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The impact of credit risk on the financial performance of commercial banks in Lesotho

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A research thesis submitted to the Faculty of Commerce, Law, and Management, University of the Witwatersrand, in partial fulfilment of the requirements for the degree of Master of Management in Finance and Investment (MMIF)

Supervisor: Dr. Blessing Mudavanhu

DECLARATION

I, Lepapa Gerard Ramphoko, declare that this research article is my own work except as indicated in the references and acknowledgements. It is submitted in partial fulfilment of the requirements for the degree of Master of Management in Finance and Investment in the Graduate School of Business, University of the Witwatersrand, Johannesburg. It has not been submitted before for any degree or examination in this or any other university.

Lepapa Gerard Ramphoko

Signed at Wits Business School, Johannesburg .

On the 28th day of February 2024 .

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I would like to convey my appreciation to the Almighty God for life and good health throughout this study. I acknowledge His grace and guidance throughout this journey. His blessings and providence have sustained me through challenging times and inspired me to persevere in the pursuit of knowledge and excellence. Through His grace, everything became possible.

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ABSTRACT

Commercial banks play a crucial role in economic development by allocating financial resources from surplus to deficit units, thereby creating value through credit extension. Therefore, the financial performance of commercial banks across the globe is of utmost importance to all the stakeholders. This study therefore determines the impact of credit risk on the financial performance of commercial banks in Lesotho. The measurement of the study variables includes the use of Return on Equity (ROE) for bank's financial performance and Capital to Risk-Weighted Assets Ratio (CRWAR), Asset Quality Ratio (AQR), Loan Loss Provision Ratio (LLPR), and Loans and Advances Ratio (LAR) for credit risk assessment.

The study adopts a quantitative research design to analyze panel data collected from the audited financial statements of four commercial banks in Lesotho spanning for 2012-2021 using the panel least squares regression model. The results from the fixed effects estimation technique revealed an inverse relationship between the two credit risk measures: CRWAR and LAR with bank performance (ROE), emphasizing the importance of prudent credit risk management practices. Conversely, LLPR had a positive relationship with bank performance (ROE), highlighting the role of adequate loan loss provisions in enhancing bank profitability.

Based on these findings, recommendations are proposed for the effective management of credit risk in commercial banks in Lesotho. First, emphasis is placed on improving LLPR to enhance ROE, emphasizing the need for prudent credit risk assessment, portfolio diversification, and effective collateral policies. Lastly, attention is drawn to liquidity management, considering the observed negative impact of LAR on ROE. Banks are urged to prioritize liquidity risk management, maintaining adequate liquidity buffers, and implementing strategies to address liquidity shortfalls.

Keywords: Credit risk, bank performance, return on equity, capital to risk-weighted assets, loan loss provision, loans and advances, asset quality

LIST OF ABBREVIATIONS

AQR	Asset Quality Ratio
BS	Bank Size
CAR	Capital Adequacy Ratio
CBL	Central Bank of Lesotho
CRR	Cash Reserve Ratio
CRWAR	Capital to Risk-Weighted Assets Ratio
ECL	Expected Credit Loss
FNB	First National Bank
GDP	Gross Domestic Product
LLC	Levin, Lin, and Chu
LDR	Loan to Deposit Ratio
LLPR	Loan Loss Provision Ratio
NNPAR	Net Non-Performing Assets Ratio
NPLR	Non-Performing Loans Ratio
NPLR	Non-Performing Loans Ratio
PLS	Panel Least Squares
ROA	Return on Assets
ROE	Return on Equity
VIF	Variance Inflation Factor

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CHAPTER 1: INTRODUCTION AND BACKGROUND

1.1. Introduction

Globally, the role of commercial banks cannot be overemphasized. Commercial banks serve as an anchor for economic and financial systems in both developing and developed countries (Bhatt, Ahmed, Iqbal, & Ullah, 2023). Given the current era, the banking divisions and operations have become more integrated due to mounting pressures of globalization, leading to more complex processes within the banking operations that expose banks to dynamic risks, among which dwells the credit risk, which ultimately threatens their financial performance. Commercial banks extend loan facilities to their respective clients (Paudel, 2018). Since credit creation is at the core of banking functions, the credit risk seems to be inevitable. Thus, it is likely that the banks will not recover all the provisioned loans to clients, leading to a credit risk (Mushafiq, Sindlu, & Sohail, 2023). Credit risk is a risk that clients will fail to honor their loan obligations, either partially or in full because of the credit events such as clients' bankruptcy, memorandum/repudiation, or credit rating change/restructure. Therefore, in the banking fraternity, credit risk is considered a default risk and is renowned to negatively impact the profitability of financial institutions (Gumel & Ayinuola, 2023).

As previously alluded to, the bank's profitability solely rests on credit creation, which also has a strong bearing on the embedded credit risk for both the lender and the borrower (Ekinzi & Poyraz, 2019). Thus, failure to honor credit obligations when they are due by the borrower to the lender (bank) creates disruptions in the efficient operations of the bank. Hence, a bank exposed to high credit risk is considered to have a high bankruptcy risk, which puts the deposits of the public or clients at risk (Ekinzi & Poyraz, 2019). In essence, Izansu (2017) highlights that the interest rates charged on loans extended to clients are outpaced by the increasing inflation rates, which affects the real income of borrowers. This leads to increased defaults in an unstable economic environment, resulting in high credit risk. Izansu (2017) further posits that due to the intensity of competition in the banking sector, banks often engage in unnecessary practices of taking high risks. According to Njanike (2009), Furi (2021), and Izansu (2017), this assertion is supported by banking crises in Mexico, Kenya, and Spain. These crises were caused by factors such as a lack of experience, increased risk propensity, and inadequate information systems to assess credit risks.

These factors resulted in improper lending practices and ultimately increased credit risk, leading to the occurrence of these banking crises.

1.2. Background

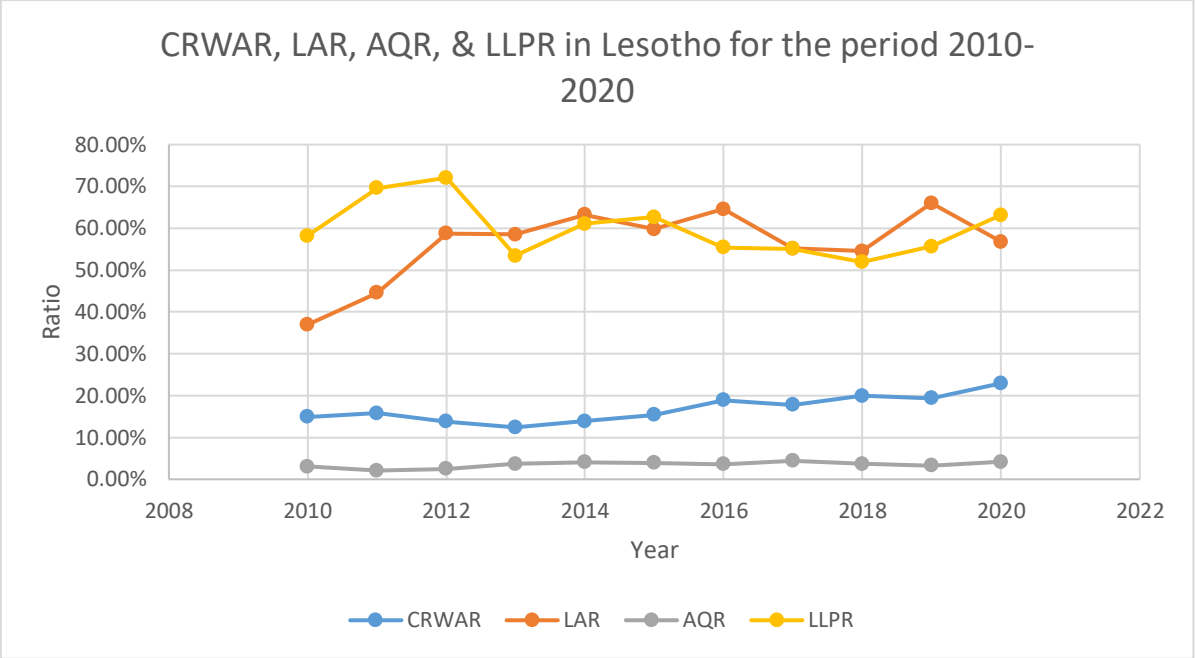
In Lesotho, the banking sector is comprised of four key players, consisting of the Standard Lesotho Bank, the First National Bank, the Nedbank Lesotho, and the Lesotho Post Bank, with the Central Bank of Lesotho being the foreseer of the entire banking sector (Central Bank of Lesotho (CBL), 2020). The emergence of Standard Lesotho Bank dates to 1995 when the Standard Bank Group acquired Barclays Bank Plc. In 1999, the government of Lesotho entrusted the Standard Bank Group to manage the government-owned bank Lesotho Bank Plc. In 2006, both the Lesotho Bank and the Standard Bank (Lesotho) merged to form the current Standard Lesotho Bank. This merger resulted in a joint ownership structure that includes the government of Lesotho, the Lesotho Unit Trust, and the Standard Bank Group. Thus, the financial sector in Lesotho consists of three banks (Standard Lesotho Bank, the First National Bank, the Nedbank Lesotho) which are subsidiaries of South African banks and only one bank (Lesotho Post Bank), which is government-owned (CBL, 2020). In terms of market share, the three foreign banks have a market share of 92% and control 91% of the total banking deposits, leaving Lesotho Post Bank with 8% and 9% of market share and total deposits respectively (CBL, 2020).

According to the CBL (2022), the baking sector in Lesotho has experienced an increase in general credit extension to the private sector. Reiterating the views of Okafor, Ezeaku, and Ugwuebe (2016), an increase in credit extension leads to increased economic activity and, consequently, an improved economic outlook for the country under consideration. However, Stewart, Chowdhury, and Arjoon (2021) caution that, in the event of credit-induced economic boom, the economic downturn will be triggered by credit defaults from the private sector, which negatively affects banking performance and prevents economic growth.

