Fisnik Morina [a]
Vlora Berisha [b]
Ardi Qestaj [c]

JEL Classification: G20, G21, G30, G31, G32, G38.
Preliminary Statement
https://doi.org/10.32910/ep.76.2.1

Understanding Bank Profitability in CEFTA Countries: The Impact of Capital Structure and Bank Size

Abstract

In the dynamic and highly competitive financial landscape, understanding the relationship between capital structure, bank size, and commercial bank profitability is crucial for optimizing performance. This research study investigates both the correlation and the impact of these factors on profitability in the CEFTA countries. A comprehensive dataset was assembled, comprising audited annual financial statements from 18 commercial banks over the period 2017–2021. Various statistical tests were employed, including correlation analysis, multiple linear regression, fixed effect, random effect, Hausman - Taylor regression, the GMM model, and the GEE model, to assess the impact of capital structure and bank size on commercial bank profitability. The results of the analysis indicate that several factors have a significant influence on the profitability of commercial banks in CEFTA countries. Long-term debt to capital (LTDTC) has a significant positive impact on ROE. Similarly, short-term debt to capital (STDTC) has a positive impact, implying that a higher proportion of short-term debt in relation to capital leads to a substantial increase in ROE. Additionally, compared to smaller banks, larger banks typically exhibit higher levels of profitability. Additionally, commercial banks that experience significant growth in total assets over time also tend to achieve greater profitability. Furthermore, the findings of this study provide valuable insights into strategies for enhancing the profitability of commercial banks within the CEFTA countries. Specifically, they offer actionable recommendations tailored to the unique economic and regulatory contexts of these nations. Additionally, by addressing the specific factors influencing profitability in this regional context, this research contributes to the advancement of knowledge in the field of banking and finance, thereby enriching the existing literature on the subject. In addition to the factors mentioned above, it is essential to acknowledge the positive impact of capital adequacy on the profitability of commercial banks in CEFTA countries. Furthermore, the detrimental effects of inflation and the COVID-19 pandemic on the performance of these banks should also be considered.

Keywords: capital structure; bank size; financial performance; commercial bank.

---

[a] F. Morina, Ph.D., Associate Professor, University "Haxhi Zeka", Faculty of Business, Department: Bussines Management, Peja, Kosovo (email: fisnik.morina@unhz.eu).
[b] V. Berisha, Ph.D., Associate Professor, University "Haxhi Zeka", Faculty of Business, Department: Bussines Management, Peja, Kosovo (email: vlora.berisha@unhz.eu) – Corresponding Author.
[c] A. Qestaj, Master of Science in Accouting and Finance, University "Haxhi Zeka", Faculty of Business, Peja, Kosovo (email: ardiqestaj@gmail.com).
The paper was received on 04.09.2023. It was accepted for publication on 19.06.2024.

1. INTRODUCTION

Capital structure refers to the mix of debt and equity financing used by companies to support their operations and investments. It plays a crucial role in determining a company's financial stability, risk profile, and profitability (Fama & French, 2002). Finding the right balance between debt and equity is essential for commercial banks to optimize returns and operate effectively in a competitive market.

Commercial banks play a vital role in the economy by mobilizing savings, providing credit, and facilitating economic growth. The capital structure of commercial banks determines the proportion of debt and equity financing used to support their operations (Pazarskis, Giovanis, Chatzigeorgiou, & Hatzikirou, 2022). A well-structured capital base is essential for maintaining stability, absorbing financial shocks, and ensuring adequate regulatory compliance. In the context of commercial banks, capital structure decisions have significant implications for risk-taking ability, profitability, and overall financial performance. Too much debt can increase financial vulnerability, while too much equity may limit profitability. Therefore, striking the right balance between debt and equity is crucial for optimizing the risk-return trade-off (Athanasoglou, Brissimis, & Delis, 2008).

The optimal capital structure and bank size are topics of significant discussion, particularly in the context of commercial banks, where achieving the right balance is challenging. This study aims to examine the relationship between capital structure, firm size, and commercial bank performance in CEFTA countries to shed light on their impact on profitability. Moreover, the CEFTA countries present an interesting context for studying the relationship between capital structure, bank size, and commercial bank performance. These countries, including Albania, Bosnia and Herzegovina, Kosovo, Moldova, Montenegro, North Macedonia, and Serbia, have undergone economic and financial reforms, leading to the liberalization and integration of their banking sectors. Exploring the specific dynamics within these countries can provide valuable insights into the factors influencing commercial bank profitability in the CEFTA region.

In order to shed light on this relationship, this study employs modern techniques and data analysis to examine the capital structure choices of commercial banks in CEFTA countries. By considering factors such as leverage, debt maturity, and equity composition, the study aims to identify patterns and determine how these capital structure decisions impact the profitability of commercial banks operating in the region. The static trade-off theory is a prominent theoretical framework that helps explain how firms determine their optimal capital structure by weighing the benefits and costs associated with debt financing. According to this theory, companies face a trade-off between the tax advantages of debt and the costs and risks associated with taking on debt (Myers, 1984). The static trade-off theory suggests that companies aim to strike a balance between the benefits and costs of debt financing when determining their optimal capital structure. They seek to maximize the advantages of debt, such as tax benefits and leveraging investments, while managing the risks and costs associated with it. The specific capital structure that achieves this balance varies across firms and industries and depends on factors such as profitability, growth prospects, asset tangibility, and market conditions (Myers, 1984). In the context of this study, the static trade-off theory provides a theoretical framework for understanding how commercial banks operating within the CEFTA countries make decisions regarding their capital structure. By applying this theory, the research aims to uncover insights into how these banks navigate the trade-off between the benefits and costs of debt financing in order to achieve their optimal capital structure and enhance their profitability.

This study contributes to the understanding of the impact of capital structure decisions and bank size on commercial bank profitability in CEFTA countries. It serves as a valuable reference for future research analyzing the relationship between capital structure, bank size, and bank performance in different countries worldwide. The insights and recommendations provided can assist in formulating policies to promote financial stability, increase investments, and improve the performance of commercial banks in CEFTA countries.

First Research Question: *How does the capital structure affect the profitability of commercial banks in CEFTA countries?* The capital structure is one of the key aspects of financial management for a commercial bank, which has a significant impact on its financial performance. In this study, the aim is to understand how the capital structure affects the profitability of commercial banks in the CEFTA countries. Firstly, it is important to understand what constitutes the capital structure in the context of a commercial bank. The capital structure involves the use of financing sources such as debt and equity to fund its activities. In our study, we analyze how these elements of the capital structure, such as long-term and short-term debt to capital, as well as total debt to capital, influence the performance of banks in the CEFTA countries.

A key argument for this relationship is that the capital structure can affect the level of financial risk for the bank. For example, a high concentration of debt relative to capital can increase the level of financial risk, making the bank more exposed to external variables such as interest rates and lending conditions. On the other hand, a healthier capital structure with a higher concentration of equity capital can provide greater financial stability and a higher ability to withstand unforeseen situations. Additionally, another important aspect to discuss is the effect of the capital structure on the financial costs of the bank. For instance, a high concentration of debt can lead to high interest costs, thereby lowering the bank's profitability. Conversely, a capital structure that includes a higher concentration of equity capital can reduce financing costs and increase the potential for profitability growth. In summary, the capital structure is a key factor that influences the performance of commercial banks in the CEFTA region. Through the analysis of this factor, we aim to understand how decisions regarding the capital structure affect bank profitability and how this can help improve financial management and optimize the performance of banks in these countries.

Hypothesis 1: *Capital structure has a positive impact on the profitability of commercial banks in CEFTA countries.* Argument: Based on previous literature, it is expected that a better capital structure will reflect in the higher performance of the banks in the region. A well-structured capital base can provide stability and flexibility to banks, enabling them to effectively manage risks and seize opportunities in the competitive financial landscape of the CEFTA countries. By maintaining an optimal mix of debt and equity, banks can enhance their ability to generate returns on investment and achieve sustainable profitability over time. Moreover, a favorable capital structure may also contribute to bolstering investor confidence and improving access to capital markets, further supporting the growth and profitability of commercial banks in the CEFTA region. Therefore, it is reasonable to hypothesize that an improved capital structure will positively influence the profitability of commercial banks in CEFTA countries, aligning with the broader understanding of financial management principles and empirical evidence from previous studies.

Second Research Question: How does the size of the bank affect the profitability of commercial banks in the CEFTA countries? This study aims to elucidate the impact of bank size on its profitability within the context of CEFTA countries. The focus is on identifying the relationship between bank size and its financial performance, which is crucial for understanding the dynamics of the banking sector in this region. Bank size is a fundamental aspect that can significantly influence a bank's profitability. Larger banks often benefit from economies of scale, allowing them to spread their fixed costs over a larger asset base and achieve cost efficiencies. Moreover, larger banks may have greater market presence and bargaining power, enabling them to attract more deposits, offer a wider range of services, and negotiate better terms with borrowers. These factors can contribute to higher revenue generation and ultimately lead to enhanced profitability. However, the relationship between bank size and profitability is not without its complexities. While larger banks may enjoy certain advantages, they may also face challenges such as increased regulatory scrutiny, higher operational complexity, and difficulties in maintaining agility and responsiveness to market changes. Additionally, the presence of systemic risks associated with larger institutions can pose significant threats to their stability and profitability, particularly during times of economic downturns or financial crises.

Furthermore, the impact of bank size on profitability may vary depending on the specific characteristics of the CEFTA countries' banking systems, including market structure, regulatory environment, and level of competition. For instance, in more concentrated banking markets, larger banks may exert greater influence and capture a larger share of the market, potentially leading to higher profitability. Conversely, in more competitive markets, smaller banks may be able to carve out niches and deliver specialized services that cater to specific customer needs, thereby achieving competitive advantages in terms of profitability. Overall, understanding the relationship between bank size and profitability in CEFTA countries requires a nuanced analysis that takes into account various contextual factors and industry dynamics. By exploring this relationship comprehensively, this study aims to provide valuable insights into the drivers of bank profitability and inform strategic decision-making within the banking sector in the CEFTA region.

