A STUDY OF THE EFFECTS OF MOBILE BANKING SERVICES ON THE FINANCIAL PERFORMANCE OF ZAMBIAN COMMERCIAL BANKS – A CASE STUDY OF ATLAS MARA

BY

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A Dissertation submitted to the University of Zambia in partial fulfilment of the requirements for the award of the Degree of Master of Science in Accounting and Finance

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DECLARATION

I, **Misozi Siasulingana,** do hereby declare that this work is my original work achieved through personal reading and research. This work has never been submitted to the University of Zambia or any other universities. All sources of data used and literature on related works previously done by others, used in the production of this Dissertation have been duly acknowledged. If any omission has been made, it is not by choice but by error.

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APPROVAL

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ABSTRACT

The introduction of mobile banking has completely transformed the financial industry, providing customers with unparalleled ease of access and convenience. This paper explores the complex relationship between mobile banking and the financial performance of commercial banks. The study employs a descriptive research design and specifically targets senior and middle management professionals, as well as supervisors, at Atlas Mara Zambia. A rigorous sample of 287 bank employees were carefully chosen using stratified random sampling procedures. The study utilized secondary data from reputable sources such as the Bank of Zambia (BOZ) and Atlas Mara published Annual Financial Reports. In addition, primary data was collected using closed ended questionnaires. The study's analytical methodology was based on a comprehensive approach that uses both descriptive and inferential statistics. Regression analysis and Pearson's correlations coefficient were skillfully used to analyze quantitative data. The results of this study shed light on a compelling argument: the accessibility of mobile banking and loans has undeniably caused positive changes in the financial performance metrics of commercial banks. Based on the results, the study provides practical suggestions to strengthen the mutually beneficial connection between commercial banks and mobile banking services. An important idea is to encourage creative collaborations between the banking sector and telecommunication service providers in order to strengthen nationwide Internet and network coverage. Furthermore, the report proposes a fundamental change in the way commercial banks operate, going beyond simply increasing access to mobile banking and instead prioritizing the improvement of customer service quality through these channels. Moreover, commercial banks are strongly urged to initiate comprehensive consumer awareness efforts, clearly explaining the wide range of new goods and services designed specifically for the mobile banking system. Furthermore, it is recommended to make careful and wise investments in research and development to stimulate innovation in current mobile banking platforms, guaranteeing their ongoing significance and effectiveness in fulfilling changing consumer needs. Ultimately, this study emphasises the urgent need for stakeholders in the banking industry to use mobile banking as a driving force for significant change, while also managing the complex array of risks and opportunities that come with this new digital landscape.

Key Words: Financial performance, Mobile banking access, Mobile banking loans, Mobile banking risks

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DEDICATION

This Dissertation is dedicated to my family who were sometimes denied their time to be with me for the sake of this project. Indeed, their constant support and encouragement brought me this far. My family's sacrifice meant that their much-needed social needs were at times denied but for a good cause. To them I dedicate this work.

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ACRONYMS AND ABBREVIATIONS

ATM	Automated Teller Machine
BOZ	Bank of Zambia
CAMEL	capital adequacy, asset quality, management, earnings, liquidity,
CBK	Central Bank of Kenya
CGAP	Consultative Group Assisting the Poor
CGAP	Consultative Group to Assist the Poor
DDOS	Denial of Service Attack
EBIT	Earnings before Interest and Tax
FSD	FINANCIAL SECTOR Deepening
GDP	Growth Domestic Product
GSMA	Global System for Mobile Communications
GSMA	Global System for Mobile Communications
ICT	Information Communications Technology
IT	Information Systems
IVR	Interactive Voice Response
KCB	Kenya Commercial Bank
MAC	Mobile Application Clients
MNO	Mobille Network Operator
MoBEF	Mobile Banking Evaluation Framework
NIM	Net Interest Margin
NIM	Net Interest Margin
NPL	Non-Performing Loans
PDA	Personal Digital Assistant
PIN	Personal Identification Number
ROA	Return on Assets
ROA	Return on Assets
ROE	Return on Equity
ROE	Return on Equity
ROI	Return on Investment

SC	Standard Chartered
SME	Small and Medium Enterprises
SMS	Short Message Services
SSA	Sub-Sahara Africa
WAP	Wireless Application Protocol
ZANACO	Zambia National Commercial Bank

