LOAN MANAGEMENT AND FINANCIAL PERFORMANCE OF COMMERCIAL BANKS IN RWANDA

A CASE OF: BANK OF KIGALI (2019-2022)

By

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DECLARATION

I declare that this Dissertation titled**: Loan Management and Financial Performance of Commercial Banks in Rwanda, A case study of Bank of Kigali (2019-2022)** is my original work, it has never been submitted before for any other degree award to any other University.

Full name: MULUME ISHARA GRACIA Date ……

Signature ……...

APPROVAL

This dissertation titled: **Loan Management and Financial Performance of Commercial Banks in Rwanda, A case study of Bank of Kigali (2019-2022)** has been done under my supervision and submitted for examination with my approval.

Supervisor: Dr. Bruce GASHEMA Date……

Signature: …….

DEDICATION

With conviction and gratitude, I dedicate this work to you, the reader. To my parents and siblings. The financial sector beckons for leaders who can navigate its complexities with insight and integrity, may this book be a stepping stone in your path to becoming one such leader.

With love and respect,

ACKNOWLEGEMENTS

“Every good and perfect gift is from above, coming down from the Father of the heavenly lights, who does not change like shifting shadows.” - James 1:17

At the outset of this journey, I acknowledge the divine guidance that has been pivotal in reaching this significant milestone. I extend my deepest gratitude to God for His unwavering presence and guidance throughout.

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Lastly, I extend my thanks to all those who contributed to the completion of this book through prayers, material support, advice, and encouragement.

May the Almighty bless you all abundantly!

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ABBREVIATION, ACRONYMS AND SYMBOLS

AFDB: African Development Bank

ALM: Asset-Liability Management

ATM: Automatic Teller Machines

BCR: Rwanda Commercial Bank

BK: Bank of Kigali

BNR: National Bank of Rwanda

BPR: Banque Populaire du Rwanda

CCA: Contingent Claims Analysis

CD: Certificates of Deposit

ESG: Environmental, Social, and Governance

FI: Financial Institutions

FICO: Fair Isaac Corporation

ICISA: Insurance and Surely Association

KCB: Kenya Commercial Bank

LDR: Loan to Deposit Ratio

LLP: Loan Loss Provision

MCB: Pakistani Multinational Commercial Bank

MFI: Microfinance Institutions

MPT: Modern Portfolio Theory

NIM: Net Interest Margins

NPL: Non-Performing Loans

ROA: Return On Assets

ROC: Receiver Operating Characteristic

ROE: Return On Equity

SPSS: Social Science Statistical Software

UK: United Kingdom

ABSTRACT

This dissertation explores loan management and financial performance of commercial banks in Rwanda, focusing on the Bank of Kigali from 2019 to 2022. The study's objectives were to measure the relationship between loan management and financial performance, to evaluate the effectiveness of nonperforming loan management on enhancing the financial stability and to examine the effects of loan recovery, deposit utilization, and lending strategies on the financial results of Bank of Kigali.

Using financial data from 2019 to 2022, a quantitative research design was adopted, utilizing secondary data from the Bank of Kigali. Statistical techniques were employed using SPSS software. The findings show strong positive correlation of .978 and a significance of 0.022 between loan management practices and financial performance**,** which leads to the confirmation of the alternative hypothesis.

The study recommends that the Bank of Kigali improve loan management strategies to reduce nonperforming loans (NPLs) and continuously monitor and evaluate loan recovery processes for maximum efficiency. Additionally, implementing advanced loan management technologies could further enhance financial performance.

This study contributes to the existing body of knowledge by empirically demonstrating the impact of loan management on the financial performance of commercial banks in Rwanda. It offers practical insights for bank management and policymakers on the importance of effective loan management practices for ensuring financial stability and profitability.

Keywords: Loan, Financial Performance, Management, Commercial banks, loan Management.

CHAPTER ONE: INTRODUCTION TO THE STUDY

This introductory chapter aims to provide a comprehensive framework for the research, encompassing the background of the study, the specific problem addressed, the research objectives and questions, and the scope and significance of the study. Furthermore, key concepts central to the research will be defined.

1.1. Background of the study

The global banking sector has undergone significant transformation over the years, with loan management and financial performance emerging as critical areas of focus for commercial banks. The evolution of these concepts can be traced back to the early 20th century, where traditional banking practices were primarily focused on deposit-taking and lending, with limited emphasis on risk management and financial sustainability.

In the early 20th century, scholars such as (Fisher, The debt-deflation theory of great depressions. Econometrica,, 1933) began to explore the relationship between banking practices, loan management, and financial stability. Fisher emphasized the importance of sound loan management practices in maintaining the solvency and profitability of banks, laying the theoretical foundation for modern banking practices. This period marked the establishment of basic banking principles and the fundamentals of loan management to ensure the stability and profitability of banks.

The post-World War II era witnessed significant changes in the global banking landscape, with the advent of financial liberalization and globalization. (Modigliani & Miller, 1958) introduced groundbreaking theories on capital structure and financial performance, revolutionizing the way banks approached loan management and risk assessment. This shift towards more sophisticated financial theories and practices focused on optimizing capital

structure and enhancing financial performance through effective loan management and risk assessment.

The late 20th and early 21st centuries brought about rapid technological advancements, leading to the rise of digital banking and innovative loan management strategies. (KPMG, 2017) highlights the transformative impact of technology on loan management, with banks increasingly adopting digital platforms and data analytics to enhance efficiency, mitigate risks, and improve customer experience. Technological advancements have enabled banks to enhance their loan management practices through the adoption of digital platforms, automation, and data analytics, enabling more efficient and effective risk assessment and customer service.

The global financial crises of the late 20th and early 21st centuries, notably the 2008 financial crisis, prompted a reevaluation of banking practices and regulatory frameworks. (Bernanke, 2010) emphasizes the need for robust loan management practices and stringent regulatory oversight to prevent systemic risks and ensure financial stability. The financial crises highlighted the vulnerabilities in existing loan management practices and regulatory frameworks, leading to a renewed focus on strengthening loan management practices and implementing stricter regulatory oversight to safeguard financial stability.

In recent years, there has been a growing emphasis on sustainable banking practices, financial inclusion, and responsible lending. (WorldBank, 2019) underscores the importance of incorporating environmental, social, and governance (ESG) factors into loan management and financial performance metrics, reflecting a broader shift towards more holistic and socially responsible banking practices. Current trends in banking focus on sustainability, financial inclusion, and responsible lending, with an increasing recognition of the importance of integrating ESG factors into loan management and financial performance metrics to ensure long-term viability and societal impact.

Within the African continent, the commercial banking sector has faced unique challenges and opportunities. (Okafor, 2017) Highlights the significance of loan management strategies tailored to the local economic conditions and regulatory frameworks in Africa. (Mwangi, 2019) discusses the role of financial performance in driving economic growth and development in African countries, emphasizing the need for sustainable banking practices.

The African banking sector has experienced significant growth and transformation in recent years, with a focus on enhancing financial inclusion, promoting economic development, and improving regulatory frameworks. (African Development Bank (AfDB), 2018) economic growth and development in the region. The adoption of innovative loan management strategies, technological advancements, and regulatory reforms are key factors influencing the loan management practices and financial performance of commercial banks in Africa.

In Rwanda, the commercial banking sector has witnessed significant growth and transformation in recent years, with institutions like Bank of Kigali playing a pivotal role. (Kamanzi, 2020) underscores the importance of innovative loan management strategies in enhancing the competitiveness of Rwandan banks in the regional and global markets. (Uwimana & Niyonkuru, 2021) focus on the financial performance of commercial banks in Rwanda, examining the factors influencing profitability and sustainability.

The Rwandan government has implemented various initiatives to promote financial inclusion, enhance regulatory frameworks, and support sustainable banking practices. The National Bank of Rwanda (BNR) has emphasized the importance of strengthening loan management practices, improved risk assessment mechanisms, and promoting responsible lending to ensure the stability and growth of the banking sector. The adoption of technological innovations, regulatory reforms, and sustainable banking practices are key factors influencing the loan management practices and financial performance of commercial banks in Rwanda.

In the contemporary banking environment, the effective management of loans and the assessment of financial performance are integral to the success and stability of commercial banks. With the global financial landscape undergoing rapid changes, driven by technological advancements, evolving regulatory frameworks, and shifting economic conditions, banks are continually adapting their loan management strategies and financial practices to navigate these complexities.

The commercial banking sector in Rwanda, represented prominently by institutions like Bank of Kigali, has been at the forefront of these transformative changes. As one of the leading financial institutions in the country, Bank of Kigali plays a pivotal role in shaping the financial landscape and setting industry standards in loan management and financial performance.

This study seeks to delve deeper into the intricacies of loan management and financial performance within the commercial banking sector, with a specific focus on Bank of Kigali. This research aims to provide valuable insights into the factors influencing loan management effectiveness and financial sustainability in the Rwandan banking context.

1.2. Problem statement

In recent decades, the issue of loan management has garnered significant attention. Numerous studies have identified asset quality as a key indicator of potential insolvency, with banks often exhibiting high levels of impaired loans preceding bankruptcy. Consequently, a substantial volume of non-performing loans within the banking system typically leads to bank failures. The primary causes of severe banking issues are consistently linked to inadequate lending standards for borrowers and counterparties, ineffective portfolio management, and insufficient responsiveness to economic or situational changes that may negatively impact the loan status of banks.

Late payments erode performance, while non-payments result in total losses, underscoring the importance of prioritizing strategic loan management. For financial institutions, particularly banks, lending poses the greatest risk due to the potential for non-repayment. This risk is amplified as most loans, especially microloans, are unsecured. In Rwanda, the demand for loans increased by 20.4 percent, from FRW 1,237 billion in 2018 to FRW 1,490 billion in 2019, surpassing the previous year's growth of 3.4 percent (BNR economic review). However, with this rise in loan demand, there is a corresponding increase in non-performing loans (NPLs), which jeopardizes the sustainability of commercial banks. Excessive NPLs adversely impact a bank's liquidity, profitability, debt-servicing capacity, lending capability, and ability to raise additional capital. They are a significant factor in economic stagnation, as each impaired loan heightens the risk of financial instability and unprofitability for the institution. Despite concerted efforts to minimize credit risks and enhance recovery mechanisms, many banks struggle with escalating levels of non-performing assets, highlighting the inadequacy of existing risk management frameworks (BNR, 2007). The immediate consequences of non-performing loans for commercial banks include reduced profitability due to provisions for credit losses and direct write-offs for bad debts, as well as a shrinking pool of loanable funds.

Large amounts of non-performing loans within both the banking and non-banking financial sectors have frequently posed significant threats, leading to the failure and collapse of several banks and microfinance institutions in Rwanda. This persistent issue of non-performing loans is directly linked to the methods of loan management. Consequently, there is a need to examine whether the Bank of Kigali (BK) faces similar challenges in loan management. This study aims to assess the impact of loan management on the financial performance of BK. Given the overarching objective of financial institutions to maximize profits while fostering

national development through loan provisions for investments across various sectors, it is imperative to address the ongoing challenges of loan management within Rwandan banks.

1.3. Research objectives

This research contains two objective the general objective and the specific objectives.

1.3.1. General objective

The general objective is to find the impact which loan management has on financial performance of commercial banks in Rwanda using the case study of Bank of Kigali.

1.3.2. Specific objectives

1. To evaluate the effectiveness of nonperforming loan management on enhancing the financial stability of Bank of Kigali.
2. To examine the effects of loan recovery, deposit utilization, and lending strategies on the financial results of Bank of Kigali.
3. To measure the relationship between loan management and financial performance.

1.4. Research question

1. How do nonperforming loan management practices, affect the financial performance of the Bank of Kigali?
2. What are the effects of loan recovery, deposit utilization, and lending strategies on the financial results of Bank of Kigali?
3. What is the statistical significance of the relationship between loan management and the financial performance of the Bank of Kigali?

1.5. Research hypothesis

This research hypothesis is stated in the alternate form(H_1)

1. Non-performing loans at the Bank of Kigali significantly affect financial performance.

2. Loan recovery, deposit utilization, and lending strategies have a significant impact on the financial results of Bank of Kigali.
3. Loan management significantly affect the financial performance of Bank of Kigali.

1.6. Scope of the study

The scope of the study encompasses both the geographical and temporal dimensions. Due to financial and time limitations, the research was confined to a specific geographical area, namely the headquarters of Bank of Kigali (BK) situated on Nyarugenge Avenue de la paix. This location served as the focal point for data collection and analysis, allowing for a focused examination of the loan management practices and financial performance indicators of BK.

In terms of the temporal scope, the research spanned a period of four years, from 2019 to 2022. This timeframe was chosen based on the availability of relevant data necessary for the study. By focusing on this specific period, the research aimed to capture a comprehensive snapshot of BK's loan management system and its impact on financial performance over a meaningful timeframe. This approach facilitated a thorough analysis of trends, patterns, and changes in BK's performance metrics within the specified timeframe.

Overall, the geographical and temporal scope of the study was carefully selected to ensure feasibility within resource constraints while allowing for a comprehensive examination of BK's loan management practices and financial performance indicators.

1.7. Significance of the study

The significance of this study extends beyond the academic realm, serving multiple stakeholders and contributing to the advancement of knowledge in the field of banking and finance in Rwanda.

Firstly, this research provides valuable insights and enhances knowledge for the researcher. By delving into the intricacies of loan management and the financial performance of commercial banks, the study broadens the researcher's understanding of these critical aspects of banking operations

Moreover, this study fulfills a partial academic requirement, thereby contributing to the researcher's academic journey and progression. It serves as a platform for applying theoretical knowledge to real-world scenarios, honing research skills, and demonstrating academic proficiency.

Additionally, the findings of this research are instrumental for decision-makers within commercial banks in Rwanda. By offering in-depth knowledge and insights into loan management and financial performance, the study equips decision-makers with valuable information to inform their strategic decision-making processes. This, in turn, leads to more informed and effective decisions aimed at enhancing the financial stability and performance of commercial banks.

Furthermore, this research has implications for future academia and research endeavors. By contributing new knowledge and insights into the loan management and financial performance of commercial banks, the study serves as a foundational resource for future researchers and scholars in this field. It provides a basis for further exploration, analysis, and refinement of existing theories and practices related to banking operations.

1.8. Definition of key concept

This part explains about the key concept of this this research. Following are the research concepts:

1. Financial performance

Financial performance is a complete evaluation of a company's overall standing in categories such as assets, liabilities, equity, expenses, revenue, and overall profitability. It is measured through various business-related formulas that allow users to calculate exact details regarding a company's potential effectiveness. (corporate finance institute, n.d.)

For internal users, financial performance is examined to determine their respective companies' well-being and standing, among other benchmarks. For external users, financial performance is analyzed to dictate potential investment opportunities and to determine if a company is worth their while. (corporate finance institute, n.d.)

2. Banks

A bank is a financial institution that is licensed to receive deposits, make loans, and provide a variety of financial services, such as wealth management, currency exchange, and safe deposit boxes. Banks play a critical role in the economy by providing a safe place for individuals and businesses to deposit their money, offering loans to facilitate personal and commercial transactions, and acting as intermediaries in financial markets. They operate under a regulatory framework to ensure stability and protect depositors. Banks can be classified into various types, including commercial banks, investment banks, central banks, and savings and loan associations (Mishkin, 2019).

3. Commercial banks

Commercial banks are financial institutions that provide a broad range of services to individuals, businesses, and governments. These services include accepting deposits, providing business loans, offering basic investment products, and facilitating payment systems. The primary function of commercial banks is to act as intermediaries between depositors who provide capital and borrowers who need funds. They earn profit primarily

through the interest rate spread between deposits and loans. Commercial banks play a vital role in the economic development of a country by supporting commerce and industry through their financial services (Saunders & Cornett, 2018)

4. Loan

A loan is a sum of money that an individual or entity borrows from a financial institution or other lender, which must be repaid over a specified period, usually with interest. Loans are used for various purposes, including purchasing property, financing education, starting a business, or managing personal expenses. The terms and conditions of a loan, including the interest rate, repayment schedule, and penalties for non-repayment, are outlined in a loan agreement. Loans can be secured, backed by collateral, or unsecured, based solely on the borrower's creditworthiness (Gorton & Winton, 2003).

5. Loan management

Loan management refers to the comprehensive process of overseeing the entire lifecycle of a loan, from application and approval to disbursement, monitoring, and repayment. Effective loan management involves several key activities, including credit risk assessment, loan underwriting, documentation, disbursement, monitoring of loan performance, and managing delinquent loans. The objective is to ensure that loans are granted to creditworthy borrowers, repayments are made on time, and risks are minimized to safeguard the financial health of the lending institution. Proper loan management is crucial for maintaining liquidity, profitability, and reducing the incidence of non-performing loans (NPLs) (Koch& MacDonald, 2014).