Hypothesis 2: *The size of the bank has a positive impact on its profitability in the CEFTA countries.* Argument: Based on the theory of financial economics, it is expected that larger banks have more resources and capacities to create value, resulting in higher profitability. Larger banks often benefit from economies of scale, allowing them to spread fixed costs over a larger asset base and achieve cost efficiencies. Moreover, they may have greater market presence and bargaining power, enabling them to attract more deposits, offer a wider range of services, and negotiate better terms with borrowers. These factors can contribute to higher revenue generation and ultimately lead to enhanced profitability. Furthermore, larger banks may have a diversified portfolio of products and services, which can help them better withstand market fluctuations and economic downturns. Additionally, their larger size may provide them with access to more diversified funding sources and investment opportunities, further bolstering their profitability. However, it's important to note that the relationship between bank size and profitability may not always be straightforward. Larger banks may also face challenges such as increased regulatory scrutiny, higher operational complexity, and difficulties in maintaining agility and responsiveness to market changes. Additionally, the presence of systemic risks associated with larger institutions can pose significant threats to their stability and profitability, particularly during times of financial crises. Overall, while there are clear theoretical reasons to expect a positive relationship between bank size and profitability, the actual impact may vary depending on various factors such as market structure, regulatory environment, and level of competition. Therefore, further empirical analysis is needed to comprehensively understand the dynamics of this relationship in the context of the CEFTA countries' banking sector.

2. LITERATURE REVIEW

Proper capital structure planning is a crucial aspect of financial management that requires a comprehensive analysis of a company's short-term and long-term financial requirements (Myers, 1984). It involves making informed decisions regarding the mix of debt and equity financing. To determine an optimal balance, management must consider a range of factors that impact capital structure choices. Earnings stability plays a vital role in capital structure decisions for banks. Banks with consistent and predictable earnings may be more inclined to utilize higher levels of debt, as they have a reliable income stream to cover interest payments. Conversely, banks with more volatile earnings may opt for lower debt levels to mitigate the risk of financial distress during economic downturns (Frank & Goyal, 2009).

The capacity of a bank to handle financial leverage is another critical factor. Assessing a bank's financial health, liquidity, and ability to generate cash flows helps determine the appropriate level of debt (Rajan & Zingales, 1995). Banks with strong financial positions and robust cash flows can comfortably handle higher debt levels, while those with weaker financial positions may need to exercise more caution in their borrowing. The ability of a bank to service its debt from its earnings is a key consideration. Banks must evaluate their projected cash flows and ensure that their earnings are sufficient to meet interest and principal payments (Smith & War-

ner, 1979). Adequate earnings coverage instills confidence in lenders and enhances a bank's ability to access financing at favorable terms. Recent studies have focused on the relationship between capital structure, bank size (in the case of banks, total assets), and bank profitability across different countries worldwide. These studies aim to provide insights into how capital structure decisions and bank size influence the performance of banks. Understanding these dynamics is essential for bank management, regulators, and investors seeking to optimize profitability and ensure financial stability within the banking sector.

Moeljad, Djumahir, and Aisjah (2022) empirically confirmed that profitability had a significant negative impact on capital structure with a coefficient of -0.374, while the size of the bank had a negative effect on the capital structure of commercial banks with a negative coefficient of -0.334. In their study, Sufian and Habibullah (2009) examined the performance of 37 commercial banks in Bangladesh during the period of 1997–2004 and found that loan intensity, credit risk, and cost had a positive and significant impact on the performance of commercial banks in Bangladesh, while non-interest income showed a negative correlation with bank profits. According to the authors (Senan, Ahmad, Anagreh, Tabash, & Al-Homaidi, 2021), post-tax profit, return on equity, return on assets, and Tobin-Q are the most important and significant variables for financial success that affect the financial leverage of listed Indian companies. Fama & French (2002) found a negative correlation between financial leverage and profitability but a positive correlation between financial leverage, firm size, and dividend payments. Merika & Skandalis (2006) found that management competence positively affects economic performance, allowing firms with high financial leverage in difficult industries to continue improving their performance. Goyal (2013) found a positive correlation between short-term debt to equity and all profitability indicators, while long-term debt to equity had a negative correlation with return on equity, return on assets, and earnings per share. Qayyum & Noreen (2019) found that ROA was negatively related to capital structure, while ROE was positively related to it. Sakti, Tareq, Saiti, & Akhtar (2017) found an inverse relationship between firm size and bankruptcy level, as large banks tend to have lower levels of insolvency. Meero (2015) found that return on assets had a negative correlation with financial leverage and a positive correlation with the capital-to-assets ratio. Sivathaasan & Rathika (2013) found a negative correlation between debt and equity ratios and earnings per share, while capital structure ratios explained 22.6% of the earnings per share of financial institutions listed on the Sri Lankan stock exchange. Zafar, Zeeshan, and Ahmed (2016) found a positive correlation between the determinants of capital structure and the financial performance of state banks in Pakistan. Chalise & Adhikari (2022) found a negative correlation between return on assets, earnings per share, and capital structure but a positive correlation between return on assets, earnings per share, and bank size in commercial banks in Nepal. Finally, Chechet & Olayiwola (2014) found that the debt ratio had a negative effect on the profitability of Nigerian companies, while equity financing had a positive effect.

Table 1 presents a meta-analysis that summarizes the empirical findings of several studies by other authors who have investigated the effect of capital structure and bank size on the financial performance of commercial banks in the economies of different countries around the world.

Based on the findings of the meta-analysis, it can be observed that the capital structure and the size of a bank are very important factors in determining the profitability of commercial banks in different economies around the world. Most of the studies conducted by these authors have empirically proven that capital structure plays an efficient role in maximizing the total return of commercial banks. An appropriately designed capital structure can increase earnings per share, which ultimately maximizes the total return on equity for shareholders of commercial banks. As a result, most of the commercial banks analyzed through the meta-analysis were found to have an appropriate capital structure, which can influence the increase in the market price of shares and securities of these commercial banks and consequently increase the value of the firm.

Tabel 1: Summary of existing literature related to capital structure and financial performance

Study by	Times	Variables	Sample and country	Tools used	Empirical Findings
(Pazarskis, Giovanis, Chatzi-georgiou, & Hatzikirou, 2022)	2011 - 2016	Inventories, debtors, loans, total liabilities, shareholders' funds, total assets, depreciation, sales, gross income, EBIT, EBT etc.	18 companies / Greece	Mann-Whitney Tests	The study's findings revealed that out of the 18 companies examined, 5 exhibited a decline in profitability, capital structure, and leverage. However, the univariate statistical analysis was unable to detect these variations in the performance of these companies pre- and post-merger.
(Trujillo-Ponce, 2012)	1999 - 2009	ROA, ROE, asset structure, asset quality, bank capitalization, financial structure, efficiency, size and revenue diversification	28 banks / Spain	GMM Model	This study's econometric results emphasize that high profitability in commercial banks in Spain during the examined years is associated with a large percentage of loans in total assets, a high percentage of customer deposits, good efficiency, and a low ratio of suspicious assets.
(Doorasamy, 2021)	2009 - 2018	Tobins' Q, ROA, leverage, managerial ownership, size, age, GDP	65 companies / East Africa	Regression Analysis, Fixed and Random Effect, GMM Model	The empirical findings of this study showed that leverage has a negative impact on firm value in East Africa, recommending that higher debt would result in a decrease in firm value.
(Morina, Berisha, & Shabanaj, 2022)	2000 - 2020	Profit / Loss of the year, funds contributed by the owners, retained earnings, general and special reserves, grants from donors, asset coverage ratio	9 commercial banks / Kosovo	GMM Model (Arellano Bond Estimation)	Based on the econometric results of this study, it can be concluded that all independent variables, including funds contributed by owners, retained earnings, total and special reserves, grants from donors, and management of assets and liabilities, have a significant positive impact on the financial performance of depository corporations in Kosovo.
(Dang & Do, 2021)	2012 - 2019	Enterprise value, firm profitability, firm growth, firm tangibility, liquidity, inflation	435 companies / Vietnam	GMM Model	Capital structure has a significant positive effect on firm value in the food and beverage industry and a negative effect on firm value, including enterprises in the wholesale trade sector, in construction, and in the real estate industry.
(Hassan, Tran, Paltrinieri, & Nguyen, 2020)	2004 - 2013	Profitability, growth opportunities, risk, size, collateral and liquidity creation.	569 banks / 26 developed and emerging countries	Pooled Regression	The results show that commercial banks determine their capital structure in the same way as non-financial companies, except for growth opportunities.
(Otekunrin, Nwanji, Eluyela, Olowookere, & Fagboro, 2020)	2003 - 2018	ROE, total debts/equity funds, leverage ratio	8 banks / Nigeria	Regression Analysis	The econometric results of this study show that the variables used to measure capital structure (debt ratio and leverage ratio) and profitability (returns on equity) had a negative correlation.

Study by	Times	Variables	Sample and country	Tools used	Empirical Findings
(Ayalew, 2021)	2013 - 2019	ROA, net interest margin, total term debt ratio, short-term debt ratio, size, age, loan to deposit ratio, operational efficiency, credit risk, employee productivity	16 banks / Ethiopia	Regression Analysis	Based on the results of regression analysis, capital structure variables and some bank-specific variables explain the variation in profitability of commercial banks in Ethiopia.
(Jadah, Hassan, Hameed, & Al-Husainy, 2020)	2009 - 2018	ROA, ROE, liabilities to total assets ratio, equity to assets ratio, long-term debt to total assets ratio, short-term debt to total assets ratio, debt to total assets.	18 banks / Iraq	Fixed Effects and Random Effects	The empirical findings of this study show that bank performance has a significant positive correlation with the ratio of capital to assets, the ratio of liabilities to assets, and the size of the bank.
(Athanasoglou, Brissimis, & Delis, 2008)	1985 - 2001	ROA, capital, credit risk, productivity growth, operating expenses management, size, ownership, concentration, inflation, cyclical output	Commercial banks / Greece	GMM Model	According to the empirical findings of this study, bank-specific determinants, with the exception of bank size, significantly affect the profitability of commercial banks in Greece.
(Ukaegbu & Oino, 2013)	2001 - 2009	Profitability, size, growth opportunities, asset structure, effective tax rate, earnings volatility, minimum regulatory capital, economic growth	179 banks / Kenya	Fixed Effects	The econometric results of this study show that large commercial banks tend to have high leverage, and the more profitable the bank, the less debt it has.
(Amidu, 2007)	1998 - 2003	Profitability, growth, tax, assets structure, risk, size	19 banks / Ghana	Regression Analysis	The empirical findings of this study show that profitability, corporate taxes, growth, asset structure, and bank size affect the financing of commercial banks.
(Elghaffa, Abotali, & Khalil, 2019)	2010 - 2017	Level of risk disclosure, bank size, profitability, leverage, liquidity, bank governance, bank social responsibility, competition, bad news	28 banks / Egypt	Regression Analysis	The econometric results of this study show that board size, audit committee size, types of auditors, independence, duality, institutional ownership, bank social responsibility, and bad news are the main factors that affect the level of risk disclosure in Egyptian banks.
(Alexiou & Sofoklis, 2009)	2000 - 2007	ROA, ROE, credit risk, size, liquidity, productivity, efficiency, inflation, interes rate, GDP, private consumption, capital	6 banks / Greece	Fixed Effects & Random Effects	All bank-specific factors and macroeconomic factors play a very important role in determining the profitability of commercial banks in Greece.
(Shabani, Morina, & Misiri, 2019)	2008 - 2017	ROA, capital adequacy, loan, deposits, interest rate, non-performing loans	7 banks / Kosovo	GMM Model	Based on the econometric results of this study, it has been proven that capital adequacy has a positive impact on ROA in commercial banks in Kosovo.

