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Effect of Credit Risk Management on the Performance of Commercial Banks in Rwanda: A Case of Cogebank Rwanda Plc

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Abstract

The research focused on the effect of credit risk management on the performance of commercial banks in Rwanda. A case of Cogebank Rwanda PLC. The study specifically analysed the effects of credit appraisal, credit risks identification, credit risks monitoring and control and credit collection on the performance of Cogebank, Rwanda PLC. The study covered the period of four years from 2018 up to 2021. In term of research methodology, the study adopted a cross section research design and used questionnaire, interview and documentation as main tools of data collection. The study adopted censes approach and considered all 35 staff from two departments accounting and credit departments which were purposively selected. Researcher also analyzed the collected data using Statistical Product and Service Solutions (SPSS). The results showed that the bank granted loans of 95.8%; 97.3%; 92.4% and 85.0% respectively of their deposits from 2018 to 2021. And looking at BNR's regulations on the loan granting it is clear that the commercial bank must not exceed 80% of deposit collected when granting loans. From 2018 up to 2021 the ratio of Return on Equity was as following: 12.62%; 13.63%; 12.24% and 13.79% respectively. The results show the value of adjusted R^2 is 0.650 implying that there was a variation of 65% of performance of Cogebank Rwanda PLC which was explained by the four credit risk management strategies adopted by the bank namely credit risk appraisal, credit risk identification, credit risk analysis, and credit risk monitoring. This implies that, credit risk appraisal, credit risk identification, credit risk analysis, and credit risk monitoring explained 65% of performance at a confidence level of 95%. This study recommends that Cogebank Rwanda Plc should improve loan recovery procedures for better loan management, should improve the implementation of guarantee policies for better loan management and since the latter has significant effect on performance of the bank.

Keywords: *Credit Risk Management, Commercial Banks Performance, Cogebank Rwanda Plc. Rwandan Banking Sector, Financial Stability*

1.0 Introduction

Managing credit risk appropriately in commercial banks is critical for the viability and widening of financial institutions. In the case of banking sector, the issues of credit risks management start by screening of the right client to how the bank would grant credit continue by risks assessment and settlement of strategies to mitigate these identified risks as well as an on-going monitoring of any kind of risks that may disturbing the loans payment process (Felix, 2018).

One of the functions of banks is to protect both short and long-term deposit of clients. However, central banks of the countries allowed them to use a certain percentage of these deposit by granting credit to these who have profitable project. But on the other side this goes hand in hand with some risks including non-performing loan. Therefore, effective credit management is a critical for smooth running of financed project and the overall performance of banks (Bessis, 2010). Loans are the main source of revenue in banks. However both borrower and banks face various risks while engaging in credit. Therefore, these two parts must keep their eyes on these issues to ensure their smooth functioning. Particularly banks have to remember that fail in credit risks management may also lead to other types of risks such as liquidity risk as well as bankrupt risk (Carey, 2017).

The latest global economic crisis and financial crisis burst in United States of America when Lehman Brothers Holdings, Inc. filed for Chapter 11 bankruptcy on 15 September 2008. The lay out of this crisis globally uplift questions on the effectiveness risk management practices in banking sector at worldwide level. Poor credit risk management were found to be the most dangerous cause of this crisis (Holland, 2010).

Currently banks are the massive financial institutions across the world, and they play a considerable role on everyone's life. Although they are facing various risks in their daily operations and many of them reflect to the granted credits. However, on the other side credit were found to be the most important source of the income generated by banks. Therefore, seriousness in loans management is need in each bank to ensure their profitability as well as their overall performance (Li, 2014).

Adam (2018) conducted the study on this issue where he investigated the results of proper risk control on banks success in Kenya. Research was conducted to 43 business banking institutions operated their activities in Kenya as per 31st December 2017. Using a census sampling techniques all 43 banks were considered to participate in research. Questionnaires were structure to collect information from the credit manager, information related to the success of the institutions understudy were retrieved from CBK, NSE and published financial statement. Data analysis was made using SPSS. And results show a positive relationship between the variables understudy.

Ndyagyenda (2020) pointed that the increase in credit risks resulted by loans mismanagement tend to lower the overall banks' performance in Africa. However, the basic goals of banks are to create profit through credit they grant to customers. Therefore, the banks have to impartial assign capital to legitimize the performance of credit team.

In his study Kaaya (2013) used panel data analysis and investigate risks assessment and mitigation measure and its effects on the performance of Tanzanian banks. His project found a positive link

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between these two variables. Here banks were recommended to increase their capital to protect their performance against any kind of risks that may arise against.

In his study on the effects of operation risks on Rwandan banking sector his used audited financial report of 5 big commercial bank in the frame of seven years from starting from 2013-2019. And the findings demonstrated that whenever non-performing loans raise up the banks' Return On Investment shifted down (Danielle, 2021). Therefore, therefore, the present study will take a case of Cogebank and explores the effects of credit risks management on the performance of commercial bank in Rwanda.

1.1 Problem statement

Haneef, (2012) stated that the carelessness of banks in risks management particularly in credit risk management not only impending the financial performance of banks but also decelerate the institutional growth and on the other side discourages the attainment of settled objectives. In his study on Pakistan banking sector, he ascertained that weak or absence of credit risks management politics automatically raise the non-performing loans which in turn badly threaten the overall performance of banks.

Alajekwu (2014) mentioned that Global the banking sector is exposed on risks particularly non-performing loans risks liquidity risks as well as others that mainly attack this sector of activities. In main developing sector because of consumer confidence index which are at the lowest rate the banks are most riskily. They are always on the front line against risks. Therefore, the effectiveness in risks management is the only best pathway to their success.

Bahizi (2017) pointed that banking sector faced a very dangerous risks when borrowers fail to respect the agreement of paying back loans they received. In addition to these ineffective risks assessment, poor recovery system and fail in tracking the clients' background in working with banks on the issues of credits as well as his financial capacity to ensure that he/she will be able to pay the given amount is the main cause of poor performance in this business sector.

What also researcher realized through his analysis is that some commercial banks in Rwanda exceeded the maximum non-performing ratio as required by National Bank of Rwanda prudential regulations. A good example here is where NPL ratio in Bank of Kigali PLC was 5.79% in 2014; 5.67% in 2019; 6.73% in 2020. The same case for KCB where the ratios were 6.05%; 5.91%; 5.17% from 2018-2020. It is also observed that the none performing loans in Cogebank from 2018-2020 were 5.49%; 5.50%; 9.48% respectively. Therefore, this shows that the banks were not able to effectively manage credit risks which in turn would lead to the lower profitability.

