DOES THE CREDIT RISK IMPACT IN THE PROFITABILITY OF COMMERCIAL BANKS? ALBANIAN CASE

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Abstract

The purpose of the paper is to verify if there is a relationship between credit risk and profitability in the commercial banks in Albania. The study includes data from 12 commercial banks operating in the albanian banking system. To analyses the effect of credit risk in profitability in commercial banks are used the Non-Performing Loan ratio (NPL), Capital Adequacy Ratio (CAR), Return on Capital (ROE) and Return on Assets (ROA). To test the relationship between the four variables and profitability in the commercial banks are conducted statistical analyses. The study highlight that capital adequancy has a positive impact in the profitability, whereas credit risk has a negative relationship with the profitability of commercial banks in Albania. The results of the study are also consistent with similar studies by Ekinci and Poyraz[1] conducted in commercial banks in Turkey. The results of this paper are useful for commercial banks, academics, investors, government, local bodies and other stakeholders. This study makes an important contribution to the literature because it includes in the sample all commercial banks operating in the country. However, in future studies the study can be expanded to include more specific banking and macroeconomic variables to draw an even stronger comprehensive conclusion regarding the impact of credit risk on the performance of the albanian banking sector.

Keywords

Albania, Credit Risk, Return on Equity, Return on Assets, Non-Performing Loan Ratio, Capital Adequacy Ratio

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[1] Ekinci, R., and Poyraz, G. (2019). The Effect of Credit Risk on Financial Performance of Deposit Banks in Turkey. Procedia Computer Science, 158, 979-987. https://doi.org/10.1016/j.procs.2019.09.139

1.   Introduction

Banks today are the largest financial institutions worldwide[2]. Nowdays, commercial banks are facing many risks, but the most important it is the credit risk. In fact lending is one of the main sources of income for commercial banks, for that the risk associated with a loan have an impact in their profitability. It turns out that a healthy banking sector promotes development and guarantees the sustainability of the economy in the long run. The banking sector is also a carrier and can be the main spreader of risks due to the weight it occupies in the country's economy[3]. "Infection" of the main intermediary of our economy, would cause disruption of the entire financial system in the country. For this reason, the banking sector receives the main attention of regulatory institutions and is considered the most controlled segment of the financial system. This study aims to point out that continuous monitoring and measurement of banking performance indicators are a need to monitor the performance of the sector, to identify problems and find ways to solve them[4].

Profitability in the banking sector in Albania turns out to be high, compared to the Western Balkan countries. The values of return on assets (ROA) and capital (ROE) indicators in 2020 are 1.26% and 12.01% respectively, in comparison with the world average in 125 countries that are 1.2% and 9.84%[5]. The level of capitalization of the banking sector is satisfactory, and the capital adequacy ratio is close to the world average (18.83%). Meanwhile, the quality of assets remains a major problem not only in our banking sector but also for some of the Western Balkan countries. *Non-performing loans (NPLs)* - At the end of 2020, non-performing loans as percent of all bank loans was 8.11% compared with 23.49% in 2013[6]. In the structure of the loan portfolio according to the classification, there is an increase in the share of quality loans against a decrease in the share of non-performing loans. In the portfolio of quality loans, there is an increase of loans classified as "standard" by 4.4% points and a decrease in the share of loans classified as "follow-up" by 0.1% points. Meanwhile, in the non-performing loan portfolio, there is a decline in loans in all three classes, "substandard" class 2.4% points, "doubtful" class 0.2% points, "lost" class 1.9% points. *Capital Adequacy (CAR)* - The regulatory capital of the banking system is evidenced at the level of 18.26% in 2019, in comparison in 2012 with 16.17%[7]. The core capital of the

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[2] Ozili, P. K. (2017). Bank Profitability and Capital Regulation: Evidence from Listed and non-Listed Banks in Africa. Journal of African Business, 18(2), 143-168. https://doi.org/10.1080/15228916.2017.1247329

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[5] BoA. Financial Stability Reports over the years

[6] Idem

[7] Idem

banking system constitutes the main component of the regulatory capital of the system. The world average in 2019 is 18.83% based in 101 countries data. *Profitability* - One of the most important indicator of performance in the financial system is profitability that remain at good levels. It is calculated that the contribution of banking system accounts for 3.9% points in this growth. The activity of the banking sector expanded in 2020 by 4% during the period or by 7% from the previous year in 2019[8].

