

“Credit risk management and profitability: Evidence from Palestinian banks”

AUTHORS	Besan Abdallah Saleh  Veronica Paz 
ARTICLE INFO	Besan Abdallah Saleh and Veronica Paz (2023). Credit risk management and profitability: Evidence from Palestinian banks. <i>Banks and Bank Systems</i> , 18(3), 25-34. doi: 10.21511/bbs.18(3).2023.03
DOI	http://dx.doi.org/10.21511/bbs.18(3).2023.03
RELEASED ON	Tuesday, 08 August 2023
RECEIVED ON	Saturday, 25 March 2023
ACCEPTED ON	Thursday, 13 July 2023
LICENSE	 This work is licensed under a Creative Commons Attribution 4.0 International License
JOURNAL	"Banks and Bank Systems"
ISSN PRINT	1816-7403
ISSN ONLINE	1991-7074
PUBLISHER	LLC “Consulting Publishing Company “Business Perspectives”
FOUNDER	LLC “Consulting Publishing Company “Business Perspectives”



NUMBER OF REFERENCES

45



NUMBER OF FIGURES

0



NUMBER OF TABLES

5

© The author(s) 2023. This publication is an open access article.



BUSINESS PERSPECTIVES



LLC "CPC "Business Perspectives"
Hryhorii Skovoroda lane, 10,
Sumy, 40022, Ukraine
www.businessperspectives.org

Received on: 25th of March, 2023

Accepted on: 13th of July, 2023

Published on: 8th of August, 2023

© Besan Abdallah Saleh, Veronica Paz,
2023

Besan Abdallah Saleh, Ph.D.
Student, Faculty of Graduate
Studies, Department of Finance and
Accounting, Arab American University,
Palestine. (Corresponding author)

Veronica Paz, Ph.D., Professor,
Department of Accounting and
Information Technology, Indiana
University of Pennsylvania, USA.



This is an Open Access article,
distributed under the terms of the
[Creative Commons Attribution 4.0
International license](https://creativecommons.org/licenses/by/4.0/), which permits
unrestricted re-use, distribution, and
reproduction in any medium, provided
the original work is properly cited.

Conflict of interest statement:

Author(s) reported no conflict of interest

Besan Abdallah Saleh (Palestine), Veronica Paz (USA)

CREDIT RISK MANAGEMENT AND PROFITABILITY: EVIDENCE FROM PALESTINIAN BANKS

Abstract

Credit risk has gained considerable attention in most countries of the world intending to manage the efficiency of credit portfolios. This study attempts to examine the impact of credit risk management on bank profitability. The local Bank of Palestine provided secondary data over a ten-year period (2010–2020) collected from financial annual reports. The statistical analysis is carried out using the SPSS and E-views software, and the study hypotheses are verified using descriptive statistics, multicollinearity tests, and regression. Palestinian banks' profitability was evaluated using return on assets, along with bank-specific metrics such as capital adequacy ratio (CAR), loan-to-deposit ratio (LDR), non-performing loans (NPLs), loan loss provision ratio (LLPR), bank size, and bank age, as signs of credit risk management. The study's findings indicate that there are differences in how credit risk management affects bank profitability in the context of Palestine. CAR NPLs have a positive but insignificant effect on profitability using ROA. The regression found a significant positive effect of LLPR on profitability using ROA. Finally, with respect to LDR as an indicator of credit risk management, the regression found its negative but insignificant effect on profitability using ROA. The results demonstrate how the board's structure influences the performance of a company, which is regarded important knowledge for decision makers.

Keywords

banking sector, bank credit, financial, financial crises,
credit risk, profitability, loan, Palestine

JEL Classification

E51, G01, M40, M41

INTRODUCTION

The financial industry is a crucial component of the economy of any country. In other words, the efficiency and effectiveness of the banking and financial system are critical to the development of any economy. In this regard, the role of the banking sector has increased in the modern area and has become an effective and reliable device in the development economy, where the role of the banking sector is not restricted to the banking activities it carries out, but rather to create the appropriate environment for economic development. A badly functioning financial system, on the other hand, impedes economic progress, increases the chance of an overall economic decline, and makes poverty more severe (Barth et al., 2000).

Due to the fact that credit risks prevent banks from performing their duties and interfere with their capacity to meet their present and future objectives, which has a negative impact on bank performance and, consequently, profitability, credit risk management is emphasized as a way to limit these risks and their influence on banks. In other words, credit risk management is crucial for the long-term existence and sustainability of financial institutions such as banks (Achou & Tengah, 2008).

Because of the issues and financial crises that the financial and banking industry has faced, risk management has come to the attention

of financial and banking institutions, which has resulted in the bankruptcy of many of them. On the other hand, increasing financial globalization and the intertwining of banking institutions with one another, as well as the growth and diversification of the bank credit market, all contributed to a growth in the number of risks faced by the banking industry. Therefore, there has been an increased notice in risk management in achieving significant outcomes such as financial stability (Nurtayeva et al., 2021; Kamran et al., 2019), firm performance (Chairani & Siregar, 2021; Effiong & Ejabu, 2020; Gill et al., 2018), and firm value (Faisal & Challen, 2021) for financial institutions.

