IMPACT OF LIQUIDITY MANAGEMENT
ON COMMERCIAL BANKS PROFITABILITY IN KOSOVO
DURING THE PERIOD 2011-2019

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Abstract: *Liquidity management and its impact on the profitability of commercial banks are two issues of particular importance in the further development of the business and at the same time two sources of concern for financial managers. For this reason, this study aims to determine the impact of changes in liquidity levels on the profitability of commercial banks in Kosovo. The study is based on secondary data for nine commercial banks in Kosovo over 9 years, respectively for the period from 2011 to 2019, taken from the audited annual statements of these financial institutions. The study measures the relationship between liquidity management and profitability and its impact on profitability. In order to process the data, regression analysis and correlation were used, while the findings determine whether there is a significant relationship between liquidity management and profitability in commercial banks in Kosovo. The current ratio, the quick ratio, the cash ratio and the capital adequacy ratio have been taken as liquidity indicators, while return on assets and return on equity are considered as profitability indicators.*

Keywords: *Liquidity, Liquidity management, Profitability, Impact of liquidity management on profitability.*

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1. INTRODUCTION

In the banking system of Kosovo, commercial banks have undergone major changes since 2000. These changes are a result of the entry of foreign banks, changes in the regulatory environment, technological change, but also by increased competition (Ahmeti, Hoti, Alshiqi, 2014). As a result of the financial crisis in 2008, and the changes in the banking system that followed, commercial banks faced increased operating costs, which also affected the quality of bank loans and the performance of the banking sector in Kosovo. Banks now offer a variety of products and services. Deposits are secure by the government and loan procedures for businesses and consumers are much easier.

The number of commercial banks in Kosovo has constantly increased. In 2001, seven commercial banks operated in Kosovo, while in 2019 the banking system is operating with ten fully private commercial banks. The Central Bank of Kosovo played a major role in establishing many regulations to protect consumers from taking advantage of non-insurance banks, and at the same time keeping banks under control with their loans and credit lines. The banking sector is dominated by capital from the EU, which participates as 57.5% of the total assets of the banking sector. However, banks from other countries, mainly Turkey, with a more proactive approach to market penetration have gradually increased their presence to 16.9% of the sector's assets. Such developments have contributed to increased competitiveness of services and reduced banking concentration (CBK – Financial Stability Report, 2019).

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In 2019, the banking sector has shown good financial performance, although there has been a decline in profits, which has increased the risk of profitability. In terms of banking liquidity, the decline in liquidity risk compared to the same period last year came as a result of increased liquid assets, in the form of deposits and assets held in the CBK. The increase in the risk of solvency is attributed to the decrease in the level of capitalization, but it is still significantly higher than the minimum required by the CBK regulations. (CBK – Financial Stability Report, 2019).

The research aims to analyze the impact of liquidity management on the profitability of nine commercial banks operating in Kosovo during the period 2011-2019. The analyzed factors are: current ratio (CR), quick ratio (QR), cash asset ratio (CAR) and capital adequacy ratio (CADR) as a measure of liquidity management and return on assets (ROA) and return on equity (ROE) as a measure of profitability. The data are taken from the annual reports of commercial banks in Kosovo for the period under investigation.

2.   LITERATURE REVIEW

Liquidity management is an integral function of financial institutions and includes intercession between lenders and financial instrument seekers. Liquidity is a necessity for firm survival. For banks, liquidity expresses the capacity to provide the necessary financial resources by withdrawing deposits of companies or individuals, through their available cash or even by mortgaging its assets to other financial institutions that can easily are converted into cash through financial markets.

According to Anyanwu (1993), liquidity means the ability to convert an asset into cash with minimal delay and minimal loss/cost, while Ibenta (2005) says that liquidity tells us about the firm's ability to meet short-term needs for financial assets. On the other hand, Spindt and Tarhan (1980) point out that in the portfolio of commercial banks, liquidity assets play a very important role because banks operate mainly with financial assets borrowed from depositors in the form of deposits. These liquidity assets are the core assets of the balance sheet that have the ability to maintain the confidence of depositors which is the most valuable intangible asset for the banking business. Mohammad (2015) argues that in the financial system, bank liquidity can be categorized into two types: asset liquidity and financed liquidity. While asset liquidity is related to the risk or inability of banks to easily balance or sell assets with market volatility as a result of insufficient market strength or market distraction, funded liquidity is related to the risk with which the bank is not able to efficiently meet its debts as they become mandatory. Profitability from financial institutions receives deliberate attention from bank management to strike a balance between profitability and liquidity which are two conflicting goals (Harrison Kyalo Song'e, 2015). In the literature, the profitability of banks is expressed by two alternative measures: return on assets (ROA) and return on equity (ROE). Some other authors also consider the third ratio, namely the net profit margin (NIM).