6. Performance

Performance refers to the effectiveness or efficiency with which a person, organization, system, or entity accomplishes a specific task, goal, or objective. In the context of financial

management, performance often relates to the achievement of financial goals, such as generating profits, maximizing returns on investment, or achieving predetermined benchmarks. It can also encompass non-financial aspects, such as operational efficiency, productivity, and customer satisfaction. Performance evaluation involves assessing the outcomes or results achieved relative to predetermined standards or expectations (Gitman& Zutter, 2019)

1.9. Structure of the dissertation

The dissertation on loan management and financial performance of commercial banks is structured into five key chapters. The first chapter introduces the research by providing an overview that includes the background of the study, a clear statement of the problem, the research objectives, and the specific questions the research aims to answer. It also outlines the hypotheses to be tested, discusses the significance of the study, defines key concepts, and gives a brief overview of the dissertation's structure.

Following this, the second chapter presents a thorough review of the existing literature on loan management and financial performance. This chapter delves into both conceptual and theoretical aspects, examines related empirical studies, and develops a conceptual framework that will guide the research. The literature review is critical in identifying gaps in the current research that this study will address.

The third chapter describes the research methodology employed in the study. It covers the research design, the methods and tools used for data collection, and the approaches taken to ensure the validity and reliability of the findings. This chapter also discusses the procedures for data processing, the techniques used for data analysis, and the ethical considerations observed throughout the research process.

In the fourth chapter, the dissertation presents and analyzes the findings of the research. The data collected is thoroughly analyzed to identify trends, patterns, and relationships relevant to loan management and financial performance. The analysis is interpreted in the context of the research questions and the literature reviewed, providing a clear understanding of the study's results.

Finally, the last chapter provides a summary of the research findings and draws conclusions based on the analysis. It offers recommendations for future research and practical implications for the management of loans and financial performance in commercial banks. This chapter ties together the key insights from the study, highlighting their significance and suggesting areas for further exploration.

CHAPTER TWO. LITERATURE REVIEW

In this chapter, an in-depth exploration into the existing literature concerning loan management and financial performance will be undertaken.

The conceptual review will involve a thorough examination of the fundamental concepts and principles related to loan management and financial performance. This will entail defining key terms, and elucidating the conceptual foundations that underpin the study.

Following the conceptual review, a theoretical review will be conducted to explore various theoretical perspectives and models relevant to loan management and financial performance. This will involve analyzing theories from financial management, banking, and related disciplines to gain insights into the factors influencing loan management practices and their impact on financial performance.

Moreover, a review of related studies will be conducted to examine existing research on loan management and financial performance in commercial banks. This will involve synthesizing findings from empirical studies, identifying gaps or inconsistencies in the literature, and building upon prior research to contribute new insights to the field.

Finally, the chapter will culminate in the development of a conceptual framework that synthesizes the key concepts, theories, and findings from the literature review. This conceptual framework will serve as a theoretical basis for guiding the subsequent analysis and interpretation of data in the study, providing a structured framework for understanding the relationships between loan management practices and financial performance in commercial banks.

2.1. Conceptual review

This part will involve a thorough examination of the fundamental concepts and principles related to loan management and financial performance. This will entail defining key terms, and elucidating the conceptual foundations that underpin the study.

2.1.1. Loan

Loan is an arrangement in which a lender gives money or property to a borrower, and the borrower agrees to return the property or repay the money, usually a long with interest, at some future point(s) in time. Normally there is a predetermined time for repaying the loan, and generally the lender has to bear the risk that the borrower may not repay a loan. (M., Loan management and profitability in rwanda case study BPR, 2015)

2.1.2. Management

Management is defined as process of coordinating actions and allocating ressources to achieve organization goals.

It's the process of palnning, organizing and staffing, leading and controlling actions to achieve goals. (Fayol, 1916).

Also,Is the way people who administer a company, create policies, and provide the support neccesary to implement the owner's business objectives.

(Betts, 2000) define management as a process consisting of specific activities of planning , organizing, and impulse control to achieve the objectives with the implementation of human resource and other ressouces.

According a French industrialist by the name of Henry Fayol wrote that all managers perform five management finctions the plans, organize, command, coordinate and control. (Fayol, 1916).

The most popular textbooks and this one no exception, still continue to be organized around management functions although these have been considered generally to the basic four: planning, organizing. leading and controlling.

(Weihrich, 2007) defined management of designing, maintaining, organizing and planning an environment in which individuals working together in groups efficiently accomplish selected aims.

2.1.3. Loan management

Loan management refers to the process of granting loan to your customers, setting payment terms and conditions to enable them to pay their obligations on time and in full, recovering payments, and ensuring customers (and employees) comply with your company's loan policy. (Alliaz trademark)

According to the international credit insurance and surely Association (ICISA) "there is no clear definition of what loan management is. It is usually regarded as assuring that buyers pay on time, loan costs are kept low, and poor debts are managed in such a manner that payment is received without damaging the relationship with that buyer".

From business dictionary website, loan management is the process for controlling and collecting payments from customers'. A good loan management system helps the business to reduce or minimize its exposure to bad debts. (G., 2010).

2.1.4. Financial performance

Financial performance refers to the evaluation of a company's overall financial health and efficiency in utilizing its resources to generate profits. It encompasses a variety of financial metrics, including profitability ratios, liquidity ratios, solvency ratios, and efficiency ratios. Profitability ratios assess the company's ability to generate profits relative to its revenue or assets, while liquidity ratios measure its ability to meet short-term obligations. Solvency ratios evaluate the company's long-term financial stability and its ability to meet debt

obligations. Efficiency ratios assess how effectively the company utilizes its assets and resources to generate sales and profits. Overall, financial performance analysis provides insights into the company's operational efficiency, profitability, and financial stability, aiding investors, creditors, and management in decision-making processes (Gitman& Zutter, 2019).

2.1.5. Bank

Bank is an establishment authorized by a government to accept deposits, pay interest, clear checks make loans, act as an intermediary in financial transactions, and provides other financial services to its customers. (M., Loan management and profitability in Rwanda case study of BPR main branch, 2015)

2.1.6. Commercial banks

A commercial bank is a type of financial institution that provides a range of banking services to individuals, businesses, and governments. These services typically include accepting deposits, offering loans, facilitating transactions, providing investment services, and offering various financial products such as savings accounts, checking accounts, and certificates of deposit (CDs). Commercial banks play a crucial role in the economy by channeling funds from savers to borrowers, thereby facilitating economic growth and development (Brigham & Houston, 2012)

2.1.7. Performane

Performance refers to the effectiveness or efficiency with which a person, organization, system, or entity accomplishes a specific task, goal, or objective. In the context of financial management, performance often relates to the achievement of financial goals, such as generating profits, maximizing returns on investment, or achieving predetermined benchmarks. It can also encompass non-financial aspects, such as operational efficiency, productivity, and customer satisfaction. Performance evaluation involves assessing the

outcomes or results achieved relative to predetermined standards or expectations (Gitman& Zutter, 2019)

2.1.8. Pofitability

Profitability refers to the ability of a company or organization to generate profits from its operations over a specific period. It is a measure of the company's efficiency in using its resources to generate earnings relative to its expenses and investments. Profitability is typically assessed using various financial ratios, such as return on assets (ROA), return on equity (ROE), gross profit margin, and net profit margin. A higher level of profitability indicates that a company is effectively managing its resources and generating a satisfactory return for its shareholders (Brigham& Houston, 2012)

2.1.9. Liquidity

Liquidity refers to the ability of an asset, security, or investment to be quickly converted into cash without significantly impacting its market value. It is a measure of how easily an asset can be bought or sold in the market without causing a significant change in its price. Liquidity is essential for individuals, businesses, and financial institutions to meet their short-term obligations and fund day-to-day operations. Common measures of liquidity include the current ratio, quick ratio, and cash ratio, which assess the company's ability to meet its short-term liabilities with its liquid assets (Gitman& Zutter, 2019).

2.2. Theoretical review

According to PETET-DUTALLIS, distributing funds is a difficult job. Bankers are often easily accused of either allocating too much or too little, and they are also blamed for overcharging. However, a banker is not a philanthropist and cannot adjust service prices to match those of commodities that might increase. (Ariff., 2007).

This part will be conducted to explore various theoretical perspectives and models relevant to loan management and financial performance. This will involve analyzing theories from

financial management, banking, and related disciplines to gain insights into the factors influencing loan management practices and their impact on financial performance.

2.2.1. Loan management theories

Loan management is a critical function within the banking sector, encompassing the processes and strategies used to oversee and administer loans to ensure their performance and mitigate associated risks. According to (Diamond, 2002), the creation of loans is the main income-generating activity for banks, but this activity involves significant risks for both the lender and the borrower. Effective loan management involves comprehensive risk assessment to ensure that the borrower can fulfill their obligations, thereby safeguarding the bank's interests.

The risk of a trading partner failing to fulfill their obligations as per the contract can significantly impact the bank's operations (Saunders& Cornett, 2004). This risk, often referred to as credit risk, requires banks to implement stringent risk management practices to identify, measure, monitor, and control potential default scenarios. As Mishkin and Eakins (Mishkin& Eakins, 1984) highlight, the survival and profitability of banks in a competitive environment necessitate the management of these risks to avoid excessive losses and ensure financial stability.

Non-performing loans (NPLs) are a major concern in loan management, as they represent loans that do not generate income for an extended period (Mishkin& Eakins, 1984). The presence of NPLs can erode a bank's profitability and adversely affect its financial health. As such, banks must employ robust loan monitoring and recovery mechanisms to address these issues promptly and effectively (Felsenfeld, 2005).

(Allen, 2007) notes that banks use various frameworks, such as the 5 C’s of loan analysis (Character, Capacity, Capital, Collateral, and Conditions), to evaluate loan applications. These frameworks help banks allocate their limited funds more effectively by assessing the

creditworthiness of potential borrowers. By focusing on these key aspects, banks can minimize the likelihood of defaults and enhance the overall quality of their loan portfolios.

The intermediary function of banks, which involves channeling funds from savers to borrowers, can be significantly affected by the presence of NPLs (Brown, 2010). High levels of NPLs can lead to the stagnation of economic resources and reduce the banks' ability to finance productive investments. This situation can have broader implications for the economy, highlighting the importance of effective loan management practices.

Loan management also involves the implementation of credit risk management tools and techniques, which are essential for monitoring and evaluating the performance of loans (Taylor, 1995). These tools help banks maintain accurate records of their loan portfolios and ensure compliance with regulatory requirements. By doing so, banks can better manage their credit risk and improve their financial performance.

(Saunders, 2008) discusses the concept of loan crunch, a situation where the supply of loans is restricted below the usual range due to prevailing market conditions. This phenomenon can occur when banks become overly cautious in their lending practices, often in response to high levels of NPLs. Effective loan management can help mitigate this issue by ensuring that banks maintain a balanced approach to lending and risk-taking.

The process of loan management also includes the development of strategies for the recovery of defaulted loans (Saunders, 2008). Banks need to have well-defined recovery plans and procedures in place to handle NPLs. These strategies may involve restructuring loans, negotiating with borrowers, or pursuing legal action to recover outstanding amounts. Effective recovery strategies are crucial for minimizing losses and maintaining financial stability.

(Jensen& Meckling, 1976) emphasize the importance of aligning the interests of the bank and the borrower to ensure successful loan management. This alignment can be achieved through

the design of loan contracts that include appropriate covenants and incentives. By doing so, banks can encourage borrowers to adhere to their repayment obligations and reduce the likelihood of defaults.

Finally, the use of technology in loan management has become increasingly important in recent years. Advanced data analytics and artificial intelligence can help banks assess credit risk more accurately and efficiently (Merton, 1974). These technologies enable banks to analyze large volumes of data, identify patterns, and make more informed lending decisions. As a result, banks can improve their loan management practices and enhance their overall financial performance.

2.2.2. Credit risk theories

Credit risk, a paramount concern for financial institutions, has spurred the development of various theories and models aimed at understanding and managing this risk effectively. One prominent approach is the structural approach, pioneered by (Merton, On the pricing of corporate debt: The risk structure of interest rates. , 1974), which treats a firm's equity as a call option on its assets. According to this framework, default occurs when the firm's asset value falls below its debt obligations at maturity. Merton's model provides a foundational understanding of credit risk and has influenced many subsequent models in this domain.

In contrast to the structural approach, reduced-form models focus on the intensity or hazard rate of default. (Duffie& Singleton, 1999) contributed significantly to this approach by modeling the default intensity as a stochastic process, allowing for more flexibility in incorporating various risk factors. These models do not require detailed balance sheet information but rely on historical data and macroeconomic variables to predict default probabilities.

Credit scoring models, such as Altman's Z-score model (1968), are statistical tools used to predict the probability of default based on borrower characteristics. Altman's model, widely

adopted in both academic research and practical applications, utilizes financial ratios to assess bankruptcy risk. This exemplifies how statistical techniques can be employed to evaluate credit risk.

Agency theory, as discussed by (Jensen& Meckling, 1976), explores conflicts of interest between lenders and borrowers. Borrowers may take actions not in the lenders' best interest, such as engaging in excessive risk-taking. This theory underscores the importance of monitoring and aligning incentives between borrowers and lenders.

Portfolio theory, introduced by (Markowitz, 1952), suggests that diversification of loan portfolios can reduce overall credit risk. By spreading exposures across various sectors and geographies, banks can mitigate the impact of any single default. This highlights the strategic importance of asset allocation in managing credit risk.

Information asymmetry, as elucidated by (Akerlof, 1970) in his "Market for Lemons" paper, is a significant issue in credit markets. Lenders often possess less information about the borrower's creditworthiness than the borrowers themselves, leading to adverse selection. Managing information asymmetry is crucial for effective credit risk management.

Credit migration models, such as those developed by (Jarrow, R. A., Lando, D., & Turnbull, S. M. , 1997), track changes in borrower credit quality over time. These models utilize transition matrices to estimate the likelihood of borrowers moving from one credit rating to another, aiding in the management of loan portfolios.

Contingent claims analysis (CCA), based on the work of (Black, F., & Scholes, M. , 1973), extends Merton's structural model by incorporating various contingent events that can affect a borrower's creditworthiness. This approach assists in pricing complex credit derivatives and managing credit risk in dynamic environments.

Economic capital models, proposed by (Koyluoglu, H. U., & Stoker, J. , 2002), estimate the capital required to cover potential losses from credit risk. These models use statistical

techniques and economic theories to determine the amount of capital necessary for regulatory compliance and risk management.

Relationship lending theory, as discussed by (Boot, 2000), emphasizes the value of long-term relationships between banks and borrowers. Through repeated interactions, banks gather soft information about borrowers crucial for credit decisions, fostering trust and reducing information asymmetry.

2.2.3. Loan theory

Loan portfolio management encompasses a suite of strategies and methodologies aimed at optimizing the risk-return trade-off associated with lending activities. At its core, effective loan portfolio management is essential for banks to achieve their financial objectives while mitigating credit risk. One prominent approach to loan portfolio management is asset-liability management (ALM), which involves aligning the maturities and cash flows of assets and liabilities to minimize interest rate and liquidity risks (Rose, 2002). This strategic framework ensures that the bank's loan portfolio is structured in a manner that complements its funding sources and risk appetite, thus enhancing overall portfolio stability.

Modern portfolio theory (MPT), introduced by (Markowitz, 1952), offers valuable insights into diversification strategies for loan portfolios. MPT advocates for spreading risk across various borrower types, industries, and geographic regions to reduce credit risk. By constructing diversified portfolios, banks can potentially enhance risk-adjusted returns and mitigate the impact of individual loan defaults (Markowitz, Portfolio selection. , 1952).

Credit migration models represent another key aspect of loan portfolio management. These models, such as those developed by (Altman& Kao, 1994), analyze the movement of borrowers across credit rating categories over time. By monitoring credit migrations, banks can assess the credit quality of their loan portfolios and anticipate potential changes in

borrower risk profiles. This proactive approach enables banks to adjust portfolio composition and risk management strategies accordingly (Altman& Kao, 1994).

Risk-based pricing strategies play a crucial role in loan portfolio management by aligning loan pricing with borrower credit risk. As proposed by Berger and Udell (1995), risk-based pricing involves charging higher interest rates to higher-risk borrowers and lower rates to lower-risk borrowers. This pricing mechanism ensures that the returns from the loan portfolio adequately compensate for the associated credit risks, thereby enhancing portfolio profitability and sustainability (Berger, 1995).

Behavioral finance principles provide valuable insights into the cognitive biases that influence lending decisions and borrower behavior. By understanding these biases, banks can design loan products and pricing structures that resonate with borrower preferences and improve portfolio performance (Kahneman, D., & Tversky, A., 1979). Additionally, behavioral finance theory underscores the importance of effective communication and transparency in borrower-lender relationships to mitigate adverse selection and moral hazard issues.

