



Z C A S U N I V E R S I T Y

MASTER'S DISSERTATION

*Assessing the Effects of Credit Risk Management Controls on the Profitability of
Commercial Banks: A Case of Stanbic Bank Zambia Plc*

(State the complete research title exactly as approved by your supervisor)

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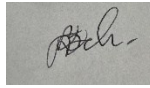
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DECLARATION

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CERTIFICATE OF APPROVAL

This dissertation by Fridah Kasongo Banda, Student Number 202403375, entitled "Assessing the Effects of Credit Risk Management Controls on the Profitability of Commercial Banks: A Case of Stanbic Bank Zambia Plc" has been read and approved as meeting the requirements of ZCAS University for the award of Master of Science in Financial Risk Management.

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DEDICATION

I dedicate this dissertation to Almighty God for His grace, wisdom, strength, and guidance throughout my academic journey. Without His blessings, the completion of this study would not have been possible.

I also dedicate this work to my mother Cecilia Banda and husband Benson Chitalu for their unwavering love, encouragement, patience, and support throughout the course of my studies. Your sacrifices, prayers, and belief in my abilities inspired me to persevere during challenging moments.

Finally, I dedicate this dissertation to all professionals and scholars in the banking and financial services sector whose commitment to advancing knowledge and practice in credit risk management continues to contribute to the stability and growth of financial institutions in Zambia and beyond.

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ABSTRACT

This study investigated the effects of Credit Risk Management Controls (CRM) on profitability, measured by Return on Assets (ROA), at Stanbic Bank Zambia Plc, with particular emphasis on the moderating role of Loan Portfolio Quality (LPQ). Despite the increasing importance of credit risk management in maintaining financial stability and profitability within commercial banks, profitability outcomes continue to vary across institutions due to differences in the effectiveness of CRM practices and the quality of loan portfolios. Consequently, the study sought to determine the effect of CRM on ROA and examine whether LPQ influences the strength of this relationship. The study was anchored on Risk Management Theory and Modern Portfolio Theory, which posit that effective risk management and portfolio quality are essential determinants of financial performance. The study adopted a mixed methods case study design guided by a pragmatist research philosophy. Quantitative data consisted of monthly time-series observations covering the period 2018–2024 and were obtained from audited financial statements, internal reports, and institutional records of Stanbic Bank Zambia Plc. Qualitative data were collected through semi-structured interviews with key informants involved in credit risk management and related functions. Quantitative data were analysed using descriptive statistics, correlation analysis, moderation regression analysis, and diagnostic tests in EViews 13, while qualitative data were analysed using thematic analysis. The study model examined the direct effect of CRM on ROA and the moderating effect of LPQ through an interaction term between CRM and LPQ. The findings revealed that CRM had a positive and statistically significant effect on ROA ($\beta = 0.024$, $p < 0.001$), indicating that improvements in credit risk management practices enhanced profitability. The model demonstrated strong explanatory power ($R^2 = 0.981$), suggesting that CRM accounted for a substantial proportion of the variation in ROA. The moderation analysis further revealed that LPQ significantly moderated the relationship between CRM and ROA, as evidenced by a positive and statistically significant interaction effect ($\beta = 0.001$, $p < 0.001$). Although LPQ did not exert a statistically significant direct effect on ROA ($\beta = 0.009$, $p = 0.203$), it strengthened the positive impact of CRM on profitability. Diagnostic tests confirmed the robustness of the model, with no evidence of non-normality (Jarque–Bera $p = 0.206$), heteroscedasticity (Breusch–Pagan $p = 0.123$), serial correlation (Breusch–Godfrey $p = 0.130$), or model specification

errors (Ramsey RESET $p = 0.773$). The qualitative findings complemented the quantitative results by revealing that borrower assessment, collateral management, and loan monitoring were perceived as critical drivers of profitability, while macroeconomic conditions and borrower-related challenges were identified as factors affecting CRM effectiveness. The study concludes that CRM significantly enhances profitability and that the effectiveness of CRM is strengthened by high levels of LPQ. It therefore recommends that Stanbic Bank Zambia Plc strengthen borrower assessment procedures, enhance portfolio monitoring systems, and prioritise strategies aimed at maintaining high-quality loan portfolios. The study contributes to knowledge by empirically demonstrating the moderating role of LPQ in the CRM–ROA relationship within the Zambian banking sector. Keywords: Credit Risk Management Controls, Loan Portfolio Quality, Profitability, Return on Assets, Commercial Banks, Zambia.

Keywords: Credit Risk Management, Profitability, Loan Portfolio Quality, Commercial Banks, Stanbic Bank Zambia

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LIST OF ABBREVIATIONS AND ACRONYMS

Abbreviation	Meaning
BCBS	Basel Committee on Banking Supervision
CRM	Credit Risk Management
CRMCs	Credit Risk Management Controls
DW	Durbin-Watson Statistic
EViews	Econometric Views Statistical Software
F	statistic - Fisher Statistic
LPQ	Loan Portfolio Quality
NPLs	Non-Performing Loans
ROA	Return on Assets
SPSS	Statistical Package for the Social Sciences
VIF	Variance Inflation Factor
B	Beta Coefficient
E	Error Term
R ²	Coefficient of Determination
Adj. R ²	Adjusted Coefficient of Determination
P	value - Probability Value
Std. Dev.	Standard Deviation
Obs.	Observations
ZMW	Zambian Kwacha
CRM	Credit Risk Management
LPQ	Loan Portfolio Quality
ROA	Return on Assets
Interaction Term Representing the Moderating Effect of	

CHAPTER ONE: INTRODUCTION AND BACKGROUND

CHAPTER ONE: INTRODUCTION

1.1 Introduction This chapter introduces the study by presenting the background to credit risk management within Zambia's banking sector and outlining the problem of how Credit Risk Management Controls (CRMCs) affect the profitability of Stanbic Bank Zambia Plc. It clearly states the research aim, objectives, and questions that guide the investigation. The chapter also highlights the significance of examining CRMCs in a period of economic volatility and defines the scope of the study. Additionally, it provides key operational definitions to promote clarity and consistency throughout the study.

1.2 Background of the study Credit risk management (CRM) has long been a cornerstone of the financial services sector, particularly for commercial banks whose core operations depend heavily on lending activities (Ozili, 2022). The need for structured CRM practices has grown in parallel with the evolution of financial systems. In the early stages of banking, institutions relied on basic mechanisms such as collateral and personal relationships to mitigate lending risks; however, as banking systems formalized in the 19th and 20th centuries, the complexity of credit transactions increased, necessitating more systematic and standardized risk management approaches (World Bank, 2020). Recent analyses highlight that the sophistication of credit markets and the expansion of global finance have further intensified the importance of CRM, especially as financial products and lending structures have grown more complex (Financial Stability Board, 2021).

The impact of global financial crises has also shaped the historical development of CRM. The 2008 global financial crisis, in particular, exposed severe weaknesses in banks' risk management systems—with subprime lending at the center of the collapse—and triggered widespread institutional failures that continue to inform regulatory frameworks today (Acharya & Richardson, 2009; Ozili, 2020). In response, global regulatory bodies strengthened oversight mechanisms, giving rise to formalized standards such as Basel II and Basel III, which mandate that banks maintain adequate capital buffers to absorb credit losses and strengthen resilience (Basel Committee on Banking Supervision, 2011; BCBS, 2021). Recent scholarship reinforces that these regulatory reforms have remained essential in promoting financial stability, especially in emerging economies facing heightened credit risk exposure (IMF, 2022). Page | 1 Across Sub-

Saharan Africa, credit risk remains one of the most significant threats to financial stability, largely because commercial banks rely heavily on lending as a primary source of revenue (Chorafas, 2015; AfDB, 2021). The region's economic landscape—characterized by fluctuating commodity prices, political instability, and recurrent exchange rate volatility—often translates into higher credit default rates for both households and firms. The COVID-19 pandemic further amplified these vulnerabilities by triggering widespread business closures, job losses, and reduced household incomes, which led to increased loan defaults and elevated non-performing loan (NPL) ratios across African banking systems (IMF, 2021). As a result, banks across the region strengthened their Credit Risk Management Controls (CRMCs) through tighter lending standards, enhanced borrower assessments, and more rigorous loan monitoring procedures (AfDB, 2021).

Research by the African Development Bank (2021) shows that African banks that improved their CRMC frameworks between 2015 and 2020 experienced measurable gains in profitability, with average returns on assets (ROA) increasing by 1.3%. Conversely, banks with persistently high NPL ratios suffered reduced profitability due to increased credit loss provisioning, higher cost of capital, and deterioration of capital buffers. These findings highlight that, in the African context, credit risk management is not merely a regulatory requirement but a crucial determinant of banking sector performance and resilience. Given its regional presence and exposure to similar economic shocks, Stanbic Bank Zambia Plc is equally affected by these continental trends.

Within Zambia, credit risk has become increasingly important due to the country's economic volatility, declining GDP growth in certain periods, and persistent inflationary pressures (World Bank, 2022). Commercial banks such as Stanbic Bank Zambia Plc face elevated credit risk because lending constitutes a substantial portion of their revenue streams, making them highly vulnerable to borrower default (Chorafas, 2015). According to the Bank of Zambia (2022), the national NPL ratio stood at 7.4%, reflecting a challenging credit environment where macroeconomic instability has weakened the repayment capacity of many borrowers. These conditions demand robust CRMCs, including stringent borrower assessments, prudent credit limits, and continuous monitoring of loan performance.

Zambia's credit environment has been significantly shaped by global economic shocks and domestic macroeconomic instability. The COVID-19 pandemic, combined with exchange rate depreciation, rising inflation, and fiscal pressures, increased credit risk exposures across

Page | 2 commercial banks in Zambia, leading to higher non-performing loan (NPL) levels and tighter liquidity conditions (Bank of Zambia, 2022; IMF, 2021). These developments necessitated stronger adherence to Basel III requirements on capital adequacy, risk-weighted asset management, and stress testing to enhance banking sector resilience (Basel Committee on Banking Supervision [BCBS], 2021). Consequently, commercial banks operating in Zambia have had to strengthen their credit risk management frameworks to maintain financial stability and protect profitability. Despite the challenging economic environment, the Zambian banking sector demonstrated relative resilience, with improvements in profitability partly attributed to enhanced credit risk governance and tighter lending standards (Bank of Zambia, 2023). This underscores the critical role of Credit Risk Management Controls (CRMCs) in safeguarding profitability and ensuring financial sustainability within Zambia's volatile economic landscape.

1.3 Statement of the Problem Ideally, Credit Risk Management Controls (CRMCs) should enable commercial banks in Zambia to minimize loan defaults, maintain low non-performing loan (NPL) ratios, and safeguard profitability. However, commercial banks in Zambia continue to operate within a challenging macroeconomic environment characterized by persistent inflationary pressures, exchange rate volatility, climate-related economic shocks, and tightening monetary conditions. Although the banking sector has demonstrated resilience, emerging risks continue to threaten asset quality and profitability. The Bank of Zambia's Financial Stability Report (2024) notes that heightened credit risk remains one of the principal vulnerabilities facing the banking sector, particularly due to adverse macroeconomic conditions that could increase loan defaults and provisioning requirements. Similarly, the International Monetary Fund (2024) observed that while Zambia's banking sector remains well-capitalised and liquid, the severe drought experienced in 2024, together with exchange rate depreciation and elevated inflation, is expected to weaken loan quality, especially within agriculture, construction, hospitality, and real estate sectors. Inflation averaged approximately 15.3% in 2024, substantially above the Bank of Zambia's target range of 6–8%, while the Monetary Policy Rate remained elevated at 13.5% in an effort to contain inflationary pressures. These developments have intensified concerns regarding the effectiveness of existing CRMC frameworks in mitigating rising credit risk and sustaining profitability.

Furthermore, much of the existing empirical literature (IMF, 2021; Ozili, 2022) focuses on advanced economies or broad regional banking patterns, offering limited applicability to

Zambia's Page | 3 distinct macroeconomic and regulatory environment. Regional studies in Sub-Saharan Africa typically analyse sector-wide trends rather than evaluating bank-specific CRMCs or operational practices within Zambian institutions (AfDB, 2021; Kasekende et al., 2020). At the local level, most studies emphasize general determinants of bank performance such as liquidity, capital adequacy, or macroeconomic variables rather than examining how specific credit risk management controls influence profitability at the institutional level (Phiri & Banda, 2021). Although recent Bank of Zambia (2024) supervisory reports indicate that the banking sector remains adequately capitalised and resilient, they primarily provide aggregate sector-level evidence and do not assess how operational CRMCs implemented within individual commercial banks influence profitability. Consequently, there remains insufficient institution-specific empirical evidence on whether the CRMC frameworks implemented by commercial banks in Zambia are sufficiently robust to respond to prevailing economic conditions while sustaining profitability. This gap highlights the need for a focused investigation into how CRMCs influence profitability within Zambia's commercial banking sector.

In response to these gaps, this study examines the effectiveness of Credit Risk Management Controls at Stanbic Bank Zambia Plc and determines how these controls influence profitability within Zambia's challenging economic environment. By analysing key financial performance indicators, particularly Return on Assets (ROA), alongside specific credit risk management mechanisms and the moderating role of Loan Portfolio Quality (LPQ), the study seeks to generate institution-specific empirical evidence on whether existing credit risk management practices are sufficiently robust and aligned with international best practices. The findings are expected to provide practical recommendations for strengthening credit risk management frameworks and enhancing financial stability and profitability within Zambia's commercial banking sector.

1.4 Aim of the Study The aim of this study is to assess the effects of CRMCs on the profitability of commercial banks in Zambia, using Stanbic Bank Zambia Plc as a case study, in order to evaluate how credit risk management practices such as borrower creditworthiness assessment, loan limit setting, and collateral enforcement influence financial performance and overall banking stability.

Page | 4 1.5 Research Objectives 1.5.1 General Objective To evaluate the effect of CRMCs on the profitability of commercial banks in Zambia, using Stanbic Bank Zambia Plc as a case study.

1.5.2 Specific Objectives of the Study i. To assess the CRMCs currently implemented at Stanbic Bank Zambia Plc. ii. To determine the effect of CRMCs on the profitability of Stanbic Bank Zambia Plc. iii. To examine the effect of LPQ on the relationship between CRMCs and profitability at Stanbic Bank Zambia Plc. 1.6 Research Questions i. What CRMCs are currently implemented at Stanbic Bank Zambia Plc? ii. What effect do CRMCs have on the profitability of Stanbic Bank Zambia Plc? iii. How does LPQ affect the relationship between CRMCs and profitability at Stanbic Bank Zambia Plc? 1.7 Justification of the Study This study was justified by the critical role that CRMCs played in sustaining the financial stability and profitability of commercial banks in Zambia. Stanbic Bank Zambia Plc operated within a challenging macroeconomic environment characterised by high inflation, exchange rate volatility, fluctuating commodity prices, and increasing credit default risks. These economic conditions created significant pressure on banks to maintain high-quality loan portfolios while sustaining profitability. Consequently, there was a growing need for effective CRMCs, particularly borrower creditworthiness assessment, loan limit setting, and collateral enforcement, to minimise loan defaults and improve financial performance.

Despite the importance of CRMCs in the banking sector, there was limited empirical evidence in Zambia regarding the specific controls implemented by commercial banks and how these controls influenced profitability at the institutional level. Most existing studies focused broadly on credit risk indicators such as non-performing loans and capital adequacy without adequately examining the operational effectiveness of specific CRMC mechanisms. Furthermore, limited attention had been given to the moderating effect of LPQ on the relationship between CRMCs and profitability. Conducting this study was therefore essential to bridge these empirical and contextual gaps by

Page | 5 providing institution-specific evidence from Stanbic Bank Zambia Plc regarding the effectiveness of CRMCs and the role of LPQ in influencing profitability outcomes such as ROA. The findings of this study provided significant benefits to Stanbic Bank Zambia Plc, the wider banking sector, policymakers, regulators, and society at large. For Stanbic Bank Zambia Plc, the study provided insights into the effectiveness of existing credit risk management practices and identified areas requiring strategic strengthening in borrower assessment procedures, loan exposure management, collateral enforcement, and portfolio monitoring systems. These insights were expected to enhance profitability, reduce non-performing loans, and improve institutional

resilience. For the broader banking sector, the study contributed empirical evidence on best practices in credit risk management within economically volatile environments such as Zambia. Additionally, policymakers and regulators such as the Bank of Zambia benefited from evidence-based findings that could support the formulation of more responsive credit risk management policies and regulatory frameworks aimed at strengthening financial sector stability. The study also contributed to academic literature by integrating Risk Management Theory and Modern Portfolio Theory in explaining the relationship between CRMCs, LPQ, and profitability within the Zambian banking context. Society indirectly benefited through a more stable and profitable banking sector capable of promoting financial inclusion, supporting business growth, safeguarding depositor funds, and contributing to sustainable economic development.