The importance of this study is due to several considerations, perhaps the most important of which are the following:

- It sheds light on the factor affecting profitability and credit risks factors in Palestinian banks.
- This study contributes to providing a theoretical framework for the concept of credit risk.
- This study seeks to provide empirical evidence on credit risk and the factors affecting it.
- The study's contribution is the inclusion of several accounting-based measurements of the performance of Palestinian bank.

1. LITERATURE REVIEW AND HYPOTHESES

Credit risk management plays a crucial role in the profitability of a financial institution or any business that extends credit to its customers. Effective credit risk management helps minimize losses due to default or non-payment by borrowers, thereby protecting the profitability of an organization. The banking sector is one of the most crucial foundations of any social or economic development, since it is the primary center for collecting savings from individuals, organizations, and businesses and directing them toward the granting of various types of loans and credit facilities (Pakurár et al., 2019). Commercial banks aim to increase owners' wealth by generating the most profits as one of their objectives. Banks achieve a large part of their profits by re-lending deposits to form credit facilities, and because of this lending process, banks are exposed to many risks, the most significant of which is credit risk.

Bank credit is seen as one of the most important banking activities practiced by banks in general. Loan interest and advances account for a sizable portion of a bank's assets (Boahene et al., 2012), therefore, credit facilitation has been and continues to be the basis of banks, particularly in developing economies (Richard et al., 2008). Although credit is the primary means by which banks gen-

erate income, this important activity carries a significant risk of lenders not fulfilling their obligations to banks. In this regard, the major cause of the banking crisis in 2003–2004, for example, was high credit risk (Njanike, 2009). Furthermore, the main reason for serious bank failures is weak credit principles for loans and financial intermediaries, poor asset allocation, and a failure to pay attention to economic challenges or even other events that can result in a decline in the creditworthiness of banks (Kargi, 2011).

Risk is an integral part of an organization's activities, and corporate leaders deal with it forcefully wherever it occurs, therefore, risk management has garnered a great deal of responsiveness from both the business world and academia (Abor, 2005; Shimpi, 2001). Risk management is an ordered procedure for identifying and assessing an entity's pure loss exposure and using the best appropriate approach to address the risk (Rejda, 2008).

Risk management is designed to aid firms in meeting their goals, such as minimizing foreign currency losses, reducing cash flow volatility, protecting profitability from swings (Fatemi & Glaum, 2000), and promoting a firm's survival through development and profitability. These reasons, therefore, make managers employ effective tools for risk management.

The banking sector is among the most exposed to risks, since these risks fluctuate and change because of the ongoing advancements that this sector is experiencing. Regarding its effects on bank performance and failure, credit risk is commonly considered as one of the greatest dangers that concern banks (Sinkey, 1992; Spadaford, 1988). In other words, one of the biggest hazards that banks face when extending loans to their clients is credit risk, given that credit is regarded as the primary source of revenue for banks (Zou & Li, 2014). According to Coyle (2000), credit risk is defined as “potential losses from the refusal or inability of credit customers to pay what is owed in full and on time (P.1).” Besides, Basel Committee (2001) defines credit risk as the possibility of losing a portion or all of an existing loan as a result of various credit events.

Serwadda (2018) contends that credit risk is crucial in determining how profitable banks are, since the interest they charge on loans makes up a larger portion of their revenue. Indicators for credit risk management included in this study include the capital adequacy ratio, the percentage of non-performing loans, the loan loss provision ratio, and the loan-to-deposit ratio.

In summary, effective credit risk management helps maintain profitability by minimizing losses arising from defaults and non-payments. By assessing risk, diversifying portfolios, implementing monitoring systems, employing risk mitigation techniques, setting appropriate pricing and interest rates, provisioning for losses, and ensuring regulatory compliance, organizations can enhance their credit risk management practices and protect their profitability.

1.1. Capital adequacy ratio and profitability

The capital adequacy ratio (CAR) is a measure of a bank’s capacity to cover all inherent risks in its earning assets, most of which take the form of loans (Shrestha, 2017). On the other hand, because capital plays a major role in achieving financial stability for banks, the Basel Committee issued the Basel 1 of 1988, Basel 2 of 1999, and Basel 3 of 2009 with the aim of improving the quality of capital. Adequate capital is considered the basis of avoiding bank failure by absorbing

losses connected to the risks that banks take as a necessary consequence of their attempts to meet the community’s legitimate credit demands (Olalekan & Adeyinka, 2013). In this regard, several attempts have done to examine the significant effect of CAR on banks. For example, Shrestha (2017), Agbeja et al. (2019), and Nguyen (2020) found that CAR is significantly positively related to return on assets and return on equity. However, Madugu et al. (2020) found that CAR is significantly negatively related to banks’ profitability in the context of Ghana. In a recent study conducted by Syafrizal et al. (2023), there is no effect of the capital adequacy ratio on profitability.