Loan loss provisioning models offer a systematic approach to estimating and accounting for expected credit losses in loan portfolios. These models, as discussed by (Wilson, 1998), utilize historical default rates, economic indicators, and industry trends to calculate provisions for future loan losses. By accurately provisioning for credit losses, banks can maintain regulatory compliance, safeguard capital adequacy, and enhance overall risk management practices (Wilson, 1998).

Dynamic loan portfolio management approaches emphasize adaptability and responsiveness to changing market conditions. By actively monitoring portfolio performance, adjusting risk exposures, and reallocating resources in real-time, banks can ensure that their loan portfolios remain resilient and aligned with evolving business objectives and market dynamics (Freixas,

X., & Rochet, J. C., 2008). This dynamic approach enables banks to capitalize on emerging opportunities and mitigate potential threats effectively.

Portfolio segmentation strategies involve categorizing loans into homogeneous groups based on borrower characteristics, loan terms, or risk profiles. By segmenting loan portfolios, banks can tailor credit policies, pricing strategies, and risk management techniques to each segment's unique attributes (Petersen, M. A., & Rajan, R. G., 1995). This targeted approach enables banks to address the specific needs and preferences of different borrower segments, thereby enhancing portfolio performance and customer satisfaction.

Loan portfolio optimization techniques aim to maximize portfolio value while balancing risk and return objectives. These techniques, as discussed by (Bodie, Z., Kane, A., & Marcus, A. J., 2011), utilize mathematical models and optimization algorithms to allocate resources across different loan categories based on factors such as expected returns, credit quality, and diversification benefits (Bodie, Z., Kane, A., & Marcus, A. J., 2011). By optimizing portfolio composition and resource allocation, banks can achieve the most efficient use of capital and enhance overall portfolio performance.

Stress testing methodologies assess the resilience of loan portfolios under adverse scenarios and extreme events. By subjecting portfolios to simulated economic downturns, banks can identify vulnerabilities, assess capital adequacy requirements, and enhance risk management practices (Crouhy, 2000). Stress testing provides valuable insights into potential losses and helps banks prepare for unexpected challenges, thereby strengthening portfolio resilience and stability.

Relationship lending theory emphasizes the value of long-term relationships between banks and borrowers. By fostering trust and communication, banks can gather soft information about borrowers' creditworthiness and tailor lending solutions to meet their needs (Boot,

2000). Relationship lending enhances portfolio quality and customer loyalty, thereby contributing to long-term profitability and sustainability.

2.2.4. Agency theory

Agency theory, originally developed by Jensen and Meckling in 1976, provides a framework for understanding the relationship between principals (e.g., shareholders or owners) and agents (e.g., managers or employees) within a corporation. In the context of loan management, agency theory can be applied to explore the conflicts of interest that arise between lenders (principals) and borrowers (agents), as well as between the shareholders of lending institutions and their managers.

One of the core issues in loan management from the perspective of agency theory is moral hazard. Moral hazard arises when borrowers engage in riskier behavior than they would if they were fully responsible for the consequences. This occurs because the borrower does not bear the full cost of default; instead, the lender absorbs some of the risk. For instance, a borrower might undertake high-risk projects with the loaned funds, knowing that if the projects fail, the lender will bear a significant portion of the financial loss (Jensen, M. C., & Meckling, W. H. , 1976).

Adverse selection is another problem in loan management illuminated by agency theory. Adverse selection occurs when lenders are unable to accurately distinguish between high-risk and low-risk borrowers at the time of loan origination. Consequently, lenders might end up extending credit to borrowers who are more likely to default. This problem is exacerbated in markets where borrowers have better information about their own risk profiles than the lenders (Akerlof, 1970)

To mitigate these agency problems, lenders employ various mechanisms. One common approach is the use of collateral, which reduces moral hazard by ensuring that borrowers have something to lose in the event of default. By requiring collateral, lenders align the interests of

borrowers with those of the lending institution, as borrowers become less likely to engage in excessively risky behavior (Stiglitz, 1981).

Another mechanism is the implementation of covenants in loan agreements. Covenants are conditions stipulated by the lender that the borrower must adhere to throughout the loan term. These conditions might include maintaining certain financial ratios, restrictions on additional borrowing, or requirements for regular financial reporting. Covenants help lenders monitor the behavior and financial health of borrowers, thereby reducing the risk of default (Smith& Warner, 1979).

Performance-based compensation for loan officers and managers within lending institutions can also be seen through the lens of agency theory. By tying compensation to the performance of the loan portfolio, lending institutions aim to align the interests of their managers with those of the shareholders. For example, bonuses or promotions might be linked to the quality and profitability of the loans originated by the manager, incentivizing prudent lending practices (Holmstrom, 1979).

The role of credit rating agencies can also be interpreted through agency theory. These agencies provide an independent assessment of the creditworthiness of borrowers, reducing the information asymmetry between lenders and borrowers. By relying on these ratings, lenders can make more informed lending decisions and mitigate the risk of adverse selection (Cantor, R., & Packer, F. , 1994).

Moreover, diversification of the loan portfolio is a strategy derived from modern portfolio theory that can be applied to mitigate agency risks in loan management. By diversifying across different sectors, geographic regions, and borrower types, lenders can reduce the impact of any single borrower’s default on the overall portfolio. This approach helps in spreading the risk and enhancing the stability of returns (Markowitz, 1952).

Additionally, securitization of loans can be understood through agency theory. By bundling individual loans into securities and selling them to investors, lending institutions transfer some of the credit risk to the market. This not only reduces the risk exposure for the lending institution but also provides liquidity and frees up capital for additional lending. However, it is essential to ensure that the securitization process itself does not introduce new agency problems, such as misaligned incentives between originators and investors (Gorton, G. B., & Pennacchi, G. G., 1995).

Regulatory frameworks play a crucial role in managing agency problems in loan management. Regulations such as the Basel III accord impose capital adequacy requirements and stress testing protocols on banks, ensuring they maintain sufficient capital buffers to absorb losses. These regulations are designed to promote stability in the banking system and protect against excessive risk-taking by aligning the interests of bank managers with those of the broader financial system (Basel Committee on Banking Supervision. , 2001).

The importance of corporate governance in lending institutions cannot be overstated. Strong governance structures, including independent boards of directors and robust internal controls, are essential for mitigating agency problems. Effective governance ensures that managers act in the best interests of shareholders and other stakeholders, thereby enhancing the overall quality of loan management (Shleifer& Vishny, 1997).

2.2.5. Effectiveness of loan management overview

The risk-return tradeoff theory posits that higher returns are typically associated with higher levels of risk. For banks, this means that the more they lend, the higher the potential for profit, but also the higher the risk of defaults. To measure effectiveness under this theory, banks analyze their net interest margins (NIM) and non-performing loan (NPL) ratios. Effective loan management is indicated by a high NIM (indicating profitability) and a low NPL ratio (indicating good credit quality) (Merton, 1974).

According to portfolio diversification theory, spreading risk across various assets can mitigate potential losses. Banks achieve this by diversifying their loan portfolios across different industries, regions, and types of borrowers. Measuring effectiveness involves assessing the performance of various segments within the loan portfolio. A well-diversified portfolio typically shows stable returns and a lower overall default rate, indicating effective loan management (Markowitz H. , 1952).

The credit scoring model, developed by (Fisher I. , 1936), is another cornerstone of effective loan management. This model uses statistical techniques to predict the likelihood of a borrower defaulting on a loan. The effectiveness of loan management under this model is measured by the accuracy of the credit scores in predicting defaults. High predictive accuracy means fewer defaults and lower NPL ratios, indicating effective loan management.

Relationship banking theory emphasizes the importance of long-term relationships between banks and their clients. Effective loan management in this context is characterized by personalized credit terms and proactive risk monitoring. Success is measured by customer retention rates and the performance of loans issued based on relationship banking. High retention rates and low default rates indicate effective management (Boot& Thakor, 2000)

The agency theory, as applied to loan management, suggests that conflicts of interest between managers (agents) and shareholders (principals) can impact loan quality. To manage this, banks implement strong internal controls and incentive structures. Effectiveness is measured by aligning management's actions with shareholder interests, often reflected in improved financial performance and reduced default rates (Jensen& Meckling, 1976).

Another relevant theory is the pecking order theory, which suggests that companies prefer internal financing over external due to asymmetric information. Banks can manage loans more effectively by understanding borrowers' financing preferences and providing tailored loan products. The effectiveness of this approach is gauged by the uptake of loan products

and the subsequent performance of these loans, with higher uptake and lower defaults indicating success (Myers, 1984).

Loan performance prediction models, such as logistic regression and machine learning algorithms, play a crucial role in effective loan management. These models analyze various borrower attributes to predict loan performance. The effectiveness of these models is measured by their predictive power, often evaluated using metrics like the area under the receiver operating characteristic (ROC) curve. High predictive accuracy ensures that banks can manage their loan portfolios effectively by identifying potential defaults early (Hand, D. J., & Henley, W. E. , 1997).

Moral hazard theory addresses the risk that borrowers may engage in riskier behavior once they receive a loan. Effective loan management involves monitoring borrowers' activities post-disbursement to mitigate this risk. Success is measured by the incidence of risky behaviors and their impact on loan performance. Low levels of risky behavior and stable loan performance post-disbursement indicate effective management (Stiglitz, 1981).

The dynamic capabilities theory emphasizes the ability of banks to adapt to changing market conditions through continuous learning and innovation. Effective loan management requires banks to update their risk assessment models and loan products regularly. Effectiveness is measured by the adaptability of loan portfolios to economic changes, with flexible and responsive loan management strategies resulting in stable performance even during market fluctuations (Teece, D. J., Pisano, G., & Shuen, A. , 1997).

Behavioral finance theory suggests that psychological factors can influence borrowers' financial decisions and loan performance. Banks that effectively manage loans take into account behavioral insights to design better loan products and risk assessment procedures. Measuring effectiveness involves analyzing the impact of these behavioral insights on loan

performance, with improvements in repayment rates and customer satisfaction indicating successful application (Kahneman, D., & Tversky, A., 1979).

The liquidity preference theory posits that borrowers prefer loans with greater liquidity. Effective loan management entails providing flexible loan terms that meet borrowers' liquidity preferences. The effectiveness of this approach is measured by borrower satisfaction and the performance of flexible loan products. High satisfaction and good performance indicate effective management (Keynes, 1936).

The interest rate risk management theory highlights the need for banks to manage the risk associated with fluctuating interest rates. Effective loan management in this context involves using hedging techniques and adjustable-rate loans. Success is measured by the stability of interest income and the minimization of losses due to interest rate changes. Stable income and minimized interest rate losses indicate effective management (Fabozzi, 2001).

Credit rationing theory, introduced by Stiglitz and Weiss (Stiglitz, 1981), suggests that banks may limit the amount of credit available to certain borrowers to manage risk. Effective loan management involves identifying and implementing appropriate credit limits. Measuring effectiveness involves evaluating the impact of credit rationing on default rates and overall loan portfolio performance, with reduced defaults indicating successful management.

The theory of credit cycles posits those economic cycles influence loan performance. Effective loan management requires banks to adjust their lending practices in response to economic conditions. Success is measured by the bank's ability to maintain loan performance and minimize defaults across different phases of economic cycles, indicating resilience and effective management (Kiyotaki, 1997).

Operational risk management theory addresses the risk of losses resulting from inadequate or failed internal processes. Effective loan management involves implementing robust operational controls and procedures. The effectiveness of this approach is measured by the

incidence of operational failures and their impact on loan performance, with fewer failures indicating better management (Basel Committee on Banking Supervision., 2004).

2.2.6. Effective loan management in ensuring the financial performance and stability of commercial banks

Loan management is a critical function in the banking sector, ensuring the efficient allocation of resources and minimizing risks. Financial performance measures how well a bank uses its resources to generate profit. The relationship between these two aspects is vital for maintaining the stability and profitability of banks.

Effective loan management involves overseeing the entire lifecycle of a loan, from application to repayment. Proper management practices help in maintaining asset quality and ensuring that non-performing loans (NPLs) are minimized (Koch& MacDonald, 2014).

Financial performance in banks can be measured through various indicators such as Return on Assets (ROA), Return on Equity (ROE), and Net Interest Margin (NIM). These metrics help in assessing the bank's profitability, efficiency, and ability to generate income from its assets (Gitman& Zutter, 2019).

Theories such as credit risk theory and agency theory provide frameworks for understanding how loan management practices can influence financial performance. Credit risk theory focuses on the risk of default by borrowers, while agency theory examines conflicts of interest between stakeholders in the loan management process (Jensen& Meckling, 1976).

Several empirical studies have explored the relationship between loan management and financial performance. For instance, Berger and Bouwman (2013) found that higher capital levels are associated with better financial performance, especially during economic

downturns. Their study emphasized the importance of capital adequacy in maintaining bank resilience.

Capital adequacy acts as a buffer against financial shocks, allowing banks to absorb losses and maintain solvency. It also enhances investor confidence and reduces funding costs. This is critical during financial crises when banks with higher capital levels tend to perform better (Berger & Bouwman, 2013).

Effective credit risk management involves identifying, assessing, and mitigating the risks associated with lending. Banks that implement robust credit risk management practices are better positioned to maintain high asset quality and reduce the incidence of NPLs (Felix, 2008).

Loan loss provisioning is a key aspect of loan management, where banks set aside reserves to cover potential losses. This practice ensures that banks are prepared for defaults and can maintain financial stability even in adverse conditions (Basel Committee on Banking Supervision., 2004).

Regular monitoring of loan performance helps banks identify potential issues early and take corrective actions. This includes tracking repayment schedules, assessing borrower creditworthiness, and managing delinquent loans (Gorton & Winton, 2003).

Diversifying the loan portfolio across different sectors and regions can reduce risk and enhance financial performance. This strategy helps in spreading risk and mitigating the impact of defaults in any single sector (Acharya, Hasan, & Saunders, 2006).

Implementing effective loan management strategies, such as strict underwriting standards, comprehensive credit assessments, and continuous monitoring, can significantly improve

financial performance. These strategies help in ensuring that only creditworthy borrowers receive loans (Koch& MacDonald, 2014).

The effectiveness of loan management practices is often evaluated using key ratios such as the Loan to Deposit Ratio (LDR) and the Non-Performing Loan (NPL) ratio. These ratios provide insights into the bank's liquidity and asset quality (Basel Committee on Banking Supervision., 2004).

Technology plays a crucial role in enhancing loan management practices. Advanced software and data analytics tools help in improving credit assessments, monitoring loan performance, and detecting early signs of default (Bofondi& Gobbi, 2003).

Regulatory frameworks, such as the Basel Accords, provide guidelines for risk management, capital adequacy, and loan loss provisioning. Compliance with these regulations ensures that banks maintain financial stability and resilience (Basel Committee on Banking Supervision., 2004).

Effective loan management practices are essential for maintaining financial stability. By ensuring that loans are granted to creditworthy borrowers and that risks are minimized, banks can avoid significant financial distress and contribute to overall economic stability (Koch& MacDonald, 2014).

In developing economies, loan management practices face unique challenges such as limited access to credit information and higher default rates. Studies suggest that improving credit infrastructure and implementing robust risk management practices can enhance financial performance in these regions (Uwimana& Niyonkuru, 2021).

Incorporating environmental, social, and governance (ESG) factors into loan management can improve financial performance and sustainability. This approach helps banks manage

risks associated with environmental and social factors and enhances their reputation (WorldBank, 2019).

Case studies on banks in different regions provide valuable insights into effective loan management practices. For instance, the experience of Rwandan banks in managing loans and improving financial performance highlights the importance of context-specific strategies (Uwimana & Niyonkuru, 2021).

Risk-based loan pricing involves adjusting interest rates based on the borrower's risk profile. This approach helps banks manage credit risk more effectively and ensure that they are adequately compensated for taking on higher-risk loans (Saunders& Allen, 2010).

Loan restructuring is a strategy used by banks to manage distressed loans. By renegotiating terms and conditions, banks can help borrowers meet their obligations and reduce the likelihood of default, thereby maintaining asset quality and financial performance (Claessens, S., & Van Horen, N. , 2014).

Macroeconomic factors such as interest rates, inflation, and economic growth influence loan management and financial performance. Banks need to consider these factors in their risk management practices to ensure stability and profitability (Demirgüç-Kunt, A., & Huizinga, H. , 1999).

Strong customer relationships are crucial for effective loan management. Banks that maintain good relationships with borrowers are better able to assess creditworthiness and manage loan performance (Berger, A. N., Klapper, L. F., & Udell, G. F. , 2001).

Credit scoring models are used to evaluate the creditworthiness of borrowers. These models incorporate various financial and non-financial factors to predict the likelihood of default, helping banks make informed lending decisions (Thomas L. C., 2000).