2.   Literature review

Credit risk is the main risk faced by banks[9]. It arises from the potential that a debtor either lacks the willingness to pay its debt or its ability to pay the debt has deteriorated resulting in an economic loss for the bank. *Operational risk* is classified as the risk of direct or indirect losses resulting from insufficient or erroneous internal processes, people and systems, or from external events[10]. *Liquidity risk* occurs when the bank does not have sufficient liquid assets or has difficulty realizing them in the market in order to meet its obligations when they mature and are required by depositors or other creditors, or is unable to finance the increase in assets[11]. *Interest rate risk* is one of the most common risks that banks have to face, is the uncertainty about the future movement of interest rates[12]. Specifically, a movement in interest rates affects the income of assets and liabilities in different ways. *Currency risk* is related to the unfavorable change in the value of a currency held by a bank[13]. For their part, banks, as part of their normal activity, have the sale and purchase of currencies, either to serve their depository or credit-seeking customers, or because of the currency exchange activity that banks perform, thus being affected by currency risk[14]. *Market risk* which cannot be diversified as all securities are hit equally for all businesses and branches of the economy. If a bank is holding an account (for example treasury bills) it is exposed to price or market risk, which has to do with the price volatility of the instruments[15].

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[8] Idem

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In the study, credit risk was measured by the ratio of loan loss provisions/total loans. This variable serves as a measure of a bank's credit quality and is used to predict the credit risk that banks are exposed to[16]. Banks are expected to improve profitability by managing credit risk and such policies that include forecasting future risk levels[17]. In addition, central banks set certain standards for the level of provisions for non-performing loans that must be met by the country's banking system[18]. In view of these standards, the bank's management determines the provisions to be held for non-performing loans, the level of which is set at the beginning of each period[19]. In the study, capital adequacy was measured by the ratio of share capital/total assets available to the bank[20], and it was considered one of the basic ratios, to measure the strength of capital[21]. Experiences from the past of financial crises show that NPLs should be lowered first[22]. NPLs in banks' balance sheets create uncertainty and weight in the bank's ability to lend and accumulate deposits and investments[23]. Moreover, outstanding NPLs reduce the economic activity of current borrowers and prevent resources from being used efficiently[24]. The solution to the NPL problem has progressed very slowly despite the efforts of the bank or the official sector[25]. Some banks have set up working groups on the credit problem and have hired more senior staff to properly manage this problem. The sale of the non-performing loan portfolio and their collection remains relatively one of the major problems that require immediate

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solutions[26]. Few governments such as Latvia, Romania, Serbia, Moldova, Russia, Estonia and Poland have undertaken programs to review their corporations for their insolvency[27]. For a solution to the problem, a long list of obstacles in the legal field, taxes, has been compiled. In some countries, collateral enforcement tends to take a long time and rely heavily on legal processes[28]. The weakness and incompetence of the legal institutional structure makes it difficult to solve the NPL problem. In many countries the overload of the judicial system, the prolongation and resolution of litigation have become some of the main obstacles to the proper management of the NPL[29]. The underdeveloped markets of some bad financial assets limit the purpose of solving the credit problem[30]. The sale of these special assets offers a number of advantages including their specific skills from those of banks, the ability to attract or form active portfolios and to create distance with the creator (lender) who has a relationship ongoing with the borrower[31].

The first standards of capital adequacy were published in 1988 and are known as "Basel I". Basel I can be defined as a set of international banking rules introduced by the Basel Committee on Banking Supervision, which sets out the minimum capital requirements of financial institutions in order to minimize credit risk[32]. This agreement contains the first definition and the first standard measure for the minimum capital of internationally recognized banks and in a standardized way[33]. In the case of banks operating in an EU country the minimum capital obligation arises from the application of the directive on banking and financial insurance. Banks operating internationally are required to hold a minimum amount (8%) of the retained capital based on 1% of risk