Bank performance evaluation is a complex process that involves assessing the interaction between the environment, internal operations, and external activities (Kosmidou and Pasiouras, 2007). Internal determinants are factors that are mainly influenced by bank administration decisions and policy objectives. Such determinants of profitability are balance sheet structure, provisioning policy, capital adequacy, cost management and bank size. On the other hand, external determinants, related to the industry as well as macroeconomic ones, are variables that reflect the economic and legal environment in which the credit institution operates. According

to (Syafri, 2012), the factors that affect the profitability of the bank can be external and internal. Based on the same source, external factors can be all factors that are not under the control of the bank, such as: competition, government regulations, money supply and inflation.

Research by (Staikouras and Wood 2004) on bank profitability determinants includes 685 European banks. Their analysis focused on the following variables: return on assets, loan risk, capital adequacy, capital risk, variable rate of interest, bank size, cost-effectiveness, rate of interest, GDP growth rate and gross per capita income for each European country. Finally, the authors concluded that the adequacy of the bank's capital and bank size positively affects the bank's liquidity, while the risk of loans and the risk of capital were related contrary to the bank's profitability. In terms of macroeconomic variables, interest rates have a positive effect, while changes in interest rates and GDP growth have a negative effect on the bank's profitability.

Another study on the impact of liquidity on profitability was conducted by Zygmunt (2013). The author states that liquidity is important for the firm's performance and can therefore affect its profitability. To analyze this impact, the author analyzes the impact of independent variables (current ratio, quick ratio, receivable conversion period, inventory conversion period, payable conversion period and cash conversion period) on dependent variables (Return on assets, Return on equity and Return on Sales). The study confirms that all independent variables, except the quick ratio, have an impact on the ROA, only the payable conversion period has an impact on the ROE while the receivable conversion period and inventory conversion period has an impact on the ROS.

Rasul (2013) analyzed the relationship between liquidity and profitability by selecting 2 Islamic banks in Bangladesh during the period 2001-2011. Analyzed ratios were cash & due ratio from banks to total assets, investment to total assets, cash & due from banks to total deposits and Investment to total Deposits. The ratios for calculating profitability are ROE ROA and ROD (Return on Deposits). The study confirms the strong impact of liquidity on profitability.

Hoffmann (2011) analyzed the profitability determinants of banks operating in the US for the period 1995-2007. The study undertook internal and external factors that affect the profitability of banks in the US. The study found that there is a negative relationship between the ratio of capital and profitability that confirms the belief that banks are working harder to avoid opportunities for profit in possible trade changes. The cost advantages due to the size of the bank do not affect the profitability of the US banking industry.

Maqsood et al. (2016) explained that there is a significant impact of liquidity management on profitability in the banking sector. The data used in this study are taken from the financial statements of eight different banks from 2004 to 2015. This study uses the regression and correlation technique. To measure liquidity, they used the current ratio and the cash ratio as independent variables, and to measure profitability they used the Return on Assets as a dependent variable.

Ikeora and Andabai (2016) found that there is a positive relationship between dependent variables (profitability) and independent (liquidity management) using time series data scanning (1989-2013). Liquidity management involves the broad supply of money and general bank deposits, while profitability is measured through the asset return ratio. The small squares method was used to analyze the hypotheses.

In the study of Anila Çekrezi (2015), the objective was to find the relationship between internal factors and the profitability of banks in Albania. Bank profitability (ROA) in this study was measured through the ratio of income to total assets (Obamuyi, 2013; Ongore & Kusa, 2013; Frederic, 2014; Syafri, 2012). As independent variables, Çekrezi used: bank size, capital adequacy, liquidity and age of bank. According to her study, bank size and bank age have a positive impact on banks' profitability, while liquidity and capital adequacy have a negative impact on banks' profitability.

