



## DETERMINANTS OF COMMERCIAL BANKS PROFITABILITY THROUGH ANALYSIS OF FINANCIAL PERFORMANCE INDICATORS: EVIDENCE FROM KOSOVO

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**Abstract.** The purpose of this study is to elaborate whether the determinants of commercial banks' profitability affect the financial performance of commercial banks in Kosovo. Performance evaluation of commercial banks in Kosovo is done through measurement of financial performance indicators such as Return on Average Equity (ROAE), Return on Average Assets (ROAA) and Net Interest Margin (NIM). The study identifies the main factors that affect the profitability of commercial banks through analysis of financial time series and panel data of the banking sector in Kosovo. The study presents three models of financial performance analysis which highlight the influencing factors. The models are based on regression analysis, and the obtained results emphasize the relationship between the determinant factors of commercial banks profitability expressed through analysis of financial performance indicators. The study concludes that commercial banks profitability in Kosovo is driven mainly by internal determinant factors such as capital adequacy, asset quality and management efficiency, while macroeconomic factors have insignificant impact on financial performance of commercial banks.

**Keywords:** financial performance, financial ratios, commercial banks, determinants of profitability, ROAA, ROAE, NIM.

**JEL Classification:** C32, C33, G21.

### Introduction

Commercial banks play an important role in economy and their stability is relevant and critical for the financial system. To maintain a stable financial intermediary function, banks should be profitable. Beyond the function of intermediation, the financial performance of banks has significant impact on country's economic growth. Good financial performance of the bank reward the shareholders for their investment and stimulates additional investment which will bring further economic growth. On the other hand, poor performance of banks may lead to their failure and appearance of the financial crisis which will have negative consequences on economic growth.

Banking industry is a very important sector because the development of finance, and particularly the banking

system, promotes economic growth (Lipunga 2014). The banking system plays a major role in transferring funds from the saving units to the investing units (Nshimiyimana and Zubeda 2017). Banks are important for the economy and organizations in particular at the time of economic recession and money related crisis. Industrial, agricultural and commercial development of a country is not imaginable without an efficient banking system. Sometimes banks truly don't respond to crisis, by comparing the latest financial crisis of 2007-09, it made conditions more terrible for economic improvement. Therefore, it is significant to observe the performance of banks with the administrative prerequisites (Babar and Zeb 2011). If the banking industry does not perform well, the effect to the economy could be huge and broad. Thus, banks are a critical part of financial system,

which play a pivotal role in contributing to country's economic development (Rasidah and Mohd 2011).

The analysis of financial performance of banks has been in the spotlight of many different scholars since the Great Depression of the years 1929-33. The measurement of bank performance, particularly commercial banks, is well researched and has received increased attention over the past years (Seiford and Zhu 1999). With the deteriorating health of banking institutions and the recent surge of bank failures as a result of the global financial crisis, it is justified that bank performance receives an increased investigation from both scholars and industry specialists.

The financial crisis of 2007–09 reflected the importance of bank profitability for national economy as well as global economy, showing the need to keep it under surveillance all the time. Poor bank performance has a negative repercussion on economic growth and development. Poor bank performance can lead to failures and crises. Banking crisis could entail financial crisis which in turn brings the economic meltdown as happened in the United States in 2007 (Marshall 2009). That is why governments regulate the banking sector through their central banks to foster a sound and healthy banking system which avoid banking crisis and protect the depositors and the economy (Heffernan 1996) Thus, to avoid the crisis, a full attention was given to bank performance.

The financial performance of the bank is affected by the function of internal and external factors. Internal factors refer to the indicators derived from the financial statements of banks (balance sheet and income statement) and therefore can be regarded as specific factor of banks' profitability (Wahdan and Leithy 2017). External factors are variables that are not related to the management of the bank, but they reflect the economic and regulatory environment that affect indirectly in the operation and profitability of the banks (Tobias and Themba 2011).

The importance of banks is more pronounced in developing countries because financial markets in those countries are generally underdeveloped, where banks are characterized as the main and only source of funding for the majority of businesses and assist them with accumulating savings.

The main goal of this study is to investigate whether the determinants of banks profitability affect the financial performance of commercial banks in Kosovo for the period 2010–2015. In addition, to examine the relationship among internal determinant factors such as capital adequacy, asset quality, management efficiency, liquidity and macroeconomic factors such as GDP growth rate and inflation. The study investigate their impact on banks profitability measured by Return on Average Equity (ROAE), Return on Average Asset (ROAA) and Net Interest Margin (NIM).