A well-maintained capital adequacy ratio is crucial to the profitability of financial institutions. It serves as a buffer against unexpected losses, facilitates prudent risk management, reduces borrowing costs, supports business expansion, ensures regulatory compliance, enhances investor confidence, and contributes to shareholder value. By maintaining an optimal CAR, financial institutions can protect profitability while navigating the dynamic and challenging landscape of the financial industry.

1.2. Non-performing loans and profitability

Nonperforming loans (NPLs) are defined as the percentage of loan amounts that have not been repaid for three months or more (Ahmad & Ariff, 2007). Serwadda (2018) pointed out high NPLs in a loan portfolio discourage banks from meeting their objectives. In other words, NPLs represent a banks’ performance standards. A high ratio means that the bank faces a greater risk of loss if the unpaid loan balances are not collected, whilst a low ratio means that the bank faces a lower risk from the outstanding loans. Growth in NPLs requires the use of provisions because it lowers overall earnings. Banks are more likely to experience a financial crisis if there is a significant level of bank credit, and vice versa (Singh et al., 2021).

Several pieces of evidence indicate that NPLs are negatively related to firm performance and profitability (Shrestha, 2017; Singh et al., 2021; Do et al.,

2020; Bhattarai, 2020). However, there is evidence that NPLs have a positive effect on profitability (Syafrizal et al., 2023).

In short, non-performing loans can greatly affect the profitability of financial institutions. They contribute to credit losses, require higher provisioning expenses, reduce interest income, incur operating costs, restrict capital, and damage reputation and investor confidence. Managing and reducing non-performing loans through effective credit risk management, loan recovery strategies, and proactive measures is critical to protecting profitability and ensuring the long-term sustainability of an organization.

1.3. Loan loss provision ratio and profitability

The Loan Loss Allowance Ratio (LLAR) is a financial metric that measures the percentage of a financial institution's loans that are designated as provisions for potential credit losses. The LLP ratio has a direct impact on the profitability of financial institutions. Loan Loss Provision Ratio (LLPR) is essential in assessing the stability of the financial system because changes in bank profitability and capital positions are largely influenced by it, which has an impact on banks' credit growth to the economy (Beatty & Liao, 2009). A well-managed bank is regarded to have a reduced loan loss provision, which translates into increased profitability (Mustafa et al., 2020). Therefore, LLPR is one of the most important mechanisms used to reduce credit risks and preserve the financial resources of banks. In this regard, Mustafa et al. (2012) found that LLPR is significantly related to bank profitability in the context of Pakistan. Besides, Alhadab and Alshawneh (2016) found that LLPR is significantly negatively related to bank profitability in Jordan.

The loan provisioning ratio is a critical factor in determining the profitability of financial institutions. It affects net income, reflects credit risk management practices, ensures regulatory compliance, affects investor perception, affects cost of funds, and supports capital adequacy. Achieving the right balance of provisions helps protect profitability by accurately reflecting potential credit losses and ensuring the financial strength and stability of a financial institution.

1.4. Loan-to-deposit ratio and profitability

The Loan-to-Deposit Ratio (LDR) is a financial metric that measures the proportion of a bank's total loans to its total deposits. It reflects the bank's lending activities relative to its deposit base. LDR can have implications for the profitability of a financial institution. LDR shows how much money a bank has borrowed from its depositors to extend credit to its customers. In other words, LDR is used to calculate a bank's ability to cover withdrawals made by its customers (Adebayo & Oluwaremi, 2017). Furthermore, LDR is a useful tool for assessing bank liquidity (Gizaw et al., 2015). In this regard, Rengasamy (2015) found that LDR has a significant positive impact on profitability. However, Inggawati et al. (2018) found that LDR significantly negatively impacts banks' profitability.

The Loan-to-Deposit Ratio can impact the profitability of a financial institution in various ways. It influences interest income and expense, liquidity risk, risk management practices, regulatory compliance, deposit stability, and capital adequacy. Striking an optimal LDR is crucial for managing risk, maximizing interest income, maintaining liquidity, and ensuring a stable funding base, all of which contribute to profitability.

This study aims to investigate the impact of credit risk management on profitability in Palestine.

According to the discussion above, the following hypotheses are put forward:

H_1 : CAR is positively correlated with bank profitability.

H_2 : NPLs is negatively correlated with bank profitability.

H_3 : LLPR is negatively correlated with bank profitability.

H_4 : LDR is positively correlated with bank profitability.

2. METHODS

2.1. Sample selection

According to the report of the Association of Banks in Palestine for the year 2020, the total of banks operating in Palestine is 13 banks. However, the study sample was limited to all Palestinian banks listed on the Palestine Exchange (which are 7 banks) for the period of 2010–2020. To build the theoretical framework and develop the study hypotheses, primary sources from books and published research were relied upon. Secondary sources were also used to collect survey data represented by the published financial reports of the study sample companies-banks.

2.2. Study variables

Table 1 shows the description of the study variables.