In Lesotho, the banking sector adopts the widely used relative scale to measure credit risk. This involves credit proxies such as non-performing loans ratio (NPLR), loan loss provisions ratio (LLPR), loans and advances ratio (LAR), and capital to risk-weighted assets ratio (CRWAR) (CBL, 2022). Figure 1 provides a snapshot of credit risk measures in Lesotho over the period 2010-2022. Figure 1 supports CBL's view that

credit extension in Lesotho has increased over the years and moves in tandem with loan loss provision, indicating that as banks in Lesotho increases loans and advances, they also set aside adequate loan loss provisions to cover any potential losses. In overall, this reflects a prudent risk management strategy amongst banks in Lesotho to ensure stability and maintain healthy loan portfolios. Similarly, capital to risk-weighted assets moves closely with asset quality ratio. This maybe because highly capitalized banks maintain stringent lending conditions and avoid extending credit facility to high-risk borrowers. Therefore, by maintaining stringent lending standards, banks reduce the probability of credit defaults thereby minimizing occurrence of non-performing loans.

Figure 1: Measures of credit risk in Lesotho for the period 2010-2022



Source: Trading Economics (2024)[1][2][3]

Based on the increasing credit extension, Mokete and Motelle (2018) assert that the persistent increase in credit extension in Lesotho over the past years calls for scrutiny for the implementation of tight credit risk management strategies to curb the

[1] https://tradingeconomics.com/lesotho/bank-regulatory-capital-to-risk-weighted-assets-percent-wb-data.html

[2] https://tradingeconomics.com/lesotho/provisions-to-nonperforming-loans-percent-wb-data.html

[3] https://tradingeconomics.com/lesotho/bank-capital-to-assets-ratio-percent-wb-data.html

unintended consequences of credit extension, such as a negative effect on the bank's performance. However, the literature is silent on the effects of credit risk on financial performance of commercial banks in Lesotho. Therefore, this study proposes to determine the effect of credit risk on the performance of commercial banks in Lesotho.

1.3. Motivation for the study

Koju, Koju, and Wang (2018) observed that the banking system forms the core of the economy, permiting low-cost economic transactions between lenders and depositors. Thus, according to Rashid and Intartaglia (2017), the banking system has a strong influence on the overall economy. This is because, without a sound financial system, efficient allocation of financial resources cannot be achieved. For this reason, Dudian and Popa (2013) assert that, in the quest for efficient allocation of financial resources, banks are exposed to dynamic risks, of which credit risk forms the core of the overall risk exposure of commercial banks. Credit risk is also renowned for leading to economic downturns if not managed efficiently (Dudian & Popa, 2013). As a result, empirical studies on the impact of credit risk on the financial performance of commercial banks are essential for deriving policies that will sustain economic stability and prevent future financial crises (Dao, 2017). This assertion is supported by events unfolded from the 1997 Asian financial crisis and the 2007 global financial crisis, which all pointed to the fact that poor economic policies are associated with increased levels of credit risk in the form of non-performing loans, ultimately leading to financial crises (Koju et al., 2018). Therefore, a deeper understanding of the impact of credit risk on the financial performance of commercial banks is essential for formulating effective economic policies to enable commercial banks or financial institutions to survive amid fluctuating economic cycles.

1.4. The problem statement

Commercial banks are the main pillars of financial stability and economic growth, mostly achieved by mobilizing monetary resources from surplus units to deficit units. In this way, commercial banks function as intermediaries as they collect excess monetary resources from savers and extend loan facilities to those who want to borrow. In the process, commercial banks generate interest from the loans extended to borrowers from the public's excess savings. However, this intermediation role is characterized or associated with enormous risk to both the banks and the deficit units.

In a quest to gain market share, banks often engage in risky lending practices which result in excessive defaults, leading to increased credit risk that negatively affects such bank's performance (Hashem, Alduneibat, & Altawalbeh, 2017). However, the empirical literature on the impact of credit risk on financial performance presents contradictory results. For instance, according to Uwalomwa and Oyewo (2015), credit risk has insignificant negative effects on the financial performance of commercial banks in Nigeria. On the contrary, Abu, Sajeda, and Mustafa (2015) discovered a significant negative relationship between credit risk and the profitability of the banking sector in Bangladesh. Due to the conflicting empirical literature, the findings by Uwalomwa and Oyewo (2015) and Abu et al., (2015) cannot be safely inferred in the context of Lesotho. Hence, it remains inconclusive how credit risk impacts the performance of the commercial banking sector in Lesotho.

1.5. Research objective

- To determine the impact of credit risk on the financial performance of commercial banks in Lesotho.

1.6. Research hypothesis

- H_1: There is a significant impact of credit risk on the financial performance of commercial banks in Lesotho.

1.7. Significance of the study

The findings of this study are significant on numerous fronts. From an academic perspective, the findings serve as a reference for future studies to expand knowledge in the same topic, thus contributing significantly to the literature pertinent to the relationship between credit risk and financial performance of commercial banks. From the perspective of the financial sector, the study will benefit managers tasked with the responsibility of overseeing the successful operations of financial institutions as the findings and recommendations from this study provides an insightful information related to the impact of credit risk on the financial performance of commercial banks in Lesotho. Lastly, to the regulating authorities in Lesotho, this study serves as a reference point for the implementation of monetary policies and regulations related to credit extension in a quest to create a stable financial environment in Lesotho, hence stimulating economic growth as well as reducing spiral effects on the economy.

CHAPTER 2: THEORETICAL FRAMEWORK AND LITERATURE REVIEW

2.1. Introduction

This chapter presents the review of the works of past researchers on the impact of credit risk on the financial performance of commercial banks. However, firstly, the chapter presents the underlying theoretical framework that supports the study, which consists of two theories: the Agency Theory and the Information Asymmetry Theory. The interplay and applicability of these theories in this study are discussed. The chapter further presents a relevant review of the literature, which is subdivided into three categories. The first category reviews empirical literature, while the second category criticizes the reviewed literature, and the third category presents the gaps identified in the literature.

2.2. The theoretical framework

2.2.1. The Agency Theory

The agency theory is a theory coined by Jensen and Meckling in the mid-1970s. Since its inception, the theory has mostly been used as an economic tool and later gravitated towards corporate governance. The theory seeks to align the interests of individuals (agents) who are entrusted to make decisions on behalf of the principals (shareholders) (Vitolla, Raim, & Rubino, 2020). In essence, according to agency theory, shareholders (principals) delegate authority and decision-making power to agents (Board of Directors), who then appoint managers to act on behalf of the shareholders. The core of the agency theory lies in the fact that shareholders seek to maximize their wealth and entrust managers to fulfil this mandate. However, it's not always the case that managers act in the best interest of the shareholders, hence engaging in decisions that go against the shareholder's mandate (Vitolla et al, 2020).

Several reasons underscore why managers may act counter to shareholders' interests. For instance, managers may prioritize short-term profitability over long-term stability by engaging in risky lending that optimizes short-term profits but could lead to instability in the future due to high default rates (Aabo, Hvistendahl, & Kring, 2021). Similarly, it is a common practice that managers' incentives revolve around short-term performance, such as quarterly or annual performance. These short-term performance-based incentives may encourage managers to take on excessive credit risk to either meet or exceed the set performance targets, regardless of whether the

excessive credit risk is in the best interest of shareholders or not (Boateng, Nguyen, Du, & Kwabi, 2022). Therefore, in the context of this study, the agency theory is linked to the bank's financial performance. According to Omasete (2014), shareholders mandate bank managers to manage the bank's risks, which affects the overall bank's performance. Therefore, if credit risk is managed, managers can maximize shareholders' wealth through increased profitability.

2.2.2. The Information Asymmetry Theory

The information asymmetry theory was first established by Akerlof in 1970. The theory of information asymmetry denotes situations where one party in a transaction has more information than the other party. Thus, in such situations, the unequal distribution of information is renowned to lead to market inefficiencies and presents adverse outcomes for the economic agents. Therefore, according to Aduda and Obondy (2021), in the financial sector, information asymmetry is evidenced when the borrower borrows a loan and has complete information about the probable risk of any activity the loan is intended for, while on the other side, the lender (bank) has no information about the probable risk. This situation, according to Aduda and Obondy (2021), leads to adverse selection and moral hazard problems in credit extension. Therefore, for the purpose of this study, the information asymmetry theory helps understand the risks the agents undertake in a quest to maximize the principal's wealth.

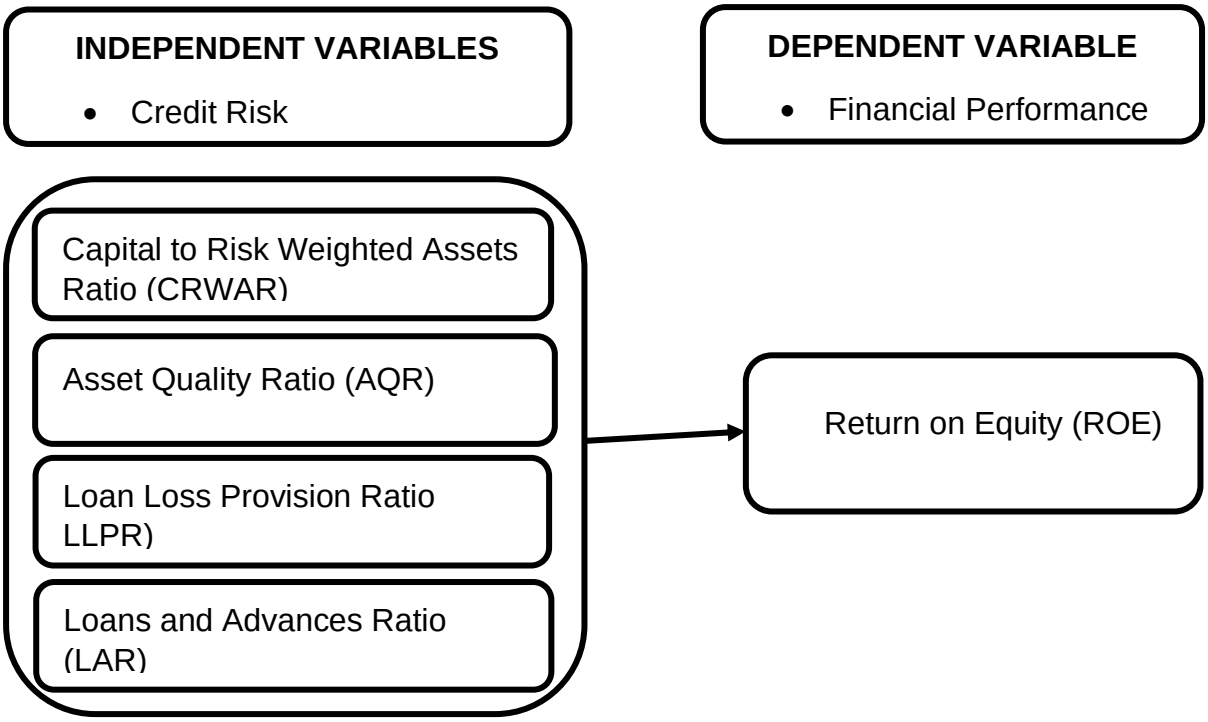
2.3. The Conceptual Framework

Several studies have been conducted to determine the impact of credit risk on the financial performance of commercial banks across countries. These studies used different measures to proxy credit risk and financial performance. For instance, Masinde (2014) measured credit risk using the loan loss provision ratio, capital to risk-weighted assets ratio, and non-performing loans. Lawrence, Doorasamy, and Sarpong (2020) used the capital adequacy ratio, non-performing loans, loan advances ratio, and leverage ratio as proxies for credit risk while bank performance was measured using return on equity and return on assets. Similarly, Muruthi, Waweru, and Mutumi (2016) focused on credit risk management strategies such as the loan loss provision ratio, capital to risk-weighted assets ratio, asset quality ratio, and loans and advances ratio, while bank performance was measured using return on equity. Although different scales have been used to measure both credit risk and bank performance, the literature tends to gravitate towards the capital to risk-weighted assets ratio, loan loss