Specifically, this study addresses the following objectives:

- To determine the impact of capital adequacy on the profitability of commercial banks;
- To examine the significance of asset quality on commercial banks profitability;
- To explore the impact of managerial efficiency on commercial banks profitability;
- To investigate how liquidity influence the profitability of commercial banks;
- To explore the effect of GDP growth rate and inflation on the profitability of commercial banks.

The study targets the commercial banks due to their critical role to the soundness of the entire economy. So far to the best knowledge of the researcher a few studies of this nature has being carried out in Kosovo. Furthermore, according to Almazari (2012) banks and other financial institutions are a unique set of business firms whose assets and liabilities, regulatory restrictions, economic functions and operations make them an important subject of research, particularly in the conditions of the emerging financial sectors. Additionally, fewer studies have been conducted regarding the evaluation of bank performance in developing economies (Ayanda et al. 2013). Besides, Flamini et al. (2009) recommended that future studies should be focused more on country-specific studies that would provide country level policy conclusions. Knowledge of the underlying factors that influence the bank's profitability is essential not only for bank management, but also for numerous stakeholders such as central banks, bankers associations, governments, and other financial authorities (Sufian and Chong 2008).

This paper is organized as follows: The first section presents the theoretical concepts; the second section presents a literature review on bank profitability and its determinants; the third section presents the research methodology employed, the econometric model applied and the variables used in the regression model are described in this section. Section four present the results of regression analysis and discussions; and section five gives the concluding remarks.

## 1. Literature review

The factors affecting bank profitability have been widely examined in the literature. It has been shown that bank performance is not only influenced by bank-specific factors but also external factors such as the nature of the macroeconomic environment. During recent years, studies regarding the evaluation of bank performances, particularly commercial banks, have recorded an increase of attention to them. There are a number of empirical studies on evaluation of commercial banks performance. However much of these studies were done in developed countries, less in developing ones (Ayanda et al. 2013). With the deterioration of the

financial situation of some banking institutions due to the recent wave of bank failures as a result of the recent global financial crisis, it justified the issue of increasing concern over investigation of the determinants of profitability of commercial banks from both sides, from the researchers as well as specialists from the banking industry.

Erina and Lace (2013) through their research were able to find interconnection between bank-specific factors and macroeconomic indicators in the Latvian commercial banks for period 2006–2011. The authors conducted a survey of scientific literature and analysed the profitability indicators of commercial banks using descriptive statistics, data correlation and regression analysis. On the basis of the results obtained, the authors have concluded that profitability has had a positive effect on operational efficiency, portfolio composition and management, while it has had a negative effect on the capital and credit risks, as measured according to ROA, while according to ROE, positive influence is exerted on composition of the capital portfolio and negative influence on operational efficiency and credit risk. With regard to macroeconomic indicators, the authors have revealed that GDP growth rate has a positive impact on profitability as measured by ROA and ROE. The authors, with the methodology used in their research, have determined not only profitability indicators of some commercial banks in particular, but also have compared the performance indicators of several banks.

Olalekan and Adeyinka (2013) through their research have examined the effect of capital adequacy on profitability of deposit-taking banks in Nigeria. The research assessed the effect of capital adequacy of both foreign and domestic banks in Nigeria on their profitability. The study used primary data collected by questionnaires distributed to banking employees, involving a sample of 518 respondents with a response rate of 76%. Also, the authors used the secondary data form the published financial statements of banks for the period 2006–2010. The findings from this research for the primary data analysis revealed a non-significant relationship but the secondary data analysis showed a positive and significant relationship between capital adequacy and bank profitability. This implies that for deposit-taking banks, capital adequacy plays a key role in the determination of bank profitability.

Elsiefy (2013) argues that banks with sufficient investment in liquid assets have the ability to withstand liquidity crisis. The challenge is to define the optimum amount of liquidity given by the risk/return trade-off. The author argued that higher liquidity compared to the average for the sector also reflect inefficiency of the banking institution. The higher the liquidity the lower will be the profitability, by implying that there is a negative relationship between profitability and liquidity.

Adam (2014) investigated the financial performance of Erbil Bank for Investment and Finance, Kurdistan Region

of Iraq for the period 2009–2013. The author in his study used several financial performance indicators such as financial ratios analysis to measure the financial position of the bank, and a broader range statistical tools also have been used for analysis purpose of several variables which would affect the banking system in general in order to investigate whether these variables were significantly correlated with the financial performance of Erbil Bank. The findings of this study present the positive behaviour of the financial position for Erbil Bank and some of their financial factors variables influence the financial performance of the bank. The study concludes that the overall financial performance of Erbil Bank is improving in terms of liquidity ratio, assets quality or credit performance, and profitability ratios (ROA, ROE, NIM). This study suggests a set of recommendations regarding the development and enhancing of some banking operations which will boost the bank's profitability and improve the financial performance of the bank.