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weighted assets[34]. Basel I came into force in 1988 and focused mainly on credit risk by creating an asset rating system (0%, 20%, 50%, 100%). The Basel I model set two minimum standards for the adequacy of adequate capital required. Despite the achievements and advantages of the implementation of Basel I, it had the most and a lot of criticism. One of the basic criticisms of Basel I was for including all types of individual risks in the same common categories, without differentiating the type and quality of the borrower. Basel II, over time the Basel I agreement proved inappropriate to meet the new challenges of advancing communication technology, financial products, banking markets and risk management techniques. To address these new problems, the agreement was revised and culminated in a new agreement, called Basel II. According to Basel II which was concerned with building a structure for the management of PAR (Risk Portfolio), bad loans are categorized in several ways depending on the degree of problems they present[35]. The basic feature of Basel II is to link banking supervision with risk management by the banks themselves. Because of this connection, the new framework provides clear and strong incentives for banks to strengthen risk management systems and use modern risk management techniques and instruments. Compared to Basel I, the new framework recognizes a wider range of risk mitigation instruments and a deeper level of protection they provide[36]. This agreement, unlike the Basel I agreement, increased the minimum capital requirements of banks from 8% to 12.5%, where the minimum capital requirements had to cover unexpected losses due to the 3 main risks: 1. Credit risk. 2. Market risk. 3. Operational Risk. Basel II uses a structure called '3 pillars'[37]: *Pillar 1:* Minimum required capital - new rules for calculating regulatory capital. It represents the calculations for the total minimum capital requirements for the three main components of the risk faced by a bank: lending risk, operational risk and market risk. The capital ratio is calculated taking into account the concept of regulatory capital and risky assets. The total capital ratio should not be lower than 8%. Each of the risks is calculated by the "personalized" method, which is sufficient and appropriate for a particular bank. For credit risk assessment, Basel II offers 3 alternative methods (1 standard and 2 based on internal risk quotation). Banks and supervisors choose the most appropriate method for their bank, depending on the level of development and internal control systems[38]. *Pillar 2:* Supervisory review process - new definitions for the supervisory authority relate to

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supervisory procedures. Supervisors hope that banks will have more capital than the required minimum (8%) and may request a capital increase from banks if they deem it necessary. Interpretation of the result obtained from the first pillar and creates a structure in order to combine with all other types of risk faced by a bank. It aims not only to ensure that banks have sufficient capital to withstand all risks, but also to encourage banks to develop and use the best risk management techniques. Acknowledges the responsibility of bank management in developing a process of allocating internal capital and setting capital objectives in proportion to the bank's risk profile and control environment[39]. Bank management is responsible for ensuring that the bank has sufficient capital. Supervisors assess how well banks set their capital needs according to their risk and intervene where necessary. The interaction aims to foster dialogue between banks and supervisors to reduce risk. *Pillar 3:* Market Discipline - Incorporating new disclosure rules containing an extensive and timely list of data mining requirements in order to use market pressure to root market discipline and proper risk management. Transparency requirements are more extensive for banks that use more advanced methods of credit and operational risk calculations[40]. The Committee aims to promote market discipline by developing a set of publication requirements that allow market participants to evaluate key information in order to apply, capital, valuation processes and risk exposures and hence the capital adequacy of the establishment (Kulkarni et al., 2020; Lalfamkima et al., 2021)[41].

The purpose of Basel III is to improve risk management in the banking sector as well as to improve the ability of this sector to cope with shocks that may be caused by future economic or financial crises[42]. To achieve this goal Basel III imposed stricter obligations on Basel II over bank capital adequacy, as well as imposing for the first time liquidity obligations on the sector. It is important to note that Basel III sets out the minimum obligations that banks must follow and each state can impose even stricter obligations on banks operating in its territory if it sees fit. Impact of Basel III on the economy Basel III will bring an increase in share capital and liquidity in the banking sector accompanied by an increase in the cost of necessary funds[43]. Lending to the economy from the banking system is projected to decrease in the long run by 4.6% in countries affected by the current crisis and by 14.8% in countries not affected by this crisis. As a result some studies predict an average return on equity (ROE) of 4% for

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banks in Europe and 3% for banks in America. It is also anticipated that implementation costs, including upgrading reporting systems to comply with the new rules, will be as high as those of Basel II[44]. Moreover, the introduction of new rules increases the complexity of the environment in which the banking sector operates. The Basel Committee has concluded that the benefits of Basel III are higher than the costs of this regulation in the economy. This conclusion is reached by assuming that the market is able to meet the additional capital needs required by Basel III[45]. The Committee believes that crises like the one we are going through have very high costs for the economy and that the new rules will reduce the frequency and damage of banking crises in the future by increasing the banking sector's ability to withstand losses[46]. Various scholars have often debated whether or not Albania was involved in the global financial crisis. This is due to the escalation of the crisis in the US and Western Europe, Albanian and foreign banks in Albania have given large amounts of loans in recent years, related to the high domestic demand for this product. Beneficiaries of loans are mainly businesses, but also middle-income individuals who want to buy a house, car, afford children to study abroad, go on vacation abroad, etc.[47]. Their number increased significantly over the years, thus increasing the risk of non-payment on time of the contractual obligation between the parties. Another threat today has to do with the fact that most commercial banks in Albania have foreign shareholders and depend on parent banks in Austria, Greece and Italy[48]. These parent banks may be in difficulty in obtaining liquidity and may deplete the solvency of their subsidiaries in South-Western European countries under the effect of the global crisis. Credit risk or risk of failure is the first risk in terms of the importance and magnitude of losses it causes in banks, therefore it is considered of great importance to monitor, evaluate and minimize it at all times (Mittal & Bansal, 2020)[49].