provision ratio, asset quality ratio, and loans and advances ratio as measures of credit risk and return on equity as a measure of bank performance. Banks are usually required to set aside provisions for potential loan losses arising from credit risk. Therefore, there is an inverse relationship between loan loss provisions and bank profitability, as loan loss provisions represent expenses that are deducted from the bank's income in the income statement (Abbott, 1989). Thus, higher loan loss provisions in a specific year result in lower profitability, while lower loan loss provisions lead to increased profitability. However, high loan loss provisions reflect a prudent credit management strategy that ensures the long-term viability of commercial banks (Abbott, 1989). Similarly, a bank's total assets consist of various assets with different risk weights. Assets such as cash and government securities typically have lower risk weights, while corporate loans, real estate loans, mortgage-backed securities, and unsecured personal loans have higher risk weights due to a higher likelihood of default, which can ultimately affect the profitability of banks (Lesle & Avramova, 2012).

Therefore, the conceptual framework in Figure 2 illustrates a pictorial representation of the relationship between financial performance (ROE) and credit risk (CRWAR, AQR, LLPR, and LAR. For this study, ROE is the dependent variable, while credit risk an independent variable.

Figure 2: Conceptual Framework



Source: Compiled by researcher based on the literature

2.4. The Literature Review

2.4.1. The impact of credit risk on financial performance – an empirical review

H_1: There is a significant impact of credit risk on the financial performance of commercial banks.

The empirical evidence on the relationship between credit risk and the financial performance of commercial banks exhibit a mixed trend. Some researchers have established a negative relationship, while others have determined a positive relationship between the two constructs. However, among those who attempted to establish the relationship between credit risk and the financial performance of commercial banks, Chaudhary and Kumar (2023) utilized panel data for the period 2010 – 2019 to establish the impact of credit risk on the financial performance of 36 banks in India. The study used ROE and ROA as proxies for the banks' financial performance, while credit risk was measured using Net Non-Performing Assets Ratio (NNPAR). The study also incorporated bank size, loan advances, deposits, and long-term capital as controlling variables. Using a regression model, the study established a significantly negative relationship between NNPAR, ROE, and ROA. However, this study neglected other credit proxies such as Loan Loss Provision (LLPR), Asset Quality (AQR), and Capital Adequacy Ratio (CAR), which are known to impact financial performance.

Similarly, Fadun and Silwimba (2023) sought to determine the impact of credit risk on the financial performance of the top tier 5 banking institutions in Nigeria. The study employed panel data for the period 2005-2009 and measured the bank's financial performance through ROA, while credit risk was proxied by Non-Performing Loans (NPL) and Expected Credit Loss impairment (ECL). The findings of the long-run co-integration model suggest that NPL significantly and negatively affects ROA, while ECL has a significant positive impact on ROA. Like the study conducted by Chaudhary and Kumar (2023), the study by Fadun and Silwimba (2023) also neglected other credit risk measures, hence presenting significant gaps. Given the Nigerian context, Shittu and Abdulkadie (2022) also empirically investigated the effect of credit risk on the financial performance of fifteen deposit money banks in the period between 2010

and 2019 through the moderating effect of cost per loan asset. For this study, ROA was regressed against Non-Performing Loans Ratio (NPLR), Capital Adequacy Ratio (CAR), Loan Loss Provision Ratio (LLPR), and Asset Quality Ratio (AQR). The findings of the GLS regression model revealed that both NPLR and CAR have a significant positive relationship with ROA, while LLPR and AQR have a significant negative relationship with ROA. Although the study successfully captured the measures of credit risk and financial performance, it failed to acknowledge the dynamism in the banking sector.

In a similar vein, Yeasin (2022) attempted to discover the relationship between credit risk and a bank's financial performance in Bangladesh using panel data spanning from 2010 to 2019. The study targeted six commercial banks and used ROA as a performance indicator, and NPLR, CAR, and Loan to Deposit Ratio (LDR) as credit risk indicators. The findings revealed a significant negative relationship between NPLR, CAR, and ROA, while LDR had a statistically positive relationship with ROA. Although the study fairly addressed the credit risk measures, the findings of the study pose risks of inference due to the sample size used in the study. The study by Kafle (2023) also determined the effect of credit risk on the financial performance of ten commercial banks in Nepal. The study used panel data for the period 2011/2012 to 2020/2021. Kafle (2023) measured a bank's performance on ROA, while credit risk was anchored on Capital Adequacy Ratio (CAR), Non-Performing Loan Ratio (NPLR), Loan to Deposit Ratio (LDR), Cash Reserve Ratio (CRR), and Bank Size (BS). The findings of the regression analysis revealed that CAR, CRR, LDR, and BS have a positive relationship with ROA, while NPLR has a negative relationship with ROA.

Taking a broader perspective, Hunjra, Mehmood, Nguyen, and Tayachi (2020) examined the impact of credit risk on the bank performance of seventy-six commercial banks in four countries: India, Sri Lanka, Pakistan, and Bangladesh, using data extracted from DataStream. Furthermore, the study utilized Non-Performing Loans (NPL) as a measurement scale for credit risk and ROE and ROA as measurement scales for the bank's performance. Using the Generalized Method of Moments (GMM), the findings of the study revealed a significant negative relationship between NPL, ROA, and ROE. Based on the discussion above, different viewpoints regarding the impact of credit risk on the financial performance of commercial banks can be

observed. Therefore, the following section provides a critique of the reviewed literature.

2.4.2. The impact of credit risk on financial performance – a critical review

As observed from the reviewed literature, most researchers failed to acknowledge the dynamism in the banking sector and hence adopted long-run models that allow the use of OLS (Chaudhary & Kumar, 2023; Kafle, 2023; Yeasin, 2022). Therefore, this study considers the dynamism in the banking sector in Lesotho. This is because the researcher is of the opinion that managers of banking institutions in Lesotho benchmark the current bank performance against the previous period's performance to keep their growth rate in check. Since the study acknowledges the dynamism in the banking sector, it is presumed that the previous period's bank performance is instrumental in predicting the current bank's performance (Brooks, 2019).

Similarly, as observed from the reviewed literature, there is no uniform benchmark to proxy both credit risk and a bank's financial performance. In relation to a bank's financial performance, most of the studies gravitate towards ROA as a financial performance indicator, while a minority have used ROE as a financial performance measurement (Chaudhary & Kumar, 2023; Hunjra et al., 2020). On the other hand, numerous proxies have been utilized to measure credit risk, including NNPL, ECL, CAR, LLPR, AQR, CRR, and CRWA (Hunjra et al., 2020; Kafle, 2023; Yeasin, 2022; Chaudhary & Kumar, 2023). Hence, the use of different measurement scales for a bank's financial performance and credit risk has led to mixed results. Using different measurement scales, some researchers obtained a positive relationship (Shittu & Abdulkadie, 2022), while others determined a negative relationship between credit risk and a bank's financial performance (Yeasin, 2022; Chaudhary & Kumar, 2023). Therefore, the conflicting results render the relationship between credit risk and financial performance inconclusive, hence this study adopts CRWA, AQ, LLP, and LAR as credit risk proxies and ROE as a financial performance indicator in a quest to strengthen the literature on the relationship between credit risk and financial performance.

2.5. Gaps in the literature

Across different countries, the impact of credit risk on the financial performance of banking institutions has been widely researched. However, there are specific gaps

observed in the literature pertaining to this topic. For instance, in their study, Fadun and Silwimba (2023) sought to determine the impact of credit risk on the financial performance of commercial banks in Nigeria. However, the study only considered top 5 banks in Nigeria, neglecting other industry players outside the targeted group. As a result, it becomes difficult to generalize or infer the findings of this study to the entire banking sector in Nigeria. These concerns are also shared in relation to Yeasin (2022). Among the sixty-one scheduled banks in Bangladesh (Bangladesh Bank, 2023), Yeasin (2022) sought to determine the impact of credit risk on the financial performance of six commercial banks in Bangladesh. Unlike the study by Fadun and Silwimba (2023) which specified inclusion-exclusion criteria, there is no evidence of inclusion-exclusion criteria in the case of Yeasin (2022), and the sample of six banks out of the population of sixty-one does not provide a fair representation of the banking sector in Bangladesh. Therefore, there are risks of drawing inferences and generalizing the findings of this study to the entire banking sector in Bangladesh. Hence, based on these issues raised in the reviewed literature, this study aims to include each bank in Lesotho. Although the banking sector in Lesotho is small, comprising only four banks, they are considered a fair representation of both large and small banks.

2.6. Summary of the chapter

This chapter aimed to present the work of other researchers on the impact of credit risk on the financial performance of commercial banks. The chapter was guided by the theoretical framework which includes two theories: the agency theory and the information asymmetry theory. The applicability of these two theories in this study was justified. The chapter also conducts an empirical review of the literature and provides a critique of the reviewed literature. Based on the reviewed literature, the chapter identifies existing gaps and addresses how the current study aims to fill these gaps.