Menicucci and Paolucci (2016) have assessed and analysed the relationship between bank-specific factors and profitability in European banking sector in order to determine the impact of internal factors on achieving high profitability. This research employs a regression analysis that was done on an unbalanced panel dataset related to 28 European banks over the period 2006–2015. The authors selected the largest bank of any single country of the European Union. Regression results revealed that capital adequacy ratio and bank size have positive impact on bank profitability in Europe, while higher asset quality results in lower profitability levels. Findings from this study also suggest that banks with higher deposit ratio tend to be more profitable. The findings provide interesting insights into the characteristics and practices of profitable banks in Europe. First, the results offer new comprehensive insights into the factors determining the profitability of commercial banks in Europe. Single bank's characteristics explain a portion of within-country variation in European bank profitability, suggesting that much more attention should be dedicated on bank-specific factors in order to increase the profitability. Secondly, the study could be a support for investors in their decision making process and particularly could be useful for the global institutional investors looking for profitable investment opportunities in European banking sector.

Abel and Le Roux (2016) investigated the determinants of banking sector profitability in Zimbabwe for the period Q1 2009–Q2 2014. Overall the results from the study revealed that banking sector profitability in Zimbabwe is mostly driven by bank-specific factors. The findings of this study shows that the profitability of the banking sector is dependent on bank-level management variables. This result is very important for suggesting optimal policies to bank management on how they can improve the profitability for the banking sector. The authors argued that profitability is

associated with banks that hold a relatively higher amount of liquid assets, a higher capital, and a lower levels of NPLs together with efficient expense management. The authors conclude that profitability of the Zimbabwean banking sector can be improved by increasing the quality of assets, improving expense management and liquidity.

Ozgur and Gorus (2016) investigated the impact of bank-specific and macroeconomic factors on deposit bank profitability in Turkey. To present the significance of study variables the authors performed the OLS methodology to construct multiple regression analysis. The study employed the monthly data for the period over 2006:1 to 2016:2. Empirical results of the study suggested that equity over total assets, non-performing loans to total cash loans, net interest revenues to average total assets, and central bank policy interest rate have a significant impact over return on assets (ROA) while non-interest income over total assets, market share of deposit banks in banking sector, operational expenses to average total assets, and exchange rate are not statistically significant. The authors conclude effect of recent global financial crisis on bank performance is significantly negative. Indeed, result of this study provide supportive evidence that financial crisis adversely affected banking industry performance in Turkey.

Mehta and Bhavani (2017) examined the impact of various variables on banks' profitability in the domestic commercial banking sector of the UAE, focusing on a sample of 19 banks over eight years (2006–2013) and using balanced panel data. The empirical results of the research clearly indicated that the cost efficiency, maintaining a high capital adequacy ratio, and improving asset quality were the most significant variables that could impact the profitability of banks for all measures of profits. The authors conclude that banks could have enhanced their profitability by diversifying into non-traditional source revenue, but that would have had a negative impact on the NIM. In conclusion, the authors in this study put into relief the profitability-enhancing model which banks could use to increase their performance.

Overall, the existing literature provides a rather comprehensive account of the effect of internal and industry-specific determinants of bank profitability, but the effect of the macroeconomic environment is not adequately dealt with. The time dimension of the panel data used in empirical studies is usually too small to capture the effect of control variables related to the macroeconomic environment. Finally, sometimes there is an overlap between variables in the sense that some of them essentially proxy the same profitability determinant. It follows that studies concerning the profitability analysis of the banking sector should address the above issues more satisfactorily, in order to allow a better insight into the factors affecting banks profitability.

## 2. Research methodology

The main purpose of the study is that by analysing the financial performance indicators, will try to elaborate the determinants of banks profitability and their impact on financial performance of 10 commercial banks in Kosovo for the period 2010–2015. This study adopted an explanatory approach by using balanced panel data research design to achieve the stated objectives. As quoted from Tobias and Themba (2011) the advantage of using panel data is that it controls for individual heterogeneity, less collinearity variables and tracks trends in the data something which simple time-series and cross-sectional data cannot provide. The population of this study includes all commercial banks operating in Kosovo. Consistent with (Sufian and Chong 2008, Ayanda et al. 2013, Ongore and Kusa 2013), the study used secondary data from the published financial statements of the 10 commercial banks in Kosovo for period 2010–2015 to estimate the relevant ratios and coefficients.