3.   Results

To answer the study hypothesis, an econometric model has been constructed to identify and measure the variable that most affects the profitability of commercial banks in Albania. Multiple regression analysis extensively studies the

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[44] Misra, S.D. (2015). Determinants of bank profitability in India, International Journal Indian Culture and Business Management, 10(2), 193–212.
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relationship between two or more variables. The estimated multiple regression equation 1 is as follow:

$$\hat{y}=b_0+b_1x_1+b_2x_2+\ldots b_px_p \qquad (1)$$

This is the estimated multiple regression equation, which determines the relationship between the variables obtained in the study. Where b_0 is the constant term of the model and b_1, $b_2\ldots b_n$ are the coefficients of the regression function. Using this model and comparing the coefficients next to each independent variable, it will be finded which of the variables affects the profitability of banks mostly.

Return on assets and return on equity were taken as dependent variables in this study as indicators of profitability in regression analysis. Non-performing loans and capital adequacy ratio are taken as independent variables. The NPL in particular shows how banks manage credit risk because it shows the ratio of non-performing loans to the total amount of loans granted. The impact that this variable is expected to have on profitability is expected to be negative, so the coefficient ahead of the NPL in the regression equation is expected to be (-), as a poor quality of the loan portfolio will definitely be reflected in lower profitability indices. CAR is the other independent variable which is given by the ratio of the required amount of capital to the total assets that the bank has available. The impact that this variable is expected to have on profitability is expected to be positive, so the coefficient before the capital rate in the regression equation is expected to be (+). Because a bank with a high capital adequacy ratio means more funds available to invest.

The econometric model for the dependent variable ROA. According to the results in table 1, the test has calculated that the adjusted R Square determinability coefficient is 0.583, so 58.3% of the ROA variability is explained through the model. Namely, capital adequacy and non-performing loans explain 58.3% of changes in banks' profitability measured by return on assets.

Table 1. Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.882[a]	.778	.583	.27118

a. Predictors: (Constant), CAR, NPL
Source: Author Calculations

Meanwhile, 41.7% is the unexplained part, which may be explained by other factors which are not included in the model. The correlation coefficient R = 0.778 means that there is a strong linear relationship between the dependent variable ROA and the independent variables NPL and CAR. According to the results in the table 2, it confirms the two investigations on the importance of the model as a whole.

Table 2. ANOVA

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	3.088	2	1.544	22.290	.000[b]
	Residual	2.009	29	.069		
	Total	5.097	31			

a. Dependent Variable: ROA

b. Predictors: (Constant), CAR, NPL

Source: Author Calculations

Ho: The independent variables NPL and CAR do not affect the dependent variable ROA

Ha: The independent variables NPL and CAR affect the dependent variable ROA

For $\alpha = 0.05$; $P = 0.000 < 0.05 \rightarrow$ Ho ↓ → Ha ↑

So, the basic hypothesis falls down and the alternative hypothesis is accepted. Thus, the conclusion is reached that the model is important as a whole, the independent variables non-performing loans and capital adequacy affect the dependent variable return on assets. Critical value is found to validate the hypothesis through Fisher Table Distribution.

$Fc = Fk, n-k-1, \alpha = F2,29,0.05 = 3.3277$

Table 3. Table of coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-3.532	.975		-3.720	.001
	NPL	-.016	.008	-.321	-2.668	.012
	CAR	.273	.056	.612	4.995	.000

a. Dependent Variable: ROA

Source: Author Calculations

According to the results in table 3, the estimated equation and the interpretation of the coefficients are obtained, as follows:

$\hat{y} = -3.532 - 0.016 X_1 + 0.273 X_2$

If the banks keep capital adequacy (X_2) constant and increase the rate of non-performing loans by one unit then the return on assets will decrease by an average of 0.016 units. Thus, the increase in credit risk by one unit will lead to a decrease in ROA by (0.016), ie by 1.6%. If the banks keep the non-performing loans rate (X_1) constant and increase the capital adequacy ratio by one unit then the return on assets will increase on average by 0.273, ie by 27.3%. Thus, an increase of one unit of capital adequacy will lead to an increase in ROA of 27.3%.

