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Analyzing the impact of macroeconomic indicators on Albanian bank profitability

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Abstract. *Objective: This paper investigates the influence of key macroeconomic indicators on the financial performance of the Bank of Albania from 2019 to 2023. Specifically, the study focuses on how these indicators affect Return on Assets (ROA) as the dependent variable. The macroeconomic factors considered include GDP growth, the unemployment rate, inflation, and the interest rate. The goal is to understand the relationship between these indicators and financial performance. Method: Quarterly data comprising 20 observations were gathered from reputable sources such as Trading Economics and the Bank of Albania. Multiple linear regression analysis was employed to model the relationship between the dependent and independent variables. ROA was modeled against GDP growth, unemployment, inflation, and interest rates to determine the strength of their effects. Results: The model explains approximately 54.4% of the variance in ROA. The results indicate that inflation and interest rates have a strong and significant effect on ROA, while GDP growth and unemployment rates contribute only marginally to the model. Originality: This study provides new insights into the limited role of GDP growth and unemployment in shaping ROA, contrasting with the significant impact of inflation and interest rates. By focusing on the Bank of Albania, it offers a region-specific perspective on the macroeconomic-financial performance relationship.*

Keywords: *Bank of Albania, correlation matrix, macroeconomic indicators, multiple linear regression*
JEL classification: *E44, G21, G28*

1. Introduction

Bank profitability is no doubt very important in the realm of global finance and many times functions as a yardstick for measuring the economy of a country (Athanasoglou, Brissimis, & Delis, 2008). It is in this context that a country currently in development, like Albania, presents the challenge of developing the relationship between its macroeconomic situation and the profitability of its banking industry. Following the fall of the communist regime, Albania's banking system became primarily privatized; it now has a central role in maintaining financial stability within the country, dominated by commercial banks (Grigorian & Manole, 2006). The sector is highly foreign-owned, with about 90% of the assets controlled by foreign banks, adding to its different dynamics within the region (Barisitz, 2009). In this respect, this study attempted to develop an understanding of the interaction between the variables of macroeconomic factors and profitability of Albanian banks and untangle the web of influences to shape the financial outcomes of a nation.

The economic process that Albania has gone through over the past two decades can be characterized by a series of changes. The first shock was the transition from a command economy to a market-oriented economy since the early 1990s (Uvalic, 2010). The shift opened a new era for the Albanian banking industry, characterized by liberalization policies and modernization efforts (Cull, Senbet, & Sorge, 2005). Today, the structure of the banking sector includes 12 commercial banks, holding an important position within the loan-providing process for boosting economic activity and

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foreign investments. The sector has gone through numerous problems, such as a very high level of non-performing loans peaking in 2014 at 25%, but gradually reduced through reforms in credit risk management (Bank of Albania, 2019). Under this trend, the relationship between the macroeconomic dimensions and profitability of Albanian banks becomes relevant for the understanding of the wider features of the financial landscape in this country (Athanasoglou et al., 2008).

This study mainly intends to decompose the complex relationship that exists between macroeconomic variables and the profitability of Albanian banks. Furthermore, it is also hoped that empirical analysis in the study could yield some information or signals on the most relevant macroeconomic factors that have a vivid influence on bank profitability within an Albanian setting. The influential macroeconomic factors are inclusive of GDP growth, inflation, exchange rates, and interest rates (Bikker & Hu, 2002). The fact is that GDP growth has been quite stable in Albania, averaging some 4% in recent years, while the overall environment for banking operations is favorable (IMF, 2020). On the other hand, interest rate cuts operated by the Bank of Albania since 2011, in order to boost credit growth, reduced the net interest margin, one of the key components of bank profitability (Bank of Albania, 2019). Indeed, this research further aims at elaborating the transmission mechanisms through which these variables of the macroeconomic environment affect bank profitability and, therefore, provide insights for guided decision-making by all relevant stakeholders (Athanasoglou et al., 2008).