Had this study not been conducted, important institutional, methodological, and analytical gaps would have persisted regarding the effectiveness of CRMCs in Zambia's commercial banking sector. Commercial banks might have continued operating with inadequate or ineffective credit risk controls that failed to respond to prevailing economic risks, resulting in increasing non-performing loans, weakened profitability, deteriorating LPQ, and heightened financial instability. Policymakers and regulators would have continued to lack institution-specific empirical evidence necessary for informed policy formulation and sectoral reforms. Consequently, failure to undertake this study would have represented a missed opportunity to strengthen the credit risk management frameworks and financial sustainability of commercial banks in Zambia.

1.8 Scope of the Study This study focused on investigating the effects of CRMCs on the profitability of commercial banks in Zambia, using Stanbic Bank Zambia Plc as a case study. The study specifically examined three Page | 6 major CRMCs, namely borrower creditworthiness assessment, loan limit setting, and collateral enforcement, and evaluated how these controls influenced profitability measured through ROA.

The study further examined the moderating effect of LPQ on the relationship between CRMCs and profitability. LPQ was assessed using indicators such as borrower risk grading, loan performance classification, collateral coverage, and sectoral loan exposure. The study sought to determine whether the quality and structure of the loan portfolio strengthened or weakened the effectiveness of CRMCs in improving profitability.

Geographically, the study was limited to Stanbic Bank Zambia Plc operations in Lusaka, Zambia, particularly at the bank's headquarters where major credit risk management decisions,

policies, and monitoring activities were conducted. The target population comprised credit risk officers, credit analysts, loan officers, managers, and other employees directly involved in credit assessment, approval, monitoring, and recovery processes.

The study covered the period from 2018 to 2024 in order to capture trends in profitability and credit risk management before, during, and after major economic disruptions such as the COVID- 19 pandemic and periods of heightened macroeconomic instability in Zambia. Methodologically, the study adopted a mixed-methods approach, combining qualitative data obtained through interviews with quantitative data obtained from financial reports and institutional records.

The study was limited to institutional credit risk management practices at Stanbic Bank Zambia Plc and did not include other commercial banks or financial institutions in Zambia. Additionally, the study did not extensively analyse broader macroeconomic variables except where they influenced LPQ and profitability. These delimitations ensured that the study remained focused, manageable, and aligned with the study objectives.

1.9 Operational Key Definitions and Concepts Credit Risk Management Controls (CRMCs): CRMCs refer to structured mechanisms put in place by Stanbic Bank Zambia Plc to identify, assess, mitigate, and monitor the risk of borrower default. In this study, CRMCs are operationalised through three components: borrower creditworthiness assessment, loan limit setting, and collateral enforcement, which are consistent with contemporary banking risk frameworks (Kingu et al., 2021; Ozili, 2022). These controls help determine borrower risk levels and enhance lending discipline within the institution.

Page | 7 Profitability (Return on Assets – ROA): Profitability in this study is measured using Return on Assets (ROA), calculated as net income divided by total assets. ROA is widely recognized as a key indicator of how efficiently banks utilize their assets to generate earnings (IMF, 2021; Al- Khatib & Al-Tamimi, 2020). It serves as the sole quantitative proxy for profitability in this research.

Loan Portfolio Quality (Moderating Variable): Loan Portfolio Quality refers to the degree of credit risk associated with the bank's outstanding loans. It is operationalised through borrower risk grades, loan performance classifications, collateral coverage ratios, and sector-specific exposure. Higher portfolio quality indicates lower credit risk and stronger repayment behaviour, consistent with modern credit risk models (Adusei, 2021; AfDB, 2021).

Non-Performing Loans (NPLs): NPLs are loans that are 90 days or more past due or otherwise classified as unlikely to be repaid. NPL levels reflect the effectiveness of credit risk controls and the financial health of banks (World Bank, 2022; Bank of Zambia, 2022). Although not the primary profitability measure, NPLs are used to support interpretations of CRMC performance.

Creditworthiness: Creditworthiness refers to a borrower's assessed ability and willingness to repay a loan, based on financial history, credit score, cash flows, and risk rating models (Muriu & Wamalwa, 2020). In this study, it is assessed through internal evaluation procedures used by Stanbic Bank's credit risk staff

Collateral: Collateral refers to assets pledged by a borrower to secure loan repayment. In this study, collateral is operationalised in terms of adequacy, legal enforceability, and its role in reducing exposure to credit losses (Akinsola & Ikhida, 2021).

Loan Limits: Loan limits represent the maximum amount a borrower is allowed to access based on their risk rating, repayment capacity, and bank lending policies. Properly set loan limits contribute to controlled lending and reduced exposure to credit default risk (Sampath, 2020).

Credit Risk: Credit risk refers to the probability that a borrower will fail to meet contractual loan obligations. The study operationalises credit risk using patterns in NPL levels, repayment delays, and internal lending risk assessments (Ozili, 2022).

Mixed-Methods Approach: A mixed-methods approach combines both qualitative techniques (interviews with credit risk staff) and quantitative techniques (analysis of ROA and other financial Page | 8 metrics). This approach enhances validity by integrating multiple forms of evidence (Creswell & Creswell, 2021).

Moderation: Moderation refers to the influence of a third variable (loan portfolio quality) on the strength or direction of the relationship between CRMCs and profitability. Moderate effects help explain variations in outcomes depending on contextual conditions (Hayes, 2020).

1.10 Organisational Structure This study is organised into five chapters. Chapter One introduces the research by presenting the background, problem statement, aim, objectives, research questions, justification, scope, conceptual framework, and key definitions. Chapter Two reviews global, regional, and local literature on credit risk management and profitability, identifies gaps in existing studies, and situates the study within contemporary academic debates. Chapter Three outlines the research methodology, including the mixed-methods design, study population, sampling procedures, data collection techniques, analytical methods—such as regression and

moderation analysis—and ethical considerations. Chapter Four presents and analyses both quantitative and qualitative findings, linking CRMCs to profitability (ROA) and examining the moderating role of loan portfolio quality. Chapter Five discusses the results, draws conclusions, and provides recommendations for strengthening CRMCs at Stanbic Bank Zambia Plc, while suggesting areas for future research.

1.11 Chapter Summary This chapter has set the groundwork for assessing the impact of credit risk management governance on the profitability of Stanbic Bank Zambia Plc. This chapter has positioned the issue and demonstrated how credit risk started to become a primary issue in the Zambian financial sector owing to the growth of NPLs and volatility in the market. This chapter developed the problem statement to identify the impact of the current credit limits on the profitability measures of the bank ROA and ROE. This study has defined its aim and objectives as well as the research questions, which helped in the guiding of the study in determining and assessing the relationship of the credit management procedures and financial position of the bank. This chapter has developed the theoretical and conceptual frameworks which served as a basis for determining the impact of the assessment of credit worthiness on the loan and collateral management and the profitability outcomes. This chapter has narrowed down on the primary areas of credit risk

Page | 9 management and financial performance, which helped the study in maintaining focus. This chapter defined the aim and scope of the study to focus on Stanbic Bank Zambia Plc for the period of 2018 to 2023, which period has for most of the time been economically volatile. This chapter has dealt with the ethical considerations of the study such as confidentiality, data protection and informed consent. This chapter has together constructed the conceptual and the methodological framework for the further sections of the dissertation.

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CHAPTER TWO: LITERATURE REVIEW

CHAPTER TWO: LITERATURE REVIEW

2.1 Literature Overview This chapter focuses on the literature concerning CRMCs and the profitability of commercial banks. It starts by identifying the main theories connected to the study, namely, Risk Management and Modern Portfolio Theories and how the banks manipulate and manage credit risk for improved financial returns. It then elaborates on post-2019 empirical reviews of studies from the Global, Regional (Sub-Saharan Africa), and Local (Zambia) perspectives structured by the objectives of the study of the CRMCs, the impact on profitability, and the moderating effect of the quality of the loan portfolio. The empirical discussion identifies the methodological, conceptual, and contextual shortcomings of the previous studies through the lens of Miles et al. (2017). The chapter ends with the justification of the conceptual framework that directs the study and how the literature undertaken supports the hypothesized relationships of CRMCs, profitability (ROA), and the quality of the loan portfolio.

2.2 Theoretical Review This study is based on Risk Management Theory and Modern Portfolio Theory (MPT). These theories explain the impact of Credit Risk Management Controls (CRMCs) on profitability and how the quality of loan portfolios moderates this effect in commercial banks.

2.2.1 Risk Management Theory Markowitz (1952) is credited with the first foundations of Risk Management Theory with his work on portfolio risk, which was later expanded for the purposes of corporate risk management by Merton (1974) and Stulz (1996, 2019). Stulz (2019) explains that it is in the value of firms that the organization and structuring of risk management activities can lead to value creation, such that there is in summary, a systematic way of identifying, measuring, and controlling risks and their respective exposures in order to achieve risk reduction, and sustain, in the long run, the core value of the firm. Given the nature of risk management, it is especially important in the banking industry.

While banks provide small businesses and general customers with services that require them to perform some form of financial intermediation, there will always be some level of credit risk that banks will encounter, among a multitude of other financial hazards, (Ozili, 2022). Credit Risk can be defined as a scenario in which a loan borrower does not fulfil his or her part of a contract to pay back the loan, thereby resulting in the borrower going bankrupt, and the bank receiving

large Page | 11 volumes of non-performing loans (NPLs). A loan that goes default will lead to a bank not having its asset of closely related or associated loans be as productive or valuable, which will reduce the bank's income from its loans on which bank customers pay interest, and will also require the bank to increase its reserves for anticipating future loan losses, which will, in turn, result in making the bank operate less profitably (Adusei, 2021; IMF, 2021).

Stanbic Bank Zambia Plc exemplifies under Risk Management Theory the role of the CRMCs and how effective management of these mechanisms can lead to the increased earnings of a bank. Control mechanisms such as assessment of the borrower's credit risk, loan limit setting, and collateral enforcement provide a framework to control the exposure to risk of default. Banks can control adverse selection and moral hazard problems prior to loan approvals through the assessment of the borrower's ability to repay the loan (Muriu & Wamalwa, 2020). Loan limit setting control mechanisms enables the reduction of exposure to the concentration risk by ensuring that the borrower's level of risk and the regulatory loan limit thresholds are balanced (Sampath, 2020). With the expectation of default and improved loss recovery rate, collateral enforcement (Akinsola & Ikhida, 2021) acts as a source of secondary repayment and reduces the expected loss.

Risk management theory maintains that thoughtful management of risk keeps positive losses and stable cash flow. This, in turn, keeps a company's return on assets (ROA) and financial health stable (Stulz, 2019). Risk management as a theory is logically applied to Stanbic Bank as the risk management environment of the bank is becoming increasingly important as the Zambian economy is largely determined by fluctuating and unstable inflation, rates of exchange, and selective exposure to the credit of the economy. Stanbic Bank, without adequate credit risk management control systems (CRMCs), is likely to be exposed to increased non-performing loans (NPLs), low profitability, and adversely affected capital adequacy (Bank of Zambia, 2022; World Bank, 2022). This explains the reason why risk management theory justifies assessing the extent to which Stanbic Bank's CRMCs do manage credit risks and profit.

The theory aligns with what is to be expected from a regulator's viewpoint, especially in the context of Basel III, which emphasises the need for sufficient capital, effective management of risk-adjusted assets, and proactive management of credit risks (Basel Committee on Banking Supervision [BCBS], 2019). By integrating CRMC in the bank's credit decisions, the banks are expected to become more efficient with their assets, become more shock resilient, and mitigate

Page | 12 their losses from lending which improves their ROA, which is the profit benchmark for this study (Ozili, 2022).

2.2.2 Modern Portfolio Theory (MPT) Harry Markowitz (1952) first introduced what we now know as Modern Portfolio Theory (MPT) and its further development can be attributed to William Sharpe (1964) and Robert Merton (1972). MPT makes the case for the diversification of portfolios over a range of different assets to optimize a mix of risk and return for the different assets in the portfolios. According to Markowitz (1952), the risk of the investments in a portfolio does not solely depend on the individual assets that the portfolio comprises; instead, it is also about how the assets are constructed in the portfolio. His theory, therefore, reinforces the essence of diversification of a portfolio in reducing the level of unsystematic risk. Although MPT was originally targeted at investment portfolios, it has recently been repositioned for banking, focusing on the portfolio management of loans and the related credit risk (Stulz, 2019).

In the banking industry, unlocking value from the loan segment is essential, as it represents a sizable fraction of the institution's assets as well as a critical portion of the institution's income. Therefore, the construction of the loan portfolio and its quality are crucial determinants of the institution's profitability and financial security. According to MPT, a loan portfolio that is sufficiently diverse is anticipated to reduce both concentration risk and the risk of correlated defaults within and across sectors and classes of borrowers (Ozili, 2022). Conversely, a situation in which there are significant exposures to high-risk borrowers or specific sectors of the economy is expected to increase systemic credit risk, and severely reduce profitability, even in the presence of good credit management controls (IMF, 2021).

While reviewing Stanbic Bank Zambia Plc, MPT attempts to justify the inclusion of LPQ as a moderating variable for this study. Deficient CRMCs such as determining a borrower's credit standing, imposing loan caps, and applying collateral to secure loans lower the risk for individual loans. However, the effect of these on a bank's profitability (ROA) is contingent upon the risk distribution within the bank's loan portfolio. For example, an economically sensitive loan portfolio and an assessment of a bank's profitability with a loan portfolio that contains a high proportion of high-value and high-risk borrowers will lead to a pessimistic profitability outlook despite a stringent borrower assessment. On the other hand, high loan portfolio quality and a well-diversified

Page | 13 loan portfolio enhances the economic value of the CRMCs, that is Economic CRMCs stability and low economic risk volatility of economic returns (Adusei, 2021).

Furthermore, MPT concurs with the positive value of emerging regulations that centre on the management of portfolio diversification and risk-weighted assets as set out in Basel III (Basel Committee on Banking Supervision [BCBS], 2019). Banks must hold a balance and control the sectoral exposures, borrower risk ratings, and capital buffer so that the bank's portfolio can withstand substantial stress in a particular economic cycle. The significance of Stanbic Bank's loan portfolio in terms of diversification and quality is a key consideration for sustainable profitability in relation to Zambia's economic landscape, which is largely defined by a sectoral reliance on commodities and a macroeconomic environment that is marked by volatility (World Bank, 2022; Bank of Zambia, 2022).

The Modern Portfolio Theory, therefore, explains the nature of the relationship that this study examines: although CRMCs influence profitability, whether that is the case depends on the level of diversification and the quality of the loan portfolio. A quality loan portfolio is likely to increase the influence of CRMCs on return on assets and vice versa. With this emphasis on MPT, this study is of the view that the effectiveness of credit risk management hinges on the portfolio's structure and composition.

2.3 Integration of Theories in This Study Combining Risk Management Theory and Modern Portfolio Theory (MPT) allows for the framing of how Credit Risk Management Controls (CRMCs) impact the profitability of Stanbic Bank Zambia Plc. In this case, Risk Management Theory deals with the structured arrangements of internal control systems that are used to curtail credit losses and earnings volatility (Stulz, 2019; Ozili, 2022), while MPT deals with the loan portfolio's risk-return profile based on the degree of equilibrium and dispersion of the portfolio constituents (Markowitz, 1952; Adusei, 2021). These two theories provide a clearer picture of how the internal risk control systems and the portfolio structure combine to impact the financial performance, more specifically, Return on Assets (ROA), which stands as the profitability measure of this study.