The collected data were analysed by using descriptive statistics, correlation analysis and multiple regression analysis. The mean and standard deviation are used to analyse the general trends of the data from 2010 to 2015 for the variables included in the study. A correlation matrix has been used to examine the relationship between the dependent and explanatory variables, and to investigate multicollinearity problem between variables. According to Creswell (2009), the variables need to be specified in quantitative researches so that it is clear to readers what groups are receiving the experimental treatment and what outcomes are being measured.

This study utilized CAMEL approach, which is often used by scholars to proxy the bank specific factors (Dang 2011). CAMEL stands for Capital Adequacy, Asset Quality, Management Efficiency, Earnings Ability and Liquidity. The CAMEL ratios are the popular bank specific factors often used in representing bank specific factors in relation to performance. The Central Bank of Kosovo also uses CAMEL ratios to evaluate the performance of commercial banks. Bank performance is measured by the return on average assets (ROAA), return on average equity (ROAE), and net interest margin (NIM), which are expressed as a function of internal and external determinants. The internal determinants include bank-specific variables from CAMEL approach: capital adequacy ratio, asset quality, management efficiency and liquidity. The external determinants reflect macroeconomic indicators (real GDP growth rate and Inflation) that may affect the profitability of commercial banks. In this study, both internal and external variables are used to investigate the determinants of commercial banks profitability and their impact on financial performance.

This study uses three models to measure bank profitability through multiple regression analysis. The

regression model is used to determine the relative importance and impact of each independent variable on bank profitability. The p-value of explanatory variables is used to test the hypotheses at 5% significance level. The multiple regression models for performance indicators ROAE, ROAA, and NIM are shown on equations below:

Model 1:

$$ROAE_t = C + \alpha_1 CAR_t + \alpha_2 ASQ_t + \alpha_3 MGE_t + \alpha_4 LIQ_t + \beta_1 RGD_t + \beta_2 INF_t + \varepsilon ; \quad (1)$$

Model 2:

$$ROAA_t = C + \alpha_1 CAR_t + \alpha_2 ASQ_t + \alpha_3 MGE_t + \alpha_4 LIQ_t + \beta_1 RGD_t + \beta_2 INF_t + \varepsilon ; \quad (2)$$

Model 3:

$$NIM_t = C + \alpha_1 CAR_t + \alpha_2 ASQ_t + \alpha_3 MGE_t + \alpha_4 LIQ_t + \beta_1 RGD_t + \beta_2 INF_t + \varepsilon , \quad (3)$$

where:  $ROAE_t$  = Return on average equity at time  $t$ ;  $ROAA_t$  = Return on average assets at time  $t$ ;  $NIM_t$  = Net interest margin at time  $t$ ;  $CAR_t$  = Capital adequacy ratio at time  $t$ ;  $ASQ_t$  = Asset quality at time  $t$ ;  $MGE_t$  = Management efficiency at time  $t$ ;  $LIQ_t$  = Liquidity of bank at time  $t$ ;  $RGD_t$  = Real GDP growth rate at time  $t$ ;  $INF_t$  = Inflation rate at time  $t$ ;  $t$  = Period of study 2010–2015;  $C$  = Constant (fixed effects);  $\alpha$  = Internal determinant factors regression coefficients;  $\beta$  = Macroeconomic factor regression coefficients;  $\varepsilon$  = Error term.

Consistent with the extant literature, study variables were calculated as follows:

- $ROAE$  = Net Income / Average Shareholders' Equity;
- $ROAA$  = Net Income / Average Total Assets;
- $NIM$  = A percentage of earns on loans in a time period and other assets minus the interest paid on borrowed funds / Average Earning Assets ;
- Capital adequacy ratio = Total capital (Bank's Tier 1 capital + Tier 2 capital) / Risk Weighted Assets;
- Asset quality = Non-performing Loans (NPL) / Total Gross Loan (%);
- Management efficiency = Expenditures to Income Ratio;
- Liquidity<sup>1</sup> = Liquid Assets / Short-Term Liabilities;
- GDP = Yearly Real GDP Growth Rate;
- Inflation = Yearly Average Inflation Rate.

### 3. Research results and findings

This chapter deals with the results of study which include descriptive statistics of variables, correlation results for dependent and explanatory variables, diagnosis test for

the regression models, and regression analysis for three performance indicators: Return on average assets, Return on average equity, Net interest margin and discussion of results.