Researcher also found gap on research done on the matter of the concern because many of them were at international and regional level such as one done by Maurice Olobo (2021) who conducted a study on the credit risk management practices and financial performance of commercial banks in South Sudan where he specifically analyzed the effects of risks identification on the performance of selected banks the other done on Ramazan, (2019) conducted the study of the effect of credit risk measurement on the performance of deposit bank in Turkey and one that was done by Adam, (2018) conducted the study on the effect of credit risk control on the financial performance of commercial banks in Kenya. It was observed that none was done only on credit risk management and performance of banks in Rwanda. the consulted research on this matter on the case of Rwanda were focused on risks management in general including credit risks, liquidity risks, market risks as well as operation risks and performance of banking sector. Therefore, this study come to feel

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the gap and assessing whether a high rate of none performing loans recorded by Rwandan's commercial banks has a direct link with the applied credit risks management, and this will use a case of Cogebank Rwanda.

1.2 Research Objectives

i. To analyse the effects of credit appraisal on the performance of Cogebank Rwanda PLC
ii. To determine the effects of credit risks identification on the performance of Cogebank Rwanda PLC
iii. To evaluate the effects of credit risks monitoring and control on the performance of Cogebank Rwanda PLC
iv. To determine the effects of credit collection or recover policies on the performance of Cogebank Rwanda PLC

1.3 Research Questions

i. To what extent does credit appraisal affect the performance of Cogebank Rwanda PLC?
ii. What are the effects of credit risks identification on the performance of Cogebank Rwanda PLC?
iii. What are the effects of credit risks monitoring control on the performance of Cogebank Rwanda PLC?
iv. What are the effects of credit collection or recover policies on the performance of Cogebank Rwanda PLC?

2.1 Theoretical Review

This section presents the theories reflect to the variables understudy. Therefore, this study will mainly use shiftability theory of liquidity and contingency theory.

2.1.1 Shiftability Theory of Liquidity

The shiftability theory of liquidity suggest that banks and other financial institutions secured themselves against any kind of bankrupt that may be resulted by the increased non-performing loans (Merton, 2015). The foundation of this theory is that financial institutions' liquidity can be only well secured when lender has collateral granted by borrowers so that in case borrowers fail to payback granted amount will be sold to feel the gape. Furthermore, banks since banks use some money from depositors especially long-term deposit it has to make sure that clients are regularly paying so that whenever depositors found their money when they immaturely need to withdraw. Otherwise, the banks would face both liquidity and credit risks (Njoroge, 2013). Therefore, financial institutions' liquidity would be secured only if every time banks have collateral to be resale whenever clients total fail to payback the amount, he/she borrowed.

This theory consists of the methods of recovering of collecting money from savers and debtors while finding the best combination of finances for a particular fund. The general view is that at the time of distress, a bank could have difficulties establishing liquidity given that the market confidence could be severely affected by the credit rating of an institution. However, for a bank that is doing well the liabilities becomes an important source of liquidity. The analysis thus gives out clear information on the effect of liquidity on performance of commercial banks (Jedidah, 2018).

2.1.2 The Commercial Loan or the Real Bills Doctrine Theory

This theory mentioned that whenever banks grant credit to business activities almost all hope relay on collateral since there is a probability of fail. Therefore, the lack of this security mainly leads to the failure. However, its consideration is the last path to escape non-performing loans. The commercial loan theory means raising the mass of money in the same direction with the possibility of diminishing the probability of economy downturn (Law, 2012). Therefore, for this study both shiftability theory and commercial loan or real bill doctrine theory was used since the first one suggests that an effective credit management bring advantage to organizational business as it encourages market solidity.

2.2 Empirical review

In this section researcher reviewed the related empirical on the matter of the concern in banking institutions at different level from the international, regional to the local level.

2.2.1 Credit Risks Identification and Performance

Maurice Olobo, (2021) did research on credit risk management and the overall success of banking sector in South Sudan where he specifically determined the impact of risks identification on the banks success. The investigation used a cross- sectional research design on 124 selected respondents from the 7 banks and the study finding shows a positive link between the variables understudy.

Kargi (2011) studied effects of risks identification on banks performance in Nigeria and his findings shows that Nigerian banks from 2004-2008 recognized a considerable financial performance through to the various factors but he emphasized credit risks identification is the leading factor. Ngungi (2011) investigated the relationship between risks identification and performance of Kenyan banks where he firstly determined whether is it done effectively or not as well as identification of the limitation factors that embarked the success of this issues in the examined banks. And he revealed that despite some challenges faced by the banks, risks were effectively identified and that the variable under this study has a strong positive correlation.

2.2.2 Credit Risks Measurement and Performance

Ramazan, (2019) carried out research related to this in Turkey, three panel data were adopted considering state owned banks, private banks and foreign banks. Profitability ratios were calculated to detect whether the sampled bank recognized a financial performance within the studied period and researcher revealed that the banks recognized a considerable financial performance within the performance understudy. Correlation matrix also shows a strong correlation between the variables.

Mohd and Salina (2010) conducted research to find the link between financial execution and risk administration in the Malaysian Islamic banks. As a way of measuring the risk administration practices, the authors evaluated five issues affecting bank supervision practices as stated by the Basel Committee. These five components examined in the research include; the environment of the firm's risk environment, the firm's policies and procedures, procedures for measuring risks, risk mitigation, the institution's risk monitoring as well as business's internal control. The listed elements intricately connected to the profitability ratios. The research intimated that those Islamic banks that recorded higher ROA and ROE showed improved risk management strategies. However, the study's center of focus was only on the 5 independent variables, which functioned

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as the only measures of risk management for determining financial performance. The study focused on additional measures in a strategy that helped reduce the error term.

2.2.3 Credit Risks Control and Performance

Adam, (2018) conducted the study on this issue where he investigated the results of proper risk control on banks success in Kenya. Research was conducted to 43 business banking institutions operated their activities in Kenya as per 31st December 2017. Using a census sampling techniques all 43 banks were considered to participate in research. Questionnaires were structure to collect information from the credit manager, information related to the success of the institutions understudy were retrieved from CBK, NSE and published financial statement. Data analysis was made using SPSS. And results show a direct link between the variables understudy.