In the context of providing insights on the relationship between macroeconomic dynamics and Albanian bank profitability, the study tries to fill in an important gap in the existing literature. The implications that will derive from this study are highly relevant for all relevant stakeholders, from policymakers and regulators to investors and bank managers, since the study provides actionable insights for strengthening financial stability in view of sustainable economic growth in Albania (Cull et al., 2005). The recent work, linked to the implementation of Basel III and, even more so, to the digital transformation of services, played an important role in framing the current profitability scenario (Bank of Albania, 2019). Further, Albania's increasing integration into the global financial market, especially with aspirations towards the European Union, calls for an insight into how external shocks may impinge on bank profitability in the future (Uvalic, 2010).

2. Literature review

Karadžić & Đalović (2021) analyze bank profitability dynamics of leading banks operating in Montenegro and other banks in the European financial landscape by using a rigorous analytical framework to the multi-dimensional influences on bank profitability. Specifically, they test three different panel models by using annual data for 47 major banks operating in 14 European countries from 2013 to 2018. They argue that the pooled ordinary least squares model shows the most obvious connections between the examined factors. The researchers conclude that although internal factors controlled by bank management have trivial impacts, there are strong macroeconomic factors influencing profitability. More precisely, growth in GDP rates, rate of inflation, and market concentration contribute to profitability, while the effect of membership in the European Union is negative, that is, banks headquartered outside the EU tend to have higher profitability.

Farkasdi et al. (2021) set out to identify the main determinants of profitability in commercial banks operating in Germany. Through their study, it is reflected that bank asset size, capital adequacy, and non-interest income are significant to profitability. On the other hand, deposits have no positive impact on profitability mainly because customer deposits can barely be managed for credit allocation. This calls for a form of diversification on German commercial banks to stop following the popular slogan of many commercial banks: "lending." It calls for capital-based investment in IT and infrastructure that are geared towards innovating further and reaching out to a greater number of consumers. Apart from that, banking regulators are called upon to guide and support banks. Benchmark interest rates should be set with the banking sector's needs since they have no positive impact on the profitability of banks.

The banking industry, relevant to both Egypt and the world market, is instrumental in supporting trade and the business sector in which it performs to find capital and credit resources to finance economic activities. The importance of the banking sector, however, does not specify which

determinants shape banks' financial performance in existing models. Hence, it is crucial to identify and outline these determinants to ensure the financial health of the sector can be strengthened and contribute more to the Egyptian economy. This article by Wahdan & Leithy (2017) seeks to elucidate the major internal and external factors that shape the financial performance of Egyptian commercial banks between 2011 and 2015 based on the panel dataset of the aforementioned time period and the top 5 banks of these banks. The authors trace the major portion of the variation in the Return on Assets (ROA) and Return on Equity (ROE) to control its capital adequacy, inflation, loan loss provisions, net interest income, and total non-interest income. More precisely, 77% of the variation in ROA and 61% of the variation in ROE can be explained by these factors, hence, showing the major role that the aforementioned factors play in shaping the financial position of these banks.

According to the study by Serwadda (2018) that investigates the profitability of Hungarian commercial banks from 2000 to 2015, internal factors such as non-performing loans, overhead costs, and liquidity have a very negative impact on profitability. On the other hand, the bank size has a recognizable positive impact. The influences of net interest margin and the capital adequacy ratio on the bank's profitability are not very strong. The main recommendation provided by the author in the statistical results, based on panel regressions and correlation analysis of a dataset containing twenty-six commercial banks, was to advise that the controlling management should pay significant attention to reducing overhead costs, after which the profitability of the commercial banks would improve. Other recommendations made to bank managers include increasing monitoring credit and liquidity risk indicators and diversifying the policy incomes while optimizing operating costs to ensure the continued profitability of the Hungarian banking sector.