Table 1. Study variables

Description variable	Measurement variable	Symbol	Source
Dependent variable			
Profitability	Return on Assets	ROA	Zou and Li (2014)
Independent variable			
Credit risk management	Capital Adequacy Ratio	CAR	Adebayo and Oluwaremi (2017); Kolapo et al. (2012); Hamza (2017); Serwadda (2018); Gizaw et al. (2015); Kidane (2020)
	Non-Performing Loans	NPL	
	Loan Loss Provision Ratio	LLPR	
	Loan-to-Deposit Ratio	LDR	
Control variable			
	Bank Size	SIZE	Hamza (2017)
	Bank Age	AGE	

2.3. Study models

$$ROA_{it} = \beta_0 + \beta_1 CAR_{it} + \beta_2 NPL_{it} + \beta_3 LLPR_{it} + \beta_4 LDR_{it} + \beta_5 SIZE_{it} + \beta_6 AGE_{it} + \varepsilon_{it} \quad (1)$$

where *ROA* is the Return on Assets of bank *i* in the year *t* (net income / total assets); β_0 = intercept of the equation; *CAR_{it}* is the Capital Adequacy Ratio of bank *i* in the year *t*; *NPL_{it}* is the Non-Performing Loans of bank *i* in the year *t*; *LLPR_{it}* is the Loan Loss Provision Ratio of bank *i* in the

year *t*; *LDR_{it}* is the Loan to Deposit Ratio of bank *i* in the year *t*; *SIZE_{it}* is the Size of bank *i* in the year *t* (Log of total assets); *AGE* is the age of bank *i* in the year *t* (years in operation); ε_{it} is the error term.

3. RESULTS

3.1. Descriptive statistics

The research variables’ descriptive statistics, including those for the dependent, independent, and control variables, are shown in Table 2.

Table 2. Descriptive statistics of study variables

Variable	Mean	Std. dev.	Min	Max
ROA	0.66	0.48	-0.03	1.70
CAR	21.24	17.29	0.13	128.94
NPL	4.50	3.45	0.18	15.07
LLPR	2.16	3.65	0.00	12.60
LDR	0.69	0.14	0.12	0.97
SIZE	8.68	0.90	6.66	9.81
AGE	23.45	17.00	1.00	60.00

As shown in Table 2, Mean of ROA: The mean value of ROA for the study sample is reported as 0.66. ROA is a profitability metric that measures how efficiently a company utilizes its assets to generate profit. A higher ROA indicates that the company is more efficient in managing its assets and generating profit. In this case, the mean ROA of 0.66 suggests that, on average, the companies in the study sample are relatively efficient in utilizing their assets to generate profits.

Minimum and Maximum Values of ROA: The minimum value of ROA in the study sample is reported as -0.03, while the maximum value is reported as 1.70. These values indicate the range of ROA observed among the companies in the sample. The minimum value of -0.03 suggests that there are companies with negative ROA, indicating potential inefficiencies in asset management and generating profits. Conversely, the maximum value of 1.70 indicates that some companies in the sample have been highly successful in generating profits relative to their asset base.

Mean of CAR: The mean value of CAR (Capital Adequacy Ratio) for the study sample is reported as 21.24. CAR measures the proportion of a bank’s capital to its risk-weighted assets, indicating the

financial institution’s ability to absorb potential losses. The mean CAR of 21.24 suggests that, on average, the companies in the study sample have a commitment to meet the minimum capital adequacy ratio requirements set by the Basel Committee. This indicates that the companies have allocated an adequate amount of capital to cover potential losses and comply with regulatory standards.

In summary, the provided information highlights the mean value of ROA, the range of ROA values observed, and the mean value of CAR in the study sample. The mean ROA of 0.66 suggests relative efficiency in asset management and profitability. The range of ROA values indicates the variation in performance among the companies, with some exhibiting negative ROA and others achieving higher levels of profitability. The mean CAR of 21.24 indicates that, on average, the companies in the sample have committed to meeting regulatory requirements regarding capital adequacy. This ratio indicates that the study sample in general is committed to achieving the minimum capital adequacy ratio set by the Basel Committee.

3.2. Multicollinearity

Finding the issue of multicollinearity among the study’s independent variables is a key premise of regression analysis. A significant overall correlation coefficient between any two independent variables is one that is greater than 70%, according to Anderson and Sullivan (1993). To estimate the size of this issue, a thorough correlation matrix including all variables was created in accordance with the pre-existing regression models. Table 3 displays the matrix of correlation coefficients. Table 3 demonstrates that there are no significant correlations between the independent variables, demonstrating that the study models do not have a multicollinearity issue.