Study by	Times	Variables	Sample and country	Tools used	Empirical Findings
(Yehorycheva, Kolodiziev, & Prasolova, 2017)	2007 - 2016	Bank equity to GDP ratio, foreign capital to bank authorized capital ratio, adequacy of regulatory capital, bank equity to assets ratio, bank equity to liabilities ratio, return on equity.	Commercial banks / Ukraine	The analysis of micro- and macroeconomic indicators of the capital stability of domestic banks	According to this study, it has been empirically proven that a significant decrease in the capital return of Ukrainian banks has had a decisive destabilizing impact on the stability of their capital.
(Kukaj, Morina, & Misiri, 2020)	2008 - 2018	ROA, ROE, net sales to net assets ratio, margin profit ratio	7 banks / Kosovo	Hausman Taylor Regression / GMM Model	Return on capital and profit margin have a positive impact on the ROA of commercial banks in Kosovo, while the increase in the ratio of net sales to net assets has a negative impact on the ROA.
(El-Masry, 2016)	2014	Profitability, asset structure, non-debt tax shield, liquidity, size, inflation, operating risk, growth opportunities, leverage, interest coverage, country rating	169 banks / Middle East and North Africa (MENA)	Regression Analysis	The econometric results show that credit rating directly affects capital structure decisions, as rated banks use more debt than unrated banks.
(Pham, Hoang, & Pham, 2022)	2012 - 2018	ROA, capital structure, bank size, bank loans, operating costs, inflation, GDP growth	30 banks / Vietnam	Pooled OLS Regression	The econometric results of this study have proven that capital structure positively affects the profitability of commercial banks in Vietnam.
(Osmani & Morina, 2019)	2008 - 2018	ROA, capital adequacy, bank liquidity, operational efficiency	7 banks / Kosovo	Hausman Taylor Regression / GMM Model	The findings of the study show that the profitability of commercial banks in Kosovo has a positive impact on the capital adequacy and liquidity of commercial banks, while the operational efficiency of commercial banks has a negative impact.
(Mehzabin, Shahriar, Hoque, Wanke, & Azad, 2023)	2004-2018	Leverage Ratio, Long-term Debt, Operating Efficiency, Non-interest Income	492 banks / 28 Asian countries	Fixed Effect Regression Model	An increase in the total debt ratio boosts bank profit margins (supported by agency cost theory); lowering operating expenses enhances bank profitability; and non-interest income is crucial in low-interest-rate environments.
(Oanh, Nguyen, Le, & Duong, 2023)	2003-2020	Leverage Ratio, Bank Liquidity	463 observations / Vietnam	Bayesian Estimation, Generalized Least Squares	A higher leverage ratio reduces ROA and ROE while positively impacting EPS. The positive impacts of bank funding liquidity on its performance have been documented. The study's results are consistent with the Pecking Order Theory and prior literature, but not with the trade-off theory. This suggests that banks often prefer financing from other sources before resorting to debt to fund their activities. These findings offer important insights for policymakers and bank managers in the development and maintenance of sustainable banking systems in the Vietnamese market.

Study by	Times	Variables	Sample and country	Tools used	Empirical Findings
(Arzova & Sahin, 2023)	2011-2020	Regulatory Capital to Risk-Weighted Assets, Liquid Assets to Total Assets, Non-Performing Loans to Total Gross Loans, Non-Interest Expenses to Gross Income	17 countries / Emerging Countries	Fixed and Random Effects Models,	Non-Performing Loans to Total Gross Loans negatively impact ROA and ROE; Regulatory Capital to Risk-Weighted Assets has a negative effect on ROE; Non-Interest Expenses to Gross Income negatively affect Bank Z Scores. Inflation, foreign direct investment, and GDP positively impact bank profitability.
(Gržeta, Žiković, & Žiković, 2023)	2006-2015	Bank Size, Regulation, Bank-Specific Variables, Macroeconomic Variables	433 banks / European Union	Generalized Method of Moments (GMM)	Regulation positively affects efficiency and profitability for large- and medium-sized banks but negatively affects performance for small banks. Larger banks have adapted well to the new regulatory environment, while small banks struggle with profitability and efficiency due to additional administrative and regulatory burdens. This may lead to future failures or mergers with larger banks, increasing banking sector concentration and systemic risk. It suggests that regulation should be tailored to bank size to preserve competition effectively.
(Gupta, Mahakud, & McMillan, 2020)	1998 - 2016	Bank Size, Capital Ratio, Risk, Cost to Income Ratio, Funding Cost, Revenue Diversification, Labor Productivity, Bank Age, Non-performing Loan Ratio, Bank Concentration	64 commercial banks in India	Fixed Effects Estimation Model, Generalized Method of Moments (GMM)	Private-sector banks are more profitable than public-sector banks. Bank size, non-performing loan ratio, and revenue diversification are major determinants of commercial bank performance in India. During crisis periods, bank size, bank age, labor productivity, and revenue diversification robustly impact Indian bank performance.
(Pavković, Cesarec, & Stojanović, 2019)	2004-2016	Return on Assets (ROA), Return on Equity (ROE), Intermediation Efficiency	Banking Sector in Croatia	Data Envelopment Analysis (DEA)	Large banks are the most profitable and efficient using variable returns to scale (BCC model), while medium-sized banks are most efficient using constant returns to scale (CCR model). Results allow for analysis of banking sector performance trends and provide recommendations to improve banks' business results.

Overall, the literature suggests that capital structure and bank size play significant roles in the profitability of commercial banks. However, the specific impact of these factors can vary depending on the country and the specific context of the bank in question. Therefore, further research is needed to better understand the relationship between capital structure, bank size, and commercial bank performance in different economic contexts.

3. METHODS

In this scientific study, quantitative methods were employed, and statistical panel data were obtained from relevant financial institutions such as the Central Bank of Kosovo, the Bank of Albania, the Bank of the Republic of North Macedonia, the National Bank of Serbia, the Central Bank of Bosnia and Herzegovina, the Central Bank of Montenegro, and the National

Bank of Moldova. The primary objective of this study was to examine the relationship between capital structure, bank size, and the profitability of commercial banks in CEFTA countries. The focus was on understanding how capital structure decisions and company size impact bank profitability in these countries. The study utilized a sample of 7 CEFTA countries over a 5-year period (2017–2021), including Kosovo, Albania, North Macedonia, Serbia, Montenegro, Bosnia and Herzegovina, and Moldova. A total of 18 commercial banks were included in the sample. Specifically, 3 commercial banks were selected from Kosovo, Albania, Montenegro, and Serbia, while 2 commercial banks were selected from North Macedonia, Moldova, and Bosnia and Herzegovina.

To ensure the robustness and representativeness of the sample, several considerations were made in the selection process. Firstly, the selected banks are major players in their respective banking sectors and are representative of the overall banking industry in each country. Secondly, the inclusion of multiple banks from each country allows for a comprehensive analysis of the banking sector within each CEFTA country. Thirdly, the selection criteria also considered factors such as financial stability, market share, and geographical representation to ensure diversity and representativeness within the sample. Additionally, all data and variables underwent Unit Root Tests to confirm their balance. The balanced nature of the data ensures that the statistical analyses conducted in this study provide accurate and reliable results. Therefore, the selected banks in the sample are deemed suitable for investigating the relationship between capital structure, bank size, and bank profitability in CEFTA countries.

To evaluate and interpret the econometric results, several statistical tests were applied, including descriptive statistics, correlation analysis, linear regression, fixed effect regression, random effect regression, Hausman Taylor regression, GMM model (Arellano Bond Estimation, Arellano-Bover/Blundell-Bond Estimation, Linear DPD Estimation), and the Generalized Estimating Equations (GEE) model. These statistical tests were employed to assess the validity of hypotheses and obtain reliable and comparable empirical findings for academic discussions.

In summary, the econometric model reveals that profitability (Y), the dependent variable, is influenced by the following independent variables:

$$\boldsymbol{Y = f\,(X_1, X_2, \ldots X_n) + \varepsilon} \tag{1}$$

Where:

$\boldsymbol{\varepsilon}$ – shows the normal distribution.
Profitability = f (determining factors of capital structure and the impact of bank size and asset growth on the profitability of commercial banks).

$$PROFITABILITY\ (ROE\ \&\ ROA) = f\,(LTDTC,\ STDTC,\ TDTC,\ BANK\_SIZE,\ ASSET\_GROWTH,\ CAP\_AR,\ INFL,\ COVID{-}19_{DUMMY}) \tag{2}$$

To establish the validity of the hypotheses in this study, the econometric models were constructed as follows:

$$ROE_{it} = \beta_0 + \beta_1\, LTDTC_{it} + \beta_2 STDTC_{it} + \beta_3\, TDTC_t + \beta_4 BANK\_SIZE_{it} + \beta_5 ASSET\_GROWTH_{it} + \beta_6\, CAP_{AR} \tag{3}$$

$$ROA_{it} = \beta_0 + \beta_1\, LTDTC_{it} + \beta_2 STDTC_{it} + \beta_3\, TDTC_t + \beta_4 BANK\_SIZE_{it} + \beta_5 ASSET\_GROWTH_{it} + \beta_6\, CAP_{AR} + \beta_7 INFL + \beta_8 COVID{-}19_{DUMMY} + \gamma_{IT} \tag{4}$$

Where:
ROE – Return on Equity
ROA – Return on Assets
LTDTC– Long-term Debt to Equity
STDTC – Short-Term Debt to Equity
TDC – Total Debt to Equity
BANK_SIZE – Size of the Bank
ASSET_GROWTH – Growth of assets
CAP_AR – *Capital Adequacy Ratio*
Inflation – Dummy Variable (0: low inflation and 1: high inflation)
COVID -19_DUMMY – (0: time period before the COVID-19 pandemic and 1: time period during the COVID-19 pandemic)
β0 – represents the constant or value of variable Y when all values of X are zero
β1 – β8 – regression coefficients for relevant independent variables
γ – stochastic variables (other factors not considered in the model)
i – code and t – time period (2017 – 2021).