Brahmaiah & Ranajee (2018) work targets factors affecting the profitability of Indian commercial banks amidst increasing degrees of globalization, increasing competitive pressure, and increased bank concentration. The paper has based its work on a balanced panel dataset comprising 89 banks operating in India between the years 2005 and 2015. The paper used a return on asset and return on equity to measure a bank's profitability. This research came up with the finding that Indian banks have a multifaceted determinant driving their profitability. These include internal determinants such as the robustness of a bank's equity capital, the bank's operational efficiency, and the banking sector's deposit/GDP ratio. At the same time, other factors such as the strength of credit risk and the cost of funds or the NPA ratio and CPI inflation appear to impact with a highly adverse nature. Other factors such as size and the ratio of priority loans to total loans seem not to influence a bank's profitability. These findings seem to reveal that the GDP growth and inflation share a highly adverse relationship with ROA, while inflation is positively related to ROE.

The banking study by Akther et al. (2023) closely explores bank-specific determinants and macroeconomic factors in commercial banks in Bangladesh, a developing country. For commercial banking profitability, the paper uses return on assets as a proxy variable. Those parameters include capital adequacy, number of bank branches, asset management, and asset quality, coupled with macroeconomic variables such as GDP, inflation rate, exchange rate, and stock trading activity. The study uses 24 commercial banks within the period of 2014 to 2020, and the findings using several statistical models are quite revealing. The study, for instance, finds that most of the bank-specific variables related to ROA are statistically significant except for the exchange rate, which shows the profitability is negatively related. The study suggests that further studies in the subject matter are aptly enabled by this work.

The paper of Rjoub et al. (2017) conducts an analysis of the complex interaction between macroeconomic and microeconomic variables and the volatility in the stock prices of seven banks traded in the Istanbul Stock Exchange for the long period running from 1995:Q3 up to 2015:Q4. The fixed effect panel estimation is applied to identify a collection of factors that affect stock prices with the bank's asset quality, management effectiveness, earnings, bank size, money supply dynamics, interest rates level, and apparent indicators of both world and national crises. These results demonstrate that both macro and micro variables are indispensable in showing the path a bank's stock price took during the studied period. Furthermore, the analysis exhibits the bidirectional causal relationships between some important determinants such as asset quality, bank size, money supply, and the volatility of bank stock prices. Such results carry essential implications for investors and policymakers in Turkey. Investors are advised to keep their eyes on microeconomic variables as fundamental factors in stock

valuation, which will help them make reasonable assessments of banks' performance and make proper investment decisions. At the same time, the policymaker is warned against oversimplifying the interest rate policy as such policy has a strong impact on the stock market. The interest rate is a key tool for policymakers to control the country's financial system, which means the proper rate should be chosen for the proper investor confidence and safety in the market.

The study by O'Connell (2022) gives a framework in terms of the determinants of the profitability of UK domestic banks and includes bank-specific, industry-specific, and macroeconomic variables. The most appropriate application of econometric approaches is very useful for the extended period and intensive analysis of the influence of the business cycle on the profitability of the bank. According to the research findings, robust capital ratios and increased holdings of short-term liquid assets positively affect the profitability of the bank. The financing strategy and labor productivity growth and the management of operating expenses are influential factors. The smallest banks show consistently high profitability. Contrary to expectations, concentration is not found to be significant in affecting the profitability once other factors are accounted for. In addition, important macroeconomic factors such as inflation significantly play a role in the performance of the banking sector. As such, the paper sheds light on the importance of such factors in the midst of evolving economic conditions such as those surrounding Brexit and the COVID-19 pandemic.

Niroula & Singh (2021) conducted research into how liquidity affects the financial performance of Nepal's commercial banks. Using data from 2015/2016 to 2019/2020, serious analysis was undertaken to find key relationships between a number of variables. Among the results, they found significant effects, such as the positive and highly observable effects of cash reserve ratio (CRR) on return on assets (ROA) and return on equity (ROE), the negative influence of capital adequacy ratio (CAR) on ROA but positive influence on ROE, and the negative effect of loan-to-deposit ratio on both ROA and ROE while the liquidity ratio positively affected ROA but adversely affected ROE. This means that in the Nepalese financial market, equity is less profitable. Regarding the insights from the work, it spells out the complex dynamics of liquidity and its effects on the performance of commercial banks in Nepal, a premium is placed on regulatory mechanisms like CRR in stabilizing financial outcomes.