CHAPTER 3: RESEARCH METHODOLOGY

3.1. Introduction

This chapter serves as a blueprint for the overall methodological underpinnings that guide the study. It is based on the premise that a research study is a systematic process of collecting, analysing, and interpreting data in a quest to draw meaningful results. Thus, this chapter presents and justifies the steps, methods, and analysis tools used to understand the impact of credit risk on the financial performance of banking institutions in Lesotho. Therefore, the chapter starts of by presenting the philosophical orientation that supports the study. It further provides an account of the research design, the target population under consideration, the data collection instrument and procedure, the measurement of study variables, as well as model specifications and diagnostic tests.

3.2. The philosophical orientation

The philosophical stance of the study determines the methodology for their intended research study, including the most suitable research methods and procedures for data collection, analysis, and interpretation (Panya & Nyarwath, 2022). This study adopts a positivist epistemology, which recognizes that scientific methods can be used to obtain knowledge about a phenomenon being studied (Tembo & Akintola, 2020). Similarly, this study aims to assess the impact of credit risk on the financial performance of banking institutions in Lesotho. The researcher believes that the relationship between credit risk and financial performance of banking institutions in Lesotho can be tested empirically using scientific methods. Therefore, the numeric computations of the study variables were conducted to afford the researcher the opportunity to employ EViews as a scientific method for statistical computations.

3.3. Research design

The research design for this study was informed by the philosophical stance of positivist epistemology. As previously mentioned, positivist epistemology is based on the premise that knowledge can be obtained and empirically tested through the application of scientific methods (Tembo & Akintola, 2020). Thus, McDermott (2023) posits that positivist epistemology informs quantitative studies. As such, this study assumes a quantitative approach as it utilizes quantitative data to test whether credit

risk impacts the financial performance of commercial banks in Lesotho, hence arrive at statistically driven results that are free from the researcher's bias.

3.4. The study population

The study population refers to a defined set of units, objects, elements, and items that bear similar characteristics, from which the study is conducted (Saunders, Lewis & Thornhill, 2019). Given the scope of this study, the study population refers to all the commercial banks in Lesotho. The financial sector in Lesotho comprises four banks: the First National Bank (FNB), the Nedbank Lesotho, the Standard Lesotho Bank, and Lesotho Post Bank, which is the sole statutory bank, with the Central Bank of Lesotho (CBL) being the overseer of the financial sector in Lesotho (CBL, 2019).

3.5. Data collection and data collection procedure

The study utilized secondary data from the audited financial statements of the four industry players in the banking sector in Lesotho. It employed the secondary data collection instrument as specified in Appendix 1. The study considered the data spanning from 2012 to 2021, as the researcher considered this period as the most recent. The data extracted from the financial statements of each bank using desk research techniques was vetted against the supervisory reports of the Central Bank of Lesotho. In this process, no research assistants were engaged to ensure the researcher collects the most accurate data. Microsoft Excel was used to capture the data as well as compute the financial ratios.

3.6. Measurement of study variables

The study measured the financial performance of banks using Return on Equity (ROE) as the dependent variable. Several studies, such as Baten, Vakilifard, and Asghari (2014), Chaudhary and Kumar (2023) and Hunjra et al., (2020), have also used ROE as a measure of bank performance. Therefore, the choice to use ROE as a measure of bank's performance is influenced by the existing literature. In addition, the study proxies credit risk, the independent variable, by Capital to Risk Weighted Assets Ratio (CRWAR), Asset Quality Ratio (AQR), Loan Loss Provision Ratio (LLPR), and Loans and Advances Ratio (LLAR). The decision to use CRWAR, AQR, LLPR, and LAR as proxies for credit risk is also based on the literature. For instance, Muruthii, Waweru, and Muturi (2016) have used these scales to measure credit risk. Therefore, the decision to consider CRWAR, AQR, LLPR, and LAR as indicators of credit risk is

influenced by the literature. A detailed account of the operationalization and measurement of study variables is provided in the subsequent section.

3.7. Financial Performance of commercial banks

3.7.1. Return on Equity (ROE)

The study measures the bank's financial performance through ROE, which measures the commercial bank's profitability per 1 Loti of equity invested. Commercial banks utilize ROE as a profitability or efficiency measure of their operations (Carr, Fernandes, & Rosewall, 2017). ROE can be influenced using several levers. It can be improved through the bank's capitalization as given by the Risk-Weighted Capital Adequacy Ratio (RWCAR) and profit margin, such that lower bank capitalization leads to high ROE. Similarly, an increase in profit margin can have a similar positive influence on ROE (Nadyayani & Suarjaya, 2021). Also, through the bank's capital management practices, commercial banks can improve capital efficiencies, which is renowned to positively impact ROE (Beracha, Feng, & Hardin, 2019). Lastly, through the magnifying power of debt, banks can also improve ROE by utilizing debt to drive the bank's returns (Priani, Husnan, & Hidayati, 2023). Improving ROE through debt reiterates the fact that risk management is inevitable for the sustainability of the banking sector. Against the foregoing background, this study measures bank performance through ROE.

3.8. Commercial Bank's Credit Risk

3.8.1. Capital to Risk Weighted Assets (CRWAR)

The Capital to Risk-Weighted Assets Ratio (CRWAR) is the regulatory measure in banking that requires financial institutions to hold a certain amount of capital relative to the risk associated with their assets. According to the Basel III framework, financial institutions are required to hold a predetermined level of capital in proportion to their risky assets (Santos, Esho, & Zuin, 2020). This means that the riskier the assets, the higher the proportion of capital required. Each asset is assigned a specific weight depending on the risk associated with the asset, and the accumulated capital to risk weighted assets provides a clear picture of the bank's overall exposure to credit risk. Therefore, the CRWAR serves to provide a buffer to absorb potential losses from the bank's credit lending practices (Arroyo, Colomer, Garcia-Baena, & Gonzalez-Mosquera, 2012). The CRWAR is considered an effective proxy for credit risk as it is

a credit risk management strategy that seeks to create adequate reserves to back up the credit extension process. However, a significantly higher CRWAR requires commercial banks to set aside a greater portion of their capital as reserves, which could otherwise, be deployed to generate returns and improve bank's profitability.

3.8.2. Asset Quality (AQR)

The Asset Quality Ratio (AQR), also referred to as a bank's non-performing loans, measures the overall creditworthiness of the bank's credit portfolio. Thus, the AQR reflects the ability of the clients of commercial banks to honor their credit obligations as well as the likelihood of defaulting on these obligations (Adeolu, 2014). Normally, a higher asset quality ratio signifies that the bank has a lower credit risk, hence increasing the likelihood of consistent profitability and a strong financial position. Therefore, a poor AQR is an indication of non-performing loans, which has a strong negative impact on the bank's financial position (Kadioglu, Telceken & Ocal, 2017). As a result, the AQR is considered a relevant measure of credit risk as it specifically captures the amount of loans that borrowers have defaulted on or are unlikely to fully repay in the future. The implication is that, with a lower AQR, banks are unable to realize the interests on the extended loans, which ultimately affects their profitability.

3.8.3. Loan Loss Provision Ratio (LLPR)

Loan Loss Provision Ratio (LLPR) is one measure of asset quality that seeks to determine the number of potential losses by financial institutions arising from defaults or non-payments from borrowers. This is because when banks or financial institutions extend credit to borrowers, there is always an embedded risk that the borrower will default on his/her credit obligations (Wang, Xie & Jin, 2019). Hence, to counter this risk, financial institutions are required to estimate the potential losses associated with their credit portfolio and consequently create a reserve or provision to cover the estimated losses from borrowers (Perez, Salas-Fumas & Saurina, 2018). Thus, the loan loss provision acts as a precautionary measure for banks to estimate and determine the amount of money required to cover future potential defaults and non-payments by borrowers. For this study, the loan loss provision was considered as the measure of credit risk because high levels of credit risk require banks to keep a larger portion of their capital as reserves to provide a buffer for credit losses. Therefore, the implication is that higher reserves lead to capital inefficiencies, whereby banks fail to deploy their capital efficiently to generate returns, thereby affecting bank's profitability.

3.8.4. Loans and Advances Ratio (LAR)

The LAR is a financial metric used to assess the bank's total loans to total deposits. It expresses the extent to which the bank's deposits are extended to borrowers as loans or credit. The LAR is a direct reflection of the bank's credit allocation strategy as well as the degree of risk associated with the credit extension procedures and practices (Purushothamma, Bharath, Vikas & Amulya, 2023). Normally, an LAR less than 1 indicates a more conservative approach to lending as the bank finances its credit extension through bank deposits, while an LAR greater than 1 suggests a more aggressive approach, whereby the financial institution finances its loan extension through external funding besides the bank's deposits. Therefore, the loans and advances ratio was used as a measure of credit risk as it indicates the bank's resilience towards deposit withdrawals as well as the resilience to finance credit extension through its assets (Muriithi, 2016). Based on the study, the LAR is considered an appropriate proxy for credit risk because it signifies the bank's exposure to credit risk. For instance, financing credit extension fully through the bank's deposits suggests that the bank's assets are tied up in loans, hence it is vulnerable to non-performing loans, which may significantly affect its profitability.

Table 1 provides operationalization and measurement of study variables, including bank's financial performance (ROE) and credit risk (CRWAR, AQR, LLPR, and LAR).

Table 1: Operationalization and measurement of study variables

Variable Type	**Variable**	**Measurement**
Dependent Variable	**Financial Performance**	
	Return on Equity (ROE)	$\frac{\text{Net Income}}{\text{Shareholder's Equity Capital}}$
Independent Variables	**Credit Risk**	
	• Capital to Risk-Weighted Assets Ratio (CRWAR)	$\frac{\text{Core Capital}}{\text{Total RiskWeighted Assets}}$
	• Asset Quality Ratio (AQR)	$\frac{\text{Net Performing Loans}}{\text{Total Loans and Advances}}$
	• Loan Loss Provision Ratio (LLPR)	$\frac{\text{Loan Loss Provision}}{\text{Gross Loans}}$
	• Loans and Advances Ratio (LAR)	$\frac{\text{Total Loans and Advances}}{\text{Total Deposits}}$

3.9. Data analysis and Model specification

3.9.1. Data Analysis

This study employed both descriptive and inferential statistics to determine the impact of credit risk on financial performance of commercial banks in Lesotho. The descriptive statistics included interpreting of the measures of central tendency (mean and standard deviation) and the measures of dispersion (minimum and maximum statistics) to understand and visualize the characteristics of the data. This provided visualizations of the variations in bank performance and credit risk management strategies, as well as whether the banks, on average, rely on credit risk management practices and how they deviate from these practices. The descriptive statistics also included analyzing the associations between the financial performance (ROE) of commercial banks in Lesotho and credit risk (CRWAR, AQR, LLPR, and LAR), as well as the associations between credit risk items (CRWAR, AQR, LLPR, and LAR) using the correlation analysis.