Digital banking has transformed loan management by enabling faster loan processing, better credit assessments, and improved monitoring. The use of digital platforms enhances efficiency and reduces operational costs (Bofondi& Gobbi, 2003).

Loan syndication involves multiple banks coming together to provide a large loan to a single borrower. This practice helps in spreading risk and improving financial performance by allowing banks to manage large exposures effectively (Dennis, S. A., & Mullineaux, D. J. , 2000).

Strong corporate governance practices are essential for effective loan management. Good governance ensures transparency, accountability, and prudent risk management, which are critical for maintaining financial performance (Laeven, L., & Levine, R, 2009).

Microfinance institutions play a significant role in providing loans to underserved populations. Effective loan management practices in microfinance can improve financial inclusion and contribute to economic development (Armendáriz, B., & Morduch, J. , 2010).

Behavioral finance theories suggest that cognitive biases and emotional factors influence loan management decisions. Understanding these factors can help banks improve their lending practices and financial performance (Kahneman, D., & Tversky, A., 1979).

During financial crises, effective loan management practices become even more critical. Banks need to have contingency plans and robust risk management frameworks to navigate economic downturns and maintain stability (Claessens, S., & Van Horen, N. , 2014).

Future trends in loan management include the increased use of artificial intelligence, machine learning, and big data analytics. These technologies are expected to revolutionize loan management practices, making them more efficient and effective (Fuster, A., Goldsmith-Pinkham, P., Ramadorai, T., & Walther, A. , 2019).

2.2.7. Technology in Loan Management

The role of technology in loan management has become increasingly critical in the digital age. Technologies such as blockchain, artificial intelligence (AI), machine learning (ML), and cloud computing are transforming how loans are processed, managed, and monitored. This section delves into the various technological advancements and their implications for loan management.

Blockchain technology has the potential to revolutionize loan management by providing a decentralized and transparent ledger for all loan transactions. This ensures that all loan agreements and repayments are recorded immutably, reducing the risk of fraud and enhancing trust between lenders and borrowers. A study by the World Economic Forum (2019) indicates that blockchain can reduce loan processing costs by up to 30% due to its efficiency and security features.

AI and ML are pivotal in enhancing loan management practices. These technologies enable predictive analytics for assessing credit risk and identifying potential defaulters before they become a problem. AI algorithms can process large datasets to provide insights that human analysts might miss. For instance, an AI-powered loan management system can evaluate a borrower's creditworthiness more accurately by considering non-traditional data sources such as social media activity and online behavior (Harvard Business Review, 2020).

Cloud computing offers scalable and flexible infrastructure for loan management systems. Banks can deploy cloud-based loan management platforms to handle fluctuating volumes of loan applications efficiently. These platforms offer enhanced data security, disaster recovery capabilities, and accessibility, enabling banks to manage loans from anywhere at any time. According to (Gartner, 2021), the adoption of cloud computing in banking can lead to a 25% reduction in IT costs and a 30% improvement in operational efficiency.

RPA involves the use of software robots to automate repetitive and rule-based tasks in loan management. These tasks include data entry, document processing, and compliance checks. By automating these processes, banks can reduce operational costs, minimize errors, and ensure compliance with regulatory requirements. A report by (Forrester, 2019) highlights that banks implementing RPA have seen a 40% reduction in processing times and a 20% increase in overall productivity.

Technology also enables banks to gain deeper insights into customer behavior and preferences. By leveraging big data analytics, banks can create detailed customer profiles and offer customized loan products that better meet their needs. This personalized approach not only improves customer satisfaction but also increases the likelihood of loan repayment. A study by IBM (2020) found that banks using customer analytics saw a 15% increase in loan approval rates and a 10% decrease in default rates.

The advent of digital banking has revolutionized the financial industry, particularly in the realm of loan management. The integration of advanced technologies into banking processes has streamlined operations, improved efficiency, and enhanced customer satisfaction. This section explores the multifaceted impacts of digital banking on loan management, with a focus on automation, data analytics, customer experience, and risk management.

Digital banking has significantly improved the loan processing workflow through automation. Automated systems can handle repetitive tasks such as data entry, document verification, and credit scoring. This not only speeds up the loan approval process but also reduces the likelihood of human errors. Studies have shown that automation can cut loan processing time by up to 50%, thereby increasing operational efficiency and customer satisfaction (McKinsey & Company, 2020).

The use of data analytics in digital banking allows for better risk assessment and decision-making in loan management. By analyzing vast amounts of customer data, banks can identify patterns and trends that help in predicting creditworthiness and potential default risks. This data-driven approach enables banks to offer personalized loan products and set appropriate interest rates. According to a report by (Deloitte, 2019), banks utilizing advanced data analytics can reduce loan defaults by 15-20%.

Digital banking platforms provide a seamless and user-friendly experience for customers seeking loans. Online loan applications, real-time status updates, and digital signatures have made the loan application process more convenient. Customers can now apply for loans from the comfort of their homes without the need to visit a physical branch. This convenience has led to a significant increase in loan applications and approvals, as highlighted by a study from (Accenture, 2018), which reported a 30% increase in loan applications through digital channels.

The integration of technology in banking has also enhanced risk management practices. Advanced algorithms and machine learning models can detect unusual patterns and flag potential fraud in real-time. This proactive approach to fraud detection helps in mitigating risks associated with loan defaults. The use of blockchain technology further enhances security and transparency in loan transactions, ensuring that all records are immutable and verifiable (PwC, 2021).

In Rwanda, the Bank of Kigali has leveraged digital banking technologies to improve its loan management practices. The bank's adoption of an automated loan processing system has reduced the average loan approval time from several weeks to just a few days. Furthermore, the use of data analytics has enabled the bank to offer tailored loan products that meet the specific needs of different customer segments (Kamanzi, 2020).

2.2.8. Key Ratios in Loan Management

Non-Performing Loan (NPL) Ratio

The Non-Performing Loan (NPL) ratio is a crucial indicator of a bank's asset quality and its effectiveness in managing credit risk. The NPL ratio is calculated by dividing the total non-performing loans by the total loans and advances. Non-performing loans are those for which the borrower is not making the agreed-upon payments, typically those that are 90 days or more past due. A high NPL ratio indicates a higher proportion of loans that are in default or close to being in default, which can signal poor credit risk management and potentially jeopardize the bank's financial stability (Ghosh, 2015).

The NPL ratio provides insights into the efficiency of a bank's loan monitoring and recovery processes. Effective loan management should aim to minimize the NPL ratio through stringent credit assessment procedures, ongoing borrower monitoring, and proactive recovery strategies. Lowering the NPL ratio can enhance a bank's profitability and stability, reflecting its ability to manage and mitigate credit risks effectively (Louzis, D. P., Vouldis, A. T., & Metaxas, V. L. , 2012).

Formula

$$NPL\ Ratio = \frac{\text{Total Non Performing Loan}}{\text{Total Loans and Advances}} \times 100$$

Loan to Deposit Ratio

The Loan to Deposit Ratio (LDR) measures the proportion of a bank's loans to its deposits, providing an indication of liquidity and lending practices. It is calculated by dividing the total amount of loans by the total amount of deposits. An optimal LDR is crucial as it balances liquidity and profitability. A high LDR indicates that a bank may not have enough liquidity to cover unforeseen funding requirements, whereas a low LDR suggests that the bank might not be utilizing its deposit base effectively to generate income (Kosmidou, K., Tanna, S., & Pasiouras, F., 2005).

Banks aim to maintain an LDR that supports both liquidity needs and earning potentials. Effective loan management ensures that banks do not overextend their lending capabilities, thus maintaining financial health and stability. The ratio helps in understanding how well a bank is using its core deposits to fund loans, which is critical in sustaining long-term growth and solvency (Bordeleau, 2010).

Formula

$$Loan\ to\ Deposit\ Ratio = \frac{\text{Total Loans}}{Total\ deposits} \text{x } 100$$

Loan Loss Provision Ratio

The Loan Loss Provision (LLP) ratio measures the amount of money a bank sets aside to cover potential losses from defaulted loans relative to the total loans. This ratio is calculated by dividing the loan loss provisions by the total loans. The LLP ratio reflects the bank's assessment of credit risk and its readiness to absorb loan losses. A higher ratio suggests a more conservative approach to managing credit risk, as it indicates a significant buffer against potential loan losses (Bikker, J. A., & Metzemakers, P. A. , 2005).

Effective loan management requires accurate prediction and provision for loan losses to ensure that the bank remains solvent even if some borrowers default. The LLP ratio provides insights into the bank's risk management practices and its ability to anticipate and prepare for credit losses. Adequate provisioning is essential for maintaining investor confidence and regulatory compliance (Beatty, A., & Liao, S. , 2011).

Formula

$$loan\ Loss\ Provision = \frac{\text{loan loss provisions}}{\text{Total loans}}\ x\ 100$$

2.2.9. Loan management strategies

Loan management strategies are essential for banks to maintain financial stability, ensure profitability, and mitigate risks associated with lending. These strategies involve a

comprehensive approach that includes credit risk assessment, monitoring, and the use of various tools to manage loan portfolios effectively. According to Boot and Thakor (Boot& Thakor, 2000), credit risk assessment is a fundamental aspect of loan management. Banks must evaluate the creditworthiness of borrowers through rigorous analysis of their financial history, current financial status, and future income potential. This process helps in identifying the likelihood of default and determining the appropriate interest rates and loan terms.

One effective loan management strategy is the use of credit scoring models. These models, such as the FICO score, analyze borrowers' credit histories and assign scores that predict their likelihood of repaying loans (Altman E. I., 1968). By using these scores, banks can streamline the loan approval process and reduce the risk of lending to high-risk borrowers. Credit scoring models have been widely adopted due to their ability to provide a standardized and objective assessment of credit risk.

Loan diversification is another crucial strategy. By spreading loans across various sectors and geographic regions, banks can minimize the impact of sector-specific downturns or regional economic issues (Markowitz, 1952). Diversification reduces the risk of significant losses from any single borrower or group of borrowers. This strategy is particularly important in mitigating risks associated with cyclical industries and regional economic fluctuations.

The establishment of stringent loan policies is vital for effective loan management. These policies should outline the criteria for loan approval, including acceptable levels of risk, collateral requirements, and repayment terms (Basel Committee on Banking Supervision. , 2001). Clear policies help in maintaining consistency in lending practices and ensure that all loans adhere to the bank's risk appetite and regulatory requirements. Policies should be regularly reviewed and updated to adapt to changing market conditions and regulatory landscapes.

Regular monitoring and review of loan portfolios are essential components of loan management strategies. Banks should conduct periodic assessments of loan performance to identify any signs of deterioration in borrowers' financial health (Saunders& Allen, 2010). Early detection of potential issues allows banks to take proactive measures, such as loan restructuring or enhanced monitoring, to prevent defaults. Effective monitoring involves the use of financial ratios and performance indicators to track borrowers' financial status and repayment behavior.

Collateral management is another key strategy in loan management. Requiring collateral from borrowers provides a safety net for banks in case of default (Berger, A. N., & Udell, G. F. , 1990). Collateral can include real estate, equipment, or other valuable assets that can be liquidated to recover the loan amount. Proper valuation and periodic reassessment of collateral are essential to ensure its adequacy in covering the loan balance. Collateral management helps in reducing the potential losses from loan defaults and enhances the security of the loan portfolio.

The implementation of loan covenants is a strategic measure to protect banks from potential risks. Covenants are conditions placed on borrowers, such as maintaining certain financial ratios or restricting additional borrowing (Dichev, I. D., & Skinner, D. J., 2002). These conditions provide banks with the ability to intervene if the borrower's financial situation deteriorates. Loan covenants act as early warning systems and give banks the leverage to renegotiate terms or demand additional collateral if necessary.

Loan restructuring is a vital strategy for managing distressed loans. When borrowers face financial difficulties, restructuring the loan terms can provide relief and increase the chances of recovery (Altman I. E., 1993). Restructuring may involve extending the repayment period, reducing interest rates, or converting debt to equity. This strategy helps in maintaining the

relationship with the borrower while mitigating potential losses. Successful loan restructuring requires a thorough understanding of the borrower's business and financial prospects

Stress testing is an advanced loan management strategy used to assess the impact of adverse economic scenarios on loan portfolios (Board of Governors of the Federal Reserve System. , 2013). By simulating different economic conditions, banks can identify vulnerabilities in their portfolios and develop contingency plans. Stress testing helps in understanding the potential impact of economic downturns, interest rate changes, and other macroeconomic factors on loan performance. This proactive approach enables banks to strengthen their risk management practices and prepare for potential challenges.

The use of technology in loan management has become increasingly important. Advanced data analytics and machine learning algorithms can enhance the accuracy of credit risk assessment and loan monitoring (Thomas, 2000). These technologies enable banks to analyze large datasets, identify patterns, and make informed decisions. Automated systems can streamline the loan approval process, reduce human error, and improve efficiency. The integration of technology in loan management provides banks with a competitive edge and enhances their ability to manage risks effectively.

Developing strong relationships with borrowers is a fundamental aspect of loan management. Maintaining open communication and providing financial advice can help borrowers manage their finances better and reduce the risk of default (Petersen, M. A., & Rajan, R. G. , 1994). Relationship banking involves understanding the borrower's business, industry dynamics, and financial needs. By building trust and offering support, banks can enhance the likelihood of timely repayments and long-term customer loyalty.

Implementing robust loan recovery strategies is essential for managing non-performing loans. Recovery strategies may include legal actions, asset seizures, or selling distressed loans to third parties (Ganguin, 2005). Banks must have dedicated recovery teams to handle default

cases and recover as much value as possible. Effective recovery strategies help in minimizing losses from non-performing loans and improving the overall health of the loan portfolio.

Regular training and development of loan officers are critical for effective loan management. Loan officers should be well-versed in risk assessment, credit analysis, and regulatory requirements (Beck, T., Demirgüç-Kunt, A., & Levine, R. , 2007). Continuous education ensures that they stay updated with industry best practices and evolving market conditions. Well-trained loan officers are better equipped to make informed lending decisions and manage loan portfolios effectively.

Utilizing credit insurance is a strategy to mitigate the risk of loan defaults. Credit insurance provides coverage against losses from borrower defaults, offering banks an additional layer of protection (Jiménez, G., & Saurina, J. , 2006). By transferring some of the risks to insurance companies, banks can reduce their exposure to credit risk. Credit insurance is particularly useful for high-risk loans or lending in volatile markets.

The implementation of early warning systems is essential for identifying potential loan defaults. These systems use predictive analytics to detect early signs of financial distress in borrowers (Altman E. I., 1968). Indicators such as declining sales, increasing debt levels, or missed payments can trigger alerts for further investigation. Early warning systems enable banks to take timely corrective actions and prevent defaults.

Establishing a dedicated risk management department is crucial for overseeing loan management activities. This department is responsible for developing risk management policies, conducting risk assessments, and monitoring loan portfolios (Basel Committee on Banking Supervision. , 2001). A centralized risk management function ensures consistency in risk management practices and enhances the bank's ability to manage credit risk effectively.

Diversifying funding sources is a strategy to enhance loan management. By accessing multiple sources of funding, banks can reduce their reliance on any single source and ensure a

steady flow of capital for lending (Berger, A. N., & Udell, G. F. , 1990). Diversified funding sources provide flexibility and stability, allowing banks to manage their loan portfolios more effectively.

Implementing performance-based incentives for loan officers can align their interests with the bank's objectives. Incentives based on loan performance, such as repayment rates and loan quality, motivate loan officers to make prudent lending decisions (Petersen & Rajan, 1994). Performance-based incentives help in improving the overall quality of the loan portfolio and reducing the risk of defaults.

The use of loan syndication is a strategy to manage large loan exposures. Syndication involves multiple banks jointly providing a loan to a single borrower, thereby spreading the risk (Ganguin, 2005). This approach allows banks to undertake larger lending opportunities while minimizing their individual risk. Loan syndication is particularly useful for large corporate loans or infrastructure projects.

Implementing dynamic loan pricing strategies can help banks manage credit risk. By adjusting interest rates based on the borrower's risk profile and market conditions, banks can optimize their loan pricing (Saunders& Allen, 2010). Dynamic pricing ensures that higher-risk loans are priced appropriately to compensate for the increased risk, thereby enhancing profitability.

Regular audits and compliance checks are essential for ensuring adherence to loan management policies and regulatory requirements. Audits help in identifying any deviations from established procedures and highlight areas for improvement (Board of Governors of the Federal Reserve System. , 2013). Compliance checks ensure that the bank meets all regulatory standards and mitigates the risk of legal and financial penalties.

2.2.10. Financial performance indicators

To comprehensively evaluate the financial performance of commercial banks, a variety of indicators are used, typically categorized into profitability, liquidity, efficiency, asset quality, and capital adequacy.