In his article, Antwi (2021) emphasizes that an understanding of the fundamental factors that drive the profitability of a bank is necessary to reduce the risk of underperformance. By making an in-depth view of the long-term profitability determinants, the banks would be able to strategize and plan their future directions. Antwi concentrates on the identification of those fundamental risk factors and their linkages to profitability using the FM-OLS regression model, which worked on annual data from 1998 to 2014 for the Amalgamated Bank of South Africa (ABSA). In this way, the research provides a gap in the literature because studies regarding long-term profitability of banks have generally focused on the overall profitability of the banks while some have considered corporate-wide determinants. The results of the research show that the profitability of ABSA is highly associated with the determinants, but the majority of the factors have shown long-term influence except the ones such as inflation and GDP. Interestingly, size positively impacts net interest margins but has an insignificant effect on the return on equity. On the other hand, capital and stock market capitalization pose risks to the overall profitability of ABSA, which implies an appropriate optimization of strategies related to equity financing so as to achieve the maximum future profitability.

Kunwar & Jnawali (2023) assessed the impact of both macroeconomic and bank-specific elements on the profitability of commercial banks in Nepal, drawing data from 16 banks over the fiscal years 2006/07 to 2020/21. In this respect, for the purpose of this research, profitability is considered as a net interest margin and return on assets, while bank-specific elements include bank size, credit risk, the capital adequacy ratio, and the credit-to-deposit ratio. Other underlying variables are interest rates, inflation, GDP growth, and broad money supply. Analysis also suggested that bank size emerges as the most relevant determinant of both NIM and ROA. For the macro-economic factors, results find that inflation and GDP growth significantly drives both the variability of NIM and ROA, whereas the broad money supply negatively influences. These authors conclude that bank-specific and macroeconomic variables are the significant factors that determine or affect the profitability of Nepalese commercial banks. Accordingly, regulators should make more use of those macroeconomic factors that help in improving profitability, while the bankers must optimize internal available resources. They go on to

suggest that there is a need for further research into estimation of the industry-specific factors and other measures of profitability like EVA.

Chukwuogor, Anoruo, & Ndu (2021) conducted a study on the United States during the period of 1996 Q1 - 2019 Q4 concerning the determinants of bank profitability. They conducted a modified augmented Dickey-Fuller DF_GLS unit root test, among others, to variables such as average mortgage rate, economic growth, inflation, loan loss reserves, net interest margin, nonperforming loans, changes in openness, return on assets, and unemployment rate. They thus employed the GMM estimator approach to verify how these variables influence profitability, as reflected in ROA, and verified the validity of their instruments using the J-Statistic. The results indicated that, at a level, the majority of the series were stationary while changes in openness exhibited one order of integration. In this respect, the GMM model revealed that the average mortgage rate, loan loss reserves, and changes in openness had a negative impact on profitability while economic growth, inflation, net interest margin, non-performing loans, and unemployment positively affected it. These findings underscore the fact that bank-specific variables as well as macroeconomic ones can be seen as significant factors in influencing the United States banks' profitability and useful for policymakers as well as bank managers in formulating such strategies which would raise profitability.

Horvat et al. (2023) aimed to compare the three usually applied bank efficiency evaluation approaches in order to judge which one was the best. The results indicated that the intermediary approach was the most efficient, followed by the operating and profitability approaches. Each of these approaches looks at bank efficiency from a different angle: the intermediary approach-from the number of loans and investments produced with deposits, labor, and capital; the operating approach-analyzes cost efficiency in relation to income; the profitability approach views banks' profitability as a result of loans and investments. However, the research pointed to a number of limitations in the applied methodology, especially regarding the ability of DEA model results to depend on sample and variable selection and inability to predict output. On the other hand, although the study did not focus on those factors that affected bank efficiencies, it noticed that the Serbian banking sector was particularly efficient in times of and after the COVID-19 pandemic, even though it had to face a number of challenges such as low interest rates and high M&A activity. Banks of smaller sizes with the lowest market shares received lower efficiency scores and may be acquired by larger but more efficient banks. This study, according to the authors, should look at internal and external determinants of bank efficiency and further mergers and acquisitions to improve the efficiency in the banking market of Serbia. The results obtained provide practical insight for bank managers where profit efficiency has to be improved.