In his study Kaaya, (2013) used panel data analysis and investigate risks assessment and mitigation measure and its effects on the performance of Tanzanian banks. His project found a positive link between these two variables. Here banks were recommended to increase their capital to protect their performance against any kind of risks that may arise against. In her study on the effects of credit risk control on the operation risks on financial performance of selected Rwandan commercial banks. Using partial least squares structural equation model. The source of data in this research was audited financial report of the sampled banks within the period of 2013-2019. The results showed that that higher credit risks as proxies by non-performing loans (NPL) ratio significantly reduces banks' return on assets (ROA) and moderately increases banks return on equity (ROE)(Ingabire,2019).

2.3 Conceptual Framework

The conceptual framework shows the correspondence between the two variable which are independent variable on one side and dependent Variable on the other side.

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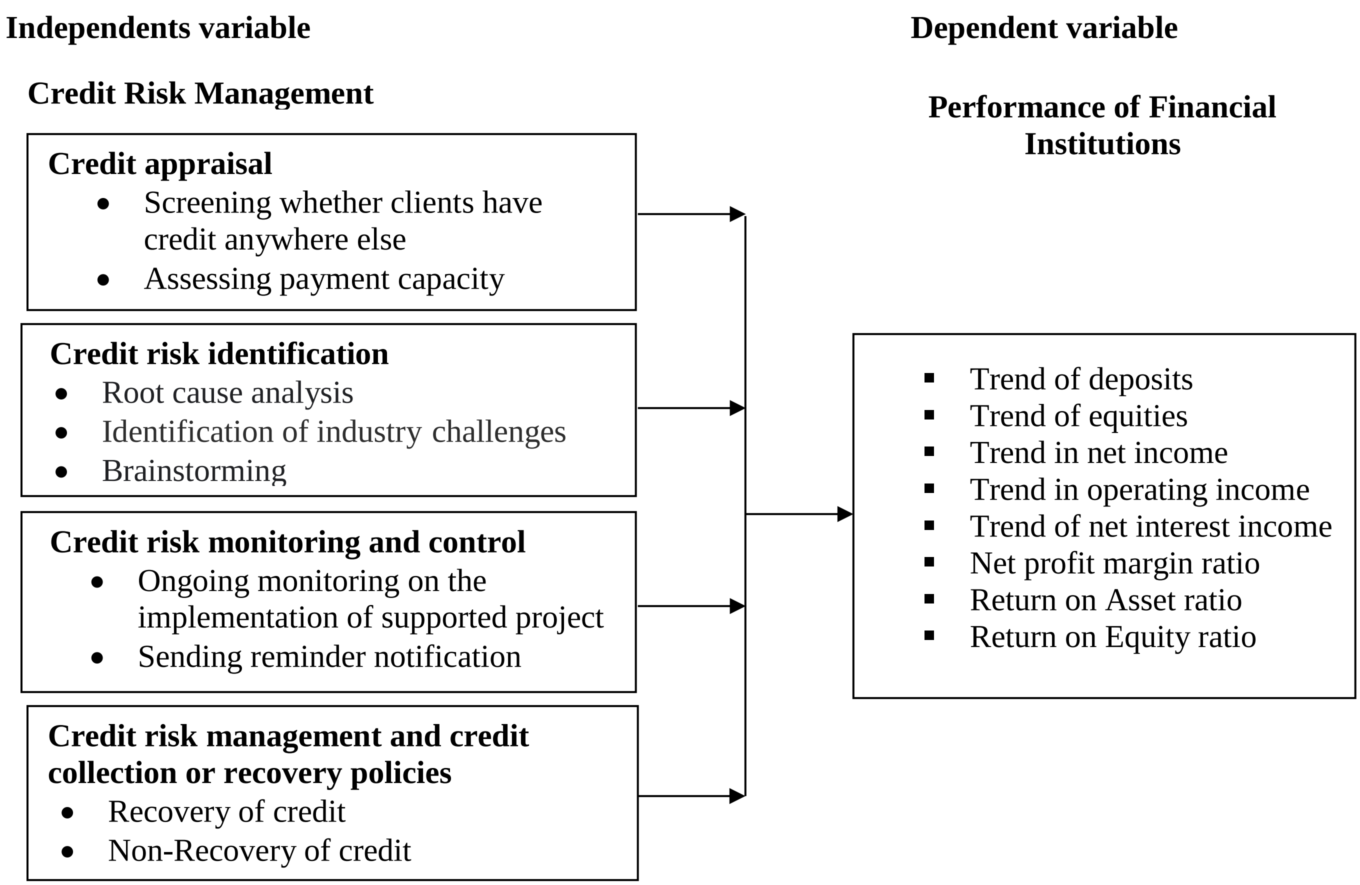

Source: Researcher's design (2023)

Figure 1: Conceptual Framework

3.0 Research Methodology

For the current study the researcher used a cross sectional research design. This design was useful in the present study as it helped researcher to assess more than one variable simultaneously. Therefore, in this case researcher was design a like-scale questionnaire and this facilitated the collection of respondents' views on the matter of the subject. And of course, this facilitated the interpretation through the collected views. Considering population as a set of individuals or object to whom researcher want to conduct research, the population consulted in this study comprised all staff from credit and accounting department of Cogebank Rwanda PLC headquarter whose number 35. Since the staff from two departments in this bank were few in number the researcher adopted censes approach and considered all 35 staff. This study adopted universal sampling technique and consider each one on the population since the population is small so that is easy to cover it. This project was mix both first hand and second-hand data. The first-hand information will be retrieved through questionnaire and second hand was collected from published documents. Researcher analyzed the collected data using Statistical Package for Social Science (SPSS) to ensure a depth analysis and evaluation of results. This software also helped researcher to design tables that presents frequency and percentages which in turn was made easy and clear interpretation step.

The research was conducted in the bank understudy ethically where firstly apply for authorization of conducting research, secondly respect the confidentiality in research respondents, and not harm

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the participants in the research concern. And researcher ensures the readers and all party who are interested on this research that the content of this research have quality and integrity. Also, the participants of this research participated voluntary. On the other side researcher gave each respondent a letter explaining the nature of the research project, the letter also will assure respondents of the clandestineness of provided data and their obscurity.

4.0 Findings and Discussion

Demographic information revealed that out of 20 respondents (57.14%) respondents were male while (42.85%) were female. It shows that the sample represents all kinds of gender. It constitutes an advantage in the sense that the researchers are capable to get information from the two sexes easily on the issue concerning credit risk management and performance of Cogebank Rwanda PLC use male than female because male are stable at work place than female.