2.3.1 Identification and Assessment of Credit Risk Management Controls In the framework of Risk Management Theory, organizations create value and maintain performance by engaging in systematic and controlled decision making about how they will handle Page | 14 the uncertainty they will face (Stulz, 2019). In this area of analysis, the banking sector, especially in relation to

costs, is most exposed to credit risk in relation to the generation of revenue and the growth of assets through lending. In the case of Stanbic Bank Zambia Plc, the credit risk in question is the borrower's failure to honour repayment commitments, which leads to loan defaults and the increase in the number of Non-Performing Loans (NPLs). NPLs diminish the quality of a bank's assets and directly affect profitability. As a result, in Credit Risk Management Controls (CRMCs) perspective, Stanbic Bank Zambia Plc Credit Risk Management Controls (CRMCs) should as a constituent part of the bank's corporate governance continuum, which focuses on the risk, reclamation of the bank's lending capacity, maintenance of the bank's profitability volatility over a specific period, and enhancement the bank's stockholders. In support of this theory, the evidence suggests that more comprehensive internal risk governance structures among banks correlate with lower levels of credit losses and greater stability of performance (Ozili, 2022; IMF, 2021). Hence, it becomes pertinent with respect to Stanbic Bank Zambia Plc to assess the implementation of CRMCs and to evaluate how this institution balances the complexity of credit risk management in a challenging macroeconomic setting.

Within the scope of operational Commercial Banking Risk Management, activities are centred on assessing the creditworthiness of the borrower, establishing loan limits, executing collateral, and the continuous monitoring of loans (Kingu et al, 2021). Addressing the problem of adverse selection, the borrower creditworthiness assessment is operationalized to mitigate the impact of high-risk borrowers, who cannot be identified, alienated, or distinguished prior to the granting of loans. Implementing a borrower maximum loan limit protects the bank from credit risk during the specified timeframe and is inclusive of the borrower's risk profile and the bank's obligated regulatory capital. In this way, prudent limits on loans minimize concentration risk.

By enforcing collateral, the bank attempts to reduce loss given default (LGD) by offering the bank (Akinsola & Ikhide, 2021) a secondary avenue to recover funds should the borrower default. Concerning these control mechanisms, Stanbic Bank Zambia Plc is particularly susceptible to the consequences of the country's high inflation, fluctuation of the exchange rate, and the phenomenon of risk concentration by sectors within the commodity market (Bank of Zambia, 2022). Inadequate CRMC is likely to lead to an increased default rate for the bank, which leads to increased provisioning, which consequently leads to a decline in the bank's Return on Assets (ROA), which is the measure of profitability that is of interest in this study.

Page | 15 While the risk management theory has explained loss mitigation rationale, it has not

elaborated on the impact that different structures of loans in a portfolio may have on the overall profit of the portfolio. Modern Portfolio Theory fills this literature gap. MPT posits that risk, as MPT posits, doesn't reside simply at the level of a single loan, but pervades all levels and must therefore be viewed through the lenses of the portfolio's diversification and the configuration of the assets backing the loans (Markowitz, 1952; Stulz, 2019). The potential for designing CRMCs optimally positioned would still fail to guard profitability in scenarios where the loan portfolio has a significant concentration within a high-risk sector or a high-risk clustering of borrowers. Hence, the CRMCs Within Stanbic Bank Zambia Plc, are only likely to be effective where the loan portfolio of the bank suggests that the internal controls are effectively countering the risk.

The analysis of CRMCs establishes an institutional baseline for this study before examining their effect on metrics of profitability. Beginning with the individual controls screening, exposure, and collateral controls the study seeks to determine whether the specified risk controls are sufficiently solid, applied uniformly, and are consistent with the best practice benchmarks of the discipline of risk management (Basel Committee on Banking Supervision, 2019). This consideration is particularly pertinent, as the likelihood of profitability extends to an abstract scenario without establishing the context of the internal controls and the design of their credit risk mitigations. In this regard, the study seeks to combine RM Theory and MPT to analyse how credit risk is addressed at Stanbic Bank Zambia Plc and how this is manifested in the financial results of the bank.

2.3.2 Effectiveness of CRMCs in Improving Profitability Risk Management Theory explains that businesses can increase their values without risking the loss of their earnings by removing uncertainty or expected losses related to their risks (Stulz, 2019). The theory applies most to banks because of the credit risks associated with the quality of the bank assets, provisions, and capital adequacy. In developing countries, banks with well-defined risks associated with credit governance frameworks report fewer non-performing loans (NPLs) with increased profitability and Return on Assets (ROA) (Adusei, 2021; Ozili, 2022). This gives the CRMCs of Stanbic Bank Zambia Plc an opportunity to analyse the effect of their CRMCs on ROA over a given period. With the comprehensive creditworthiness assessment of the borrower, proper exposure limit, and stringent collateral requirements, the chances of default are minimized. This

Page | 16 reduces the bank's risks associated with credit, enables optimal utilization of the bank's assets, and increases profitability, especially in the highly competitive banking industry in Zambia.

This study appreciates CRMC effectiveness to go beyond policies that are operational, and looks ongoing, rather, more so, to operational determining if credit losses and the financial health of the institution are stable or deteriorating bottom line losses, losses to the bottom line due to inflation, unstable exchange rates and shocks economically to the sector under evaluation (Bank of Zambia, 2022). Therefore, they hypothesize that the effectiveness of the internal credit control systems is paramount in minimizing the impact of externally sourced shocks. They maintain that, for a country encompassing a diverse economic environment, the implementation of a Credit Risk Management Policy (CRMC) is expected to diminish credit losses, to ensure that financial resources are effectively retained, and to stabilize the variability of profits (2021 IMF). This is particularly specific to the study and to the rationale for choosing ROA as a proxy for profitability because it measures the efficiency of the banking institution in transforming due credit risks into profitable returns through the effective utilization of the institution's assets.

Risk Management Theory explains the relationship between good CRMCs and the increased profits, but it fails to clarify the reasons for the differing impacts on profits across the different segments of the portfolios and across the different economic cycles. Given the nature of the broader portfolio, banks could have negative profit shifts even if credit risk controls are in place. For example, strong internal controls may have a neutral effect in a recession because they internal controls positively when the bank's loan book is highly reckless in terms of exposures to the risk industries such as construction or commodities (Ozili, 2022). This means that the internal risk governance framework is inadequate in explaining the variations in the ROA.

This limitation clarifies the combinatory function of Modern Portfolio Theory (MPT) which states that risk needs to be considered in relation to an empirical context of the specific diversification and composition of the portfolio (Markowitz, 1952; Stulz 2019). MPT states that, in relation to the portfolio, the dispersion of the borrower's sectors and strata determines the aggregate risk-return profile of the portfolio. Even the most advanced CRMCs may not lead to higher profits when the risk exposures are too large. Therefore, for Stanbic Bank Zambia Plc, the enhancement of CRMCs on ROA, should be viewed in relation to the structure and quality of the

loan portfolio. By utilizing Risk Management Theory and MPT, the present study attempts to clarify how internal credit

Page | 17 controls and the characteristics of the portfolio affect the profitability of the banking industry in Zambia.

2.3.3 Loan Portfolio Quality Markowitz's work from 1952 is still relevant today with the support of Modern Portfolio Theory (MPT) and Loan Portfolio Quality (LPQ) as a moderating variable in this study. MPT supports the idea that investors can save (or more accurately protect) a part of the expected returns by using diversification and reducing the uncertainty of returns over the horizon of the investment (understanding some level of risk/uncertainty is inevitable). From a banking perspective, the loan portfolios can be viewed as an investment. However, it is important to understand that the risk in loan portfolios is not completely dependent on the borrowers. The loan portfolio's risk is determined by the level of focus the sector and the scope of the industry has (i.e. loan concentration), the risk level of the borrowers, collateral, and the repayment history of the borrowers. Recent studies in the banking sector indicate that high-quality, diversified loan portfolios demonstrate low risk concentration and profitability that is not volatile (Adusei, 2021; Ozili, 2022). Thus, LPQ is a suitable indicator of the exposure and structural factors of credit risk that lie beyond the capacity of credit risk control mechanisms.

For Stanbic Bank Zambia Plc, LPQ indicates the composition and state of the bank's lending book. Due to Zambia's sectoral concentration risks, especially in mining, agriculture, and trade, the bank's portfolio structure is critical in estimating credit risks (World Bank, 2022; Bank of Zambia, 2022). During recessions, an economically sensitive sector concentrated portfolio increases the likelihood of defaults. Therefore, even as bank risk control mechanisms (CRMCs) are designed to include borrower appraisal, loan limit-setting, and collateral enforcement, the structure and extent of credit risk will heavily influence the profitability outcome, often represented as Return on Assets (ROA).

This research treats LPQ as a moderator because it influences both the strength and direction of the relationship between CRMCs and profit. According to Stulz (2019), Risk Management Theory believes that there is a direct positive relationship between the adoption of effective CRMCs and a bank's financial performance. In contrast, MPT believes that this relationship depends on how the bank's portfolio is structured. If the lending portfolio is diversified and

consists solely of high- quality borrowers with adequate collateral, the positive effect of CRMCs on a bank's ROA is

Page | 18 expected to be substantial. Conversely, if a portfolio is laden with high-risk and under-collateralized (that is, poorly covered by collateral), the positive impact of CRMCs on a bank's profitability is expected to be limited. Many research studies have demonstrated that portfolio concentration is a systemic risk because it raises credit losses during recessions, which reduces profitability in banks, even those with well-defined risk management frameworks (IMF, 2021; Ozili, 2022).

Considering LPQ as a moderating variable means this study has gone beyond examining only the direct effect of CRMCs on profitability. It is the combination of Risk Management Theory and Modern Portfolio Theory that allows one to view the direct effect ($\text{CRMCs} \rightarrow \text{ROA}$) and the combinative effect ($\text{CRMCs} \times \text{LPQ} \rightarrow \text{ROA}$) simultaneously. This two-theory integration approach suggests that the design of internal controls and the configuration of the portfolio are equally critical to financial performance. Therefore, for Stanbic Bank Zambia Plc, understanding this is important in order to determine whether the changes in profitability are attributable solely to internal risk management governance, or whether it is the structural quality and the extent of the risk exposed and widened loan portfolio that are, in the structurally poor macroeconomic circumstance of Zambia, of primary importance.

2.4 Empirical Review Alkhazali et al. (2024) examined banking capital positions, and their effect on banking profitability, during the COVID-19 pandemic period in emerging economies. The researchers used a quantitative approach and panel methodology that involved a sample of 819 banks from 26 countries during the period of 2019 to 2020. The authors used regression to determine if more capital buffers resulted in more profitability during the crisis. Their results showed that banks with more capital during the pandemic period had better profitability. This suggests that having sufficient capital and buffer equals having the ability to absorb shocks and increases stability during a distressed economy. The study offers sufficient empirical evidence on the importance of resilient risk to sustain profitability across countries but fails to identify and measure various CRMCs involved in the study such as, the assessment of the creditworthiness of a borrower, the setting of loan limits, and the enforcement of collateral. The study aligns with Miles et al. (2017) approach to the identification of gaps in research, and as such continues to offer contextual and methodological gaps. This is seen in the absence of the examination of

bank-level loan portfolio quality moderators and in the absence of a study on the effects of situational variables of the Page | 19 developing economy, for instance Zambia. As a result of that, the study emphasizes the importance of risk governance, but a lot of questions remain regarding how operational credit risk control affect profitability of banks.

In the same vein, Khanal and Sapkota (2023) focused on the impact of the Credit Risk Management (CRM) metrics on the performance of commercial banks in Nepal. The authors applied a quantitative approach and a pooled Ordinary Least Squares (OLS) regression model on a panel data of 10 commercial banks for the period 2012–2021. They studied the effect of certain financial ratios, such as the non-performing loans ratio, the capital adequacy ratio, and other credit risk ratios on the banks' Return on Assets (ROA). They concluded that the credit risk ratios had a substantial impact on the profitability of the banks, which means that the banks that manage their credit risks better are likely to achieve better financial results. Despite the fact that the work identified a strong relationship between the ratios of credit risk and profitability, the authors do not offer evidence of the operational efficiency of a given Credit Risk Management Controlling (CRMC) mechanism and/or the ratio-based indicators lack empirical operational value. Similar to what Miles et al. (2017) stated, there is a clear measurement and conceptual gap in the sense that the authors do not consider the different segments of the internal credit control systems and/or the mediating impact of the loan portfolio quality. Furthermore, the results are only applicable to Nepal and do not represent the economic unpredictability and the specific regulatory environment of the Zambian banking sector, and therefore, 'institution centred' research is recommended in the case of the Zambian environment.

Hedlund and Krabbe (2024) explored credit risk and bank profitability in Europe. The authors examined the influence of Non-Performing Loan Ratio (NPLR), Loan Loss Provision Ratio (LLPR), and Capital Adequacy Ratio (CAR) on bank profitability. This study is empirical quantitative research and has examined bank data in Europe. Hedlund and Krabbe applied regression analysis to define the relationships between credit risk ratios and the financial performance of banks. They concluded that the financial performance of banks is determined by the quality of bank assets and the adequacy of bank capital. The study, however, is limited because the data was collected from banks in a tightly controlled and advanced European region, which is a direct contrast to the macroeconomics and the institutional structure of Zambia. The authors analysed only financial ratios, which means the authors did not analyse a qualitative

description of how banks implement their CRMC. In saturation to the identified research gaps by Miles et al, Page | 20 this is a contextual gap (emerging economies, such as Zambia) and a contextual gap- not operational CRMC evaluation with profitability testing.

Gurung, Ghimire and Dahal (2023) examined the effects of credit risk management on the profitability of commercial banks in Nepal and studied the effects of loan loss provisions (LLP) on profitability. The author used a quantitative approach and a ratio-based model within the context of LLP of Nepalese banks and attempted to evaluate provisions in relation to various profitability metrics. The author explained that loss provisions impact the profitability of the bank, but the relation is context and model dependent. For the author building up the study on the impacts of credit risk on profitability of commercial banks is great, but he seems to be overly focused on post provisions as proxy for credit risk, and fails to recognize the significance of fundamental credit risk management, which includes, assessment of borrower's creditworthiness, loan amount restrictions, and the presence of collateral. The author does not consider the extent to which the loan portfolio quality could lessen or alter the effects of management profitability of banks from credit risk.

Thus, considering the research gaps mentioned by Miles et al, this study deliberately chooses to not address questions regarding the influence of credit risk management practices, and the loan portfolio structures that may shape this, in relation to the case study context, which research aims to address within Zambian banking. Ozili (2022) aimed at enhancing the comprehension of the relationship between credit risk and profitability of banks across various economic scenarios of both developed and developing nations. The author aimed to determine the effect of various measures of credit risk which include Non-Performing Loans (NPLs), loan loss provisions, and capital adequacy ratios on the profitability of banks as quantified by the rate of return on bank assets (ROA) and return on equity (ROE). The author employed a panel regression model on a cross-section of economies while considering the micro and macro-economic variables. The author concluded that higher credit risk associated especially with Non-Performing Loans (NPLs) had a considerable effect and was associated with a reduction profitability. The author concluded that credit risk management plays an integral role in the performance of a bank. Ozili's study did primarily evaluate payables ratio and ratio analysis, and the author did not analyse the impact of operational credit risk management measures such as borrower assessment, loan limits, and collateral security. The author did not analyse the management of loan quality and the

political and economic volatility of the developing country (Zambia). Ozili's study not only gaps the Page | 21 measurement of front-end CRMCs but also the contextual analysis of Zambia, which necessitates a bank-specific study that combines operational credit control with profitability.

Fadun and Silwimba (2023) researched credit risk management and its effect on bank performance in Nigeria, particularly concerning non-performing loans (NPLs) and expected credit loss provisions. They adopted a panel data approach for five first-tier listed Nigerian banks spanning 15 years (2005–2019). They conducted regressions on the effect of components of credit risk on the bank's profitability, using return on assets (ROA) as a proxy for profitability. The authors concluded that components of credit risk positively influenced ROA, thus confirming the credit risk–profitability channel, and reiterating the importance of managing risk for performance sustainability in banks. However, the authors predominantly used financial ratios as proxy and failed to consider the organizational structure and the practical application of certain elements of Credit Risk Management Controls (CRMCs) such as borrower assessment, loan exposure limits, and the enforcement of collateral. Moreover, the authors did not consider loan portfolio quality as a potential moderating factor to determine if the structural quality of the loan portfolio could reduce the credit risk and profitability relationship. Considering Miles et al. (2017) framework, this represents a significant gap that requires future research to be firm-specific and focused on the controls.