The paper of Radovanov et al. (2023) fills the gap in the literature with regard to the relationship between banks' profitability and liquidity, investigating whether the same factors affect them. It was also expected that most of the prior studies focused on only one of these factors. The present study finds slight departures in the sense that, for instance, three macroeconomic determinants-government expenditure, GDP growth, and unemployment rate-are more in favor of liquidity than profitability. Also, bank-specific determinants, such as the loan-to-deposit ratio, targeted profitability rather than liquidity. The results indicate that the mentioned determinants bear a complex relationship, as most factors have the same directional influence on profitability and liquidity, though with several trade-offs. Large banks that are more capitalized tend to be more profitable and liquid, including strict management of the loan-to-deposit ratio and non-performing loans. Conditions within the West Balkan region, in general, positively influence both profitability and liquidity. Radovanov suggests that the bank managers and policymakers will need to find a better balance of these factors through strategies that should adapt to macroeconomic conditions to enhance financial stability and efficiency. It is suggested that the research may be extended by investigating developed countries as well, and the obtained results might be compared across the different bank sizes.

Idawati et al. (2023) also studied how macroeconomic factors affect the financial performance of commercial banks in Indonesia; it analyzed data from a sample of Indonesian banks, identified the connections between main macro-economic variables-interest rates, inflation, exchange rates, and economic growth-with bank profitability. The results showed that the variables do have a crucial impact on bank financial performance and that one of the most significant determinants is interest rates. High interest rates were seen to negatively affect profitability due to the costs of borrowing, which in turn affected lending and profits. Whereas the strength of the effects of the above-mentioned variables might

differ between countries and regions, this generally puts an emphasis on how banks and regulators should be sensitive to such interrelations in making responsible decisions. The bank-specific factors that further link bank financial outcome include size, capital adequacy, and operational efficiency. This led to its recommendation that future research investigate the collective influence of the factors identified, namely "macroeconomic and bank-specific elements and shocks from regulatory variations and technological changes".

Neves et al. (2020) explain that the financial crisis between the year 2007 and the year 2008 left the economy on an upward trajectory of understanding the importance a sound and sustainable banking system played in economic growth. The paper discussed those aspects which were targeted in determining the performance of Portuguese and Spanish banks over time, starting from the year 2011 and up until the year 2016. The determination used profitability ratios such as ROAA and ROAE, besides efficiency measures. They found it positively influenced by some key variables such as deposit demand, revenue diversification, and GDP. The bank size and profitability had a positive non-linear relationship; the larger the bank, the higher the profitability, though it was usually less efficient. Smaller banks were usually more efficient since their costs were lower. These results highlight the relevance of the banking sector to general economic welfare and perhaps point to future research that may concentrate on aspects of corporate governance for banks, ownership regarding the differential performance between public and private institutions, and the breakdown of economic efficiency into technological and allocative aspects.