Majority (54.28%) of the respondents were in the range between 31-40 years old, other (28.57%) were in the range between 21-30 years, years finally the few numbers represented (17.14%) of respondents were in the range between 41 years and above. Respondents in this study are less aged; they still have energy to work, to study, to be trained and to make research so as to become more competent. They are flexible and dynamic to adapt the modern style and this implied that the contacted respondents were aged enough to be trusted with views related to assess how credit risk management contributes to the performance of Cogebank Rwanda PLC.

Moreover, out of 11 respondents (33.3%) have diploma level, (48.57%) of respondents finished bachelor's degree (20%) of respondents completed masters. This situation indicates that respondents are educated and are able to give enough information related to research purpose. Duties are assigned to them according to their capacity which improves the performance. In addition, the study found out that out of 9 respondents (25.71%) as the majority of experienced workers were between 3-4 years, followed by 42.85(%) of respondents who have an experience varying between 3-4 years, another respondent (31.42%) was from 7 years and above. This implies that not only information gathered is consistent because more respondents are experienced, are stable at the work as well, therefore this experience sustains performance, moreover no financial budget for new employee's recruitment.

4.1 Descriptive Analysis

Credit risk management practices adopted by Cogebank Rwanda PLC

The study aimed at establishing the credit risk management strategies adopted by Cogebank Rwanda PLC. This section presents the findings on these practices and enabled to achieve the specific objective one and presents the answers to the first research question of this study.

Clients' appraisal within COGEBANK RWANDA PLC

Respondents were asked to present their views on the procedures used by COGEBANK RWANDA PLC in client's appraisal as way of credit risk management and their views are presented in Table 1.

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Table 1: Clients' appraisal strategies used by Cogebank Rwanda PLC

Statements	Strongly agree		Agree		Disagree	Total		Mean	Standard dev
	F	%	F	%	F	F	%		
Cogebank Rwanda PLC Credit appraisal techniques to screen out doubtful client	32	91.42	3	8.57	0	35	100	.7143	.45835
Cogebank Rwanda PLC applies Credit appraisal techniques to assess the payment capacity and worthiness of client	30	85.71	5	14.28	0	35	100	.8571	.35504
Credit risk analysis in Cogebank Rwanda PLC considers the capacity of the borrower before extending credit	29	82.85	6	17.14	0	35	100	.7143	.45835
Credit risk identification in Cogebank Rwanda PLC detects bad debts	33	94.28	2	5.71	0	35	100	.6571	.48159

Source: Primary data, 2023

Table 1 indicates that (91.42%) of respondents strongly agreed, (41.6%) of respondents agreed that Cogebank Rwanda PLC applies Credit appraisal techniques to screen out doubtful client for effective credit risk analysis and (85.7%) of the majority of total respondents strongly agreed, (50%) of respondents agreed that Credit risk analysis in Cogebank Rwanda PLC considers the capacity of the borrower before extending credit while (94.28 %) of respondents agreed that Credit risk analysis in Cogebank Rwanda PLC considers the capital of the borrower before extending credit. As a standard variation for both statements tend to be closer to Zero, this indicate that all points are close to the mean, however the researcher confirm that Cogebank Rwanda PLC applies effectively credit risk management to boost its performance.

These findings demonstrate that Cogebank Rwanda PLC considers character, capacity and capital of borrowers before extending credit as way of credit risk analysis. These findings are in line with study findings in previous studies. Bystrom (2007)identified that the credit risk analysis process involves estimation of the firm's future cash flow and of the value of the assets that could be provided as collateral or security for the credit in the event of default and Chapman & Ward (2002) supportd the current findings by stressing that good analysis of potential customers uses five C's of credit analysis and includes the gathering of both quantitative and qualitative information to assist the bankers in their screening process of bad and potential creditors. Hence, the findings of this study shows that Cogebank Rwanda PLC does follow this recommendation.

Credit risk identification measures used by Cogebank Rwanda PLC

To examine how credit risks are identified within Cogebank Rwanda PLC, respondents were asked to indicate their level of agreement on whether the following strategies are applied by Cogebank Rwanda PLC in credit risk identification. Findings are as per Table 2.

Table 2: Credit risk identification measures adopted by Cogebank Rwanda PLC

Statements	Strongly agree		Agree		Disagree		Total		Mean	SD
	F	%	F	%	F	%	F	%		
Cogebank Rwanda PLC applies root cause analysis as technique of improving the processes and promote recurrence of positive outcomes	20	57.14	13	37.14	2	5.71	35		17.5	.58
The industry challenges identification is used by Cogebank Rwanda PLC as credit risk identification method to discover weak areas that cause poor returns	26	74.28	9	25.71	0	0	35		17.5	.44
Cogebank Rwanda PLC utilize Brainstorming as credit risk identification technique to perceive real image on profitable crediting range or why bank product not perform as expected	30	85.71	4	11.42	1	2.85	35		17.5	.45

Source: Primary data, 2023

Table 2 show that majority of sampled respondents supported the argument that (66.6%) were strongly agreed, (33.4%) of respondents agreed that Cogebank Rwanda PLC have credit policies to establish the framework for lending and reflect an institution's credit culture and ethical standards, (58.3%) of respondents strongly agreed, (33.4%) of respondents agreed and (33.4%) of respondents disagreed that Credit policies are communicated in a timely fashion and are implemented through all levels of the institution while (75%) of respondents strongly agreed, (25%) of respondents agreed that Credit policies are revised periodically in light of changing circumstances This also shows that having proper credit risk identification enables Cogebank Rwanda PLC in limiting bad debts and improving cash flow which also determine the financial performance and performance of the bank.

Hence, by establishing effective credit risk identification, Cogebank Rwanda PLC is able to manage its risks effectively. These findings are in agreement with the view of Godlewski (2005) who also viewed credit risk identification as an important steps towards effective credit risk management in banking institutions.

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Credit risk monitoring and controls procedures applied by Cogebank Rwanda PLC

The study wanted to establish the credit risk monitoring and procedures put in place by Cogebank Rwanda PLC and requested respondents to present their views on the procedures instituted by their institution to ensure full recovery of credit. Findings are as per Table 3.