Table 3. Correlation matrix

Variable	CAR	NPL	LLPR	LDR	SIZE	AGE
CAR	1	–	–	–	–	–
NPL	–0.1441	1	–	–	–	–
LLPR	–0.1245	–0.353	1	–	–	–
LDR	–0.5027	0.213	0.2419	1	–	–
SIZE	–0.353	–0.1659	0.3908	0.283	1	–
AGE	–0.3029	–0.2259	0.1048	–0.094	0.3453	1
ER	–0.5535	0.3652	0.0327	0.389	0.1406	0.1461

As shown in Table 3, the correlation coefficient between CAR (capital adequacy ratio) and NPL (performing loans) is –0.1441, which indicates a negative correlation. A negative correlation indicates that as the rate of interest over risk increases, the probability of having non-performing loans decreases. Similarly, the correlation coefficient between CAR and LLPR is –0.1245, indicating a negative correlation. This indicates that as the interest rate on loans increases, the loan loss provisioning ratio tends to decrease.

The correlation coefficient between CAR and LDR is Variable 0.5027, which indicates a negative correlation. This indicates that as the rate of interest on loans increases, the loan-to-deposit ratio tends to decrease. The correlation coefficient between CAR and SIZE is –0.353, which indicates a negative correlation. This indicates that as the incidence of AIDS increases, the size of the enterprise tends to decrease. The correlation coefficient between CAR and AGE is –0.3029, indicating a negative correlation. This indicates that as CAR increases, the lifetime of the institution tends to decrease.

3.3. Hausman test

To choose between a fixed effect model and a random effect model, the Hausman test is conducted in this study. Table 4 shows the results of the Hausman test.

Table 4. Hausman test results

Test Summary	
Model (ROA)	
chi2	Prob. > chi2
37.04	0.000

The null hypothesis of the Hausman test is that the random effect model is appropriate. While the fixed effect model is suggested as the alternate hy-

pothesis. Models 1 and 2 of the study exhibit Prob. > chi2 values that are less than 0.05, as indicated in Table 4. As a result, the alternative hypothesis is accepted and the null hypothesis is rejected. This suggests that the fixed effects model is more appropriate in this case, indicating the presence of individual-specific effects in explaining the variation in the dependent variable (ROA). As a result, the study's assumptions were tested using fixed-effect models.

3.4. Fixed effect model

Table 5 shows the results of regression using the fixed effect model.

Table 5. Fixed effect models' results

Model (ROA)				
Variable	Coef.	Std. err.	t	P > t
CAR	0.00	0.00	0.48	0.63
NPL	0.02	0.02	1.19	0.24
LLPR	0.05	0.02	2.55	0.01
LDR	-0.13	0.30	-0.43	0.67
SIZE	-0.06	0.07	-0.97	0.34
AGE	0.01	0.01	1.11	0.27
_cons	1.29	0.64	2.01	0.05

As shown in Table 5, the Capital Adequacy Ratio (CAR) has a positive but insignificant effect on profitability using ROA ($t = 0.48$, $P > t = 0.63$), respectively. The regression results also show that the NPLs have a positive but insignificant impact on bank profitability using ROA ($t = 1.19$, $P > t = 0.24$). Regarding LLPR, the regression found its significant positive effect on profitability using ROA ($t = 2.55$, $P > t = 0.01$). Finally, regarding LDR as an indicator for credit risk management, the regression found its negative but insignificant effect on profitability using ROA ($t = -0.43$, $P > t = 0.67$).

In summary, based on the provided results, the Loan Loss Provision Ratio (LLPR) and the constant term (_cons) are statistically significant in explaining the variation in ROA. However, the Capital Adequacy Ratio (CAR), Non-Performing

Loans (NPLs), Loan-to-Deposit Ratio (LDR), SIZE, and AGE are not statistically significant in this model.

4. DISCUSSION

The growth of the banking sector, together with the variety of activities, growing reliance on financial services technology, lack of regulations, and many other variables brought on by financial globalization, have increased the risks associated with the banking industry. In this regard, more attention needs to be paid to risk management and risk mitigation, especially related to credit issues. The results show that Capital Adequacy Ratio has a positive but insignificant effect on profitability. The positive signal of the capital adequacy ratio's effect on profitability can be viewed as a sign of the ratio's significance as a measure of a company's strength and stability. This result is consistent with Mendoza and River (2017), as they found that CAR has an insignificant effect on firm profitability. However, this result is inconsistent with Shrestha (2017), Agbeja et al. (2019), and Nguyen (2020), as they found that CAR is significantly positively related to return on assets.

Non-Performing Loans have a positive but insignificant impact on bank profitability. This result is inconsistent with Shrestha (2017), Singh et al. (2021), Do et al. (2020), and Bhattarai (2020), as they found that NPL is significantly negatively related to profitability. The regression found a significant positive effect of LLPR on profitability. This result is inconsistent with the viewpoint of Mustafa et al. (2012), because they imply that a bank with good management is thought to have a lower loan loss provision. Which translates into increased profitability. Therefore, the H_3 is rejected. The loan-to-deposit ratio has a negative but insignificant effect on profitability. This result is inconsistent with the viewpoint of Rengasamy (2015).