Zampara et al. (2017) try to investigate the exogenous variables influencing the profitability of a typical Greek systemic bank over the period 2001-2014. They developed a conceptual framework based on two sets of constructs, one for the macroeconomic forces and one for the industry-related factors. In the macroeconomic group, they evaluated the rate of growth in GDP and unemployment rate, while, for the industry factors, the market share of the bank was taken into consideration regarding deposits and assets and about the market overall growth concerning total assets and deposits. To capture the financial crisis impacts, two time periods were used: from 2001 to 2014 and another from 2001 to 2011 excluding recession. By conducting multiple regression analysis and applying OLS to specify linear models, the results indicate that both macroeconomic and industry-related factors significantly impact the profitability of banks. More specifically, the unemployment rate is in a negative relationship with profitability, while GDP growth shows a positive one. Additionally, the growth rate of industry deposits and market share in assets influence financial performance positively, while the asset growth rate of the industry and the market share of deposits negatively affect profitability. The present study therefore deepens such understanding of the determinants of bank profitability over a recent period characterized by a financial crisis, providing perspectives for banks on critical factors to decide upon.

3. Data and methodology

The research methodology used in this study includes the collection of quarterly data in the range between 2019 and 2023, which represent 20 data points. These data points will be extracted from sources of credibility such as Trading Economics and the Bank of Albania. The econometric analysis of data shall chiefly rely on multiple linear regression, which is a statistical method used in investigating the correlation of multiple independent variables with a dependent variable. In this paper, the dependent variable will include Return on Assets while the other macroeconomic indicators include GDP growth, the Unemployment Rate, Inflation, and the Interest Rate as independent variables. By applying this methodology, the impact of the aforementioned macroeconomic indicators on the financial performance of the entities under consideration will be tested for the specified period.

4. Research results and comments

In this section, the results of descriptive statistics, a correlation matrix, and a multiple linear regression model will be presented to depict the characteristics of the data, its interrelations, and predictive analyses.

The table below sums up five economic indicators for a sample of 20 observations. For example, the Gross Domestic Product growth, or GDP growth, tends to be the most variable indicator

with a range from -8.7 to 11.7. The mean of 0.9495 and a standard deviation of 3.6699 is computed. Similarly, the range of unemployment rates ranges from 10.5 to 12.1. A mean of 11.2850 with a standard deviation of 0.4682 was acquired. The range of inflation rates can be observed from the mean of 0.1044 with a standard deviation of 0.0760, ranging from 0.0272 to 0.2550. On the other hand, interest rates range between 0.5 and 3.25. The mean is 1.3625 and a standard deviation of 1.0211. ROA, with a mean of 1.3290 and a standard deviation of 0.3928, ranges between 0.44 and 1.99. Such statistics sum up an overview of central tendency, variability, and distribution of leading economic variables within the sample dataset.

Table 1. Descriptive statistics

	GDP growth	Unemployment Rate	Inflation	Interest Rate	ROA
count	20	20	20	20	20
mean	0.9495	11.2850	0.1044	1.3625	1.3290
std	3.6699	0.4682	0.0760	1.0211	0.3928
min	-8.7000	10.5000	0.0272	0.5000	0.4400
25%	0.3750	10.8750	0.0464	0.5000	1.0375
50%	0.8000	11.3500	0.0659	1.0000	1.3900
75%	2.3000	11.6000	0.1403	2.0000	1.5125
max	11.7000	12.1000	0.2550	3.2500	1.9900

Source*:* author's calculation.

The correlation matrix in Table 2 shows the relation between GDP growth, Unemployment Rate, Inflation, and Interest Rate. GDP growth has a very weak negative correlation to the Unemployment Rate (-0.046) and Inflation (-0.012) and therefore tends to decrease somewhat with rising values of these variables. Similar is the very weak negative correlation to Interest Rate (-0.008) so that GDP growth tends to decrease a little when interest rates rise. Unemployment Rate has a strong negative correlation (-0.737) with Inflation and an even stronger negative correlation (-0.819) with Interest Rate, meaning that unemployment tends to decrease significantly with rising values of inflation and interest rates. Inflation has a moderate positive correlation with Interest Rate (0.623), meaning rising inflation tends to push interest rates higher as well.

Table 2. Correlation matrix

	GDP growth	Unemployment Rate	Inflation	Interest Rate
GDP growth	1	-0.046224	-0.011824	-0.007815
Unemployment Rate	-0.046224	1	-0.736626	-0.819175
Inflation	-0.011824	-0.736626	1	0.623326
Interest Rate	-0.007815	-0.819175	0.623326	1

Source*:* author's calculation.