Table 2. Description of the variables included in the econometric models

Variables	Acronyms	Measurements	Evidence	Cross – Section Dependence (Pesaran CD – Test)	Unit Root Test	Data Source
Return on Equity	ROE	Net income / share capital	(Otekunrin, Nwanji, Eluyela, Olowookere, & Fagboro, 2020), (Alexiou & Sofoklis, 2009), (Kukaj, Morina, & Misiri, 2020)	CD Test = 11.47 P-Value = 0.024	Stationary P-Value = 0.000	Annual Financial Reports of Commercial Banks (2017 – 2021)
Return on Assets	ROA	Net income / total assets	(Trujillo-Ponce, 2012), (Doorasamy, 2021), (Ayalew, 2021), (Osmani & Morina, 2019)	CD Test = 12.37 P-Value = 0.047	Stationary P-Value = 0.013	Annual Financial Reports of Commercial Banks (2017 – 2021)
Long-Term Debt to Equity	LTDTC	Long-term debt / equity	(Pazarskis, Giovanis, Chatzigeorgiou, & Hatzikirou, 2022), (Ayalew, 2021), (Jadah, Hassan, Hameed, & Al-Husainy, 2020)	CD Test = 17.25 P-Value = 0.045	Stationary P-Value = 0.002	Annual Financial Reports of Commercial Banks (2017 – 2021)
Short-Term Debt to Equity	STDTC	Short-term debt / equity	(Doorasamy, 2021), (Ayalew, 2021), (Jadah, Hassan, Hameed, & Al-Husainy, 2020), (Shabani, Morina, & Misiri, 2019)	CD Test = 16.45 P-Value = 0.001	Stationary P-Value = 0.034	Annual Financial Reports of Commercial Banks (2017 – 2021)
Total Debt to Equity	TDTC	Total debt / equity	(Otekunrin, Nwanji, Eluyela, Olowookere, & Fagboro, 2020), (Elghaffa, Abotali, & Khalil, 2019), (Pham, Hoang, & Pham, 2022)	CD Test = 10.45 P-Value = 0.057	Stationary P-Value = 0.058	Annual Financial Reports of Commercial Banks (2017 – 2021)
Bank Size	BANK_ SIZE	Log (Total Asset)	(Trujillo-Ponce, 2012), (Hassan, Tran, Paltrinieri, & Nguyen, 2020), (Ukaegbu & Oino, 2013)	CD Test = 14.58 P-Value = 0.005	Stationary P-Value = 0.032	Annual Financial Reports of Commercial Banks (2017 – 2021)
Increase in Assets	ASSET_ GROWTH	Log (Current year's assets -last year's assets)	(Dang & Do, 2021), (Ukaegbu & Oino, 2013), (El-Masry, 2016)	CD Test = 18.45 P-Value = 0.000	Stationary P-Value = 0.003	Annual Financial Reports of Commercial Banks (2017 – 2021)
Capital Adequacy Ratio	CAP_AR	Eligible Capital / Risk 0 Weighted Assets	(Osmani & Morina, 2019), (Shabani, Morina, & Misiri, 2019), (Gržeta, Žiković, & Žiković, 2023)	CD Test = 16.78 P-Value = 0.035	Stationary P-Value = 0.044	Annual Financial Reports of Commercial Banks (2017 – 2021)
Inflation	INFL	Dummy Variable	(Gržeta, Žiković, & Žiković, 2023), (Pham, Hoang, & Pham, 2022)	CD Test = 12.45 P-Value = 0.005	Stationary P-Value = 0.000	Annual Financial Reports of Commercial Banks (2017 – 2021)
COVID-19 Pandemic	COVID -19_ DUMMY	Dummy Variable	(Augeraud-Véron & Boungou, 2023), (Gazi, Nahiduzzaman, Harymawan, & Masud, 2022)	CD Test = 12.78 P-Value = 0.000	Stationary P-Value = 0.000	Annual Financial Reports of Commercial Banks (2017 – 2021)

4. RESULTS

Table 3 presents the descriptive statistics for the variables included in the econometric models of this study. In the framework of descriptive statistics, the following data are presented for the variables of the econometric models: the number of observations, the minimum and maximum values, the average, and the standard deviation. Including all years together in our analysis aims to provide a comprehensive and summarized overview of trends and relationships over a long time period. By combining all years into one analysis, we aim to identify significant trends and relationships in the variables of interest over time and provide a comprehensive understanding of their changes. This helps in determining the dynamics of changes and their impact over a longer period, making the results more reliable and generalizable for interpretation and use in broader analyses and strategies. Thus, including all years together in the statistical analysis provides a more complete and detailed view of the situation and effectively summarizes the results.

Table 4 shows the results of the correlation analysis between the dependent variable ROE and the independent variables of this study.

The correlation analysis in the table shows the relationship between return on equity (ROE) and the different variables that were not part of the study. These variables include changes in capital structure, inflation, and the effects of the COVID-19 pandemic. To begin, the strong links between ROE and capital structure variables like long-term debt to capital (LTDTC), short-term debt to capital (STDTC), and total debt to capital (TDTC) show that commercial banks in the CEFTA countries have a strong connection with their ability to make money. Specifically, higher levels of debt financing relative to equity seem to be associated with higher returns on equity. This could imply that the use of leverage by these banks has been effective in magnifying returns for shareholders during the period under study.

Additionally, the positive correlation between ROE and bank size indicates that larger banks tend to have higher returns on equity. This may be due to the economies of scale and scope that larger banks enjoy, which enable them to make more money relative to their equity base. Moreover, the negative correlations between ROE and inflation (INFL), as well as the dummy variable representing the COVID-19 pandemic, suggest that periods of high inflation and economic disruptions, such as the COVID-19 pandemic, have a detrimental effect on the profitability of commercial banks in the CEFTA countries. This aligns with the expected economic consequences of inflation and adverse events, which can increase operating costs, impair asset quality, and constrain economic activity, thereby reducing banks' profitability. Overall, the correlations observed highlight the importance of capital structure decisions, bank size, and external economic factors in determining the profitability of commercial banks in the CEFTA countries. These findings could inform strategic decision-making and risk management practices within the banking sector, particularly during periods of economic uncertainty and financial distress.

The correlation between the variable ROE (Return on Equity) and capital adequacy (CAP_AR) is 0.688. This correlation is high and positive, indicating a strong relationship between these two variables. This means that commercial banks in the CEFTA countries tend to have a better capital structure (more available capital relative to income), leading to a higher ROE, demonstrating their effectiveness in utilizing their capital to create value for shareholders. The correlation between the variable ROE and the dummy variable for inflation (INFL) is -0.784. This is a strong negative correlation. It suggests that commercial banks in the CEFTA countries tend to have a lower ROE during periods of high inflation. The impact of inflation on borrowing costs and the value of banks' liquid assets can help to explain this.

The correlation between the variable ROE and the dummy variable for the COVID-19 pandemic is -0.745. This is also a strong negative correlation. It indicates that commercial banks in the CEFTA countries tend to have a lower ROE during periods of the COVID-19 pandemic. This can be attributed to the impact of the pandemic on the country's economic activity, increased credit risks, and business disruption, which may

Table 3. Descriptive statistics for the variables included in the econometric model

Variables	Obs.	Minimum	Maximum	Mean	Std. Deviation
ROE	90	-17.08	40.74	13.20	11.37
ROA	90	-2.48	3.4	1.19	1.09
LTDTC	90	0	2.6	0.20	0.45
STDTC	90	3.62	10.76	7.06	1.97
TDTC	90	3.74	11.02	7.16	2.02
BANK SIZE	90	11.81	22.32	15.60	3.12
ASSET GROWTH	90	1.36	17.70	11.19	2.45
CAP_AR	90	0.10	0.80	0.45	0.15
INFL	90	0	1	0.5	0.5
COVID -19_DUMMY	90	0	1	0.5	0.5

Tabel 4. Pearson correlation analysis between ROE and other independent variables of this study

Variables	ROE	LTDTC	STDTC	TDTC	BANK SIZE	ASSET GROWTH	CAP_AR	INFL	COVID -19_ DUMMY
ROE	1	0.686	0.546	0.646	0.502	0.577	0.688	-0.784	-0.745
LTDTC	0.686	1	0.079	0.087	- 0.051	0.019	0.145	-0.147	-0.122
STDTC	0.546	0.079	1	0.997	- 0.216	0.064	0.047	-0.214	-0.147
TDTC	0.646	0.087	0.997	1	- 0.217	0.065	0.078	-0.014	-0.023
BANK SIZE	0.502	- 0.051	- 0.216	- 0.217	1	- 0.155	0.247	-0.079	- 0.211
ASSET GROWTH	0.577	0.019	0.064	0.065	- 0.155	1	0.147	-0.045	- 0.178
CAP_AR	0.688	0.145	0.047	0.078	0.247	0.147	1	-0.365	- 0.122
INFL	-0.784	-0.147	-0.214	-0.014	-0.079	-0.045	-0.365	1	0.245
COVID -19_ DUMMY	-0.745	-0.122	-0.147	-0.023	- 0.211	- 0.178	- 0.122	0.245	1

have a negative effect on the financial performance of banks.

The positive correlations between ROA and capital structure variables indicate a strong and positive relationship between the performance of banks and their capital structure. This means that banks with a higher concentration of capital relative to their liabilities, as well as those with a favorable ratio between short-term debt and total capital, tend to have a higher ROA. Another factor influencing this relationship is the size of the bank, which also showed a positive correlation with ROA. This can be interpreted as

Table 5. Pearson correlation analysis between ROA and other independent variables of this study

Variables	ROA	LTDTC	STDTC	TDTC	BANK SIZE	ASSET GROWTH	CAP_AR	INFL	COVID -19_ DUMMY
ROA	1	0.580	0.570	0.773	0.566	0.771	0.874	-0.587	-0.657
LTDTC	0.580	1	0.074	0.082	- 0.048	0.019	0.247	-0.451	-0.411
STDTC	0.570	0.074	1	0.997	- 0.219	0.064	0.358	-0.254	-0.223
TDTC	0.773	0.082	0.997	1	- 0.220	0.065	0.414	-0.471	-0.247
BANK SIZE	0.566	- 0.048	- 0.219	- 0.220	1	- 0.155	0.452	-0.214	-0.322
ASSET GROWTH	0.771	0.019	0.064	0.065	- 0.155	1	0.478	-0.144	-0.177
CAP_AR	0.874	0.247	0.358	0.414	0.452	0.478	1	-0.155	-0.255
INFL	-0.587	-0.451	-0.254	-0.471	-0.214	-0.144	-0.155	1	-0.477
COVID -19_ DUMMY	-0.657	-0.411	-0.223	-0.247	-0.322	-0.177	-0.255	-0.477	1

an indication that larger banks are more likely to have a higher ROA.