Below are the key indicators for each category along with their formulas and metrics

2.2.10.1. Profitability Indicators

1. Return on Assets (ROA)

Return on Assets (ROA) measures a bank's ability to generate profit from its assets. The formula for ROA is (Net Income / Average Total Assets) × 100. This indicator is crucial because it shows how effectively a bank is using its assets to generate earnings. Typically, a higher ROA indicates better performance. Banks with an ROA between 1% and 2% argenerally considered to be performing well. However, the benchmark can vary based on the bank's size and the economic environment.

2. Return on Equity (ROE)

Return on Equity (ROE) indicates the profitability from the shareholders' perspective. The formula for ROE is (Net Income / Average Shareholders' Equity) × 100. This ratio is particularly important for investors as it reveals how much profit a bank generates with the money shareholders have invested. A higher ROE is preferable, with typical benchmarks ranging from 10% to 20%. It is a key metric in determining the attractiveness of a bank to potential investors.

3. Net Interest Margin (NIM)

Net Interest Margin (NIM) reflects the difference between the interest income earned and the interest expenses paid out by the bank. The formula is (Net Interest Income / Average Earning Assets) × 100. NIM is a critical indicator of a bank's profitability because it shows how well the bank is managing its core business of lending and borrowing. Higher NIM indicates better profitability, with a common benchmark being around 3% to 4%. This ratio helps in understanding the efficiency of the bank's investment decisions.

2.2.10.2. Liquidity Indicators

1. Loan to Deposit Ratio (LDR)

The Loan to Deposit Ratio (LDR) assesses a bank's liquidity by comparing its total loans to total deposits. The formula for LDR is (Total Loans / Total Deposits) × 100. This ratio is important as it indicates how much of the bank's deposits are tied up in loans, which can affect the bank's liquidity. An LDR between 80% and 90% is generally considered healthy, indicating a balance between loan growth and deposit levels.

2.2.10.3. Asset Quality Indicators

1. Non-Performing Loan (NPL) Ratio

The Non-Performing Loan (NPL) Ratio measures the proportion of loans that are in default or close to being in default. The formula is (Non-Performing Loans / Total Loans) × 100. Lower NPL ratios indicate better asset quality, with a ratio below 5% usually being targeted. This ratio is critical for understanding the risk level in the bank's loan portfolio.

4. Loan Loss Provision Ratio

This ratio indicates the reserves set aside to cover potential loan losses. The formula is (Loan Loss Provisions / Total Loans) × 100. A common benchmark is between 1% and 2%. This ratio helps in assessing how well the bank is prepared for potential loan defaults and is an indicator of the bank's risk management effectiveness.

This ratio indicates the reserves set aside to cover potential loan losses. The formula is (Loan Loss Provisions / Total Loans) × 100. A common benchmark is between 1% and 2%. This ratio helps in assessing how well the bank is prepared for potential loan defaults and is an indicator of the bank's risk management effectiveness.

2.2.11. Overview of commercial banks in Rwanda

According to the World Bank report (1991), it is foreigners who established commercial banking in Rwanda. By 1991, those commercial banks in Rwanda were dominated by two commercial banks: BCR established in 1963 and BK established in 1967, and in the recent years the BPR has become one of them it had changed to the Banque populaire du Rwanda SA on the 5th January 2008 but actually other commercial Banks have increased. The main sources of funds of these banks are private domestic deposit and credit market borrowing. Modern Banking has been practiced for over 50 years. Commercial banks in Rwanda have grown both in number, branches, and in a variety of services by offering like loans, credits, and 'debit card services, and the introduction of automatic teller machines (ATMs), electronic banking and other services. (S.S., 2006).

Rwanda banking sector has therefore several opportunities for investment into mortgage banks to enhance access to property, agricultural banks to offer much needed agricultural credit to farmers and introduction of new financial products including leasing and venture capital to minimize hardships of opening business as well as its continued successful operations.

Rwanda now part of the East African Community, some major banks in the region have joined the market and are operating in Rwanda. The main foreign bank with major activities in Rwanda is KCB (Kenya Commercial Bank).

More recently, most commercial banks in Rwanda have centered their operations on trade finance as opposed to long-term debt financing. This change in banking services in Rwanda has triggered off to lack of productive investment activity, though there is urgent need to focus attention on the reform and strengthening of the financial sector in this fast developing nation. These appeals for introduction of more banks, financial products and capital market.

The banking industry in Rwanda, has experienced several upheavals that have lead to several reforms in the industry. The reforms are reflected in the 2009 Banking Act and its amendments, Central Bank Act 2009, and other FIs regulations. FIs in Rwanda also have made heavy investment in Information technology so that to help in performing banking operations.

Commercial banks in Rwanda try to help the population by offering credits to them. This is a way of increasing the economic development of the country as during late years Rwanda has faced different challenges such as 1994 Genocide, the overall 12-months inflation rise from 21.9 percent in January 2009 to 25.1 percent in February 2009 due to increase in prices of most seasonal food products. The 12-months underlying inflation was 8.7 percent in February 2009 and this inflation is likely to erode the public purchasing power which can force people and other business operating organizations to borrow from banks in order to cover the lack of sufficient capital in their operations. (rwanda, 2008)

Between 2007 and 2010, Rwanda's banking sector faced dramatic turbulence. "The banking sector at the end of 2008 was suffering from high levels of Non-Performing Loans [bad loans], lack of liquidity [lack of cash], poor infrastructure, high operating losses and bad

controls," said the Managing Director of Rwanda Commercial Bank (BCR) Anand Sanjeev. Domestic credit also went down significantly, as banks lacked cash to lend out, leaving the economy to contract below 7%. Banks, according to Anand, also held back on large extensions of credit and focused internally to fix the internal shocks, which eventually helped to lay foundation for an improvement in performance. In 2010, when the economy regained strength, the banking sector began to blossom again, albeit slowly. By 2011, the banking sector turned a profit, liquidity levels went up and the capacity to handle risks increased significantly.

When presenting the monetary policy and financial stability statement on Feb 9, 2012, the Governor of the National Bank of Rwanda (BNR)--the banking sector's regulator--Claver Gatete said that the sector was "liquid, well-capitalized and profitable." This literally means that banks have capacity to deal with demand for cash, and that their investment and cash holdings are healthy and they are bringing good returns to their shareholders.

The banking sector remains the strong driver of growth in the financial sector, which also includes the pension sector, insurance and microfinance sectors. The National Bank indicates that the banking sector dominated the financial sector, controlling over 73% of the total assets. According to the National Bank, the sector, which is comprised of nine commercial banks, including the new entrant Equity bank from Kenya, one development bank, three microfinance banks and a cooperative bank, has shown a growth in assets, profits and the capacity to deal with external shocks.

The growth in the banking sector witnessed an increase in profits by 42.4% to Rwf 22.8 billion 2011 from Rwf 16 billion in 2010, according to the National Bank. Commercial Banks and specialized banks saw a 24.5% growth in assets to Rwf 1, 083.3 trillion in 2011 from Rwf 869.8 billion a year before, driven mainly by the entry of Equity bank and upgrading of

two big Microfinance Institutions (MFIs) to microfinance bank status. Commercial banks and specialized banks assets accounted for 82.2% of the total assets of the banking sector, which could be explained by the increased consumption of the formal banking services in the Rwandan community. The national bank statistics indicate that the increase in banking sector assets was boosted by loans and advances (53.8%).

2.3. Review of related studies

Several empirical studies have contributed to our understanding of the intricate relationship between loan management practices and the financial performance of commercial banks.

In 2013, Berger and Bouwman conducted a study titled "How does capital affect bank performance during financial crises?" published in the Journal of Financial Economics. The study aimed to analyze the impact of capital on bank performance, particularly during financial crises, using a global dataset spanning three decades and covering commercial banks from 47 countries.

To assess the relationship between capital and bank performance, Berger and Bouwman employed rigorous statistical methods, including panel data analysis and econometric modeling. They examined various measures of bank performance, including profitability and risk indicators, in relation to capital levels.

The study found compelling evidence that higher capital levels are associated with better financial performance, especially during economic downturns. Banks with stronger capital positions exhibited higher profitability and were less likely to experience distress during financial crises. These findings underscored the critical importance of capital adequacy in ensuring the resilience of banks and maintaining financial stability.

Berger and Bouwman's analysis also delved into the mechanisms through which capital influences bank performance. They identified capital as a crucial buffer against financial shocks, providing banks with greater capacity to absorb losses and maintain solvency. Additionally, higher capital levels were found to enhance investor confidence and reduce the cost of funding for banks.

The study's findings had significant implications for policymakers, regulators, and bank executives, highlighting the importance of stringent capital requirements and prudent risk management practices. By emphasizing the role of capital in mitigating systemic risks and preserving financial stability, Berger and Bouwman's research contributed valuable insights to the ongoing discourse on bank regulation and supervision.

Overall, Berger and Bouwman's study provided robust empirical evidence supporting the notion that capital plays a fundamental role in shaping bank performance, particularly during times of economic stress. Their findings underscored the importance of capital adequacy as a cornerstone of sound banking practices and informed policy discussions aimed at enhancing the resilience of the global banking system.

(Felix, 2008)investigated the relationship between bank performance and credit risk management. It could be inferred from their findings that return on equity (ROE) and return on assets (ROA) both measuring profitability were inversely related to the ratio of non-performing loan to total loan of financial institutions thereby leading to a decline in profitability.

(Juanjuann, 2009)carried out a study called credit risk management and profitability in commercial banks in sweden. It could be inferred from their findings that credit risk management has effect on performance of the institution in order words on the profitability. The analysis further indicated that the impact of credit risk management on the financial performance is not the same on all (4) commercial banks sampled. Further the results of the

study were limited to banks sampled and were not generalized for all the commercial banks in Sweden. The researchers used regression model to do the empirical analysis. The data was collected from the sample banks annual report (2000 - 2008).

Athanasoglou, Brissimis, and Delis (2008) conducted a study titled "Bank-specific, industry-specific and macroeconomic determinants of bank profitability," published in the Journal of International Financial Markets, Institutions and Money. The study aimed to identify the determinants of bank profitability in Greece. Using panel data analysis, the researchers examined factors such as bank size, asset quality, and liquidity, as well as macroeconomic conditions. Their findings highlighted the significant impact of effective loan management practices on bank profitability, alongside other factors.

Karim and Hussain (2011) investigated the determinants of Islamic bank profitability in Bangladesh in their study published in the Global Business Review. They analyzed factors such as credit risk, asset quality, and capital adequacy in the context of Islamic banking operations. Through a combination of primary (survey questionnaires) and secondary data analysis, the researchers underscored the importance of robust loan management practices tailored to the unique characteristics of Islamic banking.

(Aamir, 2014)analyzed the impact of profitability on quantum of Non-Performing Loans in Pakistan. They used documentary analysis and revealed that impact of NPLs on profitability is negative. Performance measures of return on assets and return on equity are negatively affected with increase in non-performing loans while stock return is not affected. Return on assets is influenced more than return on equity because of increase in NPLs. Bank of Punjab is the most effected bank in regard to non-performing loans however MCB has maintained profitability irrespective of bad economic conditions in Pakistan and has limited amount of non-performing loans.

Jiménez, López, and Saurina (2013) explored the relationship between competition and risk-taking behavior in European commercial banks in their study published in the Journal of Financial Stability. Using empirical analysis, they found that increased competition often leads to higher risk-taking, particularly among banks with weaker loan management practices. This highlighted the crucial role of prudent loan management in mitigating excessive risk-taking and maintaining financial stability.

Demirgüç-Kunt and Huizinga (1999) investigated the determinants of commercial bank interest margins and profitability across 80 countries in their study published in the World Bank Economic Review.

This study, published in the World Bank Economic Review, aims to uncover the determinants of commercial bank interest margins and profitability across 80 countries. The authors employ a comprehensive dataset and rigorous econometric techniques to analyze various factors influencing bank profitability. While the study does not exclusively focus on loan management, it includes aspects related to loan management efficiency as determinants of bank profitability.

Demirgüç-Kunt and Huizinga explore a wide range of factors that may affect bank profitability, including market structure, macroeconomic conditions, and bank-specific characteristics. They highlight the importance of loan management efficiency alongside other determinants such as market concentration and regulatory environment.

By examining interest margins and profitability measures across diverse banking systems, the study provides valuable insights into the factors driving bank profitability globally. While not solely focused on loan management, it underscores the significance of effective loan management practices in enhancing bank profitability and interest margins.

Kosmidou, Tanna, and Pasiouras (2005) examined the profitability determinants of domestic UK commercial banks in their study published in Money, macroeconomics and finance.

Published in Money, Macroeconomics and Finance, this study investigates the profitability determinants of domestic UK commercial banks over a significant period from 1995 to 2002. The authors aim to identify the factors influencing bank profitability, with a particular focus on loan management-related variables.

Kosmidou, Tanna, and Pasiouras employ panel data analysis techniques to examine the impact of various factors, including loan quality and pricing, on bank profitability. They delve into the specific aspects of loan management practices and their implications for bank performance.

The study's findings highlight the substantial influence of loan management factors on bank profitability within the UK banking sector. Effective loan management practices, such as maintaining high-quality loan portfolios and implementing competitive pricing strategies, emerge as critical drivers of sustained profitability for commercial banks.

Overall, Kosmidou, Tanna, and Pasiouras' study contributes valuable insights into the relationship between loan management practices and bank profitability, providing implications for bank management and policymakers seeking to enhance the financial performance of domestic UK commercial banks.

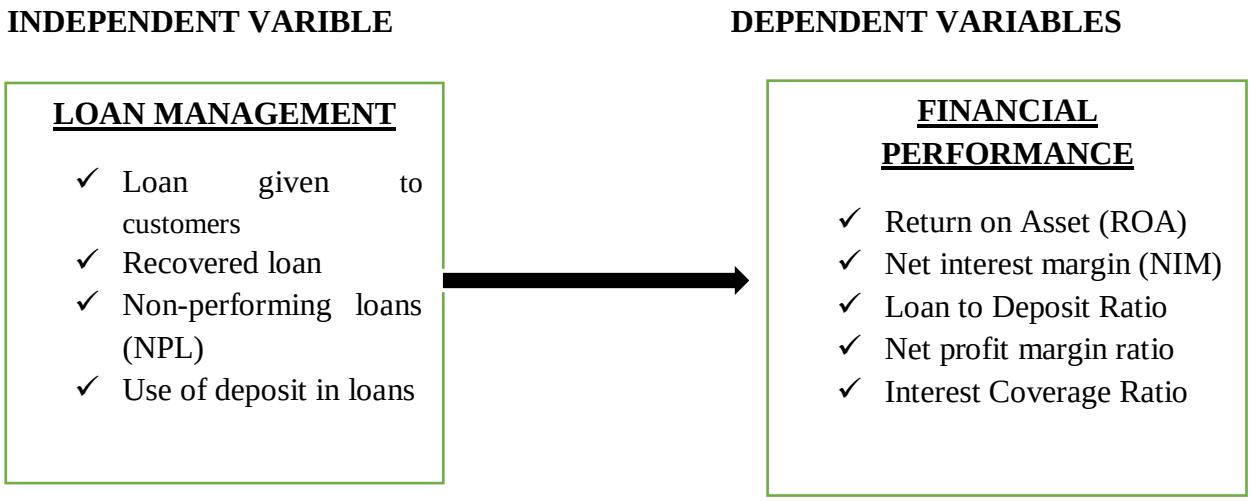
Gaganis and Pasiouras (2013) explored the impact of financial supervision regimes on bank efficiency using a global sample of commercial banks in their study published in the Journal of Banking & Finance. Their findings indicated that banks operating under more stringent supervision regimes tend to exhibit higher efficiency levels, attributed in part to superior loan management practices.

Barajas, Steiner, and Salazar (2000) analyzed interest spreads in Colombian commercial banks in their study published in the Journal of Development Economics. They found that factors such as loan management efficiency, credit risk, and market competition significantly

influence interest spreads and bank profitability, underscoring the importance of effective loan management practices.

2.4. Conceptual framework

A conceptual framework in research provides a structured approach to understanding complex phenomena by outlining key concepts, variables, and relationships. It serves as a theoretical roadmap, guiding researchers in formulating research questions, developing hypotheses, and interpreting findings within a specific research context.



CHAPTER TREE: RESEARCH METHODOLOGY

The research methodology chapter provides a comprehensive overview of the methods and procedures employed in this study to investigate the effectiveness of loan management and its impact on the financial performance of commercial banks in Rwanda, focusing specifically on the Bank of Kigali headquarters. This chapter outlines the research design, sampling techniques, data collection methods, tools utilized, and approaches to data analysis. Additionally, it addresses the validity and reliability of the study and ethical considerations.

3.1. Research design

The research design for the study on loan management and financial performance of commercial banks involves a quantitative approach aimed at analyzing numerical data extracted from financial reports of BK. This approach allows for the systematic examination of specific variables related to loan management practices and financial performance indicators.