Based on inferential statistics, this study employs panel regression analysis to determine the predictive power of credit risk items (CRWAR, AQR, LLPR, and LAR) on the financial performance (ROE) of commercial banks in Lesotho. Since the study utilizes panel data, it is possible to account for time effects and heterogeneity caused by specific banks fixed and/or random components. Neglecting these effects could ultimately result in unreliable results (Brooks, 2019). Therefore, the study discriminates between the two estimation methods to control for fixed or random effects of banks. The data analysis was performed using version 13 of Econometric Views, which is known for its robustness in handling panel data. A brief discussion of these estimation methods is provided below.

3.9.2. Fixed and Random effects models

As indicated, the study discriminates between the fixed and random effects models. On one hand, the fixed effect model recognizes the presence of unique and time constant attributes of variables that are the result of random variation which do not correlate with each specific regressor (Torres-Reyna, 2007 and Allison, 2009). It captures the differences between the banks that do not change over time, thereby allowing the specified model to control for any time invariant factors that may affect bank performance. On the other hand, the random effect model acknowledges that the unobserved difference in the data is uncorrelated with the explanatory variable,

thus allowing the inclusion of time-invariant variables (Torres-Reyna, 2007). Therefore, the model specification is provided below:

3.9.3. Model Specification

This study utilizes panel data. Therefore, it is possible to control the data for time effects as well as heterogeneity as presented by a specific bank's fixed or random components, which can ultimately lead to unreliable results if they are neglected (Brooks, 2019). Therefore, to determine the impact of credit risk on the financial performance of commercial banks in Lesotho, this study employed the long-run panel data model, which assumes that the bank's financial performance and credit risk have the following multiplicative Cobb-Douglas function:

ROE = f(CRWAR, AQR, LLPR, LAR)

Hence, upon logging the variables, the multiple regression model is given as follows:

$ROE_{it} = \beta_o + \beta_1 CRWAR_{i,t} + \beta_2 AQR_{i,t} + \beta_3 LLPR_{i,t} + \beta_4 LAR_{i,t} + \epsilon_{i,t}$

Where, i = 1…….4 and t = 1,2,3……10

ROE_{it} = Performance of bank i at time t

β_o = Model constant or intercept

β_i = Coefficients for independent variables

$CRWAR_{i,t}$ = Capital to Risk Weighted Assets Ratio of bank i at time t

$AQR_{i,t}$ = Asset Quality Ratio of bank i at time t

$LLPR_{i,t}$ = Loan Loss Provision Ratio of bank i at time t

$LAR_{i,t}$ = Loan Advances Ratio of bank i at time t

$\epsilon_{i,t}$ = An error term, which is assumed to have a normal distribution

3.10. Diagnostic tests

Diagnostic tests serve the crucial purpose of assessing the validity of the underlying assumptions for reliable estimation of econometric models. They help in the identifying of the potential issues before engaging in actual data analysis such as anomalies and violations of the embedded assumptions for specific models. Hence, the following diagnostic tests were conducted to ensure the reliability of the findings.

3.10.1. Normality test

In statistical analysis, the normality assumption refers to the idea that the collected data follows a normal distribution within the sampled population (Kim, 2013). Therefore, normality tests are conducted to assess this assumption and determine if the dataset assumes a normal distribution. In the context of linear and panel regression models, it is assumed that the error term is normally distributed with a mean and variance of zero (Matore & Khairan, 2020). Therefore, it is crucial to confirm that the data satisfies the normality assumptions to ensure reliable estimates. For this study, the Jarque-Bera test was used to assess the normality of the residuals. This test examines the goodness-of-fit and determines whether the sample data exhibit skewness and kurtosis like the normal distribution (Rana, Eshita, & Mamum, 2021). Consequently, the null hypothesis for the Jarque-Bera test is as follows:

H0: The data is normally distributed.

H1: The data is not normally distributed.

3.10.2. Unit root/stationarity test

In panel data, to ensure accurate results, a unit root/stationarity test should be performed. The stationarity test aims to determine if the variables to be used in the study are stationary, that is, if the variables are integrated at level 0 (I(0)) (Taladhar, 2017). The presence of stationarity in the data implies that the data has a constant mean, variance, and covariance overtime. However, if the data is non-stationary, then a cointegration test will be performed to check the possibility of a long-term relationship between the variables under consideration (Herranz, 2017). For this study, both the Levin, Lin, and Chu (LLC) and the lm, Pesaran and Shin (IPS) tests were considered to test for stationarity as recommended by Barbieri (2005). Therefore, the hypothesis for both tests is given by:

H0: The data has a unit root (not stationary).

H1: The data does not have a unit root (stationary).

3.10.3. Multicollinearity

After confirming the stationarity of the data, the next step was to ensure that the fundamental assumption of panel least squares of no multicollinearity is met. Multicollinearity is a statistical phenomenon in which two or more independent variables in a regression model are highly correlated, making it difficult to determine

their individual effects on the dependent variable (Kim, 2019). It is a common issue in regression analysis and can have several implications for the interpretation and reliability of the regression results (Kim, 2019; Shrestha, 2020). This paper used both Variance Inflation Factor (VIF) and Pearson correlation to test for multicollinearity, as suggested by Shrestha (2020).

3.10.3.1. VIF

VIF is a measure used to assess the severity of multicollinearity in a regression analysis (Kim, 2019; Daoud, 2017). Multicollinearity occurs when independent variables in a regression model are highly correlated with each other, which can lead to issues in estimating the coefficients' standard errors and affect the interpretation of the model. Therefore, VIF measures how much the variance of an estimated regression coefficient increases if the explanatory variables are correlated (Kim, 2019; Daoud, 2017). As a rule of thumb, a VIF of 1 indicates no correlation between the predictor variables, while a VIF between 1 and 5 signifies moderate correlation, and a VIF between 5 and 10 is considered an indication of problematic multicollinearity (Shrestha, 2020; Kim, 2019; Daoud, 2017). This implies that the explanatory variables are correlated with each other, which makes it difficult to isolate the individual effect of a specific predictor variable on the response variable.

3.10.3.2. Peason Correlation

It is a fact that there will always be a correlation or relationship between several variables (no matter how small), but the degree to which they are correlated matters. The correlation, denoted as “r”, signifies the linear relationship between two variables (Patrick, Christa, & Lother, 2018). The correlation coefficient ranges from -1 to 1, with r = -1 symbolizing a perfect negative relationship, while r = 1 symbolizes a perfect positive relationship, and r = 0 indicates no relationship between the two variables (Ratner, 2009). Therefore, according to Farrar and Glauber (1967), a correlation coefficient between 0.9 and 1, or -0.9 and -1 represents a high positive and negative correlation, respectively, signalling the presence of multicollinearity between the variables of interest. Also, a correlation coefficient between 0.5 and 0.9 or -0.5 and -0.9, indicates strong positive and negative relationships, respectively. Lastly, a correlation coefficient between 0 and 0.5, or -0.5, presents the existence of weak positive and negative relationships, respectively. Therefore, the correlation coefficient

was used to determine if the explanatory variables were highly correlated, thereby taking corrective measures if such correlations exist (Maniagi, 2018).

3.10.4. Hausman test

The Hausman test is an econometrics test used to determine whether the estimates of the fixed effects model and the random effects model significantly differ from each other (Baltagi, 2014). Thus, the Hausman test allows the researcher to discriminate between the fixed effects model and the random effects model. The underlying factor of the Hausman test is to establish whether the random effects are correlated with the predictor variables (Sheytanova, 2014). In essence, the Hausman test involves estimating the fixed effects model and the random effects model and then comparing the coefficients of both models. Therefore, the test statistic is constructed based on the differences between these coefficients and their estimated standard errors. According to Muniagi (2018), if the test statistic is statistically significant, the normal practice is to reject the null hypothesis, indicating that the random effects model is not appropriate. Also, if the test statistic is statistically insignificant, we fail to reject the null hypothesis, which suggests that the random effects model is consistent and efficient. Specifically, the hypothesis for the Hausman test is as follows:

H0: The endogeneity assumption is valid, and the FE model is preferred.

H1: The endogeneity assumption is not valid, and the RE model is preferred.

3.10.5. Heteroscedasticity

Heteroscedasticity is also one of the fundamental assumptions of the PLS estimate to ensure the accuracy of the PLS regression model. The heteroscedasticity assumption states that there should be homoscedasticity in the error terms of the regression model (Astivia & Zumbo, 2019). This implies that there should be equal variances in the error terms. As such, heteroscedasticity denotes unequal variances in the error terms. For this study, the Panel Cross-Section Heteroskedasticity LR (Likelihood Ratio) was used to determine whether there is evidence of heteroskedasticity (unequal variance of errors) between the error terms as suggested by Roy and Bandopadhyay (2021). The hypothesis is given by:

H0: The error terms are homoscedastic (no-heteroscedasticity)

H1: The error terms are not homoscedastic (heteroscedasticity)

3.10.6. Autocorrelation test

The other fundamental assumption for PLS is that there should be no autocorrelation between the disturbances. This test is widely known as the serial autocorrelation test. If autocorrelation exists between the disturbances, the estimators will be linear and unbiased but will no longer be efficient (Baraza, 2020). This study leverages the Durbin-Watson test to assess the strength of autocorrelation. Durbin-Watson detects the serial correlation at one lag in the residuals of the regression model. It usually ranges from 0 to 4, with a value close to 2 indicating evidence of no first-order serial correlation, while a value significantly below and above 2 suggests positive and negative autocorrelation, respectively (Nugroho, Badawi, Nugraha, & Putra, 2021). However, the Durbin-Watson has been criticized for its inherent flaw of ability to detect serial correlation up to one lag and may not be reliable in the presence of higher-order autocorrelation. Additionally, its performance can be affected by the presence of heteroskedasticity.