Zogning and Lenga (2022) examined the influence of credit risk management on the profitability of 52 commercial banks across 6 Central African countries. Utilizing a regional multi-country panel dataset, the authors attempted to assess the impact of banking credit and liquidity risks, particularly the ratio of non-performing loans to total loans, on the profitability components (measured as return on assets (ROA) and return on equity (ROE)). It was established that the banks' profitability and credit risk components exhibited a statistically significant positive/negative relationship. While the study provided valuable insight on the credit risk and profitability dynamics in the Sub-Saharan African region, the aggregated multi-country approach limited the study from providing an in-depth analysis of the credit risk and risk management of the profitability dynamics for a single banking institution. It also failed to address credit risk management practices within a single bank and the impacts of the internal governance structures

of the bank on the composition of the loan portfolio within the overarching macroeconomic context of Zambia.

Page | 22 Mumba (2024) assessed factors yielding profit in the Zambian banking sector, specifically the Zambia National Commercial Bank (Zanaco). The author conducted a bank-level case analysis to assess factors influencing profitability by means of financial ratio data dispositional over numerous years. The study showed credit-based variables, owing to financial provisions made for the loss, which are central in accounting for discrepancies in financial outcomes. This finding validated banking credit risks' positive correlation with the profitability of the Zambian banking industry. Although the study adds some institutional specificity to the evidence, it focuses on Zanaco to the neglect of Stanbic Bank Zambia Plc, and in addition, it analyses the wider determinants of profitability, and no attention is put on the operational efficiency of some credit risk management policies (CRMP). Also, the study does not consider a moderating variable, for example, Loan Portfolio Quality (LPQ), which leaves the study lacking conceptually and analytically on how the composition of a credit portfolio may moderate the extent to which credit control(s) affect profitability.

The study Risk Management and Profitability of Commercial Banks in Lusaka District (2024) similarly looks at the risk management practices and profitability relationship regarding the credit risk proxies of Non- Performing Loan Ratio (NPLR), Loan Loss Provision Ratio (LLPR), and Capital Adequacy Ratio (CAR). The author uses Lusaka banking to focus on ratio-based modelling and concludes that the management of credit risk and the profitability of banking institutions measured by ROA are connected and confirmed the risk–profitability relationship in Zambia. The study is valuable, especially considering that it is empirical with the financial relevance of credit risk proxies. Nonetheless, it has relied on secondary ratio proxies and therefore neglected to examine CRMC processes that are direct, such as the assessment of the borrower's credit risk, the establishment of loan limits, and the imposition of collateral. Furthermore, analyses typically do not consider the influence of the loan portfolio quality as an interacting or moderating variable on the strength of the CRMC–profitability relationship which is yet another methodological weakness considering the Miles et al. framework.

The Bank of Zambia Financial Stability Report (2024) has demonstrated resilience at the system level for the banking sector in Zambia facing adverse macroeconomic conditions. The report combines supervisory monitoring tools and a stress-testing framework to explain how economic

shocks result in increased credit risk and reduced profitability for all commercial banks. The report suggests that, in a stress scenario, banks face large quantity problems with respect to non-
Page | 23 performing loans (NPLs) and, subsequently, large amounts of provisions to be made, as well as a deterioration of their earnings and capital buffers. The report, while certainly cannot be emphasized enough of the necessity for effective credit risk management in that sector and the implications for its financial viability and profitability, does not present a case study of a banking institution in Zambia to shed light on the extent of credit risk management (CRM) at the institutional level. The report does not attempt to determine the extent to which operational Credit Risk Management Controls (CRMCs) affect a given bank's Return on Assets (ROA). Furthermore, the report does not consider the influence of the moderating Loan Portfolio Quality on the operational Credit Risk Management Controls (CRMCs) and the Return on Assets (ROA) of the bank. Despite the report acknowledging the issue, the conversation does not include the institutional and analytical aspects concerning the level of impact of CRMCs on the profit levels of a particular commercial bank in Zambia.

2.5 Knowledge Gaps The gaps in understanding highlighted in this literature review provide a rationale for this study. Empirical studies have shown a positive direct correlation between the credit risk a bank takes on and the profitability of that bank, regardless of the location of the study; this has been shown to be true repeatedly (Ozili, 2022; IMF, 2023). However, much of the literature, and in this context, the IMF, uses a reductionist approach to credit risk by means of financial ratio proxies (i.e., non- performing loan ratios, loan loss provisions, and capital adequacy ratios). Although these measures of credit risk are adequate, they are also inadequate to the extent that they do not provide empirical measures of the operational design and execution of Credit Risk Management Controls (CRMCs) such as creditworthiness assessments, loan limit policies, and the enforcement of collateral. Existing studies, therefore, leave a major conceptual gap on the credit risk internal control processes that determine the credit risk, and credit risk management, outcomes.

In Sub-Saharan Africa regionally, many empirical studies have shown that credit risk management impacts financial performance. However, many of these studies have used multi-country panel data or sector-wide data which combines banking performance from different institutions and regulatory frameworks. This approach creates a contextual gap as these studies most likely do not capture the specific macroeconomic realities of Zambia which include

volatility and instability of inflation and exchange rates as well as sectoral concentration risks (Bank of Zambia, 2024). Though the specific institutional, regulatory, and supervisory frameworks of Zambia may Page | 24 influence the relationship between credit risk management and profitability, this relationship has not been adequately examined.

Within the Zambian banking sector, most available research studies analyse general factors that contribute to an industry’s profitability or examine overall risk performance studies at an industry level. However, while these studies analyse industry level reports, they do not look deeply or examine the specific operational controls of the banks or how the internal processes of the credit risk management control mechanisms directly affect profitability of the individual banks. This presents a unit-of-analysis gap since there is a paucity of integrated empirical analysis that focuses on an individual bank and analyses the credit risk management controls in detail at the same time. In addition, most local studies focus on the available quantitative secondary data, which presents a gap in the studies, that is, how the qualitative aspects of the credit risk control mechanisms in the banking sector are implemented and managed.

There is also an analytical gap across global, regional, and local research. Most literature demonstrates a linkage between credit risk and profitability. However, only a handful of studies examine the moderating variables that could affect this relationship. For instance, research on how Loan Portfolio Quality (LPQ) moderates the relationship between credit risk management and profitability is scant. The balance structure and diversification of a portfolio can enhance or diminish the efficiencies of the internal risk control mechanisms, but this phenomenon has been largely ignored within the Zambian context. These gaps, both individually and collectively, empirically and analytically, warrant this research that aims to provide institution specific, mixed- method, and theory driven empirical evidence on the impact of credit risk management in relation to profitability, across the commercial banks in Zambia.

Table 2.1 below is an integrated knowledge gap matrix that consolidates and enhances the previous discussion. The matrix is based on Miles et al. (2017) methodology on identifying the conceptual, contextual, methodological, unit-of-analysis, and analytical gaps in the previous studies.

Page | 25 Table 2. 1: Knowledge Gap Matrix Level of Literature Focus of Existing Key Identified Gap Relevance to Current Studies Contribution Study Global Studies (Ozili, Link credit risk Confirm strong Conceptual gap: Focus on This study examines 2022; IMF, 2023;

ratios (NPL, LLP, credit risk– outcome ratios, not specific CRMC processes Alkhazali et al., 2024) CAR) to profitability profitability operational CRMC (credit assessment, limits, using cross-country relationship mechanisms; Contextual collateral) within a panels gap: Limited Zambia- Zambian bank specific insight Regional Studies (SSA) Test CRM variables Show CRM Contextual gap: Multi- This study focuses on (Temba et al., 2024; across African influences country or sector-wide Zambia and tests LPQ as a Adusei, 2021; Fadun & banking sectors financial aggregation; Analytical moderating variable Silwimba, 2023) performance gap: No moderation testing (e.g., portfolio quality) Local (Zambia) Multi- Use panel regression Provide sector- Unit-of-analysis gap: This study provides bank- bank Studies to link risk proxies to level Zambian Industry-level analysis, specific and mixed-method (Kayombo, 2023; Risk profitability evidence not institution-specific; evidence Management & Methodological gap: Profitability Study, Secondary data only 2024) Local Case Studies Examine CRM Provide Conceptual gap: Do not This study integrates (Chamangwa, 2022; systems or contextual isolate CRMC CRMC mechanisms and Mumba, 2024) profitability institutional operational effectiveness; LPQ moderation within one determinants in insights Analytical gap: No framework single banks moderating variables tested Regulatory Reports Provide sector-wide Establish Empirical gap: Do not This study empirically tests (BoZ, 2024) credit risk trends and macroeconomic test CRMC → that relationship at stress scenarios risk relevance profitability relationship institutional level Source: Author’s Compilation, 2026

2.6 Conceptual Framework The conceptual framework illustrates the relationship between CRMCs and Profitability (ROA) at Stanbic Bank Zambia Plc, with LPQ acting as a moderating variable. The framework is anchored on Risk Management Theory, which posits that organizations enhance performance by identifying, assessing, and controlling risks that may threaten financial stability (Stulz, 2023). In this study, CRMCs are operationalized through Borrower Creditworthiness Assessment (BCA), Loan Limit Setting (LLS), and Collateral Enforcement (CE). These controls are expected to reduce credit risk exposure, minimise loan defaults, and improve asset quality, thereby enhancing profitability. BCA enables the bank to evaluate the repayment capacity and risk profile of borrowers before loan approval, LLS controls excessive exposure to individual borrowers and sectors, while CE provides a recovery mechanism in the event of borrower default. Consequently, effective implementation of CRMCs is expected to positively influence ROA by reducing credit losses and improving the efficiency

with which the bank utilises its assets to generate earnings (Ozili, 2023; BCBS, 2024). Page | 26

The framework further incorporates LPQ as a moderating variable based on the principles of Modern Portfolio Theory (MPT), which emphasises that portfolio composition and diversification influence risk-return outcomes (Markowitz, 1952; Stulz, 2023). Although CRMCs are expected to improve ROA, the magnitude of this effect depends on the quality of the bank's loan portfolio. A high-quality LPQ is expected to strengthen the positive relationship between CRMCs and ROA because a diversified and well-performing loan portfolio is associated with lower default risk and more stable returns. Conversely, a poor-quality LPQ may weaken the effectiveness of CRMCs despite the existence of strong internal controls. Thus, the framework proposes both a direct relationship ($\text{CRMCs} \rightarrow \text{ROA}$) and a moderating relationship ($\text{CRMCs} \times \text{LPQ} \rightarrow \text{ROA}$). This structure aligns with the study objectives by facilitating the assessment of existing CRMCs, evaluating their effect on profitability, and determining the extent to which LPQ influences the relationship between CRMCs and ROA within the context of Stanbic Bank Zambia Plc (Bank of Zambia, 2024; IMF, 2024).

Source: Author's Conceptualisation, 2026 Figure 2. 1: Conceptual Model of Credit Risk Management and Profitability

Page | 27 2.7 Chapter Summary This chapter looks at both theory and empirical literature on the relationship between CRMCs and the profitability of banks in the context of commercial banking. It has been established that credit risk is one of the most major risks that determines the financial stability of a bank and the profitability of a bank. This is particularly the case for the economy of Zambia in the face of macroeconomic volatility that escalates the risk of loan defaults. In this research, the predominant theory is the Risk Management Theory, which focuses on the use of internal controls in such a way that, for example, managing credit risk by having a limit for loan disbursement and enforcing collateral results in reduced costs and stabilizes the bank's earnings. It is in this context that the theory emphasizes the need for diversification of loan portfolios and the quality of loan portfolios held by banks to mitigate the effects of unsystematic risk. The empirical literature at global, regional and national level credit risk and profitability has been established. Unfortunately, the empirical literature is dominated using ratio-based proxies, cross-country panel studies and sector level studies without paying attention to institution specific operational CRMCs or the institutionalized CRMCs such as the quality of the loan portfolio. In the context of identified research, particularly the work by Miles et al., the

context, methodology and theory of research gaps, in particular the absence of Integrated Quantitative Profitability Evaluation and Qualitative Measurement of CRMC gaps. The gaps identified justify the study undertaken and the gaps identified guided the research methodology. This next chapter explains the methods used to investigate the relationship between CRMCs, loan portfolio quality, and profitability in Zambia's commercial banking sector.

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CHAPTER THREE: RESEARCH METHODOLOGY

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction This chapter presents the methodological procedures that will be used to investigate the effects of CRMCs on profitability (proxied by Return on Assets—ROA) at Stanbic Bank Zambia Plc, while accounting for the moderating influence of LPQ. It explains the research design and approach, study site, target population, sampling procedures, data sources and instruments, data collection process, measurement and operationalisation of variables, data analysis techniques (including moderation testing), and issues of quality assurance, ethics, and limitations. The chapter is guided by mixed methods design principles for integrating quantitative and qualitative evidence in a case- based inquiry.

3.1.1 Research Onion

Source: Adapted from Saunders et al., 2019 and customized for this study by Researcher. Figure 3. 1: Research Onion Customized for the Study

The research onion framework developed by Saunders, Lewis, and Thornhill provided a structured approach for designing the research methodology by illustrating the layers of decisions that guided

Page | 29 the research process. The model conceptualised research design as a series of layers, starting from broad philosophical assumptions and moving toward specific data collection and analysis techniques. By progressively “peeling away” each layer, the researcher ensured that methodological choices were logically aligned with the research objectives and theoretical foundations of the study (Saunders et al., 2019). In this study, the research onion framework was used to structure the methodological decisions involved in examining the relationship among CRMCs, LPQ, and ROA within Stanbic Bank Zambia Plc.

The outer layer of the research onion represented the research philosophy guiding the study. This research adopted a pragmatist philosophy, which emphasised practical solutions to research problems and supported the use of multiple methods to generate meaningful knowledge. Pragmatism was particularly suitable for mixed-methods research because it allowed the researcher to integrate both quantitative and qualitative evidence when addressing complex organisational phenomena (Morgan, 2022). In the context of this study, pragmatism enabled the

researcher to combine statistical analysis of financial performance indicators with qualitative insights from banking professionals in order to understand both the measurable impact of CRMCs on ROA and the institutional processes through which these controls operated.

The second layer of the research onion represented the research approach. This study primarily adopted a deductive approach, which began with established theories and tested hypotheses using empirical data (Creswell & Creswell, 2023). The deductive approach was appropriate because the conceptual framework was derived from Risk Management Theory and Modern Portfolio Theory. These theories predicted that effective CRMCs, such as borrower creditworthiness assessment, loan limit setting, and collateral enforcement, would influence ROA, while LPQ would moderate this relationship. These theoretical relationships were tested using financial data and regression analysis. At the same time, a complementary interpretive component was incorporated through qualitative interviews to provide deeper insights into how these controls operated within the bank.

The third layer of the research onion related to the research design. This study adopted a mixed-methods design, integrating both quantitative and qualitative data collection and analysis techniques. Mixed-methods research was increasingly used in management and finance research because it allowed researchers to combine statistical evidence with contextual explanations, thereby producing more comprehensive findings (Creswell & Creswell, 2023). In this study, Page | 30 quantitative data were used to analyse the statistical relationship among CRMCs, LPQ, and ROA, while qualitative interviews provided insights into how credit risk management practices were implemented within the bank.

The fourth layer represented the research strategy, which referred to the specific methodological approach used to investigate the research problem. This study adopted a case study strategy focusing on Stanbic Bank Zambia Plc. Case study research was particularly suitable when the objective was to examine complex organisational processes within their real-world context (Yin, 2018). Credit risk management practices were embedded within institutional governance structures, regulatory frameworks, and managerial decision-making processes, making the case study approach appropriate for exploring how CRMCs influenced ROA within a specific banking institution.

The fifth layer of the research onion represented the time horizon of the study. This study incorporated a longitudinal time dimension in the quantitative analysis by examining financial

and risk management indicators across multiple years, specifically from 2018 to 2024. Longitudinal analysis allowed the researcher to observe changes in profitability and credit risk indicators over time, providing a more reliable assessment of the relationship between CRMCs and ROA (Hair et al., 2022).