Nabeel and Hussain (2017), aimed to measure the impact of liquidity management on bank profitability, and they have considered liquidity metrics such as: current ratio, quick ratio, cash ratio, capital adequacy ratio and interest coverage ratio, while ROA, ROE and Earnings per share as a measure of profitability. The findings of their study clarify that the interest coverage ratio has a positive and significant relationship with the profitability of banks when analyzed with ROA and ROE. The capital adequacy ratio has positive and significant relationships with ROE and EPS. Quick ratio has a positive relationship with profitability. The current ratio suggests positive but insignificant relationships when looking at relationships with ROA, while the current ratio suggests negative and significant relationships with ROAs and insignificant ones with EPS. Overall results explain that liquidity management is positively related to the profitability of banks.

Dawood (2014), in order to analyze the factors that affect profitability, took into account the factors: cost efficiency, liquidity, capital adequacy, deposits and size of the bank. The results of this research show a significant positive relationship of capital adequacy, bank deposits and size in profitability, and a negative impact of cost efficiencies and liquidity on profitability.

Ndoka, Islami, Shima (2017) in their study investigated the impact of liquidity risk management on the profitability of commercial banks in Albania during the period 2005-2015. In order to analyze the relationship between liquidity risk management and profitability, the secondary data of banks published by the Bank of Albania were taken into account. Profit before tax is used as an indicator to measure the profitability of banks while deposits, cash and liquidity gap as indicators of liquidity risk. The results of the regression analysis show that the correlation between earnings before taxes and cash are statistically significant. However, the results of regression analysis show that there is a negative relationship between de-positivism and pre-tax profit, and liquidity gap is statistically significant in these correlations.

Bordeleau and Graham (2010) investigated the impact of liquidity on the profitability on a sample of major US and Canadian banks. The results suggest that profitability has improved for banks holding certain current assets; however, there is a point at which holding further current assets reduces a bank's profit; everything else is the same. Moreover, empirical evidence also suggests that relationships vary depending on a bank's business model and the state of the economy.

3. RESEARCH OBJECTIVES

The main purpose of the study is to discover the impact of liquidity management on the profitability of commercial banks in Kosovo. The following objectives are in the function of achieving the main goal:
- Measuring the relationship between liquidity management and profitability.
- Identification of factors that significantly contribute to liquidity and profitability management.
- Analyzing the effects of liquidity management on the profitability of commercial banks in Kosovo.

4.   HYPOTHESIS AND ECONOMETRIC MODEL

Three hypotheses have been constructed for this study:

H1: There is a significant relationship between liquidity management and profitability.

H2: Cash ratio, quick ratio and capital adequacy ratio have a positive and significant relationship with bank profitability.

H3: Current ratio has a negative and significant relationship with bank profitability.

The study population includes nine out of a total of ten commercial banks licensed in Kosovo.

Data for this study were collected from secondary sources, such as the balance sheet and statement of income from a total of nine commercial banks in Kosovo. The data are taken from the annual audited financial reports of the banks published on their official websites, for the period 2011-2019. Based on the review of the literature, the internal elements with the greatest impact on the profitability of banks in Kosovo were considered: ROA and ROE, which are used in almost all empirical studies as a measure profitability. According to the econometric model, profitability was considered a dependent variable being influenced by other independent variables: current ratio, quick ratio, interest coverage ratio, cash asset ratio and the capital adequacy ratio. Study hypotheses will be tested by correlation and linear regression. The following models represent the research model:

$$ROA = \alpha + \beta1\ CR + \beta2\ QR + \beta3\ CAR + \beta4\ CADR + \varepsilon$$

$$ROE = \alpha + \beta1\ CR + \beta2\ QR + \beta3\ CAR + \beta4\ CADR + \varepsilon$$