#### 3.1. The analysis of financial performance trend of commercial banks in Kosovo

The analysis of financial performance trend of commercial banks is carried out based on the financial performance indicators: Return on average equity (ROAE), return on average assets (ROAA) and net interest margin (NIM), for the period 2010–2015 (Table 1):

Table 1. Financial Performance Indicators, in percentage (%), period 2010–2015

	2010	2011	2012	2013	2014	2015
Return on average equity (ROAE)	14.8	14.3	7.2	9.4	20.3	26.4
Return on average assets (ROAA)	1.5	1.4	0.7	0.9	2.0	2.9
Net Interest Margin (NIM)	6.4	6.4	6.2	6.1	6.1	5.9

Source: Central Bank of Kosovo (CBK), Annual report 2015

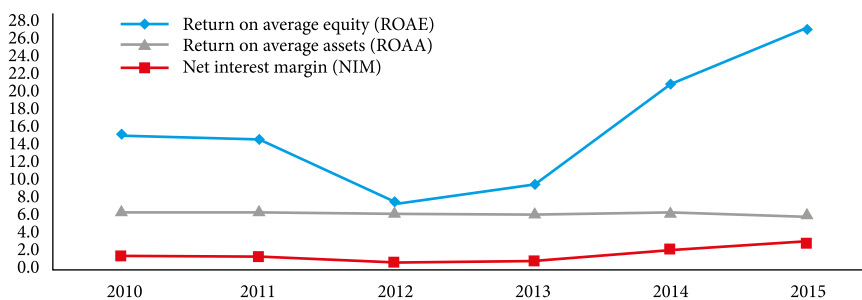
Table 2. Non-Performing Loans, in percentage (%), period 2010–2015

	2010	2011	2012	2013	2014	2015
Non-performing loans (NPL)	5.2	5.7	7.5	5.2	4.8	4.2

Source: Central Bank of Kosovo (CBK), Annual report 2015

As seen in Figure 1 above, the financial performance trend of commercial banks in Kosovo is irregular. In 2010, the average performance of commercial banks expressed in ROAE, ROAA and NIM was 14.8, 1.5 and 6.4 percent respectively. In 2012, the above indicators decreased to 7.2, 0.7 and 6.2 percent respectively. One of the main reasons for the decline in financial performance of commercial banks in Kosovo is the increase of level of non-performing loans (NPL) from 5.2 percent in 2010 to 7.5 percent in 2012 (See Table 2; Fig. 2). The increase of NPL comes as a result of poorer performance of the economy in general and of the banking system in particular, which resulted on the decrease of credit portfolio quality. Taking into account difficulties faced by the Eurozone countries, as well deterioration of credit portfolio in majority of regional countries, it should be underlined that Kosovo banking system credit portfolio in general continues to have a good quality in terms of classification of loans.

<sup>1</sup> Based on the Central Bank of Kosovo Regulation for the Liquidity Management, banks which operate in Kosovo should secure minimal level of liquid assets to short-term liabilities of 25 percent.



Source: Central Bank of Kosovo (CBK), Annual report 2015

Fig. 1. Financial Performance indicators in %, 2010–2015

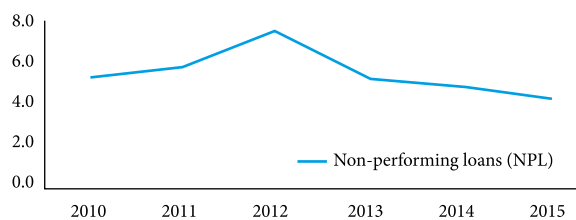
However, it is worth mentioning the fact that during 2012 it was noticed a decline of credit portfolio quality. The NPL level in 2012 represents the highest level of NPL since the beginning of banking system functioning in Kosovo (CBK annual report 2012). Viewed in average level, this decrease on financial performance was observed by the end of 2010 and the negative trend continued until the end of 2012.

### 3.2. Descriptive statistics of variables

In this section are presented descriptive statistics for the dependent and explanatory variables involved in the regression model. Descriptive statistics are conducted to state the mean differences among the variables within the observed period. Table 3 below presents the descriptive statistics of study variables used in modelling the performance of commercial banks during the period 2010–2015:

As can be seen from Table 3, return on average equity (ROAE) has a mean value of 0.154, which is the highest compared to that of other dependent variables. The standard deviation of 0.070 indicate a high variability of this indicator of financial performance. Return on average assets (ROAA) has a mean value of 0.016, the lowest of all dependent variables. The standard deviation of 0.008 implies that this indicator has a lower variability. Net interest margin (NIM) has a mean value of 0.06 and ranked as a moderate average value. The standard deviation of 0.001, shows that this performance indicator has a moderate variability as compared to other dependent variables. This explains that almost all private commercial banks in Kosovo are applying relatively consistent interest rate on all kinds of finances and few variations were observed regarding net interest margin.