Table 3: Credit risk monitoring and control procedure of Cogebank Rwanda PLC

Statements	Strongly agree		Agree		Disagree		Total		Mean	SD
	F	%	F	%	F	%	Total	%		
Cogebank Rwanda PLC applies Credit risk monitoring technique through ongoing monitoring to supervise the implementation of supported project	29	82.85	6	17.14	0	0	35	100	.82	.38239
Reports are most of the time checked accurately in Cogebank Rwanda PLC	31	88.57	4	11.42	0	0	35	100	.88	.32280
Reports are mostly tested timely in Cogebank Rwanda PLC	27	77.14	5	14.28	2	5.71	35	100	.71	.45835

Source: Primary data, 2023

Table 3 show that (82.85%) of the majority of total respondents strongly agreed, (17.14%) of respondents agreed while 0 % of respondents disagreed confirmed that applies Credit risk monitoring technique through Ongoing monitoring to supervise the implementation of supported project, (88.57%) of respondents strongly agreed, 11.42% of respondents agreed that Cogebank Rwanda PLC Reports are most of the time checked accurately in Cogebank Rwanda PLC in order to identify possible irregularities, while(77.14%) of respondents strongly agreed, (14.28%) of respondents agreed confirmed that Reports are mostly tested timely in Cogebank Rwanda PLC. This indicates that after the credit is approved, the loan should be continuously watched over by applying different credit risk monitoring and controls measures including keeping track of borrowers' compliance with credit terms, identifying early signs of irregularity, conducting periodic valuation of collateral and monitoring timely repayments.

Compliance with BNR's roles and regulations

To ensure the effective loan portfolio management of banking sector, central bank of Rwanda established different roles and regulations such as the ratio between NPLs to gross loans issued. Therefore, in this section researchers assessed whether the Cogebank Rwanda PLC respected this regulation in the credit management.

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Table 4: Comparison of loan and deposits of Cogebank Rwanda PLC

Years	Total loans issued "000" Frw	Deposit "000" Frw)	Rate %
2018	568,104,724	593,272,279	95.8
2019	678,005,885	696,859,060	97.3
2020	851,099,810	921,369,191	92.4
2021	990,267,321	1,164,718,313	85.0

Source: **Financial statements of Cogebank Rwanda PLC from (2018 – 2021)**

This table 4 highlights the changes between deposit and loans in Cogebank Rwanda PLC within the period of our study. The results show that the bank granted loans of 95.8%; 97.3%; 92.4% and 85.0% respectively of their deposits from 2018 to 2021. And looking at BNR's regulations on the loan granting it is clear that the commercial bank must not exceed 80% of deposit collected when granting loans. The above-mentioned data shows that Cogebank Rwanda PLC wasn't respect this regulation, which is not good in bank management because it may cause problems such as lacking the enough liquidity or cash to be reimbursed to the owners in case, they immaturely need to withdraw their money not only that but also difficulties in covering some internal costs like paying the owners of deposits. Therefore, for Cogebank Rwanda PLC this is fail in credit risk management.

Recovered of credits

In the best management of credits in such bank is to recover the maximum possible of credit granted. The following table shows the level of recovered credit in Cogebank Rwanda PLC.

Table 5: Level of Credit Recovered

Year	Performing loan (PL)	Total loan	Variation in%
2018	544,524,978	568,104,724	95.8 %
2019	654,764,895	678,005,885	96.6 %
2020	819,921,658	851,099,810	96.3 %
2021	946,668,648	990,267,321	95.6 %

Source: **Financial statements of Cogebank Rwanda PLC from (2018 – 2021)**

Looking at the table 5 it is clear that Cogebank Rwanda PLC have been able to recover almost all the money they granted where in 2018 it recovered 95.8 %; in 2019 it recovered 96.6 %; in 2020 it recovered 96.3 % and in 2021 it recovered 95.6 % of granted loans. Therefore, this shows that the ratio as per BNR's standard was respected since BNR's regulations in credit management indicate that the ratio between Performing Loans and gross loans issued should not under 95%. Which means that credit risks management was effective in the covered period.

Non- Recovery of credits to total credits

As the central bank instruction on nonperforming loans to total loans, each bank should not exceed 5%.

$$\text{Non-Performing Loans to total loans} = \frac{\text{Non}-\text{Performing loan}}{\text{Total Loan}}$$

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Table 6: Non- Recovery of credits to total credits in Cogebank Rwanda PLC

Years /items	Non-Performing loan (NPL)	Total Loan	Variation in%
2018	23,579,746	568,104,724	4.15%
2019	23,240,990	678,005,885	3.43%
2020	31,178,152	851,099,810	3.66%
2021	43,598,673	990,267,321	4.40%

Source: **Financial statements of Cogebank Rwanda PLC from (2018 – 2021)**

The table 6 shows that the ratios of none performing loans to total loans are; 4.15%, 3.43%; 3.66%and 4.4% respectively from 2018 to 2021. This shows that Cogebank Rwanda PLC effort in credit risk management lead to a positive result because in all the years of the covered period are under the maximum BNR requirement rate of None Performing loan.

Level of Performance of Cogebank Rwanda PLC within the period of 2018-2021

Performance is undertaken using the figures from financial statements provided by a given company or institution. Hence, this section presents the performance indicators of a company over the period of study. Research might use return on assets (ROA), return on Equity (ROE) and Net Profit margin as measures of performance.

Specifically, the main purpose of this section was to assess the performance of Cogebank Rwanda PLC within the covered period and link it with credit risk management applied by Cogebank. And this was assessed due to some Known indicators such as trend in deposit; in net fees and commission receive by this bank; in net interest income; in operating income; in net income as well as on equities. It is also assessed due profitability ratios and results are presented in Table 7.

Table 7: Trend of deposits in Cogebank Rwanda PLC (in thousands Rwf)

Year	Deposit	Rate of evolution
2018	135,918,807	
2019	131,040,681	9.21
2020	169,686,398	29
2021	186,089,037	15.5

Source: Cogebank Rwanda PLC financial statement report 2018-2021

Results presented in Table 7 demonstrate that Cogebank Rwanda PLC recognized a continuous increase in deposit amount where it increased by 9.21% in 2019, by 29% in 2020 and by 15.5% in 2021. And as we all know deposit in banking sector are encouraged by different factors such as effective customer care services, but credit management was found to be the engine of these services because due to credit risk identification various credit services are delivered efficiently. And in the interview with some respondent's researchers realized that bad credit that seemed to be doubtful had declined almost at the level of 85% due to the use of credit management strategies. Therefore, these allow researcher to conclude that credit management has a positive effect on the trend of deposit in the bank under study.