3.11. Summary of the chapter

As previously mentioned, this chapter is based on the premise that a research study is a scientific process that involves coordinated steps and methods aimed at achieving the objectives raised in chapter 1. therefore, this chapter presents all the steps and methods used to address the impact of credit risk on the financial performance of banking institutions in Lesotho. The chapter is structured to incorporate positivist epistemology as a philosophical stance, which informed the quantitative research design. As a result, financial ratios were extracted from the audited financial statements of banks in Lesotho to understand how credit risk impacts their performance. The chapter also discusses the population and sample of the study, which includes four banks operating in Lesotho. The study further employs the census sampling to include all the four banks in the study. Additionally, the chapter provides a discourse on the operationalization and measurement of the study variables, and finally presents the models to be used as well as the diagnostic tests for the reliability and validity of the research findings.

CHAPTER 4: PRESENTATION AND DICUSSION OF FINDINGS AND RESULTS

4.1. Introduction

The purpose of this chapter is to provide an analysis of the results and findings of the study. The discussion follows the probing objective of determining the impact of credit risk on the financial performance of commercial banks in Lesotho. In pursuit of this objective, desktop data collection was conducted, and the relevant data from 2012 to 2021 was extracted from the financial statements of the four industry players in the banking sector in Lesotho. Therefore, this chapter presents the findings and results from the collected data. To do so, the chapter begins with the presentation and discussion of the descriptive statistics to determine the characteristics of the underlying data and then delves deep into diagnostic tests. As previously alluded to, the diagnostic tests encompass the discussions on normality, stationarity, multicollinearity, heteroskedasticity, and the Hausman test. Finally, the chapter provides the overarching results based on the regression model.

4.2. Descriptive statistics

Table 2 presents the uniform observations of 40 across all the study variables, implying a balanced panel data model. Table 2 further illustrates the mean statistic on ROE, CRWAR, AQR, LLPR, and LAR of 0.0277, 2.9031, 0.8714, 0.0286, and 0.5741 respectively. This suggests that, over the period 2012-2021, the banking sector in Lesotho exhibited prospects of positive profitability, adequate capitalization, and healthy loan portfolios as indicated by high average asset quality and lower average loan loss provision. This indicates that banks were confident in the quality of loan portfolios held, triggering minimum loan loss provisions. Regarding variability, all the minimum and maximum statistics are positive, apart from ROE with a minimum statistic of -0.0502, suggesting that some of the banks experienced financial losses within the same period. Similarly, the standard deviation of 1.8154 for CRWAR suggests that CRWAR varies significantly, implying fluctuations in the financial health or risk exposure of banks in Lesotho, while ROE and other credit risk measures (AQR, LLPR, and LAR) have relatively low standard deviations, indicating that the fluctuations in returns and exposure to credit risk was low during the 2012-2021 period.

Table 2: Descriptive statistics

	Obs.	Mean	Maximum	Minimum	Std. Dev.
ROE	40	0.0277	0.0978	-0.0502	0.0296
CRWAR	40	2.9031	6.7868	0.2943	1.8154
AQR	40	0.8714	0.9853	0.7125	0.0790
LLPR	40	0.0286	0.0598	0.0133	0.0129
LAR	40	0.5741	0.7953	0.2422	0.1386

4.3. Diagnostic tests

4.3.1. Normality Test

The Jarque-Bera test was used to determine the normality of the residuals of the estimates. Hence the null hypothesis is that the residuals are normally distributed. Based on Table 3, the Chi-Square value for the Jarque-Bera test is 3.1504, with a corresponding p-value of 0.2070, which is above the 0.05 significance level. Thus, the paper rejects the null hypothesis and concludes that the residuals of the model are normally distributed. These findings further echo the opinions of Rana et al., (2021), who suggested that skewness closer to zero resembles a symmetrical distribution, while kurtosis around 3 indicates that the distribution has tails similar to the normal distribution. Based on these hypotheses, the skewness and kurtosis of -0.6553 and 3.4152 are closer to 0 and 3, respectively, exemplifying a normal distribution.

Table 3: Normality test

Series: Standardized Residuals			
Skewness	**Kurtosis**	**Jarque-Bera**	**Probability**
-0.6553	3.4152	3.1504	0.2070

4.3.2. Unit root/stationarity test

For this study, the evaluation of the unit root or stationarity of the variables of the study (ROE, CRWAR, AQR, LLPR, and LAR) was conducted using both the Levin, Lin and Chu and the Im, Pesaran, and Shin tests. As illustrated in Table 4, the p-values in parentheses ** denote the rejection of the null hypothesis at a 5% significance level. At this point, it is important to recall the null hypothesis underlying the stationarity test, which suggests that the data has a unit root or is non-stationary. Based on the findings

in Table 4, it can be observed that only ROE passed both stationarity tests as it was stationary without differencing (I0), while the rest of the variables were non-stationary.

Table 4: Unit root test without differencing

	ROE		CRWAR		AQR		LLPR		LAR	
Method	Stat.	Prob.**	Stat.	Prob.**	Stat.	Prob.**	Stat.	Prob.**	Stat.	Prob.**
LLC t*	-6.021	0.000	0.375	0.646	-2.310	0.008	-1.503	0.066	3.290	0.999
Im,P,S t*	-3.815	0.000	1.0561	0.855	-1.611	0.054	-1.358	0.087	1.831	0.967
Int. Level	I(0)		I(0)		I(0)		I(0)		I(0)	

Due to the non-stationarity of the explanatory variables (CRWAR, AQR, LLPR, and LAR), first order differencing was applied to stabilize the variables, and the results are presented in Table 5. As observed from Table 5, at order 1 integration, all the probabilities underpinning the LLC and the Im, Pesaran, and Shin tests for all the variables were below the 0.05 significance level, thus rejecting the null hypothesis and concluding that the data is stationary.

Table 5: Unit root test at first difference

	ROE		CRWAR		AQR		LLPR		LAR	
Method	Stat.	Prob.**	Stat.	Prob.**	Stat.	Prob.**	Stat.	Prob.**	Stat.	Prob.**
LLC t*	-19.741	0.000	-5.090	0.000	-4.343	0.000	-8.907	0.000	-7.718	0.000
IPS t*	-12.636	0.000	-2.679	0.004	-2.730	0.003	-4.313	0.000	-3.669	0.000
Int. Level	I(1)		I(1)		I(1)		I(1)		I(1)	

4.3.3. Multicollinearity

4.3.3.1. Variance Inflation Factor (VIF)

VIF is a measure of how much the variance of the estimated regression coefficients increases when the explanatory variables are correlated. Based on Table 6, the VIF for all the variables is closer to 1, signifying little evidence of multicollinearity between the predictor variables.

Table 6: Test for multicollinearity using VIF

Variable	Coefficient Variance	Uncentered VIF	Centered VIF
CRWAR	2.24E-05	1.028176	1.027617
AQR	0.003422	1.261408	1.255673
LLPR	0.065330	1.235783	1.235173
LAR	0.002304	1.046325	1.028967
C	1.70E-05	1.019708	NA

4.3.3.2. Correlation matrix

The correlation test was used to assess the strength of the associations between credit risk measures and bank performance, as well as to determine the possible multicollinearity between the items of credit risk. Table 7 shows that both CRWAR and LAR have a weak negative association with ROE (r = -0.2228, 0.01729) and (r = -0.1861, 0.02569) respectively, while LLPR has a weak positive association with ROE. However, AQR shows an insignificant negative association with ROE, indicated by the p-value (0.8451). From this association, we cannot predict the direction and strength of the relationship between AQR and ROE using the regression analysis (further see 4.3.4 for exclusion of AQR). As for multicollinearity, all the coefficients among the items of credit risk are lower than 0.9, providing no evidence of possible multicollinearity.

Table 7: Test for multicollinearity using correlation matrix

COR./PROB.	ROE	CRWAR	AQR	LLPR	LAR
ROE	1.0000				

CRWAR	-0.2228	1.0000			
	(0.01729)	-----			
AQR	-0.0322	-0.1299	1.0000		
	(0.8451)	(0.4338)	-----		
LLPR	0.1859	-0.0197	0.3533	1.0000	
	(0.02572)	(0.9052)	(0.0274)	-----	
LAR	-0.1861	0.1248	-0.1353	-0.0724	1.0000
	(0.02569)	(0.4492)	(0.4115)	(0.6618)	-----

4.3.4. Hausman specification test

The choice between fixed effects and random effects models in panel data analysis often involves conducting a Hausman test. The Hausman test compares the efficiency of the estimates under the null hypothesis that the preferred model is the random effects model (RE) and the alternative hypothesis that the fixed effects model (FE) is more efficient (Baltagi, 2014). However, when estimating the Hausman test, it is important to note that the assumption of strict exogeneity should be met. This assumption suggests that the individual-specific effects are uncorrelated with the observed independent variables (Bastardoz, Matthews, Sajons, Ransom, Kelemen, & Matthews, 2023). According to Baltagi (2014) and Sheytanova (2014), this assumption can be challenging to test especially when the number of cross sections is equal to or less than the number of coefficients in the model.

In this study, the number of cross sections is equal to 4, and the number of coefficients of the variables is 4, which poses a challenge for effectively conducting the Hausman test. As such, this paper dropped AQR based on the findings in Table 7, which suggests an insignificant association between AQR and ROE to effectively conduct the Hausman test. The findings are presented in Table 8. From Table 8, it can be observed that the Chi-Square statistic is 16.2285 at 3 degrees of freedom, with the associated p-value of 0.0010, which is below the significance level of 0.05. Thus, the study rejects the null hypothesis, thereby suggesting a preference for the fixed effects model over the random effects model.

Table 8: Hausman specification test

Test Summary		
Chi-Sq. Stat.	**Chi-Sq. d.f.**	**Probability**
16.2285	3	0.0010

4.3.5. Heteroskedasticity test

The panel cross-sectional heteroskedasticity LR test was employed to assess whether the error terms of the model are constant. As such, the summary of the panel cross-sectional heteroskedasticity LR test indicates a likelihood ratio test statistic of 37.5272 with 4 degrees of freedom, and the corresponding p-value of 0.0000. Based on these findings, the study rejects the null hypothesis of homoskedasticity at the 0.05

significance level, providing evidence in favor of the presence of cross-sectional heteroskedasticity in the residuals. The use of log transformation failed to cure heteroskedasticity in the data, hence the study opted to regress bank performance against credit risk while adjusting for standard errors. Therefore, the Two-way cluster was used as a robust standard error technique to adjust the standard errors to account for correlations within groups of observations across banks and time periods to address heteroskedasticity emanating from within-group correlations.