Capital adequacy has a mean value of 0.173 and a standard deviation of 0.017, which indicates that commercial banks in Kosovo are holding capital in average value of 0.053 more as what are the requirements of the banking regulator–Central Bank of Kosovo (the regulator’s CAR requirement is 0.12). Asset quality has a mean value of 0.069 and standard deviation of 0.01, which indicates that non-performing loans of commercial banks are in total average of 6.9% of



Source: Central Bank of Kosovo (CBK), Annual report 2015

Fig. 2. Non-Performing Loans in %, period 2010–2015

Table 3. Descriptive statistics of variables

Variable	Observations	Mean	Median	Std. Dev.	Min	Max
ROAE	60	.1540	.1455	.0707	.0720	.2640
ROAA	60	.0157	.0145	.0080	.0070	.0290
NIM	60	.0618	.0615	.0019	.0590	.0640
CAR	60	.1732	.1765	.0174	.1420	.1900
ASQ	60	.0693	.0685	.0144	.0520	.0870
MGE	60	.8017	.8245	.1125	.6030	.9090
LIQ	60	.4247	.4220	.0370	.3850	.4800
RGD	60	.0312	.0330	.0108	.0120	.0450
INF	60	.0250	.0215	.0275	-.0050	.0730

Source: Authors’ calculations

total gross loans. It implies that the commercial banks have a relatively good asset quality. Management efficiency is presented as the internal factor with the highest mean value of 0.801 and standard deviation of 0.113, which is estimated based on the expense to income ratio, calculated by dividing operating expenses by operating income. Liquidity has a mean value of 0.424 and the standard deviation 0.037. The mean value of liquidity implies that commercial banks in Kosovo were very liquid, having a liquidity ratio of almost two times more than the minimum statutory liquidity ratio of 25 percent set by Central Bank of Kosovo (CBK).

External determinants of bank profitability such as GDP and Inflation are presented with almost the same average values of 0.031 and 0.025, and a standard deviation of 0.010 and 0.027 respectively.

According to Table 3, from all independent variables management efficiency and liquidity have the highest standard deviation which indicates a significant variance compared to other explanatory variables included in the study.

### 3.3. Correlation analysis of variables

The correlation coefficient represents a linear relationship between two variables. The most widely-used type of correlation coefficient is Pearson's correlation, also called linear or product-moment correlation. The significance level calculated for each correlation is a primary source of information about the reliability of the correlation.

In order to analyse the relationship between the dependent and independent variables, correlation coefficients were calculated and presented through the correlation matrix:

According to Table 4, capital adequacy ratio has the weakest relationship with all the three dependent variables: ROAE, ROAA and NIM. This weak relationship may indicate that banks are not facing any volatility in earnings due to leverage. However, capital adequacy ratio has a negative relationship with ROAE. This is in line with the conventional argument that higher capital adequacy ratios encourage banks to invest in safer assets, such as lower-risk loans or securities, which may affect bank performance (Berger and Bouwman 2011).

Asset quality, which is expressed as non-performing loans to total gross loans, has a positive relationship to all the three bank performance indicators. This indicates that better asset quality or low non-performing loans to total gross loans will result to higher bank performance.

The other explanatory variable, management efficiency, is positively related to all the three performance indicators, but more strongly related to ROAE. This result implies that management efficiency of commercial banks, which is measured by the ratio of operating expense to operating income, have a significant relationship with bank profitability. This result is in support of the efficient structure

hypothesis which argues that an efficiently managed bank will perform better.

Liquidity is negatively related to all the three performance indicators: ROAE, ROAA and NIM. This may be due to the fact that liquidity management is more related with fulfilling depositors' obligation than investment. Liquidity has similar implication like return on asset, which means although holding more liquid assets increases the ability to raise cash on short-notice; the excess of cash in the bank increases the level of non-earning assets. A high liquidity ratio indicates a less risky and less profitable bank.

Two macroeconomic factors, gross domestic product (GDP) and inflation, have a positive relationship with financial performance of commercial banks, but it is not significant. It seems that, GDP is more related to ROAE and NIM rather than ROAA. This relationship supports the view that GDP growth is not necessarily positively related with bank performance (Flamini et al. 2009). The other macroeconomic variable, inflation, has a positive effect on bank profitability, by suggesting that banks have forecast future changes in inflation correctly and promptly enough to adjust interest rates and margins. This is due to the fact that inflation could affect the value of money, purchasing power and the real interest rate.