CONCLUSION

This study intends to investigate how credit risk management affects Palestinian banks' profitability from 2010 to 2020. Given that the banking industry is very volatile, which increases banks' exposure to various types of risks, this study suggests that banks establish strong credit control systems and pay

close attention to the effectiveness and caliber of their credit risk management tools. The finding of the study indicate that Capital Adequacy Ratio, Non-performing loans and Loan-to-Deposit Ratio have insignificant effect on profitability measured by ROA. However, the findings of the study indicate that Loan Loss Provision Ratio has significant and positive effect on profitability in Palestinian banks during the study period.

In conclusion, credit risk management plays a pivotal role in determining a bank's performance. Effective credit risk assessment, monitoring, and mitigation strategies are essential to maintain a healthy loan portfolio and safeguard the bank's financial stability. By accurately evaluating borrowers' creditworthiness and implementing prudent risk management practices, banks can reduce the likelihood of loan defaults and non-performing assets, leading to improved profitability and long-term success. Additionally, adopting innovative technologies and staying vigilant to changing market conditions can further enhance a bank's ability to manage credit risk and optimize its overall performance.

Moreover, credit risk and bank performance are interconnected in a cyclical relationship. A bank's performance is highly influenced by the quality of its credit risk management practices. When a bank effectively manages credit risk, it can offer loans and financial services to a diverse range of borrowers, stimulating economic growth and generating interest income. On the other hand, poor credit risk management can lead to increased loan defaults and potential losses, which can erode a bank's capital base and profitability. This, in turn, hampers the bank's ability to provide loans and credit, limiting its overall growth and potential for generating revenue.

In order to maintain a strong financial position, banks need to strike a balance between risk-taking and prudence. Diversification of loan portfolios, stress testing, and robust risk assessment frameworks are essential tools for minimizing credit risk and improving the overall bank performance. Additionally, regulatory compliance and adherence to risk management guidelines are crucial for maintaining the trust of depositors, investors, and stakeholders. A proactive approach to credit risk management, combined with a strong risk culture, can foster confidence in the bank's operations and enhance its reputation in the financial market.

In conclusion, a symbiotic relationship exists between credit risk and bank performance. When managed prudently, credit risk contributes positively to a bank's profitability and growth prospects. Conversely, negligence in credit risk management can lead to adverse effects on a bank's performance, threatening its financial stability and long-term viability. Emphasizing sound credit risk practices and continuous improvement in risk management processes are vital for sustaining a resilient and prosperous banking industry.

AUTHOR CONTRIBUTIONS

Conceptualization: Besan Abdallah Saleh.

Data curation: Besan Abdallah Saleh.

Formal analysis: Besan Abdallah Saleh.

Funding acquisition: Veronica Paz.

Investigation: Besan Abdallah Saleh.

Methodology: Besan Abdallah Saleh.

Project administration: Veronica Paz.

Resources: Besan Abdallah Saleh.

Software: Besan Abdallah Saleh.

Supervision: Veronica Paz.

Validation: Besan Abdallah Saleh.

Visualization: Besan Abdallah Saleh.

Writing – original draft: Besan Abdallah Saleh.

Writing – reviewing & editing: Veronica Paz.