4.3.6. Autocorrelation test

The study relied on Durbin-Watson to establish the existence of first-order serial correlation in the data, that is, whether the residuals are correlated over time. The initial estimates using data transformed at first differencing presented the Durbin-Watson value of 1.0724, which is significantly lower than the threshold of 2, thereby suggesting the existence of positive first-order serial correlation or residual correlation beyond immediate adjacent observations. To counter the problem of first order serial correlation, the data was further transformed using second order differencing. Post data transformation using second order differencing, the Durbin-Watson value was 2.1270, which is closer to 2, and signifies little evidence of serial correlation in the data. The summary of serial correlation at pre and post introduction of lagged ROE is presented in Table 9.

Table 9: The summary of serial correlation at 1st and 2nd differencing

Differencing	Durbin Watson
1st Differencing	1.0724
2nd Differencing	2.1270

4.4. Regression analysis

This section presents the findings and results of the relationship between credit risk and the financial performance of commercial banks in Lesotho using fixed effects panel least squares. At this stage, it is important to recall the variables and their respective measurements, as well as the hypothesis for the study. The bank's financial performance was proxied by ROE, while credit risk was measured by CRWAR, AQR, LLPR, and LAR. However, AQR was dropped earlier in the analysis due to its insignificance in predicting ROE, while the rest of the explanatory variables were retained. Further adjustments included the transformation of data to second

differencing to address autocorrelation, as well as the use of Two-Way Cluster as a robust standard error technique to ensure unbiased standard errors in the presence of heteroskedasticity. The hypothesis of the study follows, and the findings and results of the regression between credit risk and ROE are presented in Table 11.

> **H_1:** There is a significant impact of credit risk on the financial performance of commercial banks in Lesotho.

Table 10: Regression analysis

Dependent Variable: ROE Independent Variables: CRWAR, LLPR, LAR				
Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
CRWAR	-0.0173	0.0146	-1.1849	0.0145
LLPR	1.0351	0.5510	1.8786	0.0150
LAR	-0.2211	0.0716	-3.0880	0.0375
C	0.2306	0.0450	5.1244	0.0458
Effects Specification				
Cross-section fixed (dummy variables) Period fixed (dummy variables)				
R-squared	0.5818	Mean dependent var		0.0829
Adjusted R-squared	0.5369	S.D. dependent var		0.0873
S.E. of regression	0.0150	Akaike info criterion		-5.2724
Sum squared resid	0.0054	Schwarz criterion		-5.5968
Log likelihood	121.4475	Hannan-Quinn criter.		-5.0281
F-statistic	86.5509	Durbin-Watson stat		2.1270
Prob(F-statistic)	0.0000			

The findings in Table 11 present the coefficient of determination (R^2) as 0.5818, which implies that 58.18% of the variation in ROE is due to CRWAR, LLPR, and LAR. The R^2 of 0.5818 further implies that the remaining 0.4182 is captured by the error term ($\epsilon_{i,t}$) and is due to factors that are not accounted for by the model. Also, the Durbin Watson (2.1270) indicates evidence of little autocorrelation as the DW Statistic (2.1270) is closer to 2. The results in Table 11 indicate the existence of a moderate

inverse relationship between credit risk (CRWAR) and the bank's financial performance (ROE) (β_2 = -0.0173, p = 0.0145). While the magnitude of the coefficient is relatively small, the statistical significance (p = 0.0145) indicates that changes in CRWAR have a visible impact on ROE, such that a unit change in CRWAR will lead to a -0.0173-percentage change in ROE. Based on the findings, the study supports the stated hypothesis that credit risk through CRWAR has a statistical impact on the financial performance (ROE) of commercial banks in Lesotho. These findings are in line with those obtained in Muriithi et al., (2016) who theorized a significant inverse relationship between CRWAR and ROE. According to Muriithi et al., (2016), the rationale behind an inverse relationship between CRWAR and ROE rests on the fact that CRWAR demonstrates the bank's financial health, which increases as banks increase their capital, and increases as banks increase the risk-weighted assets, which trigger an increase in capital to act as a buffer for increased risk-weighted assets. In essence, since CRWAR increases by holding excess risk-weighted assets, an inverse relationship (-0.0211) suggests the possibility of realizing losses from increasing risk-weighted assets, which when materializes, will negatively affect ROE.

Table 11 further presents the coefficient of 1.0351 for LLPR, which indicates that, with influence of other explanatory variables held constant, a percentage increase in LLPR will initiate an increase of 1.0351 percent in ROE. The highly significant p-value (0.0150) strengthens the fact that LLPR is a powerful driver of ROE in the banking sector in Lesotho. Thus, banks in Lesotho with higher levels of LLPR are likely to experience a considerable positive impact on their ROE. Based on the findings, the study supports the stated hypotheses and concludes that, through LLPR, credit risk significantly impacts bank's performance in Lesotho. These findings contradict those reported in Shittu and Abdulkadie (2022), who proclaimed a significant negative impact of LLPR on financial performance of banks in Nigeria. The most intriguing aspect of the contradicting findings on the impact of LLPR and ROE rests in the management of credit risk management for different banks. For instance, a negative relationship ascertained by Shittu and Abdulkadie (2022) may imply that banks in Nigeria experiences competitive pressure from other industry players, thereby increasing loans and advances through relaxed credit policies or standards. This practice may lead to high credit defaults and possibly negative impact on ROE. In the context of this study, a positive relationship between LLPR and ROE may imply that banks in Lesotho

implement prudential and forward-looking approaches to risk management, such that an increase in loans and advances corresponds with an increase in loan loss provisions. In doing so, the banks in Lesotho are likely to enjoy resilience and stability, which translates to sustainability of ROE in the long-term.

Lastly, LAR as a measure of credit risk has a coefficient of -0.2211 with a corresponding probability of 0.0375, thus significant at a 5% significance level ($p < 0.05$). The negative coefficient (-0.2211) indicates a moderate negative relationship between LAR and ROE, and the statistical significance ($p = 0.0375$) suggests that an increase in LAR may lead to a decrease in ROE. Based on these findings, the study supports the hypothesis that credit risk, as measured through LAR, significantly impacts a bank's performance (ROE). These findings reiterate those obtained by Kafle (2023), who established that LAR has a strong positive bearing on the financial performance of commercial banks. Specifically, Muriithi et al., (2016) assert that an increase in LAR indicates prospects of greater exposure to default risk, which can possibly increase the loan loss provisions for banks, thereby impacting the profitability of banks and ultimately weighing negatively on ROE.

From this perspective, Gomez, Landier, Sraer, Thesmar (2016) further posit that the negative relationship between LAR and ROE maybe influenced by bank's exposure to interest rate risk. Gomez et al., (2016) argue that if loans extended by banks to prospective clients bear fixed interest rates while deposits have variable rates, given the dynamic environment of changing interest rates, it is likely that an increase in LAR will squeeze the net interest margin, thus affecting the bank's profitability and ROE. Lastly, Baron, Verner, and Xiong (2018), Baron and Xiong (2017), Greenwood and Hansen (2013) attribute the negative relationship between LAR and ROE to banks' liquidity. As per Baron et al., (2018), an increase in LAR means that a greater portion of funds is tied up in loans as it further necessitates an increase in loan loss provisions. In this case, if a bank faces an unexpected withdrawal or any need to meet short-term obligations, any financing measure may increase financing costs, leading to lower profitability and ROE.

Overall, to test whether the items of credit risk significantly impact the financial performance of commercial banks in Lesotho, an F-Statistic was used. The hypothesis underlying the F-Statistic is that:

H0: All the coefficients of credit risk equal zero.

H1: At least one of the coefficients of credit risk is not equal to zero.

Table 11 presents the F-Statistic (86.5509) and the associated p-value (0.0298), which is less than the 5% significance level. Based on these findings, the study rejects the null hypothesis and theorizes that the proposed model is statistically significant in explaining the variation in ROE.

4.5. Summary of the chapter

This chapter sought to present, analyze, and discuss the findings and results of the study. The presentation, analysis, and discussion are articulated in a manner that addresses the underlying research objective, which is to determine the impact of credit risk on the financial performance of commercial banks in Lesotho. The chapter analyzed the findings using descriptive statistics, which indicated that, on average, during the 2012-2021 period, the banks in Lesotho experienced positive profitability as indicated by positive ROE, although some banks experienced losses as indicated by the negative minimum statistic. It further indicated that the banks in Lesotho exhibited strong financial health as indicated by positive CRWAR, AQR, LLPR, and LAR. However, ROE, AQR, LLPR, and LAR did not vary much within the same period, except for CRWAR, which implies that some banks in Lesotho were highly exposed to credit risk through CRWAR. The chapter further analyzed the results using the correlation matrix, which indicated that CRWAR, LLPR, and LAR are associated with ROE, except for AQR. Diagnostic tests were conducted, most importantly, the Hausman test guided the preference for the fixed effects model over random effects model. The fixed effects model presented the significant negative relationship between CRWAR, LAR, and ROE, while LLPR had a significant positive relationship. Most importantly, these variables were deemed sufficient to explain the variations in ROE.

CHAPTER 5: CONCLUSIONS AND RECOMMENDATIONS

5.1. Introduction

Banking institutions play a pivotal role in stimulating economic growth in each country by facilitating the flow of funds from excess financial resources from savers to borrowers for various needs (Bhatt et al., 2023). This intermediation process is renowned for fostering investment and entrepreneurship, thereby elevating economic growth (Paudel, 2018). However, mobilizing excess financial resources between savers and borrowers exposes banks to significant credit risk, which arises due to uncertainty about whether the borrower will repay the loans. Thus, during the intermediation process, banks are subjected to default risk, which in most cases arises due to economic downturns that affect the borrower's ability to service the loan (Mushafiq et al., 2023). Therefore, mitigating the effects of credit risk requires robust risk assessment, prudent lending practices, and effective regulatory oversight. Against the foregoing background, this study sought to determine how credit risk impacts the financial performance of commercial banks in Lesotho. Therefore, the onus of this chapter is to provide an overarching conclusion based on the findings and results presented in Chapter 4, as well as articulate recommendations based on these conclusions. Therefore, the chapter is structured chronologically to provide a summary of the chapters, the summary of the empirical study, conclusions, managerial and policy recommendations, and recommendations for future studies.