To examine the existence of multicollinearity, a correlation analysis between independent variables and the variance inflator factor (VIF) is used, in order to support the validity of the regression results. If the correlation coefficient reaches the value higher than 0.8 then this means that between the independent variables exist a multicollinearity phenomenon.

The relationship between independent variables is calculated through their correlation coefficients and the results are presented in the correlation matrix in Table 4 above. The results from the correlation matrix show that among independent variables there is no multicollinearity phenomenon since all independent variables have a correlation coefficients with lower value than 0.8.

Table 4. Correlation Matrix between variables

	ROAE	ROAA	NIM	CAR	ASQ	MGE	LIQ	RGD	INF
ROAE	1								
ROAA	0.5956	1							
NIM	0.5146	0.5459	1						
CAR	-0.1994	0.0337	-0.0857	1					
ASQ	0.5793	0.5012	0.5913	0.4835	1				
MGE	0.6829	0.5946	0.5877	0.5304	0.4945	1			
LIQ	-0.1472	-0.1613	-0.1036	0.0281	0.1322	0.1755	1		
RGD	0.2742	0.1586	0.2250	0.0625	0.2605	0.1877	0.2540	1	
INF	0.2619	0.1124	0.2754	0.1408	-0.1819	0.1922	-0.1081	0.2300	1

Source: Authors' calculations

In the case of VIF, if the result is below the value 10 and tolerance level near to 0, it means that there is no problem with multicollinearity (Gujarati 2003). Calculation of VIF and tolerance level for independent variables is presented in Table 5 below:

Table 5. Collinearity statistics of independent variables

Independent variables	Collinearity statistics	
	Tolerance	VIF
Capital adequacy ratio	0.346	3.512
Asset quality	0.675	1.558
Management efficiency	0.546	1.843
Liquidity	0.350	1.640
GDP	0.190	1.283
Inflation	0.110	1.050

Source: Authors' calculations

As seen in Table 5, none of the independent variables have VIF ratio higher than 10 and tolerance level near to 0, this shows that between independent variables there is no multicollinearity phenomenon.

### 3.4. The results of regression analysis between variables and discussions

The goal of this study was to investigate whether the determinants of commercial banks profitability affect the financial performance of commercial banks in Kosovo. The following results of multiple regression analysis present the impact of determinant factors on financial performance of commercial banks in Kosovo measured by financial performance indicators: ROAE, ROAA and NIM, by comparing via three models:

Model 1 present the results of regression analysis by evaluating the impact of the determinant factors (independent variables) on financial performance of commercial banks measured by return on average equity (ROAE). Based on the regression results, the multiple regression equation of Model 1 is presented as follows:

$$ROAE = 1.120 - 0.096CAR + 0.593ASQ + 0.646MGE - 0.110LIQ + 0.106RGD + 0.128INF. \quad (1)$$

According to Table 6, the result of the regression analysis indicates that asset quality and management efficiency have a positive relationship with profitability measure: return on average equity, and both are statistically significant. With regard to management efficiency which is usually measured by operational costs efficiency, it has strong impact on profitability and this result is consistent with the findings of Ramlall (2009). The result indicates that there is a negative relationship between return on average equity and two remaining explanatory variables: capital adequacy ratio and liquidity. This

Table 6. Regression analysis results between variables

		MODEL 1 ROAE	MODEL 2 ROAA	MODEL 3 NIM
Constant	R	1.1204	0.2480	0.3105
Capital adequacy ratio (CAR)	R	-0.0960	0.0507	-0.0804
Asset quality	R	0.5926	0.5304	0.6488
Management efficiency	R	0.6458	0.5785	0.6298
Liquidity	R	-0.1102	-0.1302	-0.1054
Gross domestic product (GDP)	R	0.1062	0.1801	0.1024
Inflation	R	0.1281	0.0540	0.1045
R-squared		0.7011	0.7510	0.5144
Adjusted R-squared		0.7115	0.7150	0.5101
Standard error		1.5480	0.5210	0.9521
“F”		3.1790	1.3450	1.5141
p-value		0.0018	0.0089	0.0034
Observations		60	60	60

Source: Authors' calculations

means that any increase in capital position, and having more liquid assets leads to a decrease of profitability. Direct involvement of the capital requirement, limits the benefits of investment risk of banks and therefore affect their ability to reach a target level of profitability. This result is consistent with the findings of Goddard et al. (2004). In relation to macroeconomic factors, GDP and Inflation, both have positive but weaker relationship with return on average equity, and the result is similar with the findings of Andreas and Gabrielle (2009). Variations in the dependent variable for the profitability, as measured by return on average equity, are explained satisfactorily by variations in the selected explanatory variables, because R-squared is 0.70, which indicates that explanatory variables included in the study together are able to explain 70 percent of the variations in financial performance measure: return on average equity. The remaining 30 percent of variations in financial performance of commercial banks are explained by other variables which are not included in the study. Table 6 also presented the value F-statistics which is 3.18 with p-value of 0.0018, used to measure the overall significance of the regression model.