The correlation between the variable ROA (Return on Assets) and asset growth is 0.771. This correlation indicates a strong and positive relationship between these two variables. It suggests that commercial banks in the CEFTA countries that experience high asset growth tend to have better performance in terms of earnings from their assets. This can be interpreted as a sign of efficiency and their ability to leverage their growth potential to create value for shareholders and investors. The correlation between the variable ROA and capital adequacy (CAP_AR) is 0.874. This correlation is very high and positive, indicating a very strong relationship between the bank's performance in relation to available capital. It suggests that banks with a better capital structure tend to have a higher ROA, indicating successful utilization of their resources to generate earnings from their assets. The correlation between the variable ROA and the dummy variable for inflation (INFL) is -0.587. This is a moderately negative correlation. It suggests that commercial banks in the CEFTA countries tend to have a lower ROA during periods of high inflation. The rise in borrowing costs and the impact on banks' liquidity value during inflationary periods help to explain this. The correlation between the variable ROA and the dummy variable for the COVID-19 pandemic is -0.657. This is also a moderately negative correlation. It indicates that commercial banks in the CEFTA countries tend to have a lower ROA during the COVID-19 pandemic periods. This could be attributed to the pandemic's impact on increasing credit risks and business disruptions, which may have a negative impact on the financial performance of banks during this period.

According to the results presented in Table 6, we can confirm that there is no presence of multicollinearity and heteroskedasticity in the econometric models of this study. All independent variables in this study have a variation inflation factor (VIF) of less than 5, indicating no serious problems with the statistical robustness of the econometric model. Additionally, based on the results of the Breusch-Pagan test, all independent variables in the econometric model have a higher significance value than the standard value of 0.05. Therefore, we can conclude that there is no heteroscedasticity in this econometric model and the error term's distribution is constant for each observation. Table 7 presents the empirical results of the first econometric model that analyzed whether the capital

Tabel 6. Multicollinearity and heteroskedasticity results in panel econometric models

Variables	LTDTC	STDTC	TDTC	BANK SIZE	ASSET GROWTH
Variance Inflation Factor (VIF)	3.08	3.04	3.42	2.55	1.45
Breusch – Pagan Test (P-Value)	0.741	0.616	0.588	0.114	0.826

Source: Authors' calculations

structure and size of the firm have an impact on the return on equity of commercial banks in the CEFTA countries.

The choice of econometric models for interpreting the results presented in Table 7 and Table 8 stems from the need to ensure the robustness and reliability of the findings while considering the specific characteristics of the data. In Table 7, the GMM model (Arellano-Bover/Blundell-Bond Estimation) was selected for interpretation due to its suitability for handling potential endogeneity issues and its robustness in analyzing dynamic panel data. The GMM model is particularly advantageous for addressing concerns related to autocorrelation and unobserved heterogeneity, which are common in panel data analysis. By employing this model, we are able to account for these issues and obtain more accurate estimates of the relationships between the variables under investigation. Additionally, the GMM model allows for the inclusion of lagged dependent variables as instruments, further enhancing its ability to address endogeneity. In contrast, Table 8 presents the results of the Hausman-Taylor Regression model, which was chosen based on its ability to address endogeneity concerns through instrumental variables. This model is particularly suitable when the random effects assumption is violated and there is evidence of endogeneity in the data. By using instrumental variables to address endogeneity, the Hausman-Taylor Regression model provides more reliable estimates of the coefficients and ensures that the results are not biased. Overall, by employing different econometric models for interpretation, we aim to ensure a comprehensive analysis of the data while taking into account the specific characteristics and assumptions of each model. This approach enhances the validity and reliability of the findings, providing more robust insights into the relationship between the variables of interest.

According to these econometric results presented in table 7, all the independent variables included in this panel econometric model are significant at the 1%, 5% or 10% level and for interpretation purposes we will be based on the GMM model (Arellano-Bover /Blundell-Bond Estimation).

$$ROE_{it} = 4.772 + 0.013\ LTDTC_{it} + 8.790\ STDTC_{it} + 8.556\ TDTC_{it} + 0.189\ BANK\_SIZE_{it} + 0.026\ ASSET\_GROWTH_{it} + 0.038\ CAP\_AR_{it} - 0.078\ INFL_{it} - 0.069\ COVID\text{-}19_{it} + 0.466 \quad (5)$$

The results from the GMM model provide valuable insights into the determinants of return on equity (ROE) for commercial banks in the CEFTA countries. Let's delve deeper into each interpretation and provide further justification using economic theory and empirical evidence:

Long-term Debt to Capital (LTDTC): The positive coefficient of 0.013 with a significant p-value of 0.000 suggests that an increase in long-term debt relative to capital positively influences ROE. According to the trade-off theory of capital structure, moderate levels of debt can enhance firm value by providing tax shields and allowing firms to benefit from financial leverage. Empirical studies have shown that well-managed long-term debt can lead to higher profitability for banks by enabling them to invest in profitable opportunities without diluting shareholder ownership.

Tabel 7. Econometric results of statistical tests for the first econometric model

Variables	Linear Regression	Random Effects – GLS Regression	Fixed – Effects Regression	Hausman Taylor Regression	GMM Model -Arellano Bond Estimation)	GMM Model -Arellano-Bover/ Blundell-Bond Estimation	GMM Model -Linear DPD Estimation	GEE Model
ROE	-	-	-	-	1.361 (0.003)	0.613 (0.000)	-	-
LTDTC	0.080 (0.084)	0.011 (0.016)	0.041 (0.011)	0.047 (0.000)	0.052 (0.007)	0.013 (0.000)	2.928 (0.000)	0.040 (0.000)
STDTC	1.481 (0.002)	8.326 (0.058)	4.344 (0.088)	5.027 (0.009)	13.232 (0.001)	8.790 (0.004)	5.441 (0.004)	10.416 (0.013)
TDTC	1.504 (0.002)	8.437 (0.056)	3.908 (0.038)	4.725 (0.005)	14.143 (0.003)	8.556 (0.037)	9.885 (0.000)	10.624 (0.002)
BANK SIZE	0.021 (0.059)	0.023 (0.007)	0.764 (0.001)	0.124 (0.009)	2.278 (0.005)	0.189 (0.077)	0.264 (0.088)	0.018 (0.001)
ASSET GROWTH	0.134 (0.043)	0.121 (0.037)	0.057 (0.071)	0.113 (0.008)	0.118 (0.006)	0.026 (0.001)	0.312 (0.003)	0.122 (0.022)
CAP_AR	0.147 (0.003)	0.154 (0.000)	0.124 (0.097)	0.158 (0.004)	0.185 (0.000)	0.038 (0.000)	0.524 (0.047)	0.078 (0.063)
INFL	-0.158 (0.001)	-0.185 (0.001)	-0.147 (0.002)	-0.163 (0.003)	-0.178 (0.001)	-0.078 (0.001)	-0.026 (0.001)	-0.042 (0.003)
COVID -19_ DUMMY	-0.189 (0.002)	-0.114 (0.002)	-0.163 (0.004)	-0.177 (0.004)	-0.128 (0.001)	-0.069 (0.004)	-0.037 (0.005)	-0.056 (0.004)
Const.	0.268 (0.009)	1.041 (0.037)	0.485 (0.011)	0.454 (0.003)	0.342 (0.023)	4.772 (0.002)	3.912 (0.008)	0.635 (0.044)
Observation	90	90	90	90	90	90	90	90
R Square	0.745	0.686	0.756	0.781	0.682	0.534	0.884	0.724
Adj. R^2	0.731	0.661	0.722	0.762	0.670	0.522	0.831	0.701

Notice: p-values shown in brackets: *** indicates statistical significance at the 1% level; ** indicates statistical significance at the 5% level and * indicates statistical significance at the 10% level.

Short-term Debt to Capital (STDTC) and Total Debt to Capital (TDTC): Both STDTC and TDTC exhibit significant positive impacts on ROE, indicating that banks effectively utilize both short-term and total debt to enhance profitability. This is consistent with the pecking order theory, which contends that firms favor internal financing over external equity issuance before debt financing. Efficient management of short-term and total debt allows banks to optimize their capital structure, leading to higher returns for shareholders.

Bank Size: Although the coefficient for bank size has a slightly higher p-value of 0.077, it still shows a positive impact on ROE. This is consistent with the notion of economies of scale in banking, where larger banks benefit from cost advantages and greater market power. Larger banks can spread fixed costs over a larger asset

base, lower their average cost per unit of output, and offer a wider range of financial products and services. Empirical studies have demonstrated a positive correlation between bank size and profitability, supporting this interpretation.

Asset Growth: The significant positive coefficient of 0.026 suggests that increasing asset growth positively influences ROE. This indicates that banks effectively utilize their assets to generate profits for shareholders. Banks with higher asset growth rates may benefit from increased interest income, fee-based income, and investment opportunities, leading to higher returns on equity. Economic theory suggests that well-managed asset growth can lead to sustainable profitability and value creation for banks.

Capital Adequacy Ratio (CAP_AR): The significant positive coefficient of 0.038 implies that a higher capital adequacy ratio leads to higher returns on equity. According to regulatory requirements and prudent banking practices, banks with stronger capital positions are better equipped to absorb losses and maintain financial stability during economic downturns. Empirical evidence suggests that banks with higher capital ratios tend to exhibit greater resilience and profitability over the long term.

Inflation (INFL) and COVID-19 Dummy Variable: Both the negative coefficients for inflation and the COVID-19 dummy variable indicate significant negative impacts on ROE during periods of high inflation and the COVID-19 pandemic, respectively. Economic theory suggests that inflation erodes purchasing power, increases operating costs, and reduces the real value of bank assets, leading to lower profitability. Similarly, the COVID-19 pandemic disrupted economic activity, increased credit risk, and strained financial markets, negatively impacting bank profitability. Empirical studies have documented the adverse effects of inflation and economic crises on bank performance, supporting these interpretations.

In conclusion, the econometric analysis underscores the importance of prudent debt management, efficient asset utilization, strong capital positions, and external economic conditions in driving the profitability of commercial banks in the CEFTA countries. These findings have important implications for bank management, policymakers, and investors seeking to understand and improve the financial performance of banks in the region.

Based on the econometric findings outlined in Table 8, all independent variables incorporated within this panel econometric model demonstrate statistical significance at the 1%, 5%, or 10% level. For the purpose of interpretation, we will rely on the Hausman-Taylor Regression model.

$$ROA_{it} = 12.948 + 0.036\ LTDTC_{it} + 1.378\ STDTC_{it} + 1.491\ TDTC_{t} + 0.656\ BANK\_SIZE_{it} + + 0.051\ ASSET\_GROWTH_{it} + 0.174\ CAP\_AR_{it} - 0.152\ INFL_{it} - 0.197\ COVID\text{-}19_{it} + 0.479 \quad (6)$$

Long-term Debt to Capital (LTDTC): The positive coefficient of 0.036 with a significant p-value of 0.004 suggests that an increase in the long-term debt to equity ratio leads to a higher return on assets. According to the trade-off theory of capital structure, moderate levels of long-term debt can provide tax shields and financial leverage, thereby enhancing profitability. Empirical studies have shown that well-managed long-term debt can lead to a higher ROA by allowing banks to invest in profitable opportunities without diluting shareholder ownership.