REFERENCES

1. Abor, J. (2005). Managing Foreign Exchange Risk among Ghanaian Firms. *Journal of Risk Finance*, 6(4), 306-318. <https://doi.org/10.1108/15265940510613642>
2. Achou, F. T., & Tegnuh, N. C. (2007). *Bank Performance and Credit Risk Management* (Master's Thesis). School of Technology and Society, University of Skovde Press. <http://www.diva-portal.org/smash/get/diva2:2459/FULL-TEXT01.pdf>
3. Adebayo, A. O., & Oluwaremi, F. (2017). Relationship between credit risk management and the performance of money deposit banks in Nigeria. *IOSR Journal of Economics and Finance*, 8(2), 38-48. <http://dx.doi.org/10.9790/5933-0802023848>
4. Agbeja, O., Adelakun, O. J., & Olufemi, F. I. (2019). Capital Adequacy Ratio and Bank Profitability in Nigeria: A Linear Approach. *International Research Journal of Finance and Economics*, 2(3), 91-99. Retrieved from <https://www.noveltyjournals.com/upload/paper/Capital%20Adequacy%20Ratio-394.pdf>
5. Ahmad, N. H., & Ariff, M. (2007). Multi-Country Study of Bank Credit Risk Determinants. *International Journal of Banking and Finance*, 5(1), 135-152. <https://doi.org/10.32890/ijbf2008.5.1.8362>
6. Alhadab, M., & Alsahawneh, S. (2016). Loan Loss Provision and the Profitability of Commercial Banks: Evidence from Jordan. *International Journal of Business and Management*, 11(12), 242-248. <https://doi.org/10.5539/ijbm.v11n12p242>
7. Anderson, E. W., & Sullivan, M. W. (1993) The Antecedents and Consequences of Customer Satisfaction for Firms. *Marketing Science*, 12(2), 125-143. <https://doi.org/10.1287/mksc.12.2.125>
8. Barth, J. R., Caprio Jr, G., & Levine, R. (2000). *Bank regulation and supervision: What works best?* (Working Paper). World Bank. Retrieved from <https://www.bis.org/bcbsevents/b2ealev.pdf>
9. Beatty, A., & Liao, S. (2011). Do delays in expected loss recognition affect banks' willingness to lend? *Journal of Accounting and Economics*, 52(1), 1-20. <https://doi.org/10.1016/j.jacceco.2011.02.002>
10. Bhattarai, B. P. (2020). Effects of Non-Performing Loan on Profitability of Commercial Banks in Nepal. *European Business & Management*, 6(6), 164-170. <http://dx.doi.org/10.11648/j.ebm.20200606.15>
11. Boahene, S. H., Dasah, Dr. J., & Agyei, S. K. (2012). Credit risk and profitability of selected banks in Ghana. *Research Journal of Finance and Accounting*, 3(7). Retrieved from <https://www.iiste.org/Journals/index.php/RJFA/article/view/2628>
12. Chairani, C., & Siregar, S. V. (2021). The effect of enterprise risk management on financial performance and firm value: the role of environmental, social and governance performance. *Meditari Accountancy Research*, 29(3), 647-670. <https://doi.org/10.1108/MEDAR-09-2019-0549>
13. Coyle, B. (2000). *Framework for: Credit Risk Management*. Global Professional Publish.
14. Do, H., Ngo, T., & Phung, Q. (2020). The effect of non-performing loans on profitability of commercial banks: Case of Vietnam. *Accounting*, 6(3), 373-386. <http://dx.doi.org/10.5267/j.ac.2020.1.001>
15. Effiong, D. A., & Enya, E. F. (2020). Liquidity Risk Management and Financial Performance: Are Consumer Goods Companies Involved? *International Journal of Recent Technology and Engineering*, 9(1), 580-589. Retrieved from <https://www.ijrte.org/wp-content/uploads/papers/v9i1/A1692059120.pdf>
16. Faisal, M., & Challen, A. E. (2021). Enterprise Risk Management and Firm Value: The Role of Board Monitoring. *Asia Pacific Fraud Journal*, 6(1), 182-196. <http://dx.doi.org/10.21532/apfjournal.v6i1.204>
17. Fatemi, A., & Glaum, M. (2000). Risk management practices in German firms. *Journal of Management Finance*, 26(3), 1-17. <https://doi.org/10.1108/03074350010766549>
18. Gill, A., Dana, L. P., & Obradovich, J. D. (2018). Financial risk management and financial performance of new small business ventures: evidence from Indian survey data. *Journal for International Business and Entrepreneurship Development*, 11(2), 75-95. <https://dx.doi.org/10.1504/JIBED.2018.091205>
19. Gizaw, M., Kebede, M., & Selvaraj, S. (2015). The impact of credit risk on profitability performance of commercial banks in Ethiopia. *African Journal of Business Management*, 9(2), 59-66. <https://doi.org/10.5897/AJBM2013.7171>
20. Hamza, S. M. (2017). Impact of credit risk management on banks performance: A case study in Pakistan banks. *European Journal of Business and Management*, 9(1), 57-64. Retrieved from <https://core.ac.uk/download/pdf/234627678.pdf>
21. Inggawati, V. R., Lusy, L., & Hermanto, Y. B. (2018). The Influence of Loan to Deposit Ratio, Loan Operational of Income Operational and NonPerforming Loan toward Profitability of Bank Perkreditan Rakyat in Sidoarjo Regency. *International Journal of Scientific and Research Publications (IJSRP)*, 8(11), 510-519. <http://dx.doi.org/10.29322/IJSRP.8.11.2018.p8354>
22. Kamran, H. W., Omran, A., & Mohamed-Arshad, S. B. (2019). Risk management, capital adequacy and audit quality for financial stability: Assessment from commercial banks of Pakistan. *Asian Economic and Financial Review*, 9(6), 654-664. <https://doi.org/10.18488/journal.aefr.2019.96.654.664>
23. Kargi, H. S. (2011). *Credit risk and performance of Nigerian banks* (Unpublished Thesis). Ahmadu Bellu University, Zaria, Nigeria.