Table 1. Liquidity management and profitability determinants of banks

Determinants	Variable	Measures	Reference	Symbols
Liquidity ratios	Current Ratio	Current assets / Current Liabilities	Nabeel, Hussain (2017) Maqsood et al. (2016) Elsharif (2016) Zygmunt (2013)	CR
	Quick ratio	Quick assets / Current Liabilities	Nabeel dhe Hussain (2017) Elsharif (2016) Zygmunt (2013)	QR
	Cash asset ratio	Liquid assets / Total Assets	Nabeel dhe Hussain (2017) Rasul (2013), Elsharif (2016) Zygmunt (2013)	CAR
	Capital adequacy ratio	Regulatory capital to risk-weighted assets	Çekrezi (2015), Frederic (2014) Obamuyi (2013) Ongore and Kusa (2013)	CADR
Profitability ratios	Return on assets	Net profit / Average Total assets	Çekrezi (2015), Frederic (2014) Obamuyi (2013), Ongore and Kusa (2013) Dawood (2014)	ROA
	Return on equity	Net profit / Average Total Equity	Nabeel dhe Hussain (2017) Rasul (20 (2013) (Harrison Kyalo Song'e, 2015) Zygmunt (2013)	ROE

Such a model determines the effect of liquidity management on the profitability of banks in Kosovo. Liquidity is controlled by four different liquidity ratios and profitability is controlled by two different profitability ratios.

5. DATA ANALYSIS

This report includes statistical analysis and interpretation of appropriate regression models between liquidity management and profitability of commercial banks in Kosovo. Models need to determine which liquidity indicator has a strong impact on the profitability of these banks. ROA and ROE are used as a measure of bank profitability and act as dependent variables in the regression model, while the main liquidity predictors are CR, QR, CAR and CADR.

6. DESCRIPTIVE ANALYSIS

This section highlights the need to evaluate, analyze and interpret the models that were already formulated. Hypotheses will also be tested. Only secondary data sources are considered.

Table 2. Descriptive statistics

Variable	2011	2012	2013	2014	2015	2016	2017	2018	2019
CR	39.6	40.8	47.1	41.3	37.3	41.3	35.9	33.5	35.1
QR	33.7	31.7	35,7	32.4	30.9	34.4	30.3	28.2	30.0
CAR	26.6	25.3	27.7	25.9	24.2	26.3	25.4	21.1	22.3
CADR	17.6	14.2	16.7	17.8	19.0	17.9	18.1	17.4	16.8
ROA	1.7	0.8	1.0	2.2	2.5	2.4	2.8	2.5	2.5
ROE	17.4	8.6	10.6	22.5	21.6	19.9	22.1	19.0	17.7

Source: CBK – Financial Stability Report, Various Reports

Table 3. Descriptive analysis (Descriptive Statistics)

	N	Range	Minimum	Maximum	Mean	Std. Deviation	Variance
CR	9	13.6	33.5	47.1	39.10	4.15	17.21
QR	9	7.5	28.2	35.7	31.92	2.37	5.63
CAR	9	6.6	21.1	27.7	24.98	2.11	4.47
CADR	9	4.8	14.2	19.0	17.28	1.34	1.81
Dependent variable ROA	9	2.0	.8	2.8	2.04	.716	.513
Dependent variable ROE	9	13.9	8.6	22.5	17.71	4.97	24.68

Through the analysis of linear regression, the liquidity indicators (CR, QR, CAR, CADR) were put in relation, which are treated as independent variables, and the profitability indicators (ROA, ROE) were treated as dependent variables, in order to result in the strong connection between these variables. The tables described below show the regression model for the dependent ROA variables, respectively ROE:

Table 4. Linear regression analysis: Liquidity indicators vs. ROA indicator

Determination coefficient – ROA				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.934^a	.873	.746	.3611
a. Predictors: (Constant), CADR, CAR, CR, QR				

Table 5. Linear regression analysis: Liquidity indicators vs. ROE indicator

Determination coefficient – ROE				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.929[a]	.863	.725	2.6038
a. Predictors: (Constant), CADR, CAR, CR, QR				

Tables 4 and 5, presented above, reflect values R and R^2. The R-value represents the simple correlation, which for the ROA indicator is 0.934 and for the ROE indicator is 0.929 (Column "R"), which indicates a high degree of correlation. The R^2 value (column "R Square") indicates how many of the total changes in the dependent variable are described by the independent variable. In our case, the models presented are explained as follows:

- 87.3% of the changes in the ROA profitability indicator are explained through independent liquidity variables CR, QR, CAR, CADR;
- 86.3% of the changes in the ROE profitability indicator are explained through independent liquidity variables CR, QR, CAR, CADR;

The very high percentages of the coefficient of determination for the analyzed variables, helped us to prove our first hypothesis, also proving that there is a significant relationship between the management of liquidity and profitability indicators.