Short-term Debt to Capital (STDTC) and Total Debt to Capital (TDTC): Both short-term and total debt to capital ratios exhibit positive impacts on ROA, with coefficients of 1.378 and 1.491, respectively, and p-values below 0.05. This suggests that commercial banks in the CEFTA countries generate more profits from each euro they hold in assets when they increase their short-term and total debt in relation to equity. Efficient management of debt enables banks to optimize their capital structure, leverage operations, and allocate funds to profitable banking activities, thereby enhancing ROA.

Bank Size: The positive coefficient of 0.656, although with a slightly higher p-value of 0.078, indicates that bank size positively influences ROA. This aligns with the concept of economies of scale in banking, where larger banks benefit

Tabel 8. Econometric results of statistical tests for the second econometric model

Variables	Linear Regression	Random Effects – GLS Regression	Fixed – Effects Regression	Hausman Taylor Regression	GMM Model -Arellano Bond Estimation)	GMM Model -Arellano-Bover/ Blundell-Bond Estimation	GMM Model -Linear DPD Estimation	GEE Model
ROA	-	-	-	-	0.758 (0.009)	0.455 (0.002)	-	-
LTDTC	0.015 (0.009)	0.017 (0.007)	0.054 (0.009)	0.036 (0.004)	0.235 (0.001)	0.302 (0.020)	0.555 (0.000)	0.015 (0.008)
STDTC	5.355 (0.008)	7.443 (0.002)	1.342 (0.046)	1.378 (0.015)	2.555 (0.039)	2.885 (0.005)	6.950 (0.000)	5.889 (0.005)
TDTC	5.027 (0.000)	8.053 (0.000)	1.428 (0.036)	1.491 (0.009)	2.511 (0.071)	2.949 (0.006)	1.905 (0.030)	6.440 (0.000)
BANK SIZE	0.084 (0.007)	0.066 (0.005)	1.592 (0.019)	0.656 (0.078)	3.501 (0.082)	2.653 (0.027)	6.316 (0.009)	7.042 (0.006)
ASSET GROWTH	0.079 (0.008)	0.130 (0.006)	0.021 (0.001)	0.051 (0.043)	0.213 (0.005)	0.237 (0.009)	0.141 (0.001)	0.129 (0.000)
CAP_AR	0.122 (0.035)	0.178 (0.000)	0.225 (0.004)	0.174 (0.006)	0.198 (0.000)	0.074 (0.000)	0.123 (0.045)	0.177 (0.063)
INFL	-0.174 (0.002)	-0.187 (0.001)	-0.144 (0.002)	-0.152 (0.004)	-0.185 (0.001)	-0.133 (0.004)	-0.174 (0.001)	-0.147 (0.003)
COVID -19_ DUMMY	-0.145 (0.001)	-0.147 (0.002)	-0.138 (0.005)	-0.197 (0.003)	-0.148 (0.001)	-0.125 (0.001)	-0.155 (0.004)	-0.148 (0.001)
Const.	0.229 (0.000)	1.855 (0.349)	27.053 (0.009)	12.948 (0.030)	11.051 (0.039)	19.001 (0.000)	18.002 (0.000)	15.835 (0.001)
Observation	90	90	90	90	90	90	90	90
R Square	0.683	0.534	0.793	0.521	0.631	0.644	0.622	0.586
Adj. R^2	0.664	0.511	0.741	0.501	0.605	0.618	0.605	0.514

Clarification: p-values shown in brackets: *** indicates statistical significance at the 1% level; ** indicates statistical significance at the 5% level and * indicates statistical significance at the 10% level.

from cost advantages and greater market power. Larger banks can spread fixed costs over a larger asset base, lower their average cost per unit of output, and offer a wider range of financial products and services. Empirical evidence supports the positive correlation between bank size and ROA.

Asset Growth: The significant positive coefficient of 0.051 suggests that increasing asset growth positively impacts ROA. This indicates that when the assets of commercial banks grow, their profitability also increases. Banks with higher asset growth rates may benefit from increased interest income, fee-based income, and investment opportunities, leading to higher returns on assets. Economic theory suggests that well-managed asset growth can lead to sustainable profitability and value creation for banks.

Capital Adequacy Ratio (CAP_AR): The significant positive coefficient of 0.174 implies that a higher capital adequacy ratio leads to a higher ROA. Banks with stronger capital positions are better equipped to absorb losses and maintain financial stability, thereby enhancing profitability. Empirical evidence supports the positive correlation between capital adequacy and ROA, as banks with higher capital ratios tend to exhibit greater resilience and profitability over the long term.

Inflation (INFL) and COVID-19 Dummy Variable: Both the negative coefficients for inflation and the COVID-19 dummy variable indicate significant negative impacts on ROA during periods of high inflation and the COVID-19 pandemic, respectively. Economic theory suggests that inflation erodes purchasing power, increases operating costs, and reduces the real value of bank assets, leading to lower profitability. Similarly, the COVID-19 pandemic disrupted economic activity, increased credit risk, and strained financial markets, negatively impacting bank profitability. Empirical studies have documented the adverse effects of inflation and economic crises on bank performance, supporting these interpretations.

In conclusion, the interpretation of the Hausman Taylor regression results highlights the significance of debt management, asset growth, capital adequacy, bank size, and external economic factors in shaping the profitability of commercial banks in the CEFTA countries. These findings provide valuable insights for bank management, policymakers, and investors seeking to understand and enhance the financial performance of banks in the region.

The positive impact of bank size and asset growth on return on assets (ROA) observed in the study can be explained by several factors rooted in financial theory and empirical evidence. Firstly, larger banks typically benefit from economies of scale, which allow them to spread their fixed costs over a larger asset base. This efficiency gain leads to higher profitability, as larger banks can generate more revenue relative to their costs compared to smaller banks. Additionally, larger banks may have better access to funding sources and can negotiate more favorable terms with suppliers, further enhancing their profitability. Secondly, asset growth is often associated with increased lending activities and investment opportunities. As banks expand their asset base through lending and investment, they have the potential to earn higher interest income and investment returns, thereby boosting their profitability. Moreover, asset growth signals confidence in the bank's operations and prospects, which can attract investors and depositors, further fueling growth and profitability. Furthermore, efficient management of capital structures plays a crucial role in enhancing ROA. Banks with optimal capital structures can minimize their cost of capital and maximize returns to shareholders. By balancing debt and equity financing, banks can achieve an optimal capital mix that maximizes profitability while minimizing financial risk. This strategic approach to capital structure management allows banks to leverage their resources effectively and generate higher returns on their assets.

The implications of these findings for bank managers and policymakers are significant. Bank managers can use the insights from this study to devise strategies for optimizing their capital structure and fostering asset growth. By implementing prudent financial management practices and pursuing growth opportunities, banks can enhance their profitability and shareholder value. Similarly, policymakers can leverage these findings to develop policies and regulations that support the growth and stability of the banking sector. By promoting a conducive regulatory environment that encourages efficient capital allocation and responsible risk management, policymakers can foster a healthy banking system that contributes to economic growth and stability. However, it is essential to acknowledge the contextual limitations of the study's findings. The observed relationships between bank size, asset growth, and ROA may vary across different regions and industries due to unique market conditions, regulatory frameworks, and institutional factors. Therefore, while the insights from this study offer valuable guidance, they should be interpreted within the specific context of the CEFTA countries and may not necessarily generalize to other regions or industries without further validation.

5. DISCUSSIONS

The study's comprehensive analysis, which includes correlation analysis, regression modeling, and various econometric techniques such as Generalized Method of Moments (GMM), Hausman-Taylor Regression, and fixed and random effects, provides robust empirical evidence for the relationship between capital structure and the financial performance of commercial banks in the CEFTA countries. The correlation analysis conducted in the study revealed a significant positive correlation between the capital structure variables (such as long-term debt to capital, short-term debt to capital, and total debt to capital) and the financial performance variables (such as return on equity and return on assets) of commercial banks in the CEFTA countries. These findings suggest that as banks adjust their capital structures, they tend to experience improvements in their financial performance metrics. Moreover, the econometric models employed in the study further corroborate these findings. The regression analyses, including linear regression, random effects, fixed effects, and Hausman-Taylor Regression, consistently demonstrate a positive relationship between capital structure variables and financial performance indicators. Specifically, the coefficients associated with capital structure variables are statistically significant across these models, indicating that changes in capital structure positively influence the profitability and efficiency of commercial banks in the CEFTA countries.

Additionally, the application of advanced econometric techniques such as GMM provides deeper insights into the dynamics of the relationship between capital structure and financial performance. The GMM models confirm the significance of capital structure variables in explaining variations in bank profitability and efficiency, reinforcing the study's hypotheses regarding the positive impact of capital structure on bank performance. Overall, the convergence of results from different analytical approaches lends credibility to the study's findings. By employing a combination of correlation analysis, regression modeling, and advanced econometric techniques, the study offers a comprehensive understanding of the relationship between capital structure and financial performance in the banking sector of the CEFTA countries.

These findings have implications for bank management and policymakers, highlighting the importance of strategic capital management in enhancing the financial performance and stability of commercial banks. These findings are consistent with other empirical studies conducted by Dang and Do (2021), Morina et al. (2022), Ayalew (2021), Jadah et al. (2020), Amidu (2007), Pham et al. (2022), and others. However, the econometric results of this study contradict the findings of other authors such as Pazarskis et al. (2022), Doorasamy (2021), Otekunrin et al. (2020), Ukaegbu and Oino (2013), and Yehorycheva et al. (2017), who have found a negative correlation between capital structure, bank size, and financial performance of commercial banks in their studies. The study's empirical findings are based on scientific evidence that provides reliable results and supports the argument that capital structure decisions and bank size have a positive impact on the financial performance of commercial banks in CEFTA countries. These econometric results challenge the trade-off theory proposed by Kraus and Litzenberger (1973), which suggests that optimal financial leverage reflects a trade-off between the tax benefits of debt and the cost of bankruptcy.

5.1. Limitations of the Study

Endogeneity of Variables: The issue of endogeneity of variables is a major obstacle that this study faces. Although advanced econometric techniques were employed to control for this problem, there is still the possibility of unobserved factors influencing both the independent and dependent variables. To address this limitation, researchers may further explore potential instrumental variables or utilize advanced endogeneity models that integrate instrumental regression with panel data.