The regression model in Table 3 registers a fairly strong positive linear association between the independent and dependent variable, based on the high value of the Multiple R, around 0.737. The independent variable(s) explains almost 54.4% of the variation in the dependent variable, based on the R Square value, about 0.544. The Standard Error is about 0.299 and thus represents the average distance between the observed value and the regression line. This indicates a fair level of precision in the model's estimates. All these statistics consider 20 observations, giving a basis to the validity of the model in this dataset.

Table 3. Regression statistics

Multiple R	0.73746808
R Square	0.54385917
Adjusted R Square	0.42222162
Standard Error	0.29855551

Multiple R	0.73746808
Observations	20

Source*:* author's calculation.

Table 4 displays the results of an analysis of variance ANOVA for a regression model. The regression model is 4 degrees of freedom and sums to 1.59414913. The mean square of the model is 0.39853728. F-statistic computed as 4.47114529. The F-statistic reveals the ratio of explained variance to unexplained variance and indicates that the model is statistically significant, p-value of 0.01409339. The residual portion of the analysis is 15 degrees of freedom. It sums to 1.33703087 and has a mean square of 0.08913539, which is the unexplained variability within the data. The model explains a total sum of squares of 2.93118 which is 19 degrees of freedom.

Table 4. ANOVA

	df	**SS**	**MS**	**F**	**Significance F**
Regression	4	1.59414913	0.39853728	4.47114529	0.01409339
Residual	15	1.33703087	0.08913539		
Total	19	2.93118			

Source*:* author's calculation.

Regression results have provided useful information on the relationship of various economic indicators to the dependent variable. Starting with the intercept, this is the base value of the dependent variable when all independent variables are zero. Its statistically insignificant coefficient of 1.436389, augmented by a high p-value of 0.690423, suggests that this base value may not be very different from zero. Concerning the individual economic indicators, both the GDP growth rate and the rate of unemployment seem to have coefficients close to zero, 0.000457 and -0.025278 respectively, with high p-values above 0.9, suggesting their insignificance in affecting the dependent variable. On the contrary, the factor of inflation seems to be significant with a coefficient of -2.933381, with a standard error of 1.337779 and a p-value of 0.044509. The finding thus tends to suggest that as inflation increases, the dependent variable tends to decrease. This means that the interest rate is statistically significant, with a coefficient of 0.355559, a low p-value of 0.008489, and a relatively high t-statistic of 3.027186. This gives a positive relationship with the dependent variable. Under these conditions, the findings suggest that the economic indicators mentioned above possess different degrees of importance. It means that inflation and interest rates are important factors, whereas GDP growth and unemployment rates are relatively unimportant within this model.

Table 5. Model Coefficients

	Coefficients	**Standard Error**	**t Stat**	**P-value**	**Lower 95%**	**Upper 95%**
Intercept	1.436389	3.537273	0.406072	0.690423	-6.103130	8.975908
GDP growth	-0.000457	0.018782	-0.024358	0.980888	-0.040490	0.039575
Unemployment Rate	-0.025278	0.297123	-0.085076	0.933326	-0.658580	0.608024
Inflation	-2.933381	1.337779	-2.192724	0.044509	-5.784790	-0.081972

Source*:* author's calculation.

5. Conclusions

This paper synthesizes various studies that have investigated how different macroeconomic factors influence bank profitability across regions and contexts, and compares them with our own research focused on Albania. Karadžić and Đalović (2021) highlight the significant roles of GDP growth, inflation, and market concentration in bank profitability in Montenegro. They indicate that banks operating outside the European Union have generally been experiencing higher levels of profitability compared to banks in the EU, which may be indicative of an advantage linked to different regulatory settings. This also goes against our finding, in which inflation and interest rates came out as statistically significant predictors for ROA in Albania, while GDP growth and unemployment rates

were not significant. Apart from this, it shows the complexity of the interaction of macroeconomic factors and bank performance across different environments.