Quantitative methods will be utilized to collect and analyze the data, allowing for the numerical measurement of variable. These methods are justified by the need to quantitatively assess the impact of loan management practices on financial performance metrics.

This research is conducted using correlational analysis and regression in order to establish the relationship between loan management and financial performance of BK. Industry benchmarks and standards will be identified and used for comparison purposes to evaluate Bank of Kigali's financial performance metrics against industry norms.

3.2. Population of the study

The population of this study consists of the financial data from the Bank of Kigali, specifically focusing on the annual financial reports. The Bank of Kigali, as one of the leading financial institutions in Rwanda, provides a comprehensive set of financial data that

is ideal for analyzing the relationship between loan management practices and financial performance.

The Bank of Kigali was chosen due to its significant role in the Rwandan banking sector and its comprehensive, publicly available financial reports. These reports include detailed information on various aspects of the bank's operations, including loan management, financial performance, and other relevant metrics. This makes the Bank of Kigali an appropriate and rich source of secondary data for this study.

3.3. Sampling

Given that the study relies on secondary data from the annual financial reports of the Bank of Kigali, the sampling methodology involves selecting specific time periods for analysis. The study employs a purposive sampling technique, focusing on a set number of years to capture the trends and relationships between loan management practices and financial performance.

The sample size consists of the annual financial reports from the Bank of Kigali over a four-year period from 2019-2022. This period was selected to provide a sufficient timeframe to observe trends and draw meaningful conclusions about the relationship between the variables. A four-year period is deemed sufficient to capture variations and trends in loan management practices and their impact on financial performance.

3.4. Data collection techniques and tools

This section contains the method of data collection technique and the tool used in the research.

3.4.1. Data Collection Techniques

Data collection techniques refer to the methods or approaches used to gather data from research participants or sources. These techniques dictate how researchers interact with

subjects or sources to obtain the necessary information. The research employed documentation review as a technique to facilitate the analysis of data.

3.4.2. Data Collection Tools

Data collection tools, on the other hand, are the instruments used to facilitate the collection of data within a chosen data collection technique.

The tool utilized for data analysis was the Bank of Kigali's Annual Report. These reports provided comprehensive insights into the bank's financial performance, including details on balance sheets, income statements, and cash flow statements.

3.5. Validity and reliability

Validity refers to the extent to which a test or research method accurately measures what it is intended to measure. In this study, validity ensures that the indicators used genuinely reflect the aspects of loan management and financial performance they are meant to assess.

Construct Validity: The constructs of loan management and financial performance are defined and operationalized based on well-established financial metrics and practices. By using recognized financial performance indicators such as return on assets (ROA), Net interest Margin (NIM), and other relevant ratios, the study ensures that the constructs are accurately represented.

Content Validity: The financial data extracted from the annual reports comprehensively cover all relevant aspects of loan management and financial performance. The selection of variables is based on their relevance and importance in reflecting the bank's financial health and loan management. This comprehensive approach ensures that the study adequately addresses the research questions.

Criterion-related Validity: This is established by comparing the financial performance metrics of the Bank of Kigali with industry benchmarks and standards. By aligning the study's

metrics with those used by other reputable financial institutions and regulatory bodies, the study ensures that its findings are valid and comparable.

Internal Validity: The study design includes statistical controls to account for potential confounding variables that might influence the relationship between loan management and financial performance. By using regression and correlation as a statistical technique, the study minimizes biases and ensures that the observed relationships are genuinely attributable to the variables of interest.

Reliability, on the other hand, denotes the consistency and dependability of the measurement results. It indicates that the study's processes, including data collection methods, can be replicated under similar conditions and yield the same outcomes.

Consistency of Data Sources: The Annual Financial Reports of the Bank of Kigali are produced consistently using standardized accounting principles and regulatory guidelines. This consistency ensures that the data is reliable over time and can be used for longitudinal analysis.

Reproducibility: The data used in the study can be independently verified by accessing the same financial reports from the Bank of Kigali. This reproducibility ensures that other researchers can obtain similar results by using the same data sources and methods.

Data Quality: The financial reports are audited and verified by external auditors, ensuring their accuracy and reliability. This external validation adds an additional layer of reliability to the data used in the study.

3.6. Data processing

Once the data was collected, it was processed and analyzed according to the guidelines established in the research strategy. Data processing involves several technical steps, including editing, coding, classification, and tabulation, to prepare the raw data for analysis.

Editing involves reviewing the collected data to correct any errors or omissions, ensuring accuracy and completeness. Coding entails assigning numerical or categorical codes to responses, facilitating easier analysis. Classification involves organizing the data into meaningful categories, while tabulation refers to summarizing the data into tables or charts for better understanding and interpretation.

Following these processing steps, the data was presented in a manner aligned with the research findings. Excel was utilized to summarize the data, aiding in the visualization and interpretation of the results. This step was crucial in making the findings comprehensible and drawing conclusive insights.

For a more in-depth analysis, the research variables related to loan management and the profitability of financial institutions were analyzed using Statistical Package for the Social Sciences (SPSS). SPSS helped in performing sophisticated statistical analyses to determine the relationship between the independent variables (loan management practices) and the dependent variables (financial performance indicators). This comprehensive approach ensured that the findings were robust and provided clear insights into the link between loan management and financial performance.

3.7. Methods of data analysis

The goal of data analysis was to answer the research questions and achieve the objectives of the study. The method of data analysis used was correlation and regression under inferential statistics, employing statistical techniques for quantitative data to analyze the variables. This approach helped in identifying the relationship between loan management and the financial performance of Bank of Kigali (BK).

To ensure the data is understandable to a broader audience, it was thoroughly examined and analyzed using Statistical Package for the Social Sciences (SPSS 20). This software facilitated sophisticated statistical evaluations of the data, ensuring robust and reliable results. To enhance comprehension and facilitate analysis, the data was presented in tables. These tables provided a clear and concise way to visualize the findings. The gathered data was meticulously reviewed and validated for accuracy and completeness before being tallied, coded, and summarized.

The financial performance ratios approach was employed to convert the financial data into percentage form, enabling a straightforward comparison and interpretation of the findings.

Finally, the analysis culminated in drawing conclusions that depict the impact of loan management on the financial performance of Bank of Kigali. This comprehensive approach ensured that the study's findings were not only accurate but also meaningful, providing valuable insights into the relationship between loan management practices and financial performance.

3.8. Ethical consideration

The integrity of the data was a key ethical consideration. Data integrity was ensured by sourcing data from BK's published financial reports, guaranteeing the use of legitimate and reliable data. The data were meticulously reviewed and processed to maintain their integrity and accuracy, ensuring that the findings were based on sound and verifiable information.

Proper acknowledgment and citation of all sources and references used in this study were ensured to uphold academic integrity and avoid plagiarism. This practice not only respects the original authors but also adds to the reliability and trustworthiness of the research.

By adhering to these ethical principles, the research aimed to uphold the highest standards of ethical conduct, ensuring the credibility and reliability of the study's findings. This ethical framework provided a solid foundation for conducting responsible and trustworthy research.

CHAPTER FOUR: RESEARCH FINDINGS

This chapter presents the research findings and is structured into distinct sections to facilitate a comprehensive exploration and in-depth analysis of the study's variables. The first section delves into the loan management practices of Bank of Kigali (BK). The second section evaluates the financial performance of BK, focusing on key performance indicators. The third chapter delves into the analysis of loan given, loan recovered, nonperforming loan, use of loan to deposit on financial performance, and the relationship between loan management and financial performance of Bank of Kigali.

4.1. Loan management

This section on loan management aims to analyze the key loan management indicators of BK. It will evaluate key aspects including Non-Performing Loans (NPL), the use of deposits in loans, recovered loans, and loans given to customers.

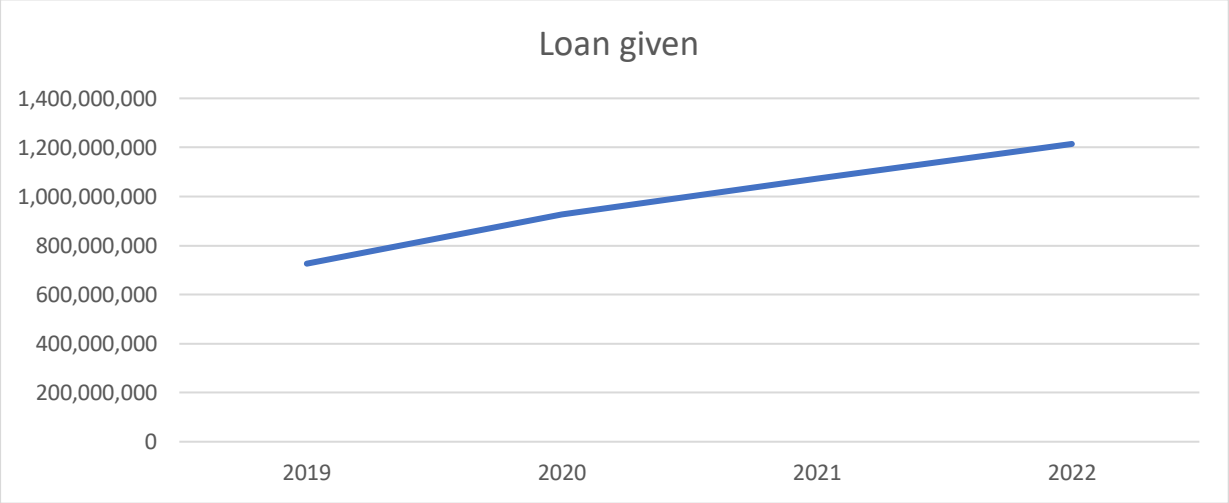
Table 1. Loan given to customers

Year	**2019**(000) Rwf	**2020**(000) Rwf	**2021**(000) Rwf	**2022**(000) Rwf
Loan given	725,996,210	927,535,601	1,073,110,190	1,214,137,082

Source: BK Financial statement from 2019-2022

The table provides detailed data of Loan given to customers by the Bank of Kigali over a four-year period from 2019 to 2022.

Figure 1. Loan Given



There is a clear upward trend in the loans given to customers by BK from 2019 to 2022. This indicates consistent growth in the bank's lending activities. The loan given have grown significantly year over year, demonstrating an increase in the bank's ability to extend credit to its customers.

The period from 2019 to 2020 saw the largest increase of 201,539,391 Rwf, which represents a 28% growth rate. Between 2020 and 2021, the growth rate was 16%, with an increase of 145,574,589 Rwf. Finally, from 2021 to 2022, the loans grew by 141,026,892 Rwf, which is a 13% increase.

The data suggests that Bank of Kigali (BK) has been expanding its lending portfolio significantly over the period from 2019 to 2022. The consistent year-over-year growth indicates a robust demand for loans and possibly an increasing customer base or higher loan amounts per customer. The largest year-over-year growth occurred between 2019 and 2020, which might be attributed to specific economic factors or strategic initiatives taken by the bank during that period. This trend is positive for the bank as it suggests increased revenue from interest on loans.

Table 2. Trend analysis of loan given to customers

Year	**2019**	**2020**	**2021**	**2022**
Trend analysis	100%	128%	148%	167%

Source: BK financial statement from 2019-2022

Considering year 2019 as base year; a trend analysis is conducted to assess the evolution of loan given to customers of Bank of Kigali

From the above table you can ascertain that the evolution of loan given to customers of Bank of Kigali has increased by 28% in 2020; 48% in 2021; 67% 2022 comparing to the year 2019. Which witnesses the effectiveness of the BK's loan management.

Table 3. Recovered loan

YEARS	2019(000) Rwf	2020(000) Rwf	2021(000) Rwf	2022(000) Rwf
Gross loan expenditure	803,982,346	1,058,596,478	1,250,084,255	1,561,984,050
Nonperforming loan	45,599,820	71,294,085	66,764,123	40,282,169
Recovered loan	758,382,526	987,302,393	1,183,320,132	1,521,701,881
recovery Rate	94.34%	93.27%	94.66%	97.42%

Source: BK Financial statement from 2019-2022

The year 2019 saw a recovery rate of approximately 94.34%, again slightly below the required threshold. Despite an increase in gross loan expenditure and nonperforming loans, the bank's recovery efforts remained strong, though not enough to meet the minimum of 95% benchmark. In 2020, the recovery rate was approximately 93.27%, notably below the requirement.

In 2021, the recovery rate was approximately 94.66%, still below the 95% benchmark but showing a slight improvement compared to 2020. The bank's efforts in managing and

recovering loans were effective, yet they did not fully achieve the target recovery rate. However, in 2022, the recovery rate improved significantly to approximately 97.42%, surpassing the minimum of 95% requirement. This remarkable performance indicates the bank's successful handling of loan defaults and recovery efforts during that year.

The Bank of Kigali met the minimum required loan recovery rate of 95% in 2022. However, in the other years (2019, 2020, and 2021), the bank did not achieve the 95% recovery rate, although the rates were very close to the benchmark. The bank's performance in 2022 stands out as particularly strong, highlighting effective recovery strategies and management.

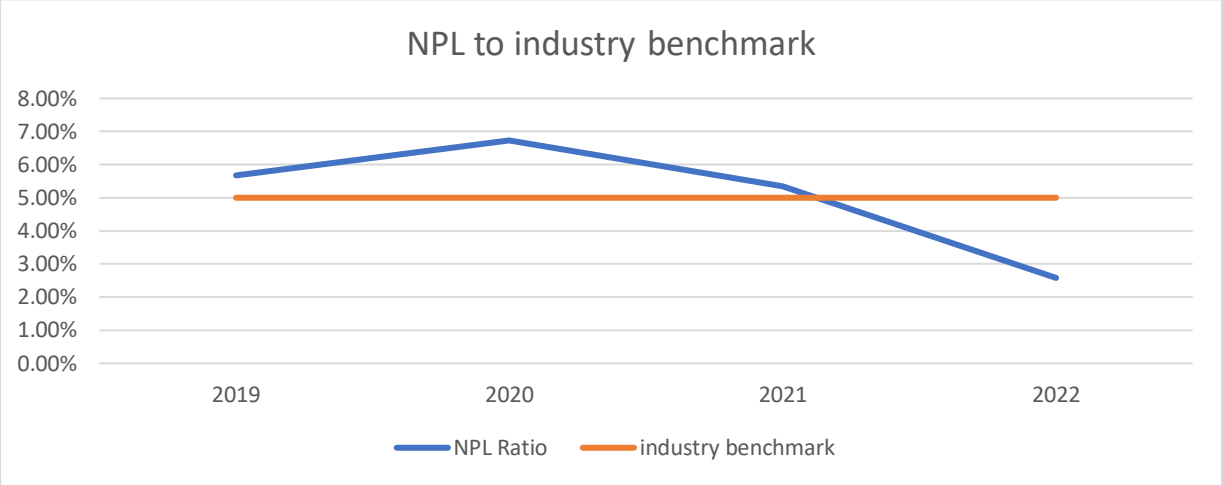
Table 4. Non-performing loan

YEARS	2019(000) Rwf	2020(000) Rwf	2021(000) Rwf	2022(000) Rwf
NPL	45,599,820	71,294,085	66,764,123	40,282,169
Gross loan expenditure	803,982,346	1,058,596,478	1,250,084,255	1,561,984,050
NPL Ratio	5.67%	6.73%	5.34%	2.58%

Source: BK Financial statement from 2019-2022

The table presents data on nonperforming loans (NPLs) over a four-year period from 2019 to 2022. It includes three key metrics: the amount of nonperforming loans, the gross loan expenditure, and the nonperforming loan ratio (NPL Ratio).

Figure 2. Nonperforming loan



In 2019, the amount of nonperforming loans rose to Rwf45.600 million, and the gross loan expenditure increased significantly to Rwf804.000 million. The year 2020 saw a further significant increase in nonperforming loans to Rwf71.290 million, with gross loan expenditure surging to over Rwf1.058 billion. This led to the highest NPL ratio of 6.73% during the four-year period, possibly due to economic challenges that affected borrowers' ability to repay their loans.

In 2021, nonperforming loans decreased slightly to Rwf66.760 million, while gross loan expenditure continued to rise to Rwf1.250 billion. This resulted in an improved NPL ratio of 5.34%. The trend of decreasing nonperforming loans continued in 2022, with the amount dropping to Rwf40.280 million. At the same time, gross loan expenditure increased significantly to Rwf1.560 billion. This led to a substantial reduction in the NPL ratio to 2.58%, indicating a significant improvement in loan performance and possibly more stringent credit assessments or better economic conditions.

Overall, the data shows that while the institution's gross loan expenditure has generally increased each year, indicating growth in lending activities, the nonperforming loans peaked in 2020. However, by 2022, both nonperforming loans and the NPL ratio saw a significant decrease, suggesting an improvement in loan performance. This trend reflects the institution's

ability to manage loan defaults effectively, particularly in the later years of the period analyzed.