Specification of Control Variables: Furthermore, an opportunity for enhancing the study lies in the precise specification of control variables. In addition to the variables used in the model of this study, the inclusion of other control variables such as banking market structure, inter-

est rates, and macroeconomic factors may offer a broader and more detailed insight into the financial performance of commercial banks in the CEFTA countries. Ultimately, by addressing these limitations in the study, researchers will be able to deepen their understanding and further explore the relationships between capital structure, bank size, and financial performance in the context of CEFTA countries.

5.2. Recommendations for Future Research

Longitudinal Studies: Future research could benefit from longitudinal studies that track changes in capital structure, bank size, and profitability over time. By examining how these variables evolve in response to internal and external factors, researchers can gain deeper insights into the dynamics of the banking sector and the drivers of financial performance.

Cross-Country Comparisons: Comparative studies across different regions or countries could provide valuable insights into the relative importance of capital structure and bank size on commercial bank profitability. By examining variations in regulatory frameworks, market structures, and economic conditions, researchers can identify factors that contribute to differences in financial performance outcomes.

Qualitative Research: Complementing quantitative analysis with qualitative research methods, such as interviews or case studies, can offer a richer understanding of the mechanisms underlying the relationship between capital structure, bank size, and profitability. Qualitative insights can help contextualize quantitative findings and provide nuanced explanations for observed patterns.

Exploring Moderating Factors: Future research could explore potential moderating factors that influence the relationship between capital structure, bank size, and profitability. Factors such as market concentration, regulatory environment, technological innovation, and macroeconomic conditions may interact with capital structure decisions and affect their impact on bank performance.

5.3. Unique Contribution of the Article

This article makes several unique contributions to the existing literature on the relationship between capital structure, bank size, and profitability in commercial banks within the CEFTA countries:

Holistic Analysis: Unlike previous studies that focused solely on either capital structure or bank size, this study provides a comprehensive analysis that examines the joint impact of both factors on commercial bank profitability. By considering multiple dimensions of financial structure and performance, the study offers a more nuanced understanding of the drivers of bank profitability.

Advanced Econometric Techniques: The article employs a wide range of econometric techniques, including correlation analysis, regression modeling, and advanced panel data methods such as Generalized Method of Moments (GMM) and Hausman-Taylor Regression. By leveraging these techniques, the study enhances the robustness and reliability of its findings, contributing to methodological advancements in the field.

Policy Implications: The study's findings have direct implications for bank managers and policymakers in the CEFTA countries. By highlighting the importance of strategic capital management and the benefits of larger bank sizes for profitability, the article offers actionable recommendations for enhancing the financial performance and stability of commercial banks. Moreover, by addressing the specific context of the CEFTA region, the study provides tailored insights that can inform policy interventions and regulatory reforms aimed at promoting a sound and competitive banking sector.

6. CONCLUSION

This study provides valuable insights into the relationship between capital structure, bank size, and the performance of commercial banks in CEFTA countries. The results show that different factors, such as short-term debt/equity, long-term debt/equity, total debt/equity, bank size, and asset growth, have a positive effect

on both the return on assets (ROA) and return on equity (ROE) of commercial banks in CEFTA countries. By delving into the correlation between capital structure, bank size, and bank performance, this study offers a comprehensive understanding of how banks manage their financial activities. It becomes apparent that effectively utilizing borrowed funds as profitable investments is crucial for enhancing the return on capital. This implies that commercial banks can optimize their financial performance by meticulously balancing their debt and equity components.

Based on the study's findings, it can be concluded that commercial banks in CEFTA countries should adopt a capital structure financial policy that aligns with the assumptions of exchange theory and agency theory. This entails making mixed financing decisions that strike an optimal balance between debt and equity while considering the specific circumstances and market conditions of each bank. By doing so, commercial banks can maximize their profitability, increase firm value, and enhance stock value, all while minimizing agency costs.

Moreover, it is worth noting that the findings of this study contribute significantly to the existing body of knowledge in financial management and offer practical implications for bank management, policymakers, and investors. The insights derived from this research can guide decision-makers in formulating effective financial strategies and policies to foster the growth and stability of commercial banks in CEFTA countries. By implementing the recommended capital structure and financing decisions, commercial banks can position themselves for sustainable success in the dynamic and competitive financial landscape. In addition to discussing conclusions regarding the impact of capital structure on the profitability of commercial banks in CEFTA countries, it is imperative to include the influence of capital adequacy, inflation, and the COVID-19 pandemic on bank profitability.

Regarding capital adequacy, maintaining an adequate level of capital is crucial for banks to absorb unexpected losses and ensure financial stability. Higher capital adequacy ratios can enhance investor confidence and mitigate the risk of financial distress. Therefore, commercial banks should prioritize maintaining sufficient capital reserves to safeguard against potential risks and uncertainties in the market. Inflation can significantly impact bank profitability by eroding purchasing power and increasing operating costs. Banks may face challenges in managing interest rate risk and maintaining profitability in inflationary environments. Therefore, banks need to implement strategies to mitigate the adverse effects of inflation, such as adjusting interest rates on loans and deposits and diversifying revenue streams.

Furthermore, the COVID-19 pandemic has posed unprecedented challenges to the banking sector, including increased credit risk, liquidity constraints, and operational disruptions. Banks have had to adapt quickly to the evolving situation, implementing remote working arrangements, enhancing digital capabilities, and providing support to customers affected by the pandemic. Moving forward, banks should continue to prioritize resilience and agility in responding to crises and incorporate lessons learned from the pandemic into their risk management frameworks and strategic planning processes.

References

Alexiou, C., & Sofoklis, V. (2009). Determinants of bank profitability: evidence from the Greek banking sector. *Economic Annals,, 54*(182), 93-118. doi:https://doi.org/10.2298/EKA0982093A

Amidu, M. (2007). Determinants of capital structure of banks in Ghana: an empirical approach. *Baltic Journal of Management, 2*(1), 67- 79. doi:https://doi.org/10.1108/17465260710720255

Arzova, S. B., & Sahin, B. S. (2023). The effect of financial soundness variables on bank performance: a macro-level analysis in MSCI Emerging Market Index countries. *Kybernetes*. doi:https://doi.org/10.1108/K-02-2023-0237

Athanasoglou, P. P., Brissimis, S. N., & Delis, M. D. (2008). Bank-specific, industry-specific and macroeconomic determinants of bank

profitability. *Journal of International Financial Markets, Institutions and Money, 18*(2), 121-136. doi:https://doi.org/10.1016/j.intfin.2006.07.001

Augeraud-Véron, E., & Boungou, W. (2023). The Impact of COVID-19 on Bank Profitability: Cross-Country Evidence. *German Economic Review, 24*(1), 69-95. doi:https://doi.org/10.1515/ger-2022-0089

Ayalew, Z. A. (2021). Capital structure and profitability: Panel data evidence of private banks in Ethiopia. *Cogent Economics & Finance, 9*(1), 1-24. doi:https://doi.org/10.1080/23322039.2021.1953736

Chalise, D. R., & Adhikari, N. R. (2022). The Impact of Capital Structure and Firm Size on Financial Performance of Commercial Banks in Nepal. *The Efforts, Journal of Education and Research, Volume 4*(Issue 1), 102-111. doi:https://doi.org/10.3126/ejer.v4i1.44175

Chechet, I. L., & Olayiwola, A. B. (2014). Capital Structure and Profitability of Nigerian Quoted Firms: The Agency Cost Theory Perspective . *American International Journal of Social Science, Volume 3*(Issue 1), 139-158. Retrieved from http://www.aijssnet.com/journals/Vol_3_No_1_January_2014/13.pdf

Dang, T. D., & Do, T. V. (2021). Does capital structure affect firm value in Vietnam? *Investment Management and Financial Innovations, 18*(1), 33-41. doi:http://dx.doi.org/10.21511/imfi.18(1).2021.03

Doorasamy, M. (2021). Capital structure, firm value and managerial ownership: Evidence from East African countries. *Investment Management and Financial Innovations, 18*(1), 346-356. doi:http://dx.doi.org/10.21511/imfi.18(1).2021.28

Elghaffa, E. S., Abotali, A. M., & Khalil, M. A. (2019). Determining factors that affect risk disclosure level in Egyptian banks. *"Banks and Bank Systems, 14*(1), 159-171. doi:http://dx.doi.org/10.21511/bbs.14(1).2019.14

El-Masry, A. A. (2016). Capital structure and performance of Middle East and North Africa (MENA) banks: an assessment of credit rating. *Banks and Bank Systems, 11*(1), 77-91. doi:http://dx.doi.org/10.21511/bbs.11(1).2016.09

Fama, E., & French, K. (2002). Testing Trade-Off and Pecking Order Predictions About Dividends and Debt. *The Review of Financial Studies, Volume 15*(No. 1), 1-33. doi:https://doi.org/10.1093/rfs/15.1.1

Frank, M. Z., & Goyal, K. V. (2009). Capital structure decisions: Which factors are reliably important? . *Financial Management* , 1-37.

Gazi, M. A., Nahiduzzaman, M., Harymawan, I., & Masud, A. A. (2022). Impact of COVID-19 on Financial Performance and Profitability of Banking Sector in Special Reference to Private Commercial Banks: Empirical Evidence from Bangladesh. *Sustainability, 14*(10), 1-23. doi:https://doi.org/10.3390/su14106260

Goyal, A. (2013). Impact of Capital Structure on Performance of Listed Public Sector Banks in India. *International Journal of Business and Management Invention, Volume 2*(Issue 10), 35-43. Retrieved from https://www.ijbmi.org/papers/Vol(2)10/Version-1/E02101035043.pdf

Gržeta, I., Žiković, S., & Žiković, I. T. (2023). Size matters: analyzing bank profitability and efficiency under the Basel III framework. *Financial Innovation, 9*(43), 1-28. doi:https://doi.org/10.1186/s40854-022-00412-y

Gupta, N., Mahakud, J., & McMillan, D. (2020). Ownership, bank size, capitalization and bank performance: Evidence from India. *Cogent Economics & Finance, 8*, 1-39. doi:https://doi.org/10.1080/23322039.2020.1808282

Hassan, M. K., Tran, V. D., Paltrinieri, A., & Nguyen, T. D. (2020). The Determinants of Bank Capital Structure in the World. *The Singapore Economic Review, 65*(6), 1457-1489. doi:https://doi.org/10.1142/S0217590820500010

Jadah, H. M., Hassan, A. A., Hameed, T. M., & Al-Husainy, N. H. (2020). The impact of the capital structure on Iraqi banks' performance. *Investment Management and Financial Innovations, 17*(3), 122-132. doi:http://dx.doi.org/10.21511/imfi.17(3).2020.10

Kraus, A., & Litzenberger, R. H. (1973). A State-Preference Model of Optimal Financial Leverage. *The Journal of Finance, 28*(4), 911-922. doi:https://doi.org/10.1111/j.1540-6261.1973.tb01415.x

Kukaj, H., Morina, F., & Misiri, V. (2020). Profitability Analysis of Banks: Comparative Study of Domestic and Foreign Banks in Kosovo. *International Journal of Economics and Business Administration, 8*(2), 87-99. doi:10.35808/ijeba/445

Meero, A. (2015). The Relationship between Capital Structure and Performance in Gulf Countries Banks: A Comparative Study between Islamic Banks and Conventional Banks. *International Journal of Economics and Finance, Volume 7*(Issue 12), 140-154. doi:10.5539/ijef.v7n12p140

Mehzabin, S., Shahriar, A., Hoque, M. N., Wanke, P., & Azad, M. A. (2023). The effect of capital structure, operating efficiency and non-interest income on bank profitability: new evidence from Asia. *Asian Journal of Economics and Banking., 7*(1), 25-44. doi:https://doi.org/10.1108/AJEB-03-2022-0036

Merikas, A., Merika, A., & Skandalis, K. (2006). An Effective Index of Management Competence . *15th Annual Conference of European Financial Management Association-EFMA*, (pp. 1-31). Madrid.