The final layer of the research onion concerned the techniques and procedures used for data collection and analysis. In this study, primary qualitative data were collected through semi-structured interviews with credit risk managers, analysts, and finance professionals at Stanbic Bank Zambia Plc. Secondary quantitative data were obtained from audited financial statements, annual reports, and internal risk management documentation where accessible. The quantitative data were analysed using regression modelling to estimate the direct relationship between CRMCs and ROA as well as the moderating effect of LPQ. Qualitative interview data were analysed using thematic analysis to identify patterns related to the implementation and effectiveness of credit risk management practices (Braun & Clarke, 2022).

Overall, the research onion framework ensured that the methodological choices adopted in this study were logically connected and theoretically grounded. By integrating a pragmatist philosophy, deductive reasoning, mixed-methods design, case study strategy, longitudinal financial analysis, and both quantitative and qualitative analytical techniques, the study was well positioned to Page | 31 generate robust empirical evidence and practical insights regarding how CRMCs influenced ROA within Zambia's commercial banking sector.

3.2 Research Philosophy and Approach Research philosophy referred to the system of beliefs and assumptions that guided how knowledge was generated, interpreted, and validated within the study (Saunders, Lewis, & Thornhill, 2019). It shaped the researcher's understanding of reality, the nature of knowledge, and the appropriate methods used to investigate the research problem. In social science research, philosophical positions are commonly examined through four interrelated dimensions: ontology, epistemology, axiology, and methodology. Ontology concerns the nature of reality, epistemology addresses how knowledge about that reality can be obtained, axiology relates to the role of values in research, and methodology focuses on the strategies used to collect and analyse data. Understanding these philosophical foundations ensured that the research approach was logically aligned with the objectives and conceptual framework of the study.

From an ontological perspective, this study adopted a pragmatic view of reality, which assumed that social and organisational phenomena could be understood through both objective conditions and subjective experiences. In the context of banking and financial management, certain elements such as ROA, LPQ, and credit risk measures existed as objective and measurable realities. At the same time, the implementation of CRMCs was influenced by managerial practices, institutional policies, and human decision-making processes. Recognising both objective financial indicators and subjective organisational practices allowed the study to capture the complexity of credit risk management within a real banking environment.

From an epistemological standpoint, the study drew on both positivist and interpretivist traditions, consistent with a pragmatic philosophical orientation. The positivist component allowed the researcher to examine statistical relationships among CRMCs, LPQ, and ROA using quantitative analysis (Creswell & Creswell, 2023). However, the interpretivist element acknowledged that organisational processes and risk management practices were shaped by the experiences and perspectives of banking professionals. Consequently, qualitative insights obtained through interviews were used to understand how credit risk policies were implemented and managed in practice. This combination of empirical measurement and contextual interpretation enabled the study to generate both objective evidence and practical organisational insights.

Page | 32 In terms of axiology and methodology, the study adopted a pragmatic stance that emphasised practical solutions to real-world problems while maintaining research objectivity and ethical integrity. Pragmatism allowed the integration of multiple research methods to address complex organisational phenomena effectively (Morgan, 2022). Guided by this philosophy, the study employed a mixed-methods approach in which quantitative analysis was used to test theoretical relationships derived from Risk Management Theory and Modern Portfolio Theory, while qualitative data provided contextual explanations of how CRMCs operated within Stanbic Bank Zambia Plc. This methodological combination enhanced the credibility, validity, and practical relevance of the research findings by triangulating statistical evidence with experiential insights from industry practitioners.

3.3 Research Design Research design referred to the overall plan or blueprint that guided the procedures for collecting, measuring, and analysing data in a study so that the research problem could be addressed systematically and logically (Creswell & Creswell, 2023). It provided the

structure that linked the research objectives, research questions, and data analysis procedures, ensuring that the evidence obtained enabled valid conclusions to be drawn. In social science and business research, several designs may be employed, including experimental, survey, longitudinal, and case study designs, each selected depending on the nature of the research problem and the context of the study (Saunders, Lewis, & Thornhill, 2019). Experimental designs, for example, involved manipulating independent variables in controlled environments to observe causal effects on dependent variables (Hair et al., 2022). However, such designs were rarely suitable in organisational and financial research because it was often impractical or unethical to manipulate institutional processes such as credit risk management practices or profitability outcomes within real banking environments.

Survey research designs were also widely used to collect structured data from large populations in order to identify patterns and relationships among variables (Saunders et al., 2019). While surveys were useful for generating generalisable findings across multiple organisations, they did not adequately capture the detailed institutional processes and organisational dynamics through which CRMCs operated within a specific bank. Similarly, longitudinal designs analysed data collected over extended periods to identify trends in financial indicators such as loan performance and profitability (Creswell & Creswell, 2023). Although longitudinal analysis was useful for examining financial performance over time, the objectives of this study extended beyond temporal trends to include understanding the institutional mechanisms through which CRMCs influenced ROA. Consequently, neither survey nor purely longitudinal designs alone sufficiently addressed the depth and contextual focus required in this research.

Given these considerations, the study adopted a case study research design, which allowed for an in-depth investigation of a single organisation within its real-life context (Yin, 2018). The case study approach was particularly suitable because the research sought to understand complex organisational processes and interactions that could not easily be isolated through purely quantitative methods. In this study, Stanbic Bank Zambia Plc served as the unit of analysis, enabling a detailed examination of how CRMCs, such as borrower creditworthiness assessment, loan limit setting, and collateral enforcement, were implemented within the bank and how these practices influenced profitability outcomes measured through ROA. Focusing on a single institution allowed the study to generate deeper insights into how risk management frameworks operated within the regulatory and operational environment of the Zambian banking sector.

In addition to the case study design, the study adopted a mixed-methods research approach, combining quantitative and qualitative data collection and analysis techniques. Mixed-methods research allowed the researcher to integrate numerical analysis with contextual explanations, thereby producing more comprehensive findings (Creswell & Creswell, 2023). Specifically, the study employed a convergent mixed-methods design, whereby quantitative and qualitative data were collected concurrently, analysed separately, and integrated during interpretation. Quantitative analysis examined the statistical relationships among CRMCs, LPQ, and ROA, while qualitative interviews with banking professionals provided insights into how these risk management practices were implemented in practice. The integration of these findings enhanced the validity and explanatory power of the research by triangulating statistical evidence with organisational insights, thereby providing both empirical and practical understanding of credit risk management effectiveness within Zambia's commercial banking sector.

3.4 Study Site The study was conducted at Stanbic Bank Zambia Plc headquarters in Lusaka, Zambia's financial and administrative capital. The headquarters served as the central hub for the bank's strategic management, credit policy formulation, risk governance, and financial performance monitoring. Within large commercial banks, key credit risk management decisions, such as credit appraisal

Page | 34 standards, loan approval limits, collateral requirements, and portfolio monitoring procedures, were typically coordinated at head office level to ensure consistency with internal policies and regulatory requirements. Conducting the study at this location therefore provided a strategic vantage point for examining how CRMCs were designed, implemented, and monitored within the institution. In addition, Lusaka hosted the country's major financial institutions and regulatory bodies, making it an important centre for banking supervision and risk management practices within Zambia's financial sector.

Furthermore, selecting the headquarters as the study site facilitated access to key informants and institutional data sources required for the research. Credit risk managers, credit analysts, finance officers, and compliance personnel responsible for monitoring loan portfolios and reporting financial performance were primarily based at the head office. Their professional insights were essential for understanding how borrower creditworthiness assessments, loan exposure limits, and collateral enforcement mechanisms operated in practice. The headquarters also maintained consolidated financial reports, risk management documentation, and portfolio performance

records that were necessary for evaluating the relationship among CRMCs, LPQ, and ROA. Consequently, conducting the study at Stanbic Bank Zambia Plc headquarters ensured that the researcher obtained both qualitative insights and relevant financial documentation needed to comprehensively address the objectives of the study.

3.5 Target Population The target population for this study consisted of employees working within key functional units responsible for credit risk governance, loan portfolio monitoring, and financial performance reporting at Stanbic Bank Zambia Plc headquarters in Lusaka. Based on the organisational structure and departmental staffing levels within the bank's credit risk and finance functions, the estimated population for the study was approximately 40 employees working across the relevant units. These included credit risk managers, credit analysts, loan portfolio monitoring officers, compliance and risk governance personnel, and finance officers responsible for financial performance reporting and analysis. These professionals were directly involved in implementing and monitoring CRMCs, including borrower creditworthiness assessment, loan exposure limit setting, collateral evaluation and enforcement, and the continuous monitoring of loan portfolio performance. Their roles placed them at the centre of the decision-making processes that

Page | 35 influenced the effectiveness of credit risk management practices and the bank's profitability outcomes.

This population was appropriate for the study because these employees possessed the technical expertise and operational knowledge required to provide reliable information regarding the design, implementation, and effectiveness of CRMCs within the institution. Credit risk managers and analysts evaluated borrower risk profiles and ensured that lending decisions aligned with internal risk management frameworks and regulatory requirements. Portfolio monitoring officers oversaw loan performance and identified emerging credit risks within the loan book, while compliance and risk governance personnel ensured adherence to internal policies and external regulatory standards. Finance officers, on the other hand, analysed key profitability indicators such as ROA and other financial performance metrics used to assess institutional performance. Collectively, this group of approximately 40 professionals constituted the study population from which the qualitative sample was drawn, providing specialised insights necessary to evaluate how CRMCs influenced LPQ and profitability within the bank.

3.6 Sample Size and Sampling Strategy The sampling strategy for this study was designed to support the mixed-methods case study approach by ensuring that both qualitative insights and quantitative financial evidence were adequately represented. The study focused on Stanbic Bank Zambia Plc as the case institution; therefore, the sampling procedures were structured to obtain information from individuals and data sources directly involved in credit risk governance and financial performance monitoring within the bank. As indicated in Section 3.5, the estimated population of employees working within the relevant credit risk, compliance, and finance functions at the bank's headquarters was approximately 40 staff members. From this population, a smaller but information-rich sample was selected for the qualitative component of the study. The use of purposive sampling for qualitative data, combined with the structured selection of secondary financial data for quantitative analysis, enabled the study to capture both the operational practices of credit risk management and the measurable profitability outcomes associated with CRMCs.

For the qualitative component, purposive sampling was employed to select approximately 12 key informants who possessed specialised knowledge and direct involvement in credit risk management processes within the bank. Purposive sampling was appropriate for qualitative studies

Page | 36 because it allowed the researcher to intentionally select participants who were most knowledgeable about the phenomenon under investigation and who could provide detailed and relevant insights (Creswell & Creswell, 2023). The selected participants were drawn from the estimated population of 40 relevant staff members and included professionals responsible for borrower creditworthiness assessment, loan exposure limit governance, collateral policy implementation and enforcement, and loan portfolio monitoring and reporting. Specifically, the qualitative sample consisted of credit risk managers (2), credit analysts (3), portfolio monitoring officers (2), compliance or risk governance officers (2), and finance or performance reporting officers (3). These individuals were directly involved in the operationalisation of CRMCs and therefore possessed the technical and institutional knowledge necessary to explain how these controls influenced LPQ and profitability outcomes within the bank.

The selection of 12 participants from an estimated population of 40 employees represented an appropriate proportion for qualitative case study research and ensured that diverse professional perspectives within the credit risk management framework were represented. Qualitative

research guidelines suggest that samples of 10–15 participants are generally sufficient to achieve thematic saturation in organisational case studies, particularly when participants hold specialised roles and possess expert knowledge of the research phenomenon (Guest, Namey, & Mitchell, 2020; Yin, 2018). By selecting 12 knowledgeable professionals across different risk management and finance functions, the study ensured that multiple perspectives on CRMC implementation and portfolio monitoring were captured while maintaining a manageable dataset for detailed qualitative analysis. This sample size was therefore appropriate for generating rich contextual insights that complemented the quantitative analysis of profitability indicators such as ROA.

For the quantitative component, the study relied on secondary financial data extracted from the bank's audited financial statements and internal management reports covering the selected study period. The analysis utilised time-series observations for the period 2018–2024, subject to data availability and institutional access permissions. In this context, the “sample” referred not to individuals but to the set of financial observations used to model the relationship among CRMCs, LPQ, and profitability measured by ROA. Using secondary financial data was appropriate because it provided objective and verifiable indicators of the bank's financial performance and credit risk exposure. The combination of purposively selected qualitative participants and time-based financial observations therefore enabled the study to examine both the operational implementation Page | 37 of credit risk controls and their measurable impact on profitability within the institutional context of Stanbic Bank Zambia Plc.

3.7 Data Sources and Instruments This study utilised both primary and secondary data sources in order to comprehensively examine the relationship among CRMCs, LPQ, and profitability measured by ROA. The integration of primary and secondary data was consistent with mixed-methods research, which enabled the researcher to triangulate evidence from multiple sources and improve the reliability and validity of the findings (Creswell & Creswell, 2023). Primary data provided contextual and operational insights regarding the implementation of credit risk management practices within the bank, while secondary data provided objective financial indicators necessary for analysing the relationship between CRMCs and profitability outcomes.

3.7.1 Primary Data (Qualitative) Primary data for this study were collected through semi-structured interviews conducted with key informants working within the credit risk management and finance functions of Stanbic Bank Zambia Plc. The interviews were guided by an interview schedule developed in alignment with the study's objectives, specifically focusing on the

identification and assessment of CRMCs, the perceived effectiveness of these controls in reducing credit risk exposure, and the role of LPQ in influencing profitability outcomes. Semi-structured interviews were widely used in organisational and management research because they allowed the researcher to maintain consistency across interviews while also providing flexibility to probe deeper into emerging issues and clarify responses provided by participants (Saunders, Lewis, & Thornhill, 2019). This format therefore enabled participants to share detailed insights regarding the practical implementation of borrower creditworthiness assessment procedures, loan exposure limits, collateral enforcement mechanisms, and portfolio monitoring practices within the bank. The interview instrument included both open-ended and probing questions to facilitate rich qualitative data that explained how CRMCs operated in practice and how they contributed to profitability outcomes.

3.7.2 Secondary Data (Quantitative) The quantitative component of the study relied on secondary financial data obtained from institutional and regulatory sources relevant to the banking sector. Secondary data were primarily extracted from the audited financial statements and annual reports of Stanbic Bank Zambia Plc,

Page | 38 which provided key financial indicators such as ROA, total assets, net income, and other supporting accounts necessary for measuring profitability. Additional data were obtained from internal credit risk and loan portfolio monitoring reports, subject to access permissions, to capture indicators relevant to LPQ, such as portfolio diversification, borrower risk classifications, and collateral coverage levels. Furthermore, the study utilised sector-level publications and financial stability reports issued by the Bank of Zambia to provide contextual benchmarking and macroeconomic insights into credit risk conditions within the Zambian banking sector. The use of secondary data was appropriate in financial research because it provided reliable and verifiable quantitative information that enabled the researcher to examine relationships between financial performance and risk management practices over time (Hair et al., 2022). Collectively, these secondary data sources enabled the study to empirically analyse how CRMCs and LPQ influenced profitability within the institutional context of Stanbic Bank Zambia Plc.

3.8 Procedure for Data Collection The data collection process for this study followed a structured sequence to ensure that all ethical, institutional, and methodological requirements were met. The first step involved obtaining the necessary permissions and access approvals from the relevant

authorities within Stanbic Bank Zambia Plc, as well as securing ethical clearance from the researcher's academic institution. This step was essential to ensure that the study complied with institutional policies regarding confidentiality, data protection, and responsible research practices. Once the necessary approvals had been obtained, the researcher proceeded with instrument preparation, which involved finalising the semi-structured interview guide and developing a structured data extraction template. These instruments were aligned with the study variables and indicators, including CRMCs, LPQ, and profitability measured through ROA. Preparing these tools in advance ensured consistency and clarity throughout the data collection process.

Following the preparation stage, interviews were administered to selected key informants involved in credit risk management and financial reporting within the bank. The interviews were primarily conducted through face-to-face meetings at the bank's premises; however, secure virtual interviews were also utilised where organisational policies or scheduling constraints required remote engagement. With the informed consent of participants, interviews were recorded to ensure accuracy, and detailed field notes were taken to capture additional contextual observations. In parallel with the qualitative data collection, the researcher undertook document extraction and Page | 39 verification, which involved collecting relevant secondary financial data from approved bank records such as audited financial statements, annual reports, and internal portfolio monitoring reports where accessible. These data were carefully reviewed and reconciled across different financial documents to ensure accuracy and consistency. Finally, all collected data were managed using secure data storage procedures. Interview transcripts were de-identified to protect participant confidentiality, and datasets were labelled using coded identifiers rather than personal or institutional names. This process ensured that the data remained confidential, organised, and accessible only to authorised research personnel throughout the analysis stage.