The second hypothesis (Cash ratio, quick ratio and capital adequacy have a positive and significant relationship with bank profitability) is built on the assumption that the positive trend of liquidity indicators affects the creation of a positive trend of profitability indicators, i.e. the growth of one variable causes the other variable to increase as well. For testing the second hypothesis, we analyzed the relationship orientation between the independent variables QR, CAR & CADR and the dependent variables ROA & ROE. Such an analysis was performed through correlation coefficients.

Table 6. Correlation coefficient: QR, CAR, CADR & profitability indicators

Correlations		ROA	ROE	QR	CAR	CADR
ROA	Pearson Correlation	1	.916**	-.558	-.513	.762*
	Sig. (2-tailed)		.001	.118	.158	.017
	N	9	9	9	9	9
ROE	Pearson Correlation	.916**	1	-.356	-.257	.868**
	Sig. (2-tailed)	.001		.348	.504	.002
	N	9	9	9	9	9

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

In order to clarify the results, we mention that the correlation can be presented in values between intervals -1 and 1. Based on the result presented above, derived from the input of data in SPSS, we notice that the correlation coefficient for the indicators of profitability is negative for QR and CAR indicators with a very high level of significance. Such a level of significance does not allow us to conclude the positivity of the association of CAR and QR liquidity indicators with the profitability indicators ROA and ROE. On the other hand, the correlation coefficient for the CADR indicator (capital adequacy indicator) compared to the ROA and ROE indicators is

positive. The CADR vs ROA correlation coefficient is 0.762, while the CADR vs ROE correlation coefficient is 0.868. Such values give us the indication that there is a fairly strong positive relationship between capital adequacy and ROA & ROE indicators. Thus, with the increase of the CADR liquidity indicator, the profitability indices ROA and ROE also increase. Meanwhile, regarding the liquidity indicators QA and CAR, with the data we have, it cannot be ascertained whether there is any positive or negative impact between these indicators and those of profitability. The third hypothesis (Current ratio has a negative and significant relationship with bank profitability) is built on the assumption that the current asset indicator has a negative ratio and this ratio is strong enough to influence the creation of a negative trend in commercial bank profitability. To test such a ratio, the correlation analysis, presented in the table below, was also used.

Table 7. Correlation coefficient: CA indicator & profitability indicators

Correlations		ROA	ROE	CR
ROA	Pearson Correlation	1	.916**	-.721*
	Sig. (2-tailed)		.001	.028
	N	9	9	9
ROE	Pearson Correlation	.916**	1	-.518
	Sig. (2-tailed)	.001		.03
	N	9	9	9

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

Regarding the relationship between the independent variable CR and the dependent variable ROA, the correlation coefficient is -.721, with a significance level <.05, so we can conclude that there is a strong relationship between these two indicators which is inversely proportional, i.e. with the increase of one, the other decreases and vice versa.

Regarding the relationship between the independent variable CR and the dependent variable ROE, the correlation coefficient is -518, with a significance level <.05, so we can conclude that between these two indicators there is a strong negative correlation, i.e. when the value of one variable increases with respect to a decrease in another or vice-versa.

7.   CONCLUSION

The overall result of the study from published statistics shows that there is a significant relationship between liquidity and profitability indicators for commercial banks, whose indicators have been analyzed throughout this study.

The resulting values of the correlation coefficients give us an indication that there is a fairly strong positive relationship between capital adequacy and profitability indicators ROA & ROE. So, with the increase of the CADR as a liquidity indicator, the profitability indicators ROA and ROE also increase. Meanwhile, regarding the liquidity indicators QA and CAR, with the data we have, it cannot be ascertained whether there is any positive or negative impact between these indicators and those of profitability. Regarding the relationship between the independent variable CR and the dependent variables ROA & ROE, the resulting correlation coefficients, with a significance level <.05 give us a solid basis to conclude that there is a strong negative correlation between these indicators; thus, with increasing values of the independent variable, the values of the dependent variables decrease and vice versa.

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