Table 5. Use of loan to deposit

Year	**2019**(000) Rwf	**2020**(000) Rwf	**2021**(000) Rwf	**2022**(000) Rwf
Gross loans	725,996,210	927,535,601	1,073,110,190	1,214,137,082
Total deposits	696,885,084	921,400,000	1,200,000,000	1,365,000,000
Loan to deposit	104.20%	100.70%	89.40%	88.90%

Source: BK Financial statement from 2019-2022

The table provides detailed figures on gross loans, total deposits, and the loan-to-deposit ratio for a financial institution over a four-year period from 2019 to 2022.

In 2019, the institution's gross loans further rose to Rwf725,996,210, with total deposits of Rwf696,885,084, resulting in a loan-to-deposit ratio of 104.2%. By 2020, gross loans reached Rwf927,535,601, and total deposits were Rwf921,400,000, slightly reducing the loan-to-deposit ratio to 100.7%.

The year 2021 saw gross loans of Rwf1,073,110,190 and total deposits increasing to Rwf1,200,000,000, which led to a lower loan-to-deposit ratio of 89.4%. In 2022, the gross loans further increased to Rwf1,214,137,082, while total deposits grew to Rwf1,365,000,000, resulting in a loan-to-deposit ratio of 88.9%.

Over the period from 2019 to 2022, the gross loans and total deposits have both generally increased each year. The loan-to-deposit ratio fluctuated, initially exceeding 100% in the years 2019 to 2020, indicating periods where loans surpassed deposits. However, in the years

2021 and 2022, the ratio decreased to below 90%, indicating a shift towards maintaining higher deposits relative to loans.

4.2. Financial performance

This section of financial performance aims to analyze BK's financial performance indicators compare to industry benchmarks. It will evaluate key aspects related to financial performance metrics.

Table 6. Return on asset

YEARS	2019(000) Rwf	2020(000) Rwf	2021(000) Rwf	2022(000) Rwf
Net profit	35,211,809	37,220,588	48,860,693	59,949,759
Total Asset	999,057,589	1,277,105,512	1,555,210,672	1,804,148,986
ROA	3.52%	2.91%	3.14%	3.32%

Source: BK Financial statement from 2019-2022

The net profit of BK has shown a consistent upward trend from 2019 to 2022. The net profit increased from 35,211,809 Rwf in 2019 to 59,949,759 Rwf in 2022, indicating strong profitability growth. This substantial increase demonstrates the bank's ability to generate higher earnings over the years.

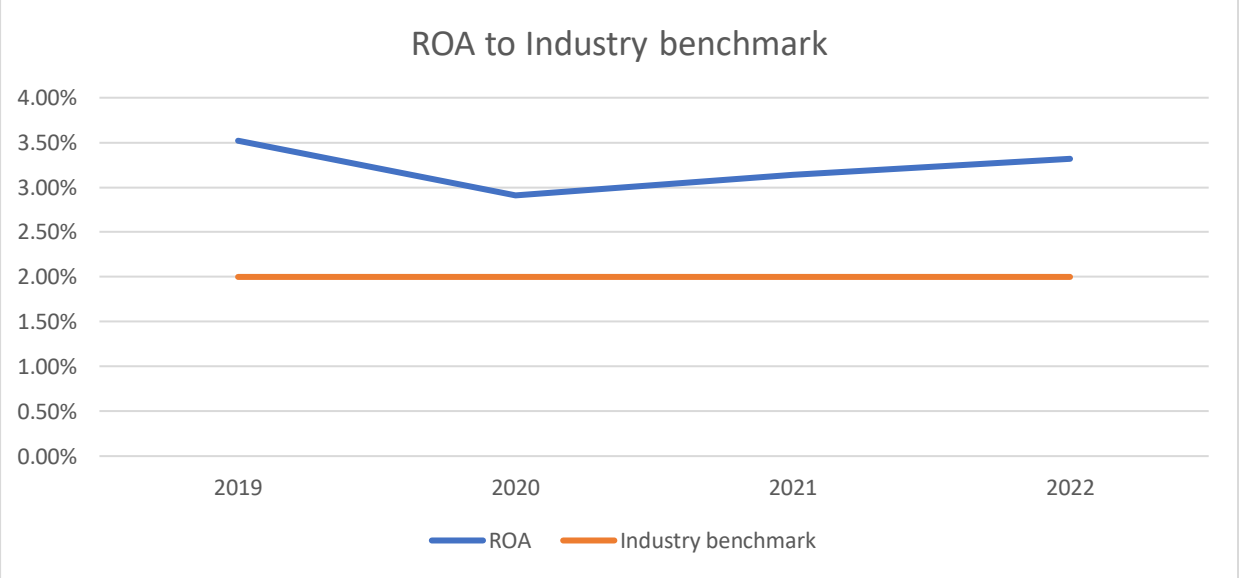
In parallel, the total assets of BK have also shown a significant increase over the same period. The total assets grew from 999,057,589 Rwf in 2019 to 1,804,148,986 Rwf in 2022, reflecting the bank's expansion and increased financial strength.

The ROA, which shows the efficiency of the bank in generating profit from its assets, has had some fluctuations. However, in 2020, the ROA decreased to 2.91%. The ROA then recovered to 3.14% in 2021 and further improved to 3.32% in 2022, indicating a return to more efficient asset utilization and profitability.

The data indicates that Bank of Kigali has experienced steady growth in both net profit and total assets from 2019 to 2022. Despite a dip in ROA in 2020, the bank's ability to efficiently utilize its assets to generate profit has generally improved over the four-year period.

Bank of Kigali's financial performance reflects strong growth and improving efficiency, positioning it well for future stability and profitability. The consistent increase in net profit and total assets, along with the recovery of ROA, demonstrates the bank's resilience and effective management strategies.

Figure 3. ROA and industry benchmarks



When comparing the ROA percentages of Bank of Kigali (BK) with industry benchmarks, it is clear that BK consistently outperforms typical standards in the banking sector. Generally, a ROA of 1% to 2% is considered average for banks globally, while top-performing banks achieve ROAs above 2%. BK's ROA from 2019 to 2022 consistently exceeds these benchmarks.

In 2019, BK's ROA was 3,52%, significantly higher than the global average. This trend continued, with ROA figures of 2.91% in 2020, 3.14% in 2021, and 3.32% in 2022. Even in 2020, the lowest year, BK's ROA of 2.91% was still well above the global average,

demonstrating that BK maintained strong asset utilization efficiency despite economic challenges, likely due to the COVID-19 pandemic.

Bank of Kigali's ROA from 2019 to 2022 consistently outperforms both the global average for banks and the benchmarks for top-performing banks. BK's high ROA figures reflect robust financial health and efficient asset management practices. The bank's ability to maintain and even increase ROA post-2020, despite economic challenges, underscores its strong operational capabilities and strategic acumen.

Table 7. Loan to deposit

Year	**2019**(000) Rwf	**2020**(000) Rwf	**2021**(000) Rwf	**2022**(000) Rwf
Gross loans	725,996,210	927,535,601	1,073,110,190	1,214,137,082
Total deposits	696,885,084	921,400,000	1,200,000,000	1,365,000,000
Loan to deposit	104.20%	100.70%	89.40%	88.90%

Source: BK Financial statement from 2019-2022

Analyzing the loan-to-deposit ratio (LDR) of Bank of Kigali over the years can provide insights into its liquidity management.

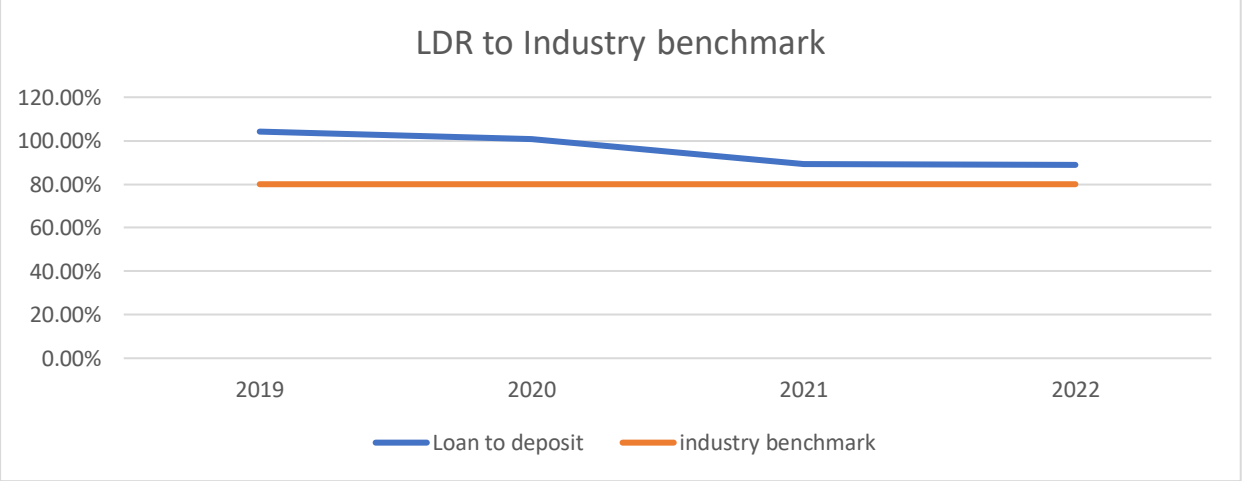
In 2019, the LDR stood at 104.20%, indicating a nearly balanced ratio between loans and deposits. This suggests a cautious approach to lending, with the bank ensuring that its loan portfolio does not significantly outweigh its deposit base.

In 2020, the LDR decreased slightly to 100.7%, indicating a more balanced ratio between loans and deposits.

The year 2021 saw a significant drop in the LDR to 89.4%, signaling a decrease in lending compared to deposits.

Continuing into 2022, the LDR remained relatively low at 88.9%, indicating a continued focus on liquidity management. The bank may have maintained a conservative approach to lending, ensuring it had sufficient liquidity to meet potential demands or unexpected events.

Figure 4. Loan to deposit compare to industry benchmark



Comparing Bank of Kigali's loan-to-deposit ratio (LDR) to industry benchmarks sheds light on its liquidity management performance within the banking sector.

In 2019, the LDR exceeded the benchmark, indicating that the bank had a higher proportion of loans relative to deposits compared to the industry standard.

The LDR decreased in 2020, falling closer to the benchmark range, indicating a potential improvement in liquidity management compared to the previous year.

In 2021 and 2022, the LDR remained slightly above the industry benchmark, suggesting that Bank of Kigali had a more conservative approach to lending compared to industry norms during these years.

Table 8. Net profit Margin

Years	2019(000) Rwf	2020(000) Rwf	2021(000) Rwf	2022(000) Rwf
Net profit	35,211,809	37,220,588	48,860,693	59,949,759
Revenue	139,622,217	167,584,987	207,145,472	215,783,696
Net profit margin ratio	25.22%	22.21%	23.59%	27.78%

Source: BK Financial statement from 2019-2022

Analyzing the net profit margin ratio for the commercial bank (BK) over the years 2019 to 2022 provides valuable insights into its financial health and efficiency. The net profit margin ratio is a crucial indicator, calculated as the net profit divided by the revenue, multiplied by 100. This ratio helps us understand how effectively the bank converts its revenue into profit.

In 2020, although there was an increase in both net profit and revenue, the net profit margin ratio dropped to 22.21%. This dip suggests that the bank faced challenges in maintaining its profitability relative to its revenue.

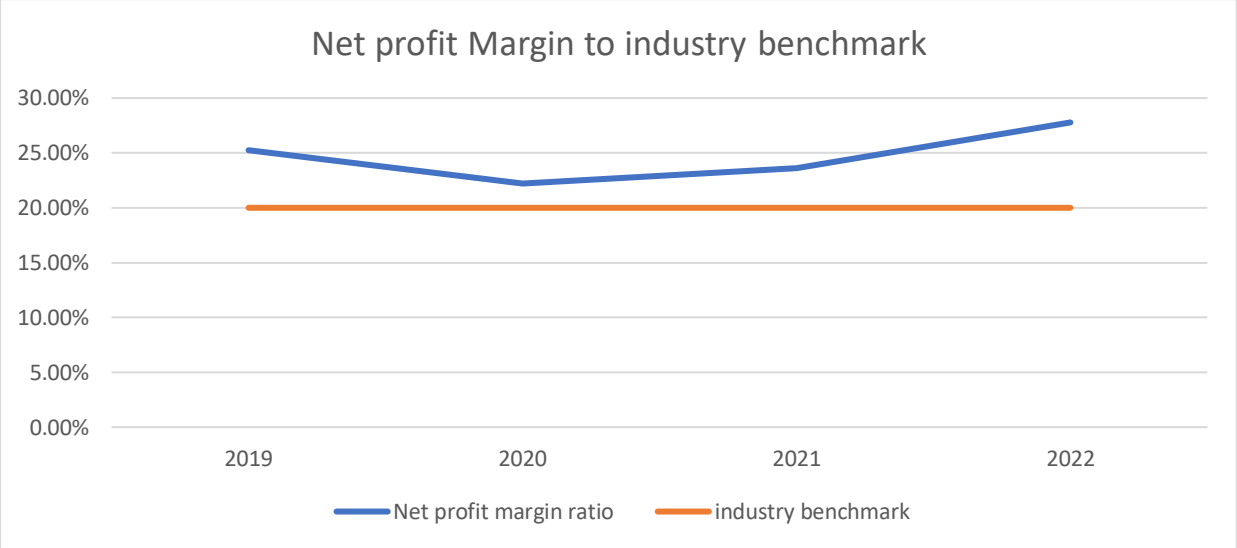
However, from 2021 to 2022, the net profit margin ratio showed a positive recovery. It increased from 23.59% in 2021 to 27.78% in 2022, marking the highest ratio in the observed period. This improvement suggests that BK managed to enhance its profitability and operational efficiency. The bank's ability to rebound and achieve a higher net profit margin ratio reflects effective cost management and strategic adjustments made in response to the challenges faced in 2020.

The consistent growth in revenue each year is a positive sign of the bank's business expansion and increasing customer base or services. The steady increase in net profit indicates good management of operations and potential growth in profitable activities or services. The fluctuations in the net profit margin ratio highlight changes in the bank’s efficiency in managing expenses relative to its revenue. The drop in 2020 underscores a challenge, while

the recovery in 2021 and 2022 suggests improvements in operational efficiencies or cost control measures.

The analysis of BK's net profit margin ratio from 2019 to 2022 shows an overall positive trend in profitability, despite a temporary setback in 2020. The bank's ability to improve its net profit margin ratio to 27.78% by 2022 reflects strong financial health and effective management strategies

Figure 5. Net profit margin ratio and industry benchmark



The net profit margin ratio for commercial banks varies by region and economic conditions but generally ranges between 20% and 30%.

In 2019, the net profit margin ratio further increased to 25.22%. This places BK well within the typical industry range, indicating strong profitability and efficient operations.

In 2020, the ratio dropped to 22.21%, despite the drop, BK remained within the industry benchmark range, showing resilience compared to many other financial institutions that might have experienced more significant declines. By 2021, BK's ratio rose to 23.59%, reflecting a recovery in profitability and a return to more stable operational efficiencies, moving again towards the mid-range of industry benchmarks. In 2022, the net profit margin

ratio peaked at 27.78%, positioning BK at the higher end of the industry benchmark range. This indicates exceptional profitability and operational efficiency, suggesting that BK outperformed many of its peers in terms of converting revenue into profit.

BK's net profit margin ratios from 2019 to 2022 generally align with, and sometimes exceed, typical industry benchmarks for commercial banks.

BK's net profit margin ratios from 2019 to 2022 demonstrate a strong alignment with industry benchmarks for commercial banks. The bank's performance, particularly in 2022 with a net profit margin ratio of 27.78%, indicates an exceptionally profitable and efficient operation.