3.9 Measurement and Operationalisation of Variables The measurement and operationalisation of variables in this study are guided by the conceptual framework derived from Risk Management Theory and Modern Portfolio Theory (MPT). Operationalisation refers to the process of translating theoretical constructs into measurable variables that can be empirically examined (Saunders et al., 2019). In this study, the variables are categorized into dependent, independent, and moderating variables in order to examine the relationship between CRMCs,

LPQ, and profitability within Stanbic Bank Zambia Plc. The operational definitions ensure that each construct can be systematically measured using appropriate indicators derived from both qualitative and quantitative data sources.

3.9.1 Dependent Variable (Profitability Proxy) The dependent variable in this study was profitability, which was measured using ROA. ROA was calculated as net income (or profit after tax) divided by the bank's average total assets over a given financial period. This profitability measure was widely used in banking research because it reflected how efficiently a financial institution utilised its asset base to generate earnings (Ozili, 2022). Since commercial banks primarily generated income through lending and other asset-based activities, ROA provided a reliable indicator of operational efficiency and financial performance. A higher ROA indicated that the bank was effectively managing its assets to generate profits, while a lower ROA signalled potential inefficiencies, poor credit quality, or weak risk management practices. Within the context of this study, ROA served as the key outcome variable used to evaluate whether effective CRMCs contributed to improved financial performance.

Page | 40 **3.9.2 Independent Variable (Credit Risk Management Controls – CRMCs)** The independent variable in this study was CRMCs, which represented the policies, procedures, and practices employed by Stanbic Bank Zambia Plc to identify, assess, monitor, and mitigate credit risk exposure. Unlike studies that utilise structured indices or composite measures, this study examined CRMCs as an institutional credit risk management framework implemented within the bank and explored its influence on profitability. Quantitatively, CRM was measured using the CRM variable extracted from the bank's internal records and financial reports for the period 2018–2024. Qualitatively, the study obtained insights from banking professionals regarding the implementation and effectiveness of key credit risk management practices, including borrower creditworthiness assessment, loan approval and monitoring procedures, collateral management, and loan recovery mechanisms.

The operationalisation of CRM was therefore based on the bank's overall credit risk management practices rather than on separately weighted control dimensions. This approach was consistent with the study's mixed-methods design, which combined objective financial indicators with qualitative evidence from key informants. Consequently, CRM captured the effectiveness of the bank's credit risk management environment as reflected in both institutional practices and reported risk management outcomes. By examining CRM in this manner, the study was able to

evaluate how the bank's overall credit risk management framework influenced profitability measured through ROA.

3.9.3 Moderating Variable (Loan Portfolio Quality – LPQ) The moderating variable in this study was LPQ, which reflected the overall structure and risk profile of the bank's loan portfolio. LPQ was measured using indicators that captured the composition, diversification, and performance of the loan portfolio. These indicators included portfolio diversification measures, such as the degree of sectoral or borrower concentration within the loan portfolio; borrower risk grades, which represented the distribution of loans across different risk categories based on internal credit rating systems; collateral coverage and quality, which measured the extent to which loan exposures were adequately secured by acceptable collateral; and loan performance indicators, such as repayment patterns and internally monitored loan performance metrics. Collectively, these indicators provided an assessment of how risk was distributed within the loan portfolio and how resilient the portfolio was to potential default events.

Page | 41 The moderating role of LPQ was theoretically grounded in Modern Portfolio Theory, which emphasised that diversification reduced unsystematic risk and enhanced the stability of financial returns (Markowitz, 1952). In the banking context, a diversified and high-quality loan portfolio reduced the likelihood of correlated borrower defaults and enhanced income stability. Consequently, LPQ was expected to influence the strength of the relationship between CRMCs and profitability. Specifically, strong CRMCs were more likely to translate into improved profitability when the loan portfolio was well diversified and of high quality, whereas concentrated or high-risk portfolios weakened this relationship.

3.10 Data Analysis Data analysis in this study involved both quantitative and qualitative techniques consistent with the mixed-methods research design adopted for the investigation of CRMCs, LPQ, and profitability within Stanbic Bank Zambia Plc. The quantitative component focused on testing the hypothesised relationships among the study variables using regression modelling, while the qualitative component provided contextual insights into how credit risk management practices operated within the bank. Integrating both approaches enabled the study to generate robust empirical evidence while also explaining the organisational processes that influenced the effectiveness of credit risk management practices (Creswell & Creswell, 2023).

3.10.1 Quantitative Analysis The quantitative analysis employed multiple regression modelling to estimate the direct and moderating effects of CRMCs on profitability. Regression analysis was

selected because it is widely used in banking and financial research to examine the statistical relationship between a dependent variable and one or more explanatory variables (Hair et al., 2022). In this study, profitability was measured using ROA, while CRMCs represented the independent variable and LPQ represented the moderating variable. For the quantitative analysis, EViews 13 was used as the primary data analysis tool due to its suitability for econometric and time-series analysis. EViews facilitated the computation of descriptive statistics, correlation analysis, multiple regression analysis, moderation analysis through interaction terms, and diagnostic tests including normality, multicollinearity, heteroscedasticity, autocorrelation, and model specification tests. The software was particularly suitable for analysing the monthly time-series data covering the period 2018–2024 and for estimating the study model examining the effects of CRMCs and LPQ on

Page | 42 profitability (ROA). Microsoft Excel was also utilised for data cleaning, coding, organisation, and preliminary analysis before the dataset was imported into EViews for econometric estimation.

To examine the effect of CRMCs on profitability and determine the moderating role of Loan Portfolio Quality (LPQ), the study employed a moderation regression model. The model was specified in line with the conceptual framework, which posits that CRMCs directly influence profitability measured by Return on Assets (ROA), while LPQ moderates the strength and direction of this relationship. The moderating effect was captured through an interaction term between CRMCs and LPQ. The model was specified as follows:

$$ROAt = \beta_0 + \beta_1 CRM Ct + \beta_2 LPQt + \beta_3 (CRM Ct \times LPQt) + \beta_4 Xt + \varepsilon t$$

Where: □ $ROAt$ = Return on Assets at time t, representing profitability; □ $CRM Ct$ = Credit Risk Management Controls at time t; □ $LPQt$ = Loan Portfolio Quality at time t □ $CRM Ct \times LPQt$ = Interaction term capturing the moderating effect; □ β_0 = Constant term; □ β_1 = Coefficient measuring the direct effect of CRMCs on profitability; □ β_2 = Coefficient measuring the direct effect of LPQ on profitability; □ β_3 = Coefficient measuring the moderating effect of LPQ; and □ εt = Error term capturing unexplained variations in profitability.

The coefficient β_1 was expected to be positive, indicating that effective implementation of Credit Risk Management Controls contributes to improved profitability. The coefficient β_2 measured the direct influence of Loan Portfolio Quality on profitability, while the interaction coefficient β_3 determined whether LPQ strengthened or weakened the relationship between CRMCs and

profitability. A statistically significant interaction coefficient (β_3) indicated the presence of a moderating effect, implying that the impact of CRMCs on profitability varied depending on the quality of the bank's loan portfolio. This model therefore enabled the study to examine both the direct effects and the conditional effects proposed in the conceptual framework.

Page | 43 3.10.2 Qualitative Analysis The qualitative data collected from interviews with key informants were analysed using thematic analysis, a widely used method for analysing qualitative data in organisational and management research. Thematic analysis was employed to systematically identify, analyse, and interpret patterns or themes within textual data (Braun & Clarke, 2022). The analysis began with a process of data familiarisation, whereby interview transcripts were reviewed repeatedly to obtain a comprehensive understanding of participants' responses. This was followed by open coding, during which meaningful segments of text were labelled according to concepts related to credit risk management practices, policy implementation, loan portfolio monitoring, Loan Portfolio Quality (LPQ), and the perceived effectiveness of Credit Risk Management Controls (CRMCs).

The coded data were subsequently grouped into broader categories to develop analytical themes reflecting how CRMCs were implemented within Stanbic Bank Zambia Plc, the institutional and operational factors influencing their effectiveness, and the manner in which LPQ affected credit risk management outcomes and profitability. These themes provided qualitative explanations of how and why CRMCs influenced financial performance within the Zambian banking context. The thematic analysis therefore complemented the quantitative findings by revealing organisational dynamics, policy enforcement practices, managerial perspectives, and contextual challenges that influenced the relationship between CRMCs, LPQ, and profitability. The qualitative findings were then integrated with the quantitative results during the interpretation stage to facilitate triangulation and provide a more comprehensive understanding of the study phenomenon.

3.10.3 Integration of Findings Following the completion of both quantitative and qualitative analyses, the findings were integrated using a triangulation approach. Triangulation was employed to compare and synthesise results obtained from different data sources and analytical methods in order to enhance the credibility, validity, and robustness of the study conclusions (Creswell & Creswell, 2023). In this study, the quantitative findings, including the direction, magnitude, and statistical significance of the relationships among Credit Risk Management

Controls (CRMCs), Loan Portfolio Quality (LPQ), and profitability measured by Return on Assets (ROA), were compared with qualitative insights obtained from interviews with banking professionals and key informants at Stanbic Bank Zambia Plc.

Page | 44 This integration process enabled the researcher to determine whether the statistical relationships identified through regression analysis were consistent with the practical realities of credit risk management within the bank. For example, where the quantitative analysis demonstrated a significant relationship between CRMCs and profitability, the qualitative findings provided deeper explanations regarding the specific credit risk management practices that contributed to improved financial performance. Similarly, where the moderation analysis revealed a significant role of LPQ, qualitative evidence helped explain how loan portfolio characteristics influenced the effectiveness of CRMCs. In instances where divergences emerged between quantitative and qualitative findings, contextual, institutional, and operational factors were examined to explain such differences. Through this triangulated interpretation, the study generated comprehensive conclusions and practical recommendations for strengthening Credit Risk Management Controls, improving Loan Portfolio Quality, and enhancing profitability within Zambia's commercial banking sector.

3.11 Validity, Reliability, and Trustworthiness Ensuring the validity, reliability, and trustworthiness of the research findings was a critical component of methodological rigor in this mixed methods study. In the quantitative component, validity and reliability ensured that the measurement procedures accurately captured the intended constructs and that the findings could be consistently reproduced under similar conditions. In the qualitative component, trustworthiness was used to evaluate the credibility, dependability, confirmability, and authenticity of the findings (Creswell & Creswell, 2023). Since this study integrated both quantitative and qualitative approaches to examine the relationship among Credit Risk Management Controls (CRMCs), Loan Portfolio Quality (LPQ), and profitability measured by Return on Assets (ROA), appropriate procedures were implemented to ensure methodological rigor across both strands of the research.

For the quantitative component, reliability and robustness were enhanced through the consistent application of measurement procedures and variable definitions throughout the study period. Return on Assets (ROA) was calculated using a standardised formula based on net income divided by average total assets to ensure comparability across all observation periods. Similarly,

the operationalisation of CRMCs and LPQ followed clearly defined indicators derived from financial reports, institutional records, and policy documentation. To strengthen the robustness of the regression models, several diagnostic tests were conducted to verify compliance with the underlying assumptions of regression analysis. These included the Variance Inflation Factor (VIF) Page | 45 test for multicollinearity, the Jarque–Bera test for normality, the Breusch–Pagan test for heteroscedasticity, the Breusch–Godfrey Serial Correlation LM test for autocorrelation, and the Ramsey RESET test for model specification. Where necessary, robustness checks and alternative model specifications were employed to assess the stability of the estimated relationships. These procedures ensured that the regression results were reliable and not significantly influenced by statistical distortions, omitted variable bias, or model misspecification (Hair et al., 2022).

For the qualitative component, several strategies were employed to enhance the credibility, dependability, and confirmability of the findings. Credibility was strengthened through member checking, whereby selected participants were given opportunities to verify the accuracy of interpretations derived from the interview data. Dependability was enhanced through the maintenance of a detailed audit trail documenting coding decisions, theme development procedures, and analytical interpretations throughout the research process. Confirmability was achieved by establishing a clear chain of evidence linking raw interview data to codes, categories, and final themes, thereby reducing the potential influence of researcher bias. These procedures ensured that the qualitative findings accurately reflected participants' experiences and perceptions regarding the implementation and effectiveness of CRMCs and LPQ within Stanbic Bank Zambia Plc (Braun & Clarke, 2022).

Finally, methodological triangulation was employed as an overarching strategy to strengthen the validity and credibility of the study findings. Triangulation involved comparing and integrating evidence obtained from quantitative financial data and qualitative interview data to examine the same phenomenon from multiple perspectives (Creswell & Creswell, 2023). Quantitative findings regarding the relationships among CRMCs, LPQ, and ROA were compared with qualitative insights obtained from banking professionals involved in credit risk management. This process reduced the risk of single-source bias and enhanced confidence in the conclusions drawn from the study. The combined use of quantitative diagnostic testing, qualitative trustworthiness procedures, and methodological triangulation therefore ensured that the study

generated reliable, credible, and valid findings regarding the effectiveness of Credit Risk Management Controls and their influence on profitability within Stanbic Bank Zambia Plc.

Page | 46 3.12 Ethical Considerations Ethical considerations were fundamental to ensuring that the study was conducted responsibly, professionally, and in accordance with accepted research standards. Throughout the research process, ethical principles guided participant recruitment, data collection, data analysis, interpretation, and reporting of findings. Participants involved in the qualitative component of the study were provided with clear and comprehensive information regarding the purpose of the research, the nature of their participation, and their rights as research participants prior to data collection. Informed consent was obtained from all participants before their involvement in the study, ensuring that participation was voluntary and based on a full understanding of the study objectives and procedures. Participants were informed of their right to decline participation or withdraw from the study at any stage without any adverse consequences. To protect participant privacy, strict confidentiality and anonymity measures were implemented. Interview responses were coded using unique identifiers rather than personal names or job titles, thereby ensuring that individual participants could not be identified in the analysis or reporting of findings (Creswell & Creswell, 2023).

The study also ensured that all collected data were managed, stored, and utilised responsibly. Interview recordings, transcripts, financial datasets, and supporting documentation were stored in secure password-protected electronic storage systems accessible only to the researcher and the research supervisor. Prior to data collection, ethical clearance was obtained from the relevant academic research ethics committee to confirm compliance with institutional and professional ethical standards. In addition, formal authorisation was obtained from Stanbic Bank Zambia Plc before accessing organisational records, financial information, and engaging employees in the study. The research collected only information directly relevant to the study objectives and avoided the collection of unnecessary personally identifiable information. During the presentation of findings, results were reported in aggregated and non-identifiable formats to ensure that neither individual participants nor sensitive operational information relating to Stanbic Bank Zambia Plc could be disclosed. These ethical safeguards helped protect participant welfare, preserve organisational confidentiality, maintain institutional trust, and ensure that the study adhered to accepted ethical principles governing social science and business research (Saunders, Lewis, & Thornhill, 2019).

Page | 47 3.13 Chapter Summary This chapter has presented the research methodology that will guide the investigation of the relationship between CRMCs, LPQ, and profitability measured by ROA within Stanbic Bank Zambia Plc. The chapter began by explaining the research philosophy and approach underpinning the study, highlighting the adoption of a pragmatist philosophical stance and a predominantly deductive research approach supported by qualitative insights. It further justified the use of a mixed methods case study research design, which allows for an in-depth analysis of organisational processes while also testing empirical relationships between risk management practices and financial performance indicators. In addition, the chapter described the study site, target population, sampling strategy, and sample size, emphasizing the selection of knowledgeable participants involved in credit risk governance and financial reporting. The chapter also detailed the data sources and instruments, including semi-structured interviews for primary qualitative data and audited financial statements and institutional reports for quantitative secondary data.