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Table 8: Trend of net fees and commission receive by Cogebank Rwanda PLC (in thousands Rwf)

Year	Commission	Rate of evolution
2018	3,317,918	-
2019	3,354,627	**0.94**
2020	3,502,154	**4.3**
2021	3,860,155	**10.22**

Source: Cogebank Rwanda PLC financial statement 2018-2021

Table 8 demonstrates that commissions in Cogebank Rwanda PLC were increased by 0.94% in 2019, increased by 4% in 2020 and increased by 10% in 2021. Due to this researcher can confirm that this bank recognize performance within the period of this study. Normally fees and commission are charged to those who consumed bank's product and services. And of course, this is due to the applied credit management strategies

And the more these services are effectively delivered is the more people consume them and pay these services fees. But if not, customers may even decide to leave bank and went to pay them to the competitors. But with effective digital banking customers paid some fees on transaction performed due digital bank haply because it saves their time and facilitate them to pay as easy as possible without their presence at bank, and it ensure the safe of their money. Therefore, this allows researcher to conform that credit risk management contribute a lot to the considerable trend in net fees and commission received by the bank understudy.

Table 9: Trend of net interest income (in thousands Rwf)

Year	Interest income	Rate of evolution
2018	11,090,023	-
2019	13,129,858	**25.21**
2020	14,808,174	**12.78**
2021	18,451,883	**24.6**

Source: Cogebank Rwanda PLC financial statement 2018-2021

Table 9 shows that net interest income has been increased by increased by 25.21% in 2019; by 12.78% in 2020 and by 24.6 in 2021. And as we all know interest income cover a large part of the total income in banking sector; therefore, its considerable increase is an indicator of profitability. And these was not happened accidently but to various effort made by this bank it enabled bank to satisfy it customers and a satisfied customers consume more. And as we all know credit are granted to customers who are working with bank and of course they payback the granted loans together with interest, but if they were not happy with the services received in the bank. Therefore, these clearly show the relationship between the trends in net interest in this bank and applied Credit risk management.

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Table 10: Trend in Cogebank Rwanda PLC operating income (in thousands Rwf)

Years	Operating income	Evolution rate
2018	4,176,864	-
2019	4,714,669	13.52
2020	5,356,231	13.60
2021	7,940,241	48.24

Source: Cogebank Rwanda PLC financial statement 2018-2021

The researcher had an interest in knowing the rate of increase of Cogebank Rwanda PLC's operating income. This could help the researcher to draw conclusion and give recommendations on profitability improvement in this bank as a result of internet banking. As it established in the table above Cogebank Rwanda PLC's operating income increased by 13.52% in 2019; by 13.60% in 2020 and by 48.24% in 2021. Normally, this increase in operating income goes hand in hand with customers consumption and of course these are determined by different factors such as how well bank facilitate it customers especially on the issues of serving them well, and as we know digital banking helps bank on one hand by avoiding time they were waiting in line while waiting for services. And on the other side by letting them use their account while sitting at home or everywhere else they are. Therefore, this allows researcher to confirm that credit risk management contribute to the performance of Cogebank Rwanda PLC.

Table 11: Trend in net income of Cogebank Rwanda PLC (in thousands Rwf)

Years	Net income	Rate of evolution
2018	3,335,028	-
2019	4,012,631	20.31
2020	3,838,164	(4.34)
2021	5,007,183	30.45

Source: Cogebank Rwanda PLC financial statement 2018-2021

Table 11 mentions that net income of Cogebank Rwanda PLC was increased by 20.31% in 2019; decreased by 4.34% in 2020 and increased by 30.45% in 2021. As we know the profit of any company can't increase by accident, but due to the effective management. But the interests of customers always influence the overall performance of Cogebank Rwanda PLC and credit risk management system was found to be the most important way of ensuring the interest of customers. Therefore, it is from this researcher confirmed that credit risk management contributes a lot to the performance of Cogebank Rwanda PLC.

Table 12: Trend of equities of Cogebank Rwanda PLC (in thousands Rwf)

Years	Equities	Rate of evolution
2018	204,573,632	-
2019	227,040,890	10.98
2020	269,683,614	18.78
2021	291,159,333	7.96

Source: **Cogebank Rwanda PLC financial statement 2018-2021**

Through the data collected to the Cogebank Rwanda PLC'S financial statement, the equities increased by 10.98% in 2019; by 18.78% in 2020 and by 7.96% in 2021. The equities of Cogebank Rwanda PLC come from the social capital, the reserves and net income. The equities show the financial means of the company without considering the external resources like loans and others. And the evolutions of the equity of this bank prove its profitability and well standing in investment position.

Ratios analysis

Analysis and interpretation of accounting ratios provide a skilled experienced analyst, a better understanding of the financial conditions and profitability of the firm than what could have obtained only through a perusal of financial statements.

Profit Margin

The profit margin looks at cost of goods sold as a percentage of sales. This ratio looks at how well a company controls the cost of its inventory and the manufacturing of its products and subsequently passes on the costs to its customers. The following table show the Net Profit Margin of Cogebank Rwanda PLC during our period of study

Table 13: Net Profit Margin ratio (in thousands Rwf)

Year	2018	2019	2020	2021
Net income (1)	3,335,028	4,012,631	3,838,164	5,007,183
Operating income (2)	4,176,864	4,714,669	5,356,231	7,940,241
net Profit Margin in % (1/2)	79%	85%	71%	63%

Source: Cogebank Rwanda PLC financial statement 2018-2021

From 2018 up to 2021 the ratios of profit margin were 79%; 85%; 71% and 63% respectively. This means that for 100 Rwf invested, the Cogebank Rwanda PLC got 79 Rwf in 2019; 85 in 2020; 71 in 2020 and for RWF100, in 2021 the Cogebank Rwanda PLC got 63 Rwf. Therefore, it revealed that net profit margin of Cogebank Rwanda PLC increased every year.

Normally, was due to the good net income of the bank understudy, and as we all know net income comes after deducting all expenses from bank's revenue. This means that on one side this is due to the effective expenses management, but on the other side this is due to the considerable effort made in sales. And sales in banking sector influenced by various factors but digital banking are the leading factor among others because it influences consumers to consume more due to how it made every transaction easy.

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Return on Assets

The return on assets ratio is a profitability ratio which is a returns ratio. The return on assets ratio is also called the return-on-investment ratio. Return on assets allows the business owner to calculate how efficiently the company is using their total asset base to generate sales. Total assets include all current assets such as cash, inventory, and accounts receivable in addition to fixed assets such as plant and equipment.