<u>The econometric model for the dependent variable ROE.</u> According to the results in the table 4, the test has calculated that the Adjusted R Square is 0.614, ie. 61.4% of the ROE variability is explained through the model. Namely, capital adequacy and non-performing loans explain 61.4% of the changes in banks' profitability measured by return on equity.

Table 4. Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.805[a]	.648	.614	3.06478

a. Predictors: (Constant), CAR, NPL

Source: Author Calculations

Meanwhile 38.6% is the unexplained part, which may be explained by other factors which are not included in the model. The correlation coefficient R = 0.805 means that there is a strong linear relationship between the dependent variable ROE and the variables independent NPL and CAR. According to the results in the table 5, the two hypotheses for the importance of the model as a whole are confirmed.

H_o: The independent variables NPL and CAR do not affect the dependent variable ROE.

H_a: The independent variables NPL and CAR affect the dependent variable ROE.

Tabela 5. ANOVA

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	547.018	2	273.509	28.747	.000[b]
	Residual	275.917	29	9.514		
	Total	822.935	31			

a. Dependent Variable: ROE

b. Predictors: (Constant), CAR, NPL

Source: Author Calculations

For $α = 0.05$ P = 0.000 <0.05 → Ho ↓ → Ha ↑

So, the basic hypothesis falls down and it is accepted the alternative hypothesis. Thus, it is concluded that the model is significant as a whole, and the independent variables non-performing loans and capital adequacy affect the dependent variable return on equity. To validate the hypotheses, it is finded the critical value through the Fisher Table Distrubution.

$Fc = Fk, n-k-1, α = F2,29,0.05 = 3.3277$

According to the results in Table 6, the estimated equation and the interpretation of the coefficients are obtained as follows:

$\hat{y}=-45.864-0.274X_1+3.580X_2$

Tabela 6. Table of coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-45.864	11.461		-4.085	.000
	NPL	-.274	.080	-.375	-3.320	.002
	CAR	3.580	.675	.617	5.456	.000

a. Dependent Variable: ROE

Source: Author Calculations

If the banks keep the capital adequacy (X_2) constant and increase the non-performing loans rate by one unit (X_1) then the return on equity will decrease on average by 0.274, ie by 27.4%. Thus, an increase of one credit unit will lead to a decrease of ROE by (27.4%). If the banks keep the non-performing loan rate (X_1) constant and increase the capital adequacy ratio by one unit (X_2) then the return on equity will increase by an average of 3.580. Thus, an increase of one unit of capital adequacy will lead to an increase of ROE by 3.580 units.

4.   Conclusions

Based on the above analysis it is concluded that credit risk has a significant impact on the profitability of commercial banks, so, the hypothesis was confirmed. It also arrived at specific conclusions such as:

I. The results showed that there is a negative relationship between credit risk and profitability (ROA and ROE), so there is an inverse relationship with profitability. Credit risk remains the most important risk faced by commercial banks, therefore its accurate measurement and credit risk management is essential. The relationship between credit risk and profitability was expected to be negative, knowing that the more non-performing loans a bank owns the more the bank's profitability will be reduced.

II. The results showed that capital adequacy has a positive relationship with the two variables of profitability (return on assets and return on capital). More important is the capital adequacy in the return on capital, where it has a higher statistical value than in the model of return on assets. Capital adequacy ratio is one of the most important variables to measure the bank's profitability, because a bank with a strong capital position, is able to follow more efficiently, it has more time and flexibility to deal with problems arising from unexpected losses, thus bringing about increase in profitability. So, from the data that were analyzed in this study, it is noticed that capital adequacy has a positive value in profitability.

III. Like non-performing loans, capital adequacy affects both return on assets and return on equity. In the ROA model the two independent

variables explain 58.5% of the changes in the profitability of banks, compared to ROE which has the percentage of variation explained more than ROA concretely with 61.4%. Even the correlation coefficient shows that ROE has a higher strong linear relationship between NPL and CAR, while ROA has a weaker one. Thus, it is concluded that return on equity is a more efficient measure of profitability than return on assets. The empirical study concluded that there is a strong relationship between credit risk and bank profitability.

Recommendations

- Credit risk and capital adequacy are important indicators of the profitability of commercial banks in Albania. It is recommended that focusing on improving or managing these indicators can increase the profitability of banks or their performance.
- Banks should ensure that they are constantly aware of the performance of the loan portfolio and normally of the weight it occupies in the overall portfolio in order to be ready to take appropriate measures to cope in case of risk.

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