The finding by Wahdan and Leithy (2017), and Serwadda (2018), concurs with our research in establishing inflation and capital adequacy as the significant determinants of the financial performance of banks in both Egypt and Hungary. Our findings thus support such insight, as inflation is found to be a significant determinant of ROA in Albania, complementing various literature showing inflation to be a perennial determinant of profitability across different banking systems. Furthermore, Brahmaiah and Ranajee (2018) and Akther et al. (2023) also found strong impacts of macroeconomic conditions, such as GDP growth and inflation, on bank profitability in India and Bangladesh, respectively. Our findings suggest that GDP growth is weakly correlated with the other variables, while inflation and interest rates are strongly related to ROA, which could indicate that it may not be a leading determinant of bank profitability in Albania, but is very important in determining the general state of the economy and the performance of banking.

Moreover, the broader ramifications of the studies of Niroula and Singh (2021) and Antwi (2021) indicate that the drivers at the macro level, like inflation and growth in GDP, strongly bear on the profitability profile in markets such as Nepal and South Africa. This agrees with what we found in Albania, where inflation appeared to be one of the significant determinants, underlining the need for flexibility in banking strategies as the economic conditions keep changing. In sum, while our findings confirm some of the evidence from other studies dealing with bank profitability determinants-particularly where inflation is concerned-they also add a few distinctive features of the Albanian banking environment. This comparative analysis helps us to build a more complete picture of the aspects impacting bank profitability and tends to enhance awareness by financial institutions regarding the complex interrelationship between the internal operations with the external economic environment as part of their initiatives aimed at maintaining and improving their financial performance. An understanding of these dynamics will particularly help banks face the challenges and seize the opportunities within an evolving macroeconomic environment.

This study was based on the use of a quarterly data approach, from 2019 to 2023, and 20 data obtained from reliable sources such as Trading Economics and the Bank of Albania. Multiple linear regression analysis of the relationship among the macroeconomic indicators, such as GDP growth, the Unemployment Rate, Inflation, and Interest Rate, with the Return on Assets as the dependent variable was conducted. Under the descriptive statistics, correlation matrix, and regression model, the researcher examined the data's central tendency, variability, and the ability to predict.

The correlation matrix showed that GDP growth showed very weak correlations with the other variables, whereas unemployment had strong negative correlations with inflation as well as interest rates. The regression model shows there is a positive, linear relationship between the independent variable and the dependent variable. About 54.4% of the variation in ROA is explained by the model. The ANOVA confirms that the model is statistically significant.

Among the economic indicators analyzed, inflation and interest rates are significant indicators to affect ROA. However, the GDP growth and unemployment rates were found to be insignificant within the model. The findings depict the variation in the level of importance which the economic indicators hold here.

Several limitations of this study should be mentioned. This research is based on quarterly data, ranging from 2019 to 2023; the trends are not very long, nor will they unveil any kind of economic anomaly, as happened with COVID-19. Multiple linear regression presupposes a linear relationship between the dependent and independent variable, which may be a source of biased estimates if true relationships are non-linear. Additionally, omitted variables bias may occur since factors more important for Return on Assets could be excluded from the analysis. There is also a possibility of multicollinearity among the independent variables, which would result in increasing standard errors and make it difficult to draw conclusions concerning individual variables.

In order to improve the prospects of future research, the time frame should be extended to include data from before 2019 for further analysis. Future studies could explore other independent variables for such relationships, such as foreign direct investment or trade balance. Panel data would most probably yield robust results, while nonlinear forms of the models would better capture complex relationships among variables. A distinctive pattern might emerge when comparative studies across different sectors or

countries are carried out. Looking into any possible structural breaks around the time of major economic events would therefore be contributing to an understanding of how relationships shift over time. Finally, it would be worth enhancing such richness in findings from these quantitative investigations, with insight emanating from qualitative methods, more so interviews with experts in finance.

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