5.2. Summary of the chapters

To determine the impact of credit risk on the financial performance of commercial banks in Lesotho, the proposed study was presented in five chapters that build upon coherent arguments to address the objective. The flow of the chapters is as follows:

Chapter 1: This chapter provides an introduction and background to the underlying topic, as well as motivating the need for the study. It further narrowed the area of focus by articulating the problem statement, research objectives, questions, and hypothesis.

Chapter 2: The chapter explored the theoretical underpinnings of the study. This was achieved by presenting the relevant management theories that guide the overall structure of the literature review. It further presents the opinions of other researchers in the form of a conceptual framework to provide a pictorial representation of the

embedded relationships between credit risk and financial performance. Lastly, the chapter presents the views of other researchers based on the similar topic and constitutes the literature review for the study.

Chapter 3: This chapter presents the most appropriate steps and procedures towards research design, data collection, and analysis. Therefore, the chapter elaborates on the relevant philosophical stance and its influence on the choice of an appropriate research design. It further presents the population, sample, and sampling techniques used to collect the data. Lastly, the chapter provides an account of the data analysis methods used to establish the relationships between credit risk and financial performance.

Chapter 4: This chapter presents the findings and results of the study. These findings are presented using both descriptive and inferential statistics. The descriptive statistics aided in establishing the characteristics of the data, while inferential statistics sought to determine the underlying relationships between credit risk and the financial performance of commercial banks. In doing so, the chapter provides a comparative analysis with the reviewed literature in Chapter 2.

Chapter 5: This is the last chapter of the study and seeks to present the overriding key findings, managerial and policy recommendations based on the findings. It critically examines the findings and results of the study to articulate the recommendations that will minimize credit risk exposure, ensuring that banks in Lesotho continuously manage credit risk and contribute towards economic development.

5.3. Summary of the empirical study

To determine the impact of credit risk on financial performance of commercial banks in Lesotho, this study assumed a positivist epistemology, which theorize that knowledge can be obtained through the application of scientific methods (Tembo & Akintola, 2020). Therefore, this viewpoint guided the study into quantitative research design (McDermott, 2023). The study population comprises all commercial banks in Lesotho, totalling four (CBL, 2020), with data collected from audited financial statements spanning from 2012 to 2021. The measurement of study variables involves using ROE for financial performance and various ratios such as CRWAR, AQR, LLPR, and LAR for credit risk. However, AQR was dropped after the correlation analysis

presented a highly insignificant correlation coefficient between AQR and ROE. The motive behind dropping AQR at this stage was to effectively conduct the Hausman test which requires that the number of cross sections should be less than the number of coefficients in the model (Baltagi, 2014; Sheytanova, 2014).

The research utilizes both descriptive (measures of central tendency and measures of dispersion) and inferential (fixed effects panel least squares) statistics. The pre-diagnostic tests included the normality test to determine if the data is normally distributed (Matore & Khairan, 2020), the unit root/stationarity test to establish if the data is stationary (Taladhar, 2017), the multicollinearity test to ascertain whether the credit risk measures are highly correlated (Kim, 2019), and the Hausman test to determine the most appropriate model between the fixed and the random effects model (Baltagi, 2014). Lastly, the post-diagnostic tests included the test for heteroscedasticity to assess whether the error terms of the model are constant or not (Astivia & Zumbo, 2019), and the autocorrelation test to test the possibility that the residuals of the model are correlated over time or not (Baraza, 2020). Both the pre and post diagnostic tests were conducted to increase the reliability and validity of the findings and results of this study.

5.4. Key findings/conclusions

On the grounds of the findings and results obtained in Chapter 4, this study made key observations from the analysis and interpretation of the data. From the findings, it can be observed that unlike the findings in Shittu and Abdulkadie (2022), this study observed that AQR is insignificant in explaining the variations in bank's financial performance as measured through ROE. Hence AQR was deemed irrelevant in the study and was dropped earlier in the analysis. Although insignificant, AQR presented the expected negative coefficient indicating an inverse relationship between AQR and ROE. According to Kadioglu et al., (2017), the negative signage between AQR and ROE means that as banks become more stringent in their lending practices, they are likely to hold a portfolio of high performing loans. However, the portfolio consisting of high performing loans is likely to constitute few clients who meet the stringent lending terms, thereby limiting bank's ability to enjoy higher returns from riskier but potentially more profitable lending practices (Boudriga, Taktak, Jellouli, 2009).

Additionally, based on the findings obtained in Chapter 4, it can be concluded that CRWAR significantly and negatively impacts ROE. This is an indication that a deterioration in Lesotho's banks capital in proportion to risk weighted assets exposes banks to heightened credit risk as the capital held cannot adequately cover the risk-weighted asset. This further poses threats to the sustainable profitability of banks in Lesotho because the realization of non-performing loans leads to a decline in profitability and ROE. The study further concludes that LLPR positively impacts ROE. The positive relationship between LLPR and ROE bears a connotation of efficient operations in managing loan portfolios, or rather, the banks in Lesotho have high quality loan portfolios that results in performing loans. This is because, increasing loan advances is directly linked to an increase in ROE. Although an increase in loan advances exposes banks to credit risk, the positive relationship with ROE implies that banks in Lesotho manage their loan portfolio effectively, leading to increased profitability and ROE (Obwocha, 2019).

Lastly, the study concludes on the negative relationship between LAR and ROE. This observation was also expected from the findings of the study as an increase in loan advances relative to total deposits indicates the bank's vulnerability to liquidity risk as a larger portion of the deposits is extended to clients as loan facilities (Ozurumba, 2016). Therefore, in an urgent need for withdrawals by depositors, banks in Lesotho are likely to experience liquidity pressures, leading to external financing as a last resort to meet the increased demand for withdrawals (Olumuyiwa, Oluwatosin, & Chukwuemeka, 2012). This may contribute to squeezed interest rate spread, leading to a decline in profitability and ROE. Based on the conclusions drawn, the following section presents the managerial and policy recommendations for banks in Lesotho to continuously manage credit risk to ensure sustainable ROE for shareholders.

5.5. Study recommendations

Following the conclusion and key findings of the study, the subsequent discussion provides the recommendations directed to managers of commercial banks in Lesotho for effective credit risk management. The recommendations attempt to ensure the health of the financial system and the general stability of the economy in Lesotho. Therefore, the managerial implications on credit risk management follows:

- Commercial banks in Lesotho should manage their capital levels in relations to risk weighted assets with caution. The evidence of a strong positive relationship between capital to risk-weighted assets and return on equity indicates that excessively high capital levels maybe dampening returns. Nonetheless, it is a crucial practice for banks to maintain adequate capital to serve as buffers to ensure financial stability as well as complying with regulatory laws. As such, commercial banks in Lesotho must strike a balance between core capital and maximizing ROE to effectively utilize the existing capital and meet regulatory obligations.
- By improving LLPR, banks stand a good chance of improving their ROE. This positive relationship is not necessarily a given and calls for banks to implement prudent and forward-looking approaches to credit risk management to ensure that an increase in loans and advances corresponds with an increase loan loss provision. This includes undertaking credit risk assessment through credit scoring models and due diligence, risk monitoring through regular portfolio review, portfolio diversification, loan structuring, credit limits, collateral policies, sensitivity analysis, and transfer of credit risk to ensure the quality of their loan portfolios.
- Management for each of the banks in Lesotho needs to pay attention to liquidity management within their respective banks. This is after an observation that LAR has a negative impact on ROE. In most cases, the negative relationship between LAR and ROE is influenced by liquidity concern. Hence banks in Lesotho needs to manage their liquidity effectively to prevent adverse effects on profitability and ROE. Similarly, an inverse relationship between LAR and ROE implies that banks should reconsider their lending strategies. When loans and advances constitute a high proportion of a bank's assets, it can increase credit risk and result in reduced profitability. Therefore, commercial banks in Lesotho should continuously assess their loan portfolios to ensure they are properly balanced and diversified, bearing in mind the risk-return trade-of.

5.6. Suggestions for future research

This study has set a blueprint on the literature pertaining to the impact of credit risk on financial performance of commercial banks, especially in the context of Lesotho. However, in attempting to address the objective, the study was subjected to several limitations, which open a window for future studies to fill the gap to further understand the impact of credit risk on financial performance in Lesotho. Hence the findings and

results of this study should be comprehended considering these limitations. The banking sector in Lesotho comprises of four industry players and is divided into two tiers. Tier 1 constitutes the top 2 banks and tier 2 constitutes the bottom 2 banks. Therefore, to gauge the impact of credit risk on the financial performance of commercial banks in Lesotho, future studies can control the relationships using bank size as a control variable as tier 1 and tier 2 banks may have differing credit risk profile and capital structure. Also, the banking sector is affected by the general macro-environment, hence the future strand of research on the similar topic might want to use several macro-environmental variables such as Gross Domestic Product (GDP) growth, inflation, and money supply as control variables to better understand the relationship between credit risk and financial performance in Lesotho.

5.7. Summary of the chapter

The purpose of this chapter was to provide the overarching conclusions and recommendation based on the findings and results presented and discussed in chapter 4. As such, the summary of the chapters and empirical study are articulated in this chapter. Further, the key findings/conclusions related to the impact of credit risk on financial performance of commercial banks in Lesotho are highlighted, and the empirical recommendations based on the observed conclusions are detailed out in this chapter. Also, based on the objective of the study, the contribution of this study to the body of knowledge regarding the topic under review is presented. Lastly, based on the findings and results, the chapter recommends areas of future research to further contribute to the body of knowledge related to the impact of credit risk on financial performance of commercial banks.

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Appendix 1: Secondary Data Collection Instrument

Appendix 1 presents the spreadsheet format of the data collection instrument used to gather information related to credit risk measures and financial performance of each individual bank in Lesotho over the period 2012-2021. Each variable represents a key aspect of the bank's financial health and performance, and the data collected for each variable span multiple years, allowing for panel analysis of the relationship between credit risk (CRWAR, AQR, LLPR, and LAR) and bank's financial performance (ROE).

Name of the Bank ……..…..

Variables	**Description**	**Years**									
		2012	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**
CRWAR	Core Capital										
	Total Risk Weighted Assets										
AQR	Net Performing Loans										
	Total Loans and Advances										
LLPR	Loan Loss Provision										
	Gross Loans										
LAR	Total Loans and Advances										
	Total Deposits										
ROE	Net Income										
	Shareholder's Equity										