional expectations, it may be due to structural inefficiencies or regulatory pressures that limit the profitability associated with interest margins.

The coefficient for Non-Interest Margin was not statistically significant with p value > 0.05, indicating that non-interest income does not have a statistically significant impact on ROAA.

The coefficient of determination R-squared is 0.86, indicating that approximately 86% of the variations in ROAA can be explained by the variation of independent variables.

Conclusions

The aim of this study was to investigate the efficiency and stability of the banking sector in the Republic of North Macedonia over the period 2004–2024. Based on descriptive statistics, the banking system in the Republic of North Macedonia is stable and efficient, with high capital adequacy and positive trends in profitability. The National Bank successfully carries out its monetary and supervisory functions, ensuring financial stability and supporting economic development. Efficiency was assessed by net interest margin, cost-to-income, ROAA, and ROAE. In 2024, all indicators show stable efficiency and profitability, supported by capital adequacy exceeding 18%.

Also, using annual data from the National Bank, a linear regression model was estimated with return on average assets (ROAA) as the dependent variable, explained by key financial indicators such as the cost-to-income ratio, employee cost-to-total-income ratio, net interest margin, and non-interest margin. The findings indicate that higher cost-to-income ratios and net interest margins are associated with a statistically significant decline in profitability, suggesting inefficiencies in cost management and interest-based income generation. Conversely, greater investment in human capital, as reflected in the employee cost ratio, appears to enhance operational efficiency. The sector remains highly concentrated, with the five largest banks controlling 82% of total assets, and is predominantly foreign-owned, with international investors accounting for nearly 80% of total ownership.

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