24. Kidane, S. T. (2020). Credit risk management and profitability: empirical evidence on Ethiopian commercial banks. *Jurnal Perspektif Pembiayaan dan Pembangunan Daerah*, 8(4), 377-386. <http://dx.doi.org/10.22437/ppd.v8i4.10225>
25. Kolapo, T. F., Ayeni, R. K., & Oke, M. O. (2012). Credit Risk and Commercial Banks' Performance in Nigeria: A Panel Model Approach. *Australian Journal of Business and Management Research*, 2(2), 31-38. Retrieved from https://www.ajbmr.com/articlepdf/aus_20_70i2n2a4.pdf
26. Madugu, A. H., Ibrahim, M., & Amoah, J. O. (2020). Differential effects of credit risk and capital adequacy ratio on the profitability of the domestic banking sector in Ghana. *Transnational Corporations Review*, 12(1), 37-52. <https://doi.org/10.1080/19186444.2019.1704582>
27. Mendoza, R. R., & Rivera, J. P. R. (2017). The effect of credit risk and capital adequacy on the profitability of rural banks in the Philippines. *Scientific Annals of Economics and Business*, 64(1), 83-96. Retrieved from <http://saeb.feaa.uaic.ro/index.php/saeb/article/view/1043>
28. Mustafa, A. R., Ansari, R. H., & Younis, M. U. (2012). Does the loan loss provision affect the banking profitability in the case of Pakistan? *Asian Economic and Financial Review*, 2(7), 772-783. Retrieved from <https://archive.aessweb.com/index.php/5002/article/view/930>
29. Nguyen, T. H. (2020). Impact of Bank Capital Adequacy on Bank Profitability under Basel II Accord: Evidence from Vietnam. *Journal of Economic Development*, 45(1), 31-46. Retrieved from <https://www.proquest.com/openview/375bd128b87e88a201b09e666b7a7094/1.pdf>
30. Njanike, K. (2009). The Impact of Effective Credit Risk Management on Bank Survival. *Annals of the University of Petroșani, Economics*, 9(2), 173-184. Retrieved from <https://www.upet.ro/annals/economics/pdf/2009/20090222.pdf>
31. Nurtayeva, A., Kayirgaliyeva, M., Kابدeshova, A., & Babash, D. (2021). Optimization of the Risk Management System to Improve the Financial Stability of the Enterprise. *Statistika, Uchet i Audit*, 2, 103-110.
32. Olalekan, A., & Adeyinka, S. (2013). Capital adequacy and banks' profitability: An empirical evidence from Nigeria. *American International Journal of Contemporary Research*, 3(10), 87-93. Retrieved from https://www.aijcrnet.com/journals/Vol_3_No_10_October_2013/13.pdf
33. Pakurár, M., Haddad, H., Nagy, J., Popp, J., & Oláh, J. (2019). The service quality dimensions that affect customer satisfaction in the Jordanian banking sector. *Sustainability*, 11(4), 1113. <https://doi.org/10.3390/su11041113>
34. Rejda, G. (2008). *Principles of Risk Management and Insurance*. Addison-Wesley Educational Publishers, Reading (Mass).
35. Rengasamy, D. (2014). Impact of loan deposit ratio (LDR) on profitability: Panel evidence from commercial banks in Malaysia. In *International Conference on Global Economics, Finance and Social Sciences*. Retrieved from <https://silo.tips/download/impact-of-loan-deposit-ratio-ldr-on-profitability-panel-evidence-from-commercial>
36. Richard, E., Chijoriga, M., Kaijage, E., Peterson, C., & Bohman, H. (2008). Credit risk management system of a commercial bank in Tanzania. *International Journal of Emerging Markets*, 3(3), 323-332. <https://doi.org/10.1108/17468800810883729>
37. Serwadda, I. (2018). Impact of Credit Risk Management Systems on the Financial Performance of Commercial Banks in Uganda. *Acta Universitatis Agriculturae et Silviculturae Mendelianae Brunensis*, 66(6), 1627-1635. Retrieved from <https://acta.mendelu.cz/pdfs/acu/2018/06/26.pdf>
38. Shimpi, P. A. (2001). *Integrating Corporate Risk Management*. New York, NY: Texere.
39. Shrestha, R. (2017). *The Impact of Credit Risk Management on Profitability: Evidence from Nepalese Commercial Banks*. Retrieved from https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2938546
40. Singh, S. K., Basuki, B., & Setiawan, R. (2021). The Effect of Non-Performing Loan on Profitability: Empirical Evidence from Nepalese Commercial Banks. *The Journal of Asian Finance, Economics and Business*, 8(4), 709-716. <https://doi.org/10.13106/jafeb.2021.vol8.no4.0709>
41. Sinkey, J. C. (1992). *Commercial Bank Financial Management*. New York: Macmillan Publishing Company.
42. Spadaford, J. E. (1988). Credit Quality: Ceo's Set the Tone. *Magazine of Bank Administration*, 1(5), 20-22.
43. Syafrizal, A., Ilham, R. N., Darmawati, & Wardhiah. (2023). Effect of Capital Adequacy Ratio, Non Performing Financing, Financing to Deposit Ratio, Operating Expenses and Operational Income On Profitability at Pt. Bank Aceh Syariah. *Journal of Accounting Research, Utility Finance and Digital Assets*, 1(4), 312-322. <https://doi.org/10.54443/jaruda.v1i4.51>
44. Ul Mustafa, A. R., Ansari, R. H., & Younis, M. U. (2012). Does the loan loss provision affect the banking profitability in case of Pakistan? *Asian Economic and Financial Review*, 2(7), 772-783. Retrieved from <https://archive.aessweb.com/index.php/5002/article/view/930>
45. Zou, Y., & Li, F. (2014). *The impact of credit risk management on profitability of commercial banks: A study of Europe*. Retrieved from <https://www.diva-portal.org/smash/get/diva2:743402/FULLTEXT01.pdf>