Modigliani, F., & Miller, M. H. (1958). The Cost of Capital, Corporation Finance and the Theory of Investment. *The American Economic Review, 48*(3), 261-297. Retrieved from https://www.jstor.org/stable/1809766

Moeljad, N. L., Djumahir, & Aisjah, S. (2022). The effect of profitability and bank size on firm value sustainability: The mediating role of capital structure. *Investment Management and Financial Innovations, 19*(2), 331-343. doi:http://dx.doi.org/10.21511/imfi.19(2).2022.29

Morina, F., Berisha, V., & Shabanaj, A. (2022). The impact of capital structure on the performance of depositing corporations: an econometric analysis of the banking system in Kosovo. *International Scientific Conference - New Challenges in Economic and Business Development – 2022: Responsible Growth. ISBN 978-9934-23-660-0*, pp. 179-189. Riga, Latvia: Faculty of Business, Management and Economics, University of Latvia. Retrieved from https://www.bvef.lu.lv/en/conf/2022-responsible-growth/

Myers, S. C. (1984). The capital structure puzzle. *The Journal of Finance*, 575-592.

Oanh, T. T., Nguyen, D. V., Le, H. V., & Duong, K. D. (2023). How capital structure and bank liquidity affect bank performance: Evidence from the Bayesian approach. *Cogent Economics & Finance, 11*(2260243), 1-20. doi:https://doi.org/10.1080/23322039.2023.2260243

Osmani, R., & Morina, F. (2019). The Key Performance of Commercial Banks: Evidence from Republic of Kosovo. *Journal of Accounting, Finance and Auditing Studies, 5*(3), 1-15. doi:10.32602/jafas.2019.27

Otekunrin, A. O., Nwanji, T. I., Eluyela, D., Olowookere, J. K., & Fagboro, D. G. (2020). Capital structure and profitability: the case of Nigerian deposit money banks. *Banks and Bank Systems, 15*(4), 221-228. doi:http://dx.doi.org/10.21511/bbs.15(4).2020.18

Pavković, A., Cesarec, A., & Stojanović, A. (2019). Profitability and efficiency of the Croatian banking sector: impact of bank size. *International Journal of Trade and Global Markets, 11*(4), 243-258. Retrieved from https://www.inderscienceonline.com/doi/pdf/10.1504/IJTGM.2018.097265

Pazarskis, M., Giovanis, N., Chatzigeorgiou, P., & Hatzikirou, H. (2022). Does company performance really improve following mergers? A pre-post analysis of differences in Greece. *Problems and Perspectives in Management,, 20*(1), 543-553. doi:http://dx.doi.org/10.21511/ppm.20(1).2022.43

Pham, N. H., Hoang, T. M., & Pham, N. T. (2022). The impact of capital structure on bank profitability: evidence from Vietnam. *Cogent Business & Management, 9*, 1-25. doi:https://doi.org/10.1080/23311975.2022.2096263

Qayyum, N. u., & Noreen, U. (2019). Impact of Capital Structure on Profitability: A Comparative Study of Islamic and Conventional Banks of Pakistan. *The Journal of Asian Finance, Economics and Business, Volume 6*(Issue 4), 65-74. doi:https://doi.org/10.13106/jafeb.2019.vol6.no4.65

Rajan, R., & Zingales, L. (1995). What Do We Know about Capital Structure? Some Evidence from International Data. . *Journal of Finance*, 1421-1460.

Sakti, M. R., Tareq, M. A., Saiti, B., & Akhtar, T. (2017). Capital structure of Islamic banks: a critical review of theoretical and empirical research. *Qualitative Research in Financial Markets, Volume 9*(Issue 3), 1-19. doi:https://doi.org/10.1108/QRFM-01-2017-0007

Salim, M., & Yadav, R. (2012). Capital Structure and Firm Performance: Evidence from Malaysian Listed Companies. *International Congress on Interdisciplinary Business and Social*

Science, Procedia - Social and Behavioral Sciences 65 , 156 – 166.

Senan, N. A., Ahmad, A., Anagreh, S., Tabash, M. I., & Al-Homaidi, E. A. (2021). An empirical analysis of financial leverage and financial performance: Empirical evidence from Indian listed firms. *Investment Management and Financial Innovations, 18*(2), 322-334. doi:http://dx.doi.org/10.21511/imfi.18(2).2021.26

Shabani, H., Morina, F., & Misiri, V. (2019). The Effect of Capital Adequacy on Returns of Assets of Commercial Banks in Kosovo. *European Journal of Sustainable Development, 8*(2), 201-208. doi:https://doi.org/10.14207/ejsd.2019.v8n2p201

Shyam-Sunder, L., & Myers, S. C. (1999). Testing static tradeoff against pecking order models of capital structure. *Journal of Financial Economics, 51*, 219-244. Retrieved from https://people.stern.nyu.edu/eofek/PhD/papers/SM_Testing_JFE.pdf

Sivathaasan, N., & Rathika, S. (2013). Capital Structure and EPS: A study on Selected Financial Institutions Listed on Colombo Stock Exchange (CSE) in Sri Lanka. *European Journal of Business and Management, Volume 5*(Issue 14), 69-73. Retrieved from https://www.iiste.org/Journals/index.php/EJBM/article/view/6169/6295

Smith, & Warner, B. J. (1979). On Financial Contracting: An Analysis of Bond Covenants. *Journal of Financial Economics*, 117-161.

Sufian, F., & Habibullah, M. S. (2009). Determinants of bank profitability in a developing economy: empirical evidence from Bangladesh. *Journal of Business Economics and Management, 10*(3), 207-217. doi: https://doi.org/10.3846/1611-1699.2009.10.207-217

Trujillo-Ponce, A. (2012). What determines the profitability of banks? Evidence from Spain. *Accounting and Finance, 53*(2), 561-586. doi:https://doi.org/10.1111/j.1467-629X.2011.00466.x

Ukaegbu, B., & Oino, I. (2013). The determinants of capital structure in a regulatory industry: the case of Kenyan banks. *Banks and Bank Systems, 8*(1), 97-111. Retrieved from https://www.businessperspectives.org/index.php/component/zoo/the-determinants-of-capital-structure-in-a-regulatory-industry-the-case-of-kenyan-banks

Yehorycheva, S., Kolodiziev, O., & Prasolova, S. (2017). Actual problems of the capital stability management in the Ukraine's banking system. *Banks and Bank Systems, 12*(2), 60-67. doi:http://dx.doi.org/10.21511/bbs.12(2).2017.06

Zafar, M. R., Zeeshan, F., & Ahmed, R. (2016). Impact of Capital Structure on Banking Profitability. *International Journal of Scientific and Research Publications, Volume 6*(Issue 3), 186-193. Retrieved from http://www.ijsrp.org/research-paper-0316/ijsrp-p5132.pdf

Razumijevanje profitabilnosti banaka u zemljama CEFTA-e: Utjecaj strukture kapitala i veličine banke

Sažetak

U dinamičnom i visoko konkurentnom financijskom okruženju, razumijevanje odnosa između strukture kapitala, veličine banke i profitabilnosti komercijalne banke ključno je za optimizaciju performansi. Ova istraživačka studija istražuje kako korelaciju tako i utjecaj ovih faktora na profitabilnost u zemljama CEFTA-e. Sastavljen je sveobuhvatan skup podataka, koji obuhvaća revidirane godišnje financijske izvještaje 18 komercijalnih banaka za razdoblje 2017.–2021. Korišteni su različiti statistički testovi, uključujući analizu korelacije, višestruku linearnu regresiju, model fiksnih efekata, model slučajnih efekata, Hausman-Taylor regresiju, GMM model i GEE model, kako bi se procijenio utjecaj strukture kapitala i veličine banke na profitabilnost komercijalne banke. Rezultati analize ukazuju da nekoliko faktora ima značajan utjecaj na profitabilnost komercijalnih banaka u zemljama CEFTA-e. Dugoročni dug prema kapitalu (LTDTC) ima značajan pozitivan utjecaj na ROE. Slično, kratkoročni dug prema kapitalu (STDTC) ima pozitivan utjecaj, što implicira da veći udio kratkoročnog duga u odnosu na kapital dovodi do značajnog

povećanja ROE. Također, veće banke obično pokazuju veću razinu profitabilnosti u usporedbi s manjim bankama. Komercijalne banke koje bilježe značajan rast ukupne imovine tijekom vremena, također teže da postignu veću profitabilnost. Nadalje, rezultati ove studije pružaju značajne uvide u strategije za povećanje profitabilnosti komercijalnih banaka unutar zemalja CEFTA-e. Konkretno, nude se praktične preporuke prilagođene jedinstvenim ekonomskim i regulatornim kontekstima ovih zemalja. Osim toga, baveći se specifičnim faktorima koji utječu na profitabilnost u ovom regionalnom kontekstu, ovo istraživanje doprinosi napretku znanja u području bankarstva i financija, obogaćujući postojeću literaturu na ovu temu. Osim gore spomenutih faktora, važno je prepoznati pozitivan utjecaj adekvatnosti kapitala na profitabilnost komercijalnih banaka u zemljama CEFTA-e. Također, treba uzeti u obzir štetne učinke inflacije i pandemije COVID-19 na performanse ovih banaka.

Ključne riječi: struktura kapitala, veličina banke, financijska izvedba, komercijalna banka.