Table 14: Return on Assets "ROA" (in thousands Rwf)

Year	2018	2019	**2020**	**2021**
Net income (1)	3,335,028	4,012,631	3,838,164	5,007,183
total assets (2)	204,573,632	227,040,890	269,683,614	291,159,333
Return on assets (1/2)	0.01	0.01	0.01	0.01

Source: Cogebank Rwanda PLC financial statement 2018-2021

Table 14 shows the Return on Assets ratio during the covered period. From 2018 up to 2021.The ratio of Return on Assets are 1%; 1%; 1 % and 1% respectively. This means that, in 2018 for 100 RWF invested Cogebank Rwanda PLC got 0.01 RWF and in 2019 for 100 RWF of invested they got 0.01 RWF; 0.01 RWF in 2020 and in 2021 for 100 RWF of invested they got 0.01RWF. The above result, show that Cogebank Rwanda PLC, is profitable during the covered period. Because the standard ratio of Return on Assets is 1% and looking on the result above Cogebank Rwanda PLC has even two times in almost all years. And as we all know; this show how well bank has been able to use it assets well. And of course, this has a strong relationship with credit risk management.

Ratio of Return on Equity

Return on equity (**ROE**) measures the rate of return on the ownership interest of the common stock owners. It measures a firm's efficiency at generating profits from every unit of shareholders' equity. ROE shows how well a company uses investment funds to generate earnings growth.

Table 15: Ratio of Return on Equity (in thousands Rwf)

Year	2018	2019	**2020**	**2021**
Net income	3,335,028	4,012,631	3,838,164	5,007,183
Stockholder's Equity	26,436,833	29,448,956	31,345,698	36,285,164
Return on Equity	12.62%	13.63%	12.24%	13.79%

Source: Cogebank Rwanda PLC financial statement 2018-2021

The table above demonstrates the image of return on equity ratio in Cogebank Rwanda PLC from 2018 up to 2021. It is very important for any shareholder because it measures the return on the money they have put into the bank. Even new investors are interested on it, it is the ratio potential investors look at when deciding whether or not to invest in the company.

From 2018 up to 2021 the ratio of Return on Equity is as following: 12.62%; 13.63%; 12.24% and 13.79% respectively. This means that, for the 100 RWF invested in Cogebank Rwanda PLC, generated 12.63 RWF in 2018 and 13.62Rwf in 2019; for the 100 RWF invested in Cogebank Rwanda PLC, generated 12.24 RWF in 2020 and for the 100 RWF invested in Cogebank Rwanda

PLC, generated 13.79RWF in 2021. Normally the above ratios demonstrate that within this period Cogebank Rwanda PLC's stockholders were in period of happiness since the average of income generated by their equity shows that for each 100Rwf they invest they gain at least 13.07Rwf, and of course this has a strong relationship with credit risk management in this bank.

Effects of credit risk management on the performance of Cogebank Rwanda PLC

The study wanted to examine how effective credit risk management affects the level of performance of Cogebank Rwanda PLC. Hence, respondents were asked to present their views on how credit risk management affect the level of performance in Cogebank Rwanda PLC and the table below presents their views.

Table 16: Effect of credit risk management on the performance of Cogebank Rwanda PLC

Responses	Frequency	Percentage
Reduce non-performing loans	15	75%
Reduce credit loss	18	90%
Reduce the bad debts	20	100%
Reduce transaction costs	13	65%

Source: Primary data, 2023

Table shows that effective credit risk management procedures that are applied by Cogebank Rwanda PLC enables to reduce the level of non-performing loans in Cogebank Rwanda PLC and credit loss as well as the bad debts and reduce other transactions costs associated with credit management and disbursement. From this finding, it was established that effective credit risk management is an effective tool in reducing the level of nonperforming loans in the bank and the reduction in non-performing loans level in the bank is an important criterion to assess the financial health of banking sector and reflect the assert worth, credit and the competence in the allocation of resources to the productive sectors.

These findings conform with Silikhe (2008) who stressed that effective credit risk management can enhance the credit collection effectiveness and contribute to the reduction of bad debts level. Reduction of bad debts enhances the operating income of Cogebank Rwanda PLC which in return may increase the performance for the institution as well. Sliikhe (2008) also identified that efficient credit risk management strategies minimize the cost involved in loan allocation whereas on the other hand maximizing the returns firm such undertakings. Mwang (2012) identified that effective credit risk management reduce the level of non-performing loans in commercial banks.

Table17: Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation	Variance	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
Reduce non-performing loans	20	.00	1.00	.7500	.44426	.197	-1.251	.512	-.497	.992
Reduce credit loss	20	1.00	1.00	1.0000	.00000	.000	.	.	.	.
Reduce the bad debts	20	1.00	1.00	1.0000	.00000	.000	.	.	.	.
Reduce transaction costs	20	.00	1.00	.6000	.50262	.253	-.442	.512	-2.018	.992

Source: Primary data, 2023

Table 18: One-Sample Test

	Test Value = 0					
	t	Df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Reduce non-performing loans	7.550	19	.000	.75000	.5421	.9579
Reduce transaction costs	5.339	19	.000	.60000	.3648	.8352

Source: Primary data, 2023

Relationship between credit risk management and the performance of Cogebank Rwanda PLC

Multivariate regression model was applied to determine the relative importance of each of the four variables with respect to performance of the Cogebank Rwanda PLC.

Table 19. Model summary

Model	R	R square	Adjusted R Square	St Error of estimates
1	.832	.708	.650	.0249

Source: Primary data, 2023

Table shows the value of adjusted R^2 is 0.650 implying that there was a variation of 65% of performance of Cogebank Rwanda PLC which is explained by the four credit risk management strategies adopted by the bank namely credit risk appraisal, credit risk identification, credit risk analysis, and credit risk monitoring. This is to mean that, credit risk appraisal, credit risk identification, credit risk analysis, and credit risk monitoring explained 65% of performance at a confidence level of 95%.

Table also shows that R which is the coefficient of correlation was 0.832. This implies that there was as positive and strong relationship between credit risk management and the performance of Cogebank Rwanda PLC. This means that effective credit risk management strategies undertaken by Cogebank Rwanda PLC in terms of credit risk appraisal credit risk identification, credit risk analysis, credit risk mitigation and credit risk monitoring are likely to increase the performance of the bank as measured by ROA and ROE proportionately. These results are supported by Kirui (2019) who found that positive and significant relationship between credit risk management procedures and performance of microfinance institutions.