Model 2 present the results of the regression analysis by evaluating the impact of the determinant factors on financial performance of commercial banks measured by return on average assets (ROAA). Based on the regression results, the multiple regression equation of Model 2 is presented as follows:

$$ROAA = 0.248 + 0.051CAR + 0.530ASQ + 0.579MGE - 0.130LIQ + 0.180RGD + 0.054INF. \quad (2)$$



The result of the regression analysis indicates that all explanatory variables have a positive relationship with return on average assets except liquidity, with coefficient of  $-0.130$ , shows a negative impact on financial performance of commercial banks, this implies that any increase in liquidity levels leads to a decrease of profitability. A positive coefficient of capital adequacy with a coefficient of  $0.051$  implies that there is a positive but weak relationship with return on average assets. The management efficiency has a positive coefficient of  $0.579$ ; which means that a higher efficiency of operational costs leads to an increase of profitability. Similarly, asset quality, GDP and inflation have a positive coefficient of  $0.530$ ,  $0.180$  and  $0.054$  respectively. This means that any increase in these variables leads to an increase of profitability. R-squared value for the regression model 2 is  $0.75$ . This indicates the explanatory variables in this study are able to explain 75 percent of the variations in financial performance measure: return on average assets. The remaining 25 percent of the variations in financial performance of commercial banks are explained by other variables which are not included in the model.

Model 3 present the results of the regression analysis by evaluating the impact of the determinant factors on financial performance of commercial banks measured by net interest margin (NIM). Based on the regression results, the multiple regression equation of Model 3 is presented as follows:

$$NIM = 0.311 - 0.080CAR + 0.649ASQ + 0.630MGE - 0.105LIQ + 0.102RGD + 0.105INF . \quad (3)$$

The result of the regression analysis indicates that capital adequacy ratio and liquidity have negative relationship with net interest margin. The result is consistent with the findings of Nguyen (2006). While, other explanatory variables, management efficiency, asset quality, GDP and inflation have a positive relationship with net interest margin. This implies that any increase in capital position, and having more liquid assets leads to a decrease of profitability. The result is consistent with the findings of Andreas and Gabrielle (2009). R-squared value for the regression model 3 is  $0.51$ , which indicates that explanatory variables included in this study collectively explain 51 percent of the variations in financial performance measure: net interest margin. The remaining 49 percent of the variations in financial performance of commercial banks are explained by other explanatory variables which are not included in this study.

## Conclusions

The main objective of this study was to investigate the impact of determinant factors of banks profitability on financial performance of commercial banks in Kosovo for

the period of study 2010–2015. Specific objectives were to determine and evaluate the effects of bank-specific factors expressed within the CAMEL approach and macroeconomic factors. The study used a balanced panel data of sixty observations from 2010 to 2015 of 10 commercial banks that were analysed using multiple regression analysis of three performance indicators: ROAE, ROAA and NIM. Overall the results from the study indicate that profitability of commercial banks in Kosovo is mostly driven by bank-specific factors. This implies that the profitability of commercial banks is dependent on bank-level management variables. This result is very important for suggesting optimal policies to bank management on how they can improve the profitability. Profitability is associated with banks that hold an optimal level of liquid assets, lower level of capital adequacy ratio, lower level of NPL together with an efficient expense management. The results indicate that profitability of commercial banks in Kosovo can be improved by increasing the quality of assets, improving expense management and liquidity. The study concludes that management efficiency and asset quality are the determinant factors that have the greatest impact on financial performance of commercial banks. While capital adequacy ratio and liquidity presented a negative impact on financial performance of commercial banks. This implies that any increase in capital position, and having a high level of liquid assets leads to a lower profitability. Direct involvement of the capital requirement, limits the benefits of investment risk of banks and therefore affects their ability to reach a target level of profitability. Regarding macroeconomic factors, GDP and inflation, and their impact on the financial performance of commercial banks in Kosovo, the outcome of research concludes that overall GDP and inflation have shown a positive relationship with all the three performance indicators but their impact on financial performance of commercial banks is insignificant.

## Disclosure statement

The authors have no competing, financial, professional or personal interests from other parties.

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