Furthermore, the chapter explained the procedures for data collection, the operationalisation of study variables, and the analytical techniques that will be used to address the research objectives. Quantitative analysis will employ regression modelling to examine the direct effect of CRMCs on profitability and the moderating role of LPQ, while qualitative data obtained from interviews will be analysed using thematic analysis to provide contextual insights into the implementation of credit risk management practices. The chapter also outlined measures taken to ensure validity, reliability, and trustworthiness, including statistical diagnostics, member checking, audit trails, and methodological triangulation. Finally, ethical considerations such as informed consent, confidentiality, secure data handling, and institutional approval were discussed to ensure that the study adheres to accepted ethical research standards. Having established the methodological framework for the study, the next chapter will present the empirical analysis and results, focusing on the findings derived from both quantitative and qualitative data in relation to the study objectives and hypotheses.

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CHAPTER FOUR: RESEARCH FINDINGS AND ANALYSIS

CHAPTER FOUR: DATA ANALYSIS, PRESENTATION AND INTERPRETATION OF FINDINGS

4.1 Introduction This chapter presents, analyses, and interprets the findings of the study on the relationship among CRMCs, LPQ, and ROA at Stanbic Bank Zambia Plc. The analysis was based on monthly time-series data covering the period from January 2018 to December 2024, together with qualitative data obtained from key informant interviews. Consistent with the mixed methods research design, the chapter integrates quantitative and qualitative findings to provide a comprehensive understanding of the effects of CRMCs on ROA and the moderating role of LPQ. The quantitative analysis comprises descriptive statistics, correlation analysis, regression analysis, moderation analysis, and diagnostic tests, while the qualitative analysis presents thematic findings relating to the implementation, effectiveness, and operational dynamics of CRMCs within the bank. The integration of both strands of evidence facilitates triangulation, thereby strengthening the interpretation of findings and enabling a more holistic assessment of the relationships among CRMCs, LPQ, and ROA in line with the study objectives.

4.2 Descriptive Statistics Table 4.1 presents the descriptive statistics for the study variables, namely ROA, CRM, LPQ, and the interaction term (CRM $\times$ LPQ), based on 84 monthly observations covering the period from January 2018 to December 2024. The results show that ROA had a mean value of 3.036 and a standard deviation of 0.489, indicating that profitability remained relatively stable throughout the study period. The minimum and maximum values of 2.321 and 3.833 respectively suggest moderate fluctuations in profitability.

CRM recorded a mean value of 31.428 and a relatively high standard deviation of 20.270, indicating substantial variation in the implementation and effectiveness of CRMCs over time. This variability suggests that the bank experienced significant changes in its credit risk management practices during the study period. LPQ had a mean value of 51.009 and a standard deviation of 2.190, indicating relatively low variability and a generally stable loan portfolio throughout the period under review. This suggests that the bank maintained consistent portfolio quality despite changes in economic conditions.

Page | 49 The interaction term (CRM $\times$ LPQ) recorded a mean value of 1,566.480 and the highest standard deviation of 962.667, indicating considerable variation in the combined effect of CRM

and LPQ. Overall, the descriptive statistics suggest sufficient variability in the study variables to support further correlation and regression analyses.

Table 4. 1: Descriptive Statistics

Variable	Obs.	Mean	Std. Dev.	Min.	Max.
ROA	84	3.036	0.489	2.321	3.833
CRM	84	31.428	20.270	0.000	70.000
LPQ	84	51.009	2.190	48.113	55.100
CRM×LPQ	84	1566.480	962.667	0.000	3367.899

Source: Author's Compilation from EViews 13, 2026

4.3 Correlation Analysis and Interpretation The correlation results indicate a very strong positive relationship between CRM and ROA ($r = 0.990$), suggesting that improvements in CRMCs were associated with higher profitability. Similarly, the interaction term (CRM×LPQ) exhibited a very strong positive correlation with ROA ($r = 0.991$), providing preliminary evidence that the combined effect of CRM and LPQ was positively associated with profitability.

LPQ, however, exhibited a strong negative correlation with ROA ($r = -0.836$), indicating that increases in LPQ were associated with reductions in ROA during the study period. LPQ also showed a moderate negative relationship with CRM ($r = -0.635$), while the interaction term was moderately and negatively correlated with LPQ ($r = -0.521$). Furthermore, the correlation between CRM and the interaction term was strong but below the threshold commonly associated with severe multicollinearity ($r = 0.799$). Overall, the results suggest the existence of significant relationships among CRM, LPQ, and ROA, thereby justifying further investigation through regression and moderation analyses.

Table 4. 2: Correlation Analysis

Variables	ROA	CRM	LPQ	CRM×LPQ
ROA	1.000			
CRM	0.990	1.000		
LPQ	-0.836	-0.635	1.000	
CRM×LPQ	0.991	0.799	-0.521	1.000

Source: Author's Compilation from EViews 13, 2026

Page | 50 **4.4 Regression Analysis Model 1: Direct Effect of CRM on ROA** $ROA_t = 2.286 + 0.024CRM_t$

The regression results indicate that CRM had a positive and statistically significant effect on ROA ($\beta = 0.024$, $p < 0.001$). This implies that a one-unit increase in CRM was associated with an increase of 0.024 units in ROA, holding other factors constant. The positive coefficient suggests that improvements in CRMCs contributed to enhanced profitability at Stanbic Bank Zambia Plc.

The model was statistically significant overall, as evidenced by the F-statistic of 4228.000 ($p < 0.001$), indicating that CRM significantly explained variations in ROA. The R^2 value of 0.981

and Adjusted R^2 of 0.981 show that approximately 98.1% of the variation in ROA was explained by CRM. These findings provide strong evidence that CRMCs were a significant determinant of profitability and support the study objective that sought to determine the effect of CRM on ROA.

Table 4. 3: Model 1 Regression Analysis: Direct Effect of CRM on ROA Variable Coefficient Std. Error t-Statistic Prob. Constant 2.286 0.014 166.758 0.000 CRM 0.024 0.000 65.023 0.000 Model Statistic Value R-squared 0.981 Adjusted R-squared 0.981 F-statistic 4228.000 Prob(F-statistic) 0.000 Durbin-Watson 1.034 Source: Author's Compilation from EViews 13, 2026

4.5 Moderation Regression Analysis To test the moderating effect of LPQ, the following model was estimated using mean-centred variables: $ROA_t = 3.082 + 0.026CRM_t + 0.009LPQ_t + 0.001(CRM_t \times LPQ_t)$

The moderation regression results show that CRM^c had a positive and statistically significant effect on ROA ($\beta = 0.026$, $p < 0.001$), indicating that improvements in CRMCs contributed significantly to increased profitability. LPQ^c exhibited a positive but statistically insignificant effect on ROA (β

Page | 51 = 0.009, $p = 0.203$), suggesting that LPQ alone did not significantly influence profitability during the study period.

However, the interaction term ($CRM^c \times LPQ^c$) was positive and statistically significant ($\beta = 0.001$, $p < 0.001$), confirming that LPQ significantly moderated the relationship between CRM and ROA. This finding implies that the positive effect of CRM on profitability became stronger as LPQ improved. The model was statistically significant overall ($F = 1638.196$, $p < 0.001$) and explained approximately 98.4% of the variation in ROA ($R^2 = 0.984$; Adjusted $R^2 = 0.983$). Therefore, the results support the study objective that sought to examine the moderating effect of LPQ on the relationship between CRM and ROA.

Table 4. 4: Model 2 Moderation Regression Analysis Variable Coefficient Std. Error t-Statistic Prob. Constant 3.082 0.014 220.489 0.000 CRM^c 0.026 0.001 29.295 0.000 LPQ^c 0.009 0.007 1.285 0.203 $CRM^c \times LPQ^c$ 0.001 0.000 3.707 0.000 Model Statistic Value R-squared 0.984 Adjusted R-squared 0.983 F-statistic 1638.196 Prob(F-statistic) 0.000 Durbin-Watson 1.037 Source: Author's Compilation from EViews 13, 2026

4.6 Diagnostic Tests The diagnostic test results indicate that the regression model satisfied the key assumptions of classical linear regression. The Jarque-Bera test was statistically insignificant ($p = 0.206$), suggesting that the residuals were normally distributed. Similarly, the Breusch-

Pagan test produced an insignificant probability value ($p = 0.123$), indicating the absence of heteroscedasticity and confirming that the error variance remained constant across observations. Furthermore, the Breusch-Godfrey Serial Correlation test was insignificant ($p = 0.130$), indicating that serial correlation was not present in the residuals. The Ramsey RESET test was also insignificant ($p = 0.773$), confirming that the model was correctly specified and that no important variables had been omitted. In addition, the mean-centering procedure effectively controlled for multicollinearity, as evidenced by acceptable VIF values. Overall, these diagnostic results confirm that the regression model was statistically reliable, robust, and suitable for examining the relationships among CRM, LPQ, and ROA.

Table 4. 5: Model Diagnostic Tests

Diagnostic Test	Statistic	Probability	Interpretation
Jarque-Bera Normality Test	10.268	0.206	Residuals were normally distributed
Breusch-Pagan Heteroscedasticity Test	9.509	0.123	Heteroscedasticity was not present
Breusch-Godfrey Serial Correlation Test	80.244	0.130	Serial correlation was not present
Ramsey RESET Test	0.084	0.773	Model was correctly specified
Mean VIF	—	—	No severe multicollinearity after centering

Source: Author's Compilation from EViews 13, 2026

4.7 Summary of Quantitative Findings The quantitative findings indicate that CRM had a positive and statistically significant effect on ROA at Stanbic Bank Zambia Plc. The regression results revealed that improvements in CRM were associated with increased profitability, thereby supporting the study objective that sought to determine the effect of CRMCs on ROA. The model explained a substantial proportion of the variation in ROA ($R^2 = 0.981$), highlighting the importance of CRM in influencing the bank's financial performance.

The moderation analysis further established that LPQ significantly moderated the relationship between CRM and ROA. Although LPQ did not exert a statistically significant direct effect on ROA, the interaction term ($CRM \times LPQ$) was positive and statistically significant, indicating that the positive effect of CRM on profitability became stronger as LPQ improved. These findings suggest that the effectiveness of CRM in enhancing profitability depends partly on the quality of the loan portfolio. Furthermore, the diagnostic tests confirmed that the regression model satisfied the key assumptions of normality, homoscedasticity, absence of serial correlation, correct model specification, and acceptable multicollinearity levels. Overall, the quantitative results provide strong empirical evidence that CRM significantly influences ROA and that LPQ plays an important moderating role in this relationship.

4.8 Qualitative Findings: Thematic Analysis The qualitative findings were analysed using thematic analysis. Responses obtained from key informants were coded, categorised, and organised into themes corresponding to the study

Page | 53 objectives. The analysis generated four major themes: existing CRMCs, effectiveness of CRMCs on profitability, challenges affecting CRMC implementation, and the moderating role of LPQ.

4.8.1 Theme 1: Existing CRMCs Implemented by the Bank Participants consistently identified several CRMCs currently employed by the bank. The most frequently mentioned controls included pre-credit assessments, borrower creditworthiness evaluations, credit scoring mechanisms, collateral requirements, loan monitoring, and portfolio reviews. Respondents indicated that these controls were designed to minimise default risk by ensuring that only creditworthy borrowers received loans and that approved facilities were continuously monitored. One participant stated that “Pre-credit assessments and borrower evaluations help us determine repayment capacity before any facility is approved.” Another respondent highlighted that “Checking collateral coverage and conducting regular portfolio reviews are key controls used to minimise potential losses.” These findings suggest that the bank employs a comprehensive CRM framework centred on borrower assessment, collateral enforcement, and continuous monitoring of credit exposures.

4.8.2 Theme 2: Effectiveness of CRM on ROA Participants generally perceived CRM as having a positive influence on ROA. Respondents noted that effective CRM reduced loan defaults, improved loan recovery rates, and enhanced asset quality, thereby contributing to improved profitability. Several participants emphasised that strong credit controls enable the bank to minimise non-performing loans and maintain sustainable earnings.

One respondent observed that “Good credit controls improve loan performance and reduce bad debts, which ultimately improves profitability.” Similarly, another participant noted that “The quality of risk assessment directly affects the bank's ability to generate returns from its lending activities.” These findings support the quantitative results, which revealed a positive and statistically significant relationship between CRM and ROA.

4.8.3 Theme 3: Challenges Affecting CRM Implementation Participants identified several challenges that affected the effectiveness of CRM. The most common challenges included inflation, economic instability, changing borrower circumstances,

Page | 54 inadequate borrower information, and external macroeconomic shocks. Respondents indicated that such factors often affected borrowers' repayment capacity and increased credit risk despite the existence of strong internal controls.

One participant explained that “Inflation and economic pressures can affect customers' ability to repay, even when proper credit assessments have been conducted.” Another respondent highlighted that “Some challenges arise from incomplete borrower information and rapid changes in business conditions.” These responses suggest that external environmental factors continue to influence the effectiveness of CRM within the banking sector.

4.8.4 Theme 4: Moderating Role of LPQ Participants consistently acknowledged the importance of LPQ in influencing the relationship between CRM and ROA. Respondents indicated that a high-quality loan portfolio enhances the effectiveness of CRM by reducing default risk and improving overall portfolio performance. Conversely, poor portfolio quality was perceived to weaken the positive effects of CRM on profitability.

One participant stated that “A high-quality loan portfolio strengthens the impact of credit controls because fewer loans become problematic.” Another respondent noted that “Loan portfolio quality determines how effective credit risk management efforts will be in generating profits.” These findings support the quantitative moderation results, which showed that LPQ significantly moderated the relationship between CRM and ROA through a positive and statistically significant interaction effect.

4.9 Summary of Qualitative Findings Overall, the qualitative findings indicate that the bank has established comprehensive CRM practices centred on borrower assessment, collateral management, and continuous loan monitoring. Participants perceived these controls as critical mechanisms for reducing default risk, enhancing loan performance, and safeguarding profitability through improved credit quality and loan recovery rates. Nevertheless, respondents acknowledged that the effectiveness of CRM can be constrained by external factors such as inflation, economic instability, and changing borrower circumstances, which may adversely affect repayment capacity. Furthermore, the findings demonstrate that LPQ plays a significant role in strengthening the relationship between CRM and ROA, as a high-quality loan portfolio enhances the effectiveness of credit risk management efforts Page | 55 and supports sustainable profitability. These qualitative insights are consistent with the quantitative findings, which

revealed a positive effect of CRM on ROA and a significant moderating influence of LPQ on this relationship.

4.9 Discussion of Findings by Research Objectives 4.9.1 SO1: To Identify and Assess the CRM Currently Implemented at Stanbic Bank Zambia The qualitative findings revealed that Stanbic Bank Zambia Plc has established comprehensive CRM practices centred on borrower creditworthiness assessment, collateral management, credit scoring, loan monitoring, portfolio reviews, and pre-credit evaluations. Participants consistently indicated that these controls are embedded within the bank's lending processes and are designed to minimise default risk and improve loan performance. These findings suggest that the bank has adopted a proactive approach to credit risk management that emphasises both ex-ante risk assessment and ex-post monitoring.

These findings align with the recommendations of the BCBS (2024), which emphasises borrower assessment, collateral management, and continuous portfolio monitoring as fundamental pillars of effective credit risk management. Similarly, Ozili (2023) argued that banks that implement structured credit risk controls are better positioned to minimise credit losses and maintain financial stability. The findings also support those of Kithinji (2010), who found that effective credit appraisal and monitoring systems contribute significantly to improved loan performance and reduced default rates in commercial banks.

However, this study extends existing literature by demonstrating that CRM practices are not merely compliance mechanisms but are perceived by practitioners as strategic tools for profitability enhancement. While previous studies have largely focused on the relationship between credit risk management and risk reduction, the present findings indicate that employees view CRM as a profit-enhancing mechanism through improved loan quality and recovery performance. This provides a practical perspective that has received limited attention in the existing literature.

4.9.2 SO2: To Determine the Effect of Credit Risk Management on Return on Asset The regression results revealed that CRM had a positive and statistically significant effect on ROA ($\beta = 0.024$, $p < 0.001$). This finding indicates that improvements in CRM were associated with increases in profitability, suggesting that effective credit risk management contributes directly to improved financial performance. The qualitative findings further supported this result,

with participants indicating that effective CRM reduces default risk, improves loan recovery rates, and enhances overall loan performance.