5.0 Conclusion

The general objective of this study was to evaluate the effects of credit risk management on the performance of financial institutions in Rwanda. in order to reach the main objective, the researchers based on the following specific objectives which are: to analyse the effects of credit appraisal on the performance of Cogebank Rwanda Plc, to determine the effects of credit risks identification on the performance of Cogebank Rwanda Plc, to evaluate the effects of credit risks monitoring and control on the performance of Cogebank Rwanda Plc, to determine the effects of credit collection or recover policies on the performance of Cogebank Rwanda PLC, To achieve the objective of this study, the researchers used both quantitative approach and qualitative approach, quantitative approach was employed when dealing with percentage, frequencies, and correlations in data analysis and qualitative approach was employed when dealing with the perception of respondents on a given phenomenon. This research used primary data collected using questionnaire and interview guide and secondary data collected using reports and financial statements of Cogebank Rwanda Plc. The sampling technique used was purposive sampling technique since the targeted population was the staff of Cogebank Rwanda Plc in charge in credit control.

Based on the findings discussed above, the researcher has concluded that:

- There is effective loan management in Cogebank Rwanda Plc
- The level of profitability in Cogebank Rwanda Plc is at good position

- There is a significant relationship between loan management and profitability of Cogebank Rwanda PLC

6.0 Recommendations

Considering the findings of this study and the weaknesses identified and it was recommended as following:

Cogebank Rwanda PLC should put in place solid measures to run the credit risk management in order to enhance positive performance in the bank. The management in the financial institutions should spearhead in application of procedures which are applied in the management of the bank. Cogebank Rwanda PLC should use new technology in monitoring and evaluating of procedures which are applied in credit management. Cogebank Rwanda PLC should design an effective credit risk management system need to establish a suitable credit risk environment; operating under a sound credit granting process, maintaining an appropriate credit administration that involves monitoring, processing as well as enough controls over credit risk.

Cogebank Rwanda PLC need to place and devise strategies that will not only limit the banks exposition to credit risk but will develop performance and competitiveness of the bank and banks should establish a proper credit risk management strategy by conducting sound credit evaluation before granting loans to customers. Central bank needs to establish a suitable credit risk environment; operating under a sound credit granting process within all of the financial institutions to limit the probability of default in one or other and stabilize the economy.

REFERENCES

Bessis, J. (2010). *Risk Management in Banking, Wiley, Third edition.* UK : Macmillan Publishers Limited .

Brigham,L. (2012). *Intermediate Financial Management.* Florida: The Dryden press.

Carey, A. (2017). Effective Risk Management in Financial Institutions: The turnbull approach. *Journal of Applied Business Research*, 24 – 27.

Crouhy, M. G. (2016). *The Essentials of Risk Management.* New York : McGraw HillCompanies, USA.

Chinduru, P. (2016). *impact of credit appraisal techniques on microfinances' loans performance.* Zimbabwe national universty of science and technolog.

Brealey, M. (2013). *Intermediate Financial Management.* Florida: The Dryden press.

Danielle, E. (2021). *Analysis of Credit and Operational risks on Financial Performance of Commercial Banks in Rwanda.* University of Rwanda College of Business and Economics MBA Finance.

Dinesh, P. K. (2018). Banking: Definition and Evolution . *International Journal of Scientific & Engineering Research Volume 9,*, 745.

Drake, L. (2010). Efficiency and Productivity Change in UK Banking. Applied Financial. *Economics Journal, 11*, 557-571.

Fatima, A. (2013). *an analysis of credit management in the banking industry. A case study of first bank of Nigeria plc.* . Enugu: Caritas University Amorji-Nike.

Felix, T. (2018). *) bank performance and credit risk management.* University of skovde.

Haneef, D. (2012). *Measuring And Managing Credit Risk.* New York: Mc-Graw Hill.

Holland, J. (2010). Banks, knowledge and crisis: a case of knowledge and learning failure. Holland, J. (2010), "Banks, knowledge and crisisn . *Journal of Financial Regulation and Compliance*, 87-105.

Jedidah, H. (2018). *effect of credit risk management practices on performance of commercial banks in Kitengela.* Kenya: KCA University.

Kaaya, I. (2013). (2013). Credit Risk and Commercial Banks Performance in Tanzania: a Panel Data Analysis. *Research Journal of Finance and Accounting Vol.4, No.16, 1.*

Kagoyire, A. &. (2016). Effect of Credit Management on Performance of Commercial Banks in Rwanda (A Case Study of Equity Bank Rwanda Ltd). .*International Journal of Business and Management Review, 4(4),* , 12.

Kalani, M. (2009). Commercial Banking Crises in Kenya: Causes and Remedies. *Global Journal of Finance and Banking Issues, Vol. 3, No. 3.*

Kargi, H. S. (2011). *Credit risk and the Performance of Nigeria banks.* Nigeria: :Ahmadu Bello University publishers.

Li, F. (2014). *the Impact of Credit Risk Management on Profitability of Commercial Banks: A Study of Europe. Umeå School of Business and Economics.*

Merton. (2015). *British management accounting research: Whence and whither: Opinions and recollections.* .British Accounting Review, 33, 263–91.

Mureithi, E. (2014). *the effect of credit management techniques on the financial performance of commercial banks in Kenya.* Nairobi: University of Nairobi.

Mureithi, E. (2014). *the effect of credit management techniques on the financial performance of commercial banks in Kenya.* Nairobi: University of Nairobi.

Mutabaruka, E. (2021). *the effectiveness of credit management system on microcredit performance. Case Study of East Africa Commercial Banks and Mobile Operators.* Atlantic International University.

Ndyagyenda, E. (2020). Credit Risk Management and Financial Performance: A Case of Bank of Africa (U) Limited. *Open Journal of Business and Management. Vol.8 No.1.*

Nelson, L. (2017). *Solving Credit Problem.*

Njoroge, C. (2013). *Strategic Risk Management Practices By AAR Insurance Kenya Limited (Unpublished master's thesis).* Nairobi: .University of Nairobi.

oden, C. (2020). *credit management and bank lending.*

Olweny, A. (2011). *Effects of Banking Sectoral Factors on the Profitability of Commercial Banks in Kenya.* Economics and Finance Review, 1(5), 1-30.

Simkins, J. (2010). Recognizing financial distress patterns using a neural network tool. *Recognizing financi Financial Management Journal*, 42-55.

Tufan, E. (2018). Multi-criteria evaluation of domestic and foreign banks in Turkey by using financial ratios. *Banks and Bank Systems Journal*, *3(2)*, 20-28.