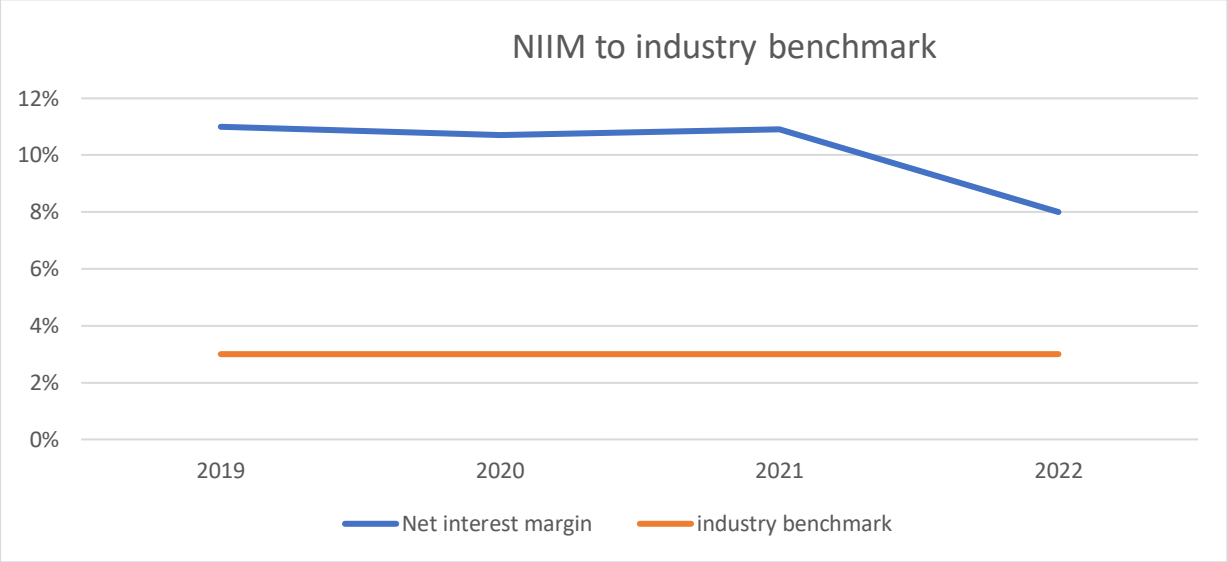
Table 9. Net interest margin

Years	2019	2020	2021	2022
Net interest margin	11%	10.70%	10.90%	8%

Source: BK Financial statement from 2019-2022

Analyzing the net interest margin (NIM) trend of BK (Bank of Kigali) from 2019 to 2022 provides insights into its financial performance and strategic management of interest income and expenses. In 2019, BK reported a NIM of 11%, the trend slightly shifted in 2020 and 2021, where BK's NIM experienced minor changes. In 2020, the NIM decreased slightly to 10.70%, potentially reflecting adjustments made in response to economic fluctuations or changes in interest rate environments. By 2021, the NIM increased marginally to 10.90%, indicating a possible recovery or strategic adjustments to optimize interest margins. The most notable change occurred in 2022, where BK reported a significant decrease in NIM to 8.00%.

Figure 6. Net interest margin % to industry benchmark



The industry benchmark for NIM in commercial banks is typically around 3%. This benchmark serves as a general standard for profitability and efficiency in interest income and expense management.

In 2019, BK's NIM is 11.00%, further exceeding the industry benchmark. Despite a slight decrease to 10.70% in 2020, BK's NIM still remained significantly above the benchmark.

In 2021, the NIM rose slightly to 10.90%, maintaining a high level above the benchmark. This suggests continued strong performance and adaptability in managing interest rates and income. In 2022 when BK's NIM dropped to 8.00%. Although this is a significant decrease, it remains above the 3% industry benchmark.

BK's Net Interest Margin from 2019 to 2021 consistently exceeded the industry benchmark of 3% by a substantial margin. This indicates that BK has been highly effective in generating interest income relative to its expenses, reflecting strong profitability and efficient asset management. BK’s performance in terms of NIM has been robust, consistently outperforming the industry standard.

Table 10. Interest Coverage Ratio

Years	2019	2020	2021	2022
Interest expense	21 564 703	32 703 514	41 481 321	50,953,192
Interest income	115 825 090	144 547 186	175 273 400	185,918,302
Interest coverage Ratio	18.62%	22.62%	23.67%	27.41%

Source: BK Financial statement from 2019-2022

The table presents data on interest expenses and interest income for the Bank of Kigali from 2019 to 2022, along with the ratio of interest expense to interest income.

Interest expenses for the Bank of Kigali have shown a steady increase from 2019 through 2022. Starting at 21 564 703 RWF in 2019, interest expenses rose significantly to 50,953,192 by 2022.

Simultaneously, interest income has also been on the rise over these years. Starting at 115 825 090 Rwf in 2019, it grew to 185,918,302 in 2022. This consistent growth in interest income indicates that the Bank of Kigali has been successful in generating more revenue. The increase in interest income is a positive development as it helps counterbalance the rising interest expenses, thereby supporting the bank's overall financial performance.

However, the ratio of interest expense to interest income has fluctuated during this period. The lowest ratio was recorded in 2019 at 18.62%, indicating a period where interest expenses were a smaller proportion of interest income. Conversely, the highest ratio was in 2022 at 27.41%.

4.3. Loan management practices and financial performance of BK.

This section presents an analysis of the impact loan given to customers, loan recovered, of non-performing loans and LDR on the financial performance of Bank of Kigali and the relationship between loan management and financial performance of BK.

Table 11. Coefficient of the regression line between lending practices to customers and financial performance

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	41,655	5,445		7.650	.017
	Loan given	.120	.039	.906	3.034	.094
a. Dependent Variable: Financial performance						

Source: BK financial statement from 2019-2020

The table provides the coefficients from a regression analysis where the amount of loan given is the independent variable and Financial Performance is the dependent variable. The unstandardized coefficient for the constant (intercept) is 41,655 with a standard error of 5,445. This indicates that when the amount of loan given is zero, the expected Financial Performance is 41,655. The unstandardized coefficient for LOANGIVEN is .120, suggesting that for each unit increase in the amount of loan given, the Financial Performance increases by .120 units. The standardized coefficient (Beta) for LOANGIVEN is 0.906, showing a strong positive relationship between the amount of loan given and Financial Performance.

Table 12. coefficient of regression line between recovery loan and financial performance

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-187.397	199.959		-.937	.448
	Recovered Ratio	2.538	2.106	.649	1.205	.351
a. Dependent Variable: financialperformance						

Source: BK financial statement from2019-2022

The table provides the results of a linear regression analysis where the dependent variable is 'financial performance' and the independent variable is 'Recovered Ratio'. The unstandardized coefficient for the constant is -187.397 with a standard error of 199.959. This represents the expected value of 'financial performance' when the 'Recovered Ratio' is zero. The unstandardized coefficient for the 'Recovered Ratio' is 2.538 with a standard error of 2.106. This indicates that for each unit increase in the 'Recovered Ratio', the 'financial performance' is expected to increase by 2.538 units.

The standardized coefficient (Beta) for the 'Recovered Ratio' is 0.649. This suggests that the 'Recovered Ratio' has a positive relationship with 'financial performance' and is a relevant predictor. The t-value for the 'Recovered Ratio' is 1.205, which tests the hypothesis that the coefficient is different from zero. This t-value is relatively low.

The phenomenon observed here is that improved loan recovery efforts are generally expected to lead to better financial performance for the bank. This aligns with the intuitive understanding that effective management of loan defaults can help a bank recover funds and reduce losses, thus improving overall financial health.

Table 13. Descriptive statistics of Nonperforming loans and financial performance

	Mean	Std. Deviation	N
Financial performance	53.5025	6.91827	4
NPL	5.0800	1.76901	4

Source: Data from BK financial statement from 2019-2022

From 2019 to 2022, the Bank of Kigali demonstrated notable financial performance, averaging 53.5025 with a standard deviation of 6.91827, indicating some variability. During the same period, the mean level of non-performing loans (NPLs) was 5.08% with a standard deviation of 1.76901, showing moderate variability. This indicates effective loan management, as the mean NPL level closely aligns with the 5% benchmark required by the National Bank of Rwanda (BNR). The ability to maintain an NPL ratio near the regulatory benchmark reflects the bank's robust risk management and operational efficiency over the study period.

Table 14. coefficient of the regression line between Nonperforming loans and financial performance

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	66.412	11.153		5.955	.027
	NPL	-2.541	2.102	-.650	-1.209	.350
a. Dependent Variable: financial performance						

Source: BK financial statement data from 2019-2022

The regression coefficients offer additional insight. The constant (intercept) of the model is 66.412, with a p-value of 0.027. This indicates that when NPL is zero, the financial performance is expected to be 66.412. The coefficient for NPL is -2.541. Suggesting that for each unit increase in non-performing loans, the financial performance decreases by 2.541 units.

Table 15. Coefficient of regression line between deposit utilization and financial performance

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	38,386	15,220		2.522	.128
	LDR	.996	.158	.976	6.288	.024
a. Dependent Variable: Financial Performance						

Source: BK financial statement from 2019-2022

This table presents the coefficients from a regression analysis where the Loan to Deposit Ratio (LDR). The unstandardized coefficient for LDR is .996, indicating that for each unit increase in LDR, the Financial Performance increases by .996 units. The standardized coefficient (Beta) for LDR is 0.976, which signifies a strong positive relationship between LDR and Financial Performance. The t-value for LDR is 6.288, and the significance (Sig.) is 0.024, which is less than 0.05. This means that LDR has a statistically significant impact on Financial Performance.

4.4. Correlation between loan management and financial performance

This section contains the analysis of loan management and financial performance of Bank of Kigali from 2019-2022.

Table 16. Correlation between loan management and financial performance of BK.

		Financial performance	Loan management
Financial performance	Pearson Correlation	1	.978*
	Sig. (2-tailed)		.022
	N	4	4
Loan management	Pearson Correlation	.978*	1
	Sig. (2-tailed)	.022	
	N	4	4

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

Source: Bank of Kigali data from 2019-2022

The table presents a correlation analysis between financial performance and loan management based on data from the Bank of Kigali for the period 2019-2022. The Pearson correlation coefficient between financial performance and loan management is 0.978, indicating a very strong positive relationship. This suggests that as loan management improves, financial performance also tends to improve significantly

The significance value (p-value) for this correlation is 0.022, which is less than the threshold of 0.05. This means that the correlation is statistically significant at the 0.05 level, indicating that there is less than a 2.2% probability that the observed correlation is due to random chance. Thus, the strong positive relationship observed is highly unlikely to be coincidental.

CHAPTER FIVE: SUMMARY, CONCLUSION AND RECOMMENDATION

SUMMARY

The research titled "Loan Management and Financial Performance of Commercial Banks in Rwanda: A Case Study of Bank of Kigali (2019-2022)" focuses on understanding the impact of loan management practices on the financial performance of Bank of Kigali. The study had a general objective and three specific objectives: to measure the relationship between loan management and financial performance, to evaluate the effectiveness of nonperforming loan management on enhancing the financial stability of Bank of Kigali, and to examine the effects of loan recovery, deposit utilization, and lending strategies on the financial results of Bank of Kigali.

The research was geographically scoped to the headquarters of the Bank of Kigali, located in Nyarugenge Avenue de la Paix, and temporally scoped to a four-year period from 2019 to 2022. The significance of this study lies in its potential to provide strategic insights for decision-makers within commercial banks in Rwanda, contribute to academic knowledge, and guide future research in banking and finance.

The methodology employed involved collecting data from the Bank of Kigali's financial statements and analyzing key performance indicators. Statistical analysis was performed using the Statistical Package for the Social Sciences (SPSS). This approach aimed to provide a comprehensive view of how loan management practices impact the overall financial health of the bank.

The research uncovered several critical observations regarding loan management and financial performance at the Bank of Kigali. Loan management practices were assessed through metrics such as loan given to customer, recovered loans, Non-Performing Loans (NPLs) ratio and use of deposit in loan.

Regarding financial performance, the study evaluated the ROA, NIM, LDR, NPM, and interest coverage ratio to gauge the bank's financial health over the four-year period. The data revealed trends and patterns in the bank's performance, providing insights into its operational efficiency and financial stability. The correlation analysis revealed a Pearson correlation coefficient of .978 between loan management and financial performance, suggesting a very strong positive correlation. This correlation is statistically significant at the 0.05 level (2-tailed), with a p-value of 0.022.

CONCLUSION

The study titled "Loan Management and Financial Performance of Commercial Banks in Rwanda: A Case Study of Bank of Kigali (2019-2022)" aimed to analyze the impact of loan management practices on the financial performance of the Bank of Kigali over a four-year period.

The study reveals that the expected a unit increase in lending practices results in a 0.120 unit increase in financial performance. The strong positive Beta value (0.906). The positive relationship between loans given and financial performance suggests that increasing the loan portfolio can enhance financial performance.

Concerning, the loan recovered the study reveals that a unit increase in the recovered ratio results in a 2.538 unit increase in financial performance. The positive Beta value (0.649) indicates a moderate positive relationship. The positive relationship implies that effective loan recovery efforts can improve financial performance.

For the nonperforming loans on financial performance the study reveals that the coefficient for NPL is -2.541, which implies that for each unit increase in the NPL ratio, the financial performance decreases by 2.541 units. This negative relationship is further supported by the

standardized coefficient (Beta) of -0.650, indicating a moderate negative correlation between NPLs and financial performance. The negative coefficient for NPL (-2.541) indicates that an increase in non-performing loans is associated with a decline in financial performance.

Concerning the loan to deposit to the financial performance the study shows that the coefficient for LDR is 0.996, which implies that for each unit increase in the LDR, the financial performance increases by 0.996 units. This positive relationship is further supported by the standardized coefficient (Beta) of 0.976, indicating a very strong positive correlation between LDR and financial performance. The p-value for the LDR coefficient is 0.024, which is less than 0.05, suggesting that the positive impact of LDR on financial performance is statistically significant.

The study identified a strong positive correlation between loan management and financial performance, with a p-value of 0.022, indicates a statistically significant relationship. This suggests that improvements in loan management practices are strongly associated with enhanced financial performance for the Bank of Kigali. The statistically significant positive correlation validates the hypothesis that effective loan management positively impacts financial performance. This supports the premise that better loan management practices, such as reducing non-performing loans and improving recovery rates, lead to improved financial outcomes.

RECOMMENDATION

A positive relationship exists between the amount of loans given and financial performance, suggesting that increasing loan disbursements can enhance financial performance. Therefore, commercial banks should focus on expanding their loan portfolios strategically. This involves targeting creditworthy customers and diverse sectors to spread risk. Implementing robust credit assessment processes and regular monitoring can ensure that the increase in loans does

not lead to a proportional increase in non-performing loans. Additionally, banks should invest in advanced data analytics to identify emerging credit opportunities and potential risks, thereby optimizing their lending strategies for better financial outcomes.

A moderate positive relationship exists between the recovered ratio and financial performance, although it is not statistically significant. This suggests that effective loan recovery efforts can improve financial performance Commercial banks should prioritize strengthening their loan recovery processes. This includes implementing efficient recovery strategies, offering incentives such as reduced interest rates for early repayments can encourage timely loan repayments. Moreover, engaging with customers regularly using technology to understand their repayment challenges and offering solutions, such as restructuring loan terms, can improve recovery rates and foster better customer relationships.

A negative relationship is observed between non-performing loans (NPLs) and financial performance, underscoring the importance of managing credit risk. Commercial banks should implement comprehensive risk management frameworks to minimize NPLs. This includes rigorous credit assessment processes, continuous monitoring of loan portfolios, and early identification of potential defaulters. Banks should also consider enhancing their risk-based pricing models to account for the creditworthiness of borrowers. By maintaining a low NPL ratio through proactive risk management and effective loan monitoring, banks can safeguard their financial stability and profitability.

A strong and statistically significant positive relationship is found between the Loan to Deposit Ratio (LDR) and financial performance, suggesting that effectively utilizing deposits for lending purposes can enhance profitability. Commercial banks should aim to optimize their LDR to maximize financial performance. This involves balancing the need for aggressive lending with prudent risk management. Banks should continuously monitor their

LDR to ensure it remains within an optimal range that maximizes returns while managing liquidity risk. Investing in technology to enhance loan processing and management systems can further improve efficiency and profitability. By strategically managing their LDR, banks can achieve sustainable growth and financial stability.

Based on a positive relationship between loan management and financial performance Banks should develop comprehensive loan management frameworks that include stringent credit assessment processes, regular monitoring of loan portfolios, and early detection of potential defaults. This can help in maintaining a healthy loan portfolio and minimizing the incidence of non-performing loans and improve the overall financial health of the Bank.

Based on the results of the study on the Bank of Kigali's loan management and financial performance, several areas for further research can be proposed to enhance the understanding of this topic and provide deeper insights for the banking sector.

Firstly, an area worth investigating is the influence of technological advancements on loan management practices. With the increasing adoption of artificial intelligence and machine learning in banking, future research could examine how these technologies can enhance credit risk assessment, loan monitoring, and recovery processes. Understanding the role of technology in improving loan management efficiency could help banks implement more effective strategies and improve their financial outcomes.

secondly, a comparative study across different banks in Rwanda or even across different countries could provide a broader perspective on loan management practices. By comparing the loan management approaches and financial performance of multiple banks, researchers can identify best practices and common challenges. This could help in formulating guidelines and recommendations that are applicable across various banking contexts, contributing to the overall stability and growth of the banking sector.

Lastly, Role of Economic Conditions in Loan Defaults: Another area for future research is to examine how macroeconomic factors such as GDP growth, inflation, and unemployment rates affect loan default rates. Understanding these external economic influences can help banks develop more resilient loan management policies and better prepare fir economic fluctuations.

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