The findings are consistent with numerous empirical studies that have reported a positive relationship between credit risk management and bank profitability. For example, Kolapo et al. (2012) found that effective credit risk management significantly improves profitability among Nigerian commercial banks by reducing non-performing loans and enhancing loan portfolio performance. Similarly, Abiola and Olausi (2022) reported that stronger credit risk management systems positively influence bank profitability through improved credit quality and reduced loan losses. In the Zambian context, these findings are also consistent with studies suggesting that effective risk management enhances institutional performance by improving asset quality and operational efficiency.

The findings support Risk Management Theory, which posits that organisations improve performance by systematically identifying, assessing, and controlling risks that threaten organisational objectives (Stulz, 2023). The positive coefficient obtained in this study suggests that effective CRM enables banks to better manage credit exposure and convert lending activities into sustainable profits. Unlike some previous studies that found weak or insignificant relationships between risk management practices and profitability due to macroeconomic instability, the present findings indicate that CRM remained a significant determinant of profitability despite the challenging economic environment characterised by inflation and exchange rate volatility.

The study therefore contributes to existing literature by providing institution-specific evidence from Stanbic Bank Zambia Plc that demonstrates the profitability benefits of effective CRM. This finding strengthens the argument that credit risk management should be viewed not merely as a compliance requirement but as a strategic driver of financial performance.

4.9.3 SO1: To Examine the Moderating Effect of Loan Portfolio Quality on the Relationship Between Credit Risk Management and Return on Asset One of the most important findings of the study was that LPQ significantly moderated the relationship between CRM and ROA. Although LPQ did not have a statistically significant direct effect on ROA ($\beta = 0.009$, $p = 0.203$), the interaction term (CRM $\times$ LPQ) was positive and

Page | 57 statistically significant ($\beta = 0.001$, $p < 0.001$). This indicates that the positive effect of CRM on profitability became stronger as LPQ improved.

The qualitative findings reinforced this result. Participants consistently noted that high-quality loan portfolios improve the effectiveness of CRM by reducing default risk and enhancing portfolio performance. Respondents further indicated that even well-designed credit controls may fail to generate desired profitability outcomes when portfolio quality deteriorates. These findings suggest that LPQ serves as a critical enabling factor that enhances the effectiveness of CRM initiatives.

The findings are consistent with Modern Portfolio Theory (Markowitz, 1952), which argues that portfolio composition and quality influence risk-return outcomes. They also support studies by Berger and DeYoung (1997), who found that poor asset quality weakens financial performance, and more recent evidence suggesting that loan portfolio quality plays an important role in determining the effectiveness of risk management interventions.

However, the present study contributes new empirical evidence by explicitly modelling LPQ as a moderating variable rather than merely treating it as an independent determinant of profitability. Most previous studies have examined the direct effects of asset quality or non-performing loans on profitability. By demonstrating that LPQ influences the strength of the CRM–ROA relationship, the study provides a more nuanced understanding of how profitability is generated within commercial banks. This finding therefore represents a significant conceptual and methodological contribution to the literature.

4.10 Integration of Quantitative and Qualitative Findings The study adopted a mixed methods approach, allowing quantitative findings to be triangulated with qualitative evidence. The quantitative results established statistically significant relationships among CRM, LPQ, and ROA, while the qualitative findings provided practical explanations for these relationships. The convergence of findings from both strands of evidence enhances the credibility and robustness of the conclusions.

Specifically, the positive quantitative relationship between CRM and ROA was supported by participants' views that borrower assessment, collateral management, and loan monitoring improve loan performance and profitability. Similarly, the significant moderating role of LPQ identified through regression analysis was confirmed by participants who emphasised the importance of maintaining high-quality loan portfolios in order to maximise the effectiveness of CRM. The consistency between the quantitative and qualitative findings strengthens confidence in the validity of the study results.

4.11 Contribution to Knowledge This study makes several important contributions to knowledge. First, it provides empirical evidence from Zambia on the relationship between CRM and ROA within a commercial banking context, an area where limited institution-specific evidence exists. Second, the study extends Risk Management Theory by demonstrating that CRM functions not only as a risk mitigation mechanism but also as a strategic driver of profitability.

Third, and most importantly, the study introduces and empirically validates LPQ as a moderating variable in the relationship between CRM and ROA. While previous studies have largely examined LPQ or asset quality as independent explanatory variables, the present study demonstrates that LPQ influences the strength of the profitability benefits derived from CRM. This finding introduces a new conceptual perspective by suggesting that the effectiveness of CRM depends partly on the quality of the underlying loan portfolio.

Finally, the integration of quantitative and qualitative evidence provides a richer understanding of how CRM influences profitability in practice. By combining statistical analysis with practitioner insights, the study contributes both methodological and practical knowledge to the fields of banking, risk management, and financial performance. The findings therefore offer new insights for researchers, practitioners, and policymakers seeking to enhance the effectiveness of credit risk management within commercial banks.

4.12 Chapter Summary This chapter presented and discussed the quantitative and qualitative findings in relation to the study objectives, theoretical framework, conceptual framework, and existing empirical literature. The findings established that CRM had a positive and statistically significant effect on profitability ROA, while LPQ significantly strengthened the relationship between CRM and profitability as a moderating variable. Qualitative evidence further confirmed that effective borrower assessment, collateral management, credit evaluation, and continuous loan monitoring are key CRM practices contributing to improved financial performance, despite challenges arising from macroeconomic conditions and borrower-related risks. The quantitative and qualitative findings were Page | 59 complementary and reinforced each other through methodological triangulation, thereby enhancing the credibility of the study. The next chapter presents the study's conclusions, recommendations, contribution to knowledge, limitations, and suggestions for future research.

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CHAPTER FIVE: DISCUSSION, CONCLUSIONS AND RECOMMENDATIONS

CHAPTER FIVE: CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction This chapter presents the conclusions drawn from the study findings, recommendations arising from the conclusions, the study's contribution to knowledge, limitations of the study, and suggestions for future research. The conclusions and recommendations are presented according to the study objectives and are based on both the quantitative and qualitative findings.

5.2 Conclusions The study concluded that Stanbic Bank Zambia Plc has established comprehensive CRM practices that include borrower creditworthiness assessment, collateral management, credit scoring, loan monitoring, portfolio reviews, and pre-credit evaluation procedures. The qualitative findings demonstrated that these controls are embedded within the bank's lending operations and are consistently applied to minimise default risk and improve loan performance. The study therefore concludes that the bank possesses a structured and proactive CRM framework that supports prudent lending and credit risk mitigation.

The study established that CRM had a positive and statistically significant effect on ROA. The regression results demonstrated that improvements in CRM were associated with increased profitability, while the qualitative findings confirmed that effective credit controls contribute to lower default rates, improved loan recovery, and enhanced asset quality. The study therefore concludes that CRM is a significant determinant of profitability at Stanbic Bank Zambia Plc. Effective implementation of CRM not only reduces credit losses but also enhances the bank's ability to generate sustainable returns from its lending activities.

The study found that LPQ significantly moderated the relationship between CRM and ROA. Although LPQ did not exert a statistically significant direct effect on profitability, the interaction between CRM and LPQ was positive and statistically significant. This finding indicates that the effectiveness of CRM in enhancing profitability depends partly on the quality of the loan portfolio. The study therefore concludes that maintaining a high-quality loan portfolio strengthens the profitability benefits associated with effective CRM. Consequently, CRM and LPQ should not be viewed as isolated mechanisms but rather as complementary factors that jointly influence bank performance.

Page | 61 Overall, the study concludes that CRM plays a critical role in enhancing profitability at Stanbic Bank Zambia Plc and that the effectiveness of CRM is significantly strengthened by high levels of LPQ. The findings suggest that sustainable profitability is achieved not only through the implementation of effective credit risk controls but also through maintaining a high-quality loan portfolio. The integration of quantitative and qualitative findings further confirms that strong CRM practices, supported by sound portfolio quality, contribute to improved financial performance and organisational resilience within the banking sector.

5.3 Recommendations Below is a recommendation framework to Stanbic Bank Zambia Plc: Table 5. 1: Recommendation Framework for Stanbic Bank Zambia Plc

Key Issue Identified	Recommendation	Responsible Unit	Expected Outcome
Inconsistent credit appraisal	Strengthen credit appraisal implementation of processes through regular review	Improved loan quality	Credit Risk
Credit Risk of credit policies, enhanced and reduced default borrower due diligence, and risk.	Department Management Controls	Continuous staff training. Enhance loan portfolio diversification by reducing Improved loan Weak loan portfolio Credit Risk & concentration in high-risk sectors portfolio quality and quality affecting Portfolio and strengthening portfolio sustainable profitability	Management monitoring using early warning profitability. systems.
Invest in advanced credit risk Enhanced decision- Limited use of data- analytics and automated Risk Management & making, proactive risk driven credit risk monitoring systems to support Information management, and monitoring timely identification of emerging Technology improved Return on credit risks. Assets (ROA). Regularly review CRMCs in line Need to sustain with Basel III principles, Bank of Stronger institutional profitability under Zambia regulatory requirements, Senior Management resilience, regulatory changing economic and prevailing macroeconomic & Risk Committee compliance, and long- conditions conditions to ensure continued term financial stability. effectiveness.	Source: Author's Recommendations (2026)		

5.4 Limitations of the Study The study was limited to a single commercial bank, namely Stanbic Bank Zambia Plc, which may restrict the generalisability of the findings to other banking institutions. The study also relied on secondary financial data covering the period 2018–2024 and therefore could not capture all factors Page | 62 that may influence profitability beyond the variables included in the model. Additionally, qualitative findings were based on perceptions of selected key informants and may not fully represent the views of all employees involved in credit risk management activities. Despite these limitations, the study employed methodological

triangulation and robust analytical procedures to enhance the credibility and validity of the findings.

5.5 Suggestion for Further Research Future research should extend the scope of this study by examining the relationship among CRM, LPQ, and ROA using a panel of multiple commercial banks in Zambia over a longer time period. Such a study would provide comparative evidence across different banking institutions and enhance the generalisability of the findings, while also determining whether the moderating effect of LPQ on the CRM–ROA relationship remains consistent across different organisational and economic contexts.

5.6 Chapter Summary This chapter presented the conclusions, recommendations, contribution to knowledge, limitations, and suggestions for future research arising from the study. The study concluded that CRM significantly influences ROA and that LPQ strengthens the effectiveness of CRM in enhancing profitability. Based on these findings, recommendations were proposed for Stanbic Bank Zambia Plc, the banking sector, and regulators aimed at strengthening CRM practices and improving LPQ. The chapter further highlighted the study's contribution to knowledge through the empirical validation of the moderating role of LPQ in the CRM–ROA relationship. Finally, limitations and future research directions were identified to support the continued development of knowledge in the fields of credit risk management and banking performance.

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APPENDICES

APPENDICES

Dataset

MONTH	ROA	CRM	LPQ	CRMxLPQ
2018-01-01	2.409396	10.783	53.82381	580.382
2018-02-01	2.44668	11.606	53.93019	625.914
2018-03-01	2.483833	12.458	54.04075	673.24
2018-04-01	2.520868	13.282	54.14658	719.175
2018-05-01	2.55778	14.105	54.25214	765.226
2018-06-01	2.594562	14.957	54.36184	813.09
2018-07-01	2.631229	15.781	54.46686	859.541
2018-08-01	2.667774	16.604	54.57162	906.107
2018-09-01	2.704192	17.456	54.68046	954.502
2018-10-01	2.740496	18.28	54.78469	1001.464
2018-11-01	2.77668	19.103	54.88866	1048.538
2018-12-01	2.812738	19.955	54.99666	1097.458
2019-01-01	2.848684	20.779	55.1001	1144.925
2019-02-01	2.800607	19.048	54.78819	1043.605
2019-03-01	2.753171	17.314	54.47329	943.151
2019-04-01	2.706731	15.584	54.16898	844.169
2019-05-01	2.661075	13.854	53.87572	746.394
2019-06-01	2.616014	12.12	53.5792	649.38
2019-07-01	2.571875	10.389	53.29744	553.707
2019-08-01	2.528463	8.659	53.02115	459.11
2019-09-01	2.485603	6.925	52.74135	365.234
2019-10-01	2.443598	5.195	52.47102	272.587
2019-11-01	2.402268	3.464	52.21033	180.857
2019-12-01	2.361451	1.73	51.94594	89.866
2020-01-01	2.321429	0	51.69492	0
2020-02-01	2.354379	1.836	51.68021	94.885

2020-03-01	2.386475	3.652	51.65327	188.638
2020-04-01	2.41774	5.488	51.63934	283.397
2020-05-01	2.448209	7.324	51.62572	378.107
2020-06-01	2.477919	9.14	51.60022	471.626
2020-07-01	2.506887	10.975	51.5873	566.171
2020-08-01	2.535146	12.811	51.57465	660.723
2020-09-01	2.562726	14.627	51.55048	754.029
2020-10-01	2.589641	16.463	51.53846	848.478
2020-11-01	2.615921	18.299	51.52669	942.887
2020-12-01	2.641593	20.115	51.50373	1035.998
2021-01-01	2.666667	21.951	51.49254	1130.313
2021-02-01	2.715416	22.948	51.35095	1178.402
2021-03-01	2.762894	23.946	51.20941	1226.261
2021-04-01	2.809406	24.943	51.07527	1273.97
2021-05-01	2.854857	25.941	50.9446	1321.554
2021-06-01	2.899148	26.938	50.81372	1368.82
2021-07-01	2.942584	27.936	50.68966	1416.066
2021-08-01	2.985061	28.933	50.56868	1463.104
2021-09-01	3.026475	29.931	50.4473	1509.938
2021-10-01	3.06713	30.928	50.33223	1556.675
2021-11-01	3.106916	31.925	50.21992	1603.271

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2021-12-01	3.145724	32.923	50.10702	1649.674
2022-01-01	3.183857	33.92	50	1696
2022-02-01	3.210379	34.95	49.92097	1744.738
2022-03-01	3.236104	35.983	49.84719	1793.651
2022-04-01	3.261339	37.013	49.77231	1842.222
2022-05-01	3.285964	38.042	49.69333	1890.434
2022-06-01	3.309862	39.076	49.62537	1939.161
2022-07-01	3.333333	40.105	49.55621	1987.452
2022-08-01	3.356257	41.135	49.48881	2035.722

2022-09-01	3.378516	42.168	49.42595	2084.193
2022-10-01	3.400402	43.198	49.35613	2132.086
2022-11-01	3.421796	44.227	49.29363	2180.11
2022-12-01	3.442578	45.261	49.23539	2228.443
2023-01-01	3.463035	46.29	49.17582	2276.349
2023-02-01	3.483047	47.319	49.11766	2324.199
2023-03-01	3.502494	48.353	49.06349	2372.367
2023-04-01	3.521657	49.382	49.00265	2419.849
2023-05-01	3.540417	50.412	48.94844	2467.589
2023-06-01	3.558653	51.445	48.89799	2515.557
2023-07-01	3.576642	52.475	48.84615	2563.202
2023-08-01	3.594264	53.504	48.79546	2610.752
2023-09-01	3.611399	54.538	48.74831	2658.635
2023-10-01	3.628319	55.567	48.69479	2705.823
2023-11-01	3.644902	56.597	48.64732	2753.292
2023-12-01	3.661033	57.63	48.60322	2801.003
2024-01-01	3.676976	58.66	48.55769	2848.394
2024-02-01	3.692611	59.689	48.51311	2895.699
2024-03-01	3.707824	60.723	48.47172	2943.348
2024-04-01	3.722871	61.752	48.42424	2990.294
2024-05-01	3.737638	62.782	48.38233	3037.54
2024-06-01	3.752007	63.815	48.34346	3085.038
2024-07-01	3.766234	64.845	48.30317	3132.219
2024-08-01	3.780201	65.874	48.26366	3179.32
2024-09-01	3.793796	66.908	48.22704	3226.775
2024-10-01	3.807267	67.937	48.18901	3273.817
2024-11-01	3.820499	68.967	48.14734	3320.578
2024-12-01	3.83338	70	48.11284	3367.899

Research Guide

1. What credit risk management controls are used in your department?
2. How do these controls affect loan performance?

3. What challenges do you face when applying credit risk management controls?
4. How would you describe the quality of the bank's loan portfolio?
5. In your view, how does loan portfolio quality affect the bank's profitability?

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