CHAPTER 1

INTRODUCTION

1.0 Introduction

Banks have developed innovative products and supplied a wide range of services in recent years in order to boost efficiency, which is their ultimate goal. Mobile banking is the use of electronic mobile devices such as cell phones and personal digital assistant (PDAs) to access banking services and facilities (Aduda & Kingoo, 2012). The provision of financial services over mobile phone networks has been the subject of numerous labels and notions, some of which have been antagonistic to one another. Any transaction involving the transfer of ownership rights to use goods and services that is initiated or completed via mobile access to computer mediated networks with the use of an electronic device is referred to as a mobile transaction. Mobile banking can also be defined as the use of mobile telecommunications devices to provide bank-related financial services. Mobile banking transactions are commonly carried out by SMS and mobile Internet or programs, downloaded to a mobile device (Al-Jabri, 2012). Bank services can now be delivered via mobile devices due to a technique known as m-banking. Using mobile phones customers can make cash withdrawals from their bank accounts (Saleem & Rashid, 2011). Customers of financial institutions can do a number of financial transactions using a mobile device such as a smartphone or tablet, including deposits and withdrawals (Aduda & Kingoo, 2012). By providing banking services via mobile phones to those who are currently unbanked mobile banking is said to be transformational and more consumers have access to a broader selection of financial services (Vaidya, 2011).

This chapter provides an introductory overview of the research, highlighting the necessity to explore the impact of mobile banking on the financial performance of commercial banks. It outlines the research aims and questions, emphasizing the significance of understanding this relationship within the evolving banking landscape. The chapter also delineates the scope of the study and offers a structural outline of the subsequent research report. Through this comprehensive overview, the chapter sets the stage for a detailed analysis that aims to shed light on the intricate dynamics between mobile banking and commercial bank performance, thus contributing to the existing body of knowledge in the field of banking research.

1.1 Background to the Study

Making a purchase via a mobile device is distinct from using a mobile device to conduct financial transactions online or in-store (Amadala, 2019). In developed and poor countries, cell phones have taken over as the primary method of communication (Al-Jabri, 2012). For the most modern mobile technology, northern European countries are leading the way. Using mobile banking in Finland in 2003, checking account balances, moving funds, and paying bills were all feasible. Innovative product and service delivery has a positive impact on regional GDP growth, investment and gross savings according to Nimoh (2016). According to a study on interstate branching by Hendrickson and Nichols (2011), innovation at all branches boosts performance for small banks in the United States. Internet banking has grown to be an indispensable tool for staying connected and exchanging information with the outside world. More than a quarter of Kenyans have access to the Internet, according to the Communications Commission of Kenya (Amin, Rahim & Abdul, 2014). In the last decade, Kenya's financial sector has witnessed a dramatic development. A variety of factors have contributed to this, including changes in the overall economy, legislative and regulatory reforms, increasing competition, and new technology. The 2009 Finance Bill passed into law at the end of the year allows banks in Kenya to use small stores, gas stations, pharmaceutical enterprises, and other retail establishments as agents. Having a mobile phone but not having access to a traditional banking system could be solved by mobile banking for millions of people in developing countries. Additionally, it can make basic financial services more accessible by removing the time and distance to the nearest retail bank branches and by reducing the banks own overheads. Offering banking services via mobile devices can help financial institutions grow their customer base and consequently their market share (Anyasi & Otubu, 2012).

Mobile banking was initially introduced in Zambia by the Zambia National Commercial Bank (Zanaco), a joint venture between the government and the Rabobank Group of the Netherlands. Rabobank has $650 billion in assets and $34 billion in equity, making it one of the world's largest banks (Kawimbe et al., 2022). For Zanaco's *Xapit* mobile banking service, affordability is a big selling element. Two more mobile banking services are available in the country. Zambia’s second-largest mobile phone service provider MTN Zambia was the first to team up with the bank to provide mobile banking services for its users (Mwamba, 2019).

The major objective of Zambia's mobile banking framework is to enable the millions of citizens who are no longer able to access conventional financial services to do so themselves (CGAP, 2016). The focus is on financial inclusion in mobile banking and with low-cost phones for as low as ZMW100 and small dollar top ups starting at ZMW1, it has become more widely available. Mobile banking plays an important part in the expansion of the country's financial industry. In the United States, where there are more than five million active mobile phone users as such, mobile banking has a huge potential for growth. How well a corporation uses its primary mode of operation and generates revenues determines its financial performance (Asfour & Haddad, 2014). Companies in the same industry or across sectors can be compared to see how well they've fared financially in the past few years.

Numerous methods exist for determining the overall financial health of an organisation; all must be taken into consideration. In addition to total unit sales, revenue, operating income, and cash flow from operations can also be utilised as line items (Ayana, 2014). Ultimately, the company's goal is to produce money for its shareholders. Profitability is measured using a variety of metrics, including return on assets (ROA), return on equity (ROE), and net interest margin (NIM) (Ayinla, 2018). The ROA ratio, which measures a bank's earnings against its total assets, can be used to determine its profitability (Khrawish, 2011). An evaluation of the ability of a company management to profit from its resources is the focus of this assessment. According to NIM, the difference between banks' interest revenues and their interest payments is calculated by taking the percentage of total assets held by the banks into account. As Phiri (2020) points out, technological advancements have had a tremendous impact on the banking industry's service delivery standards. According to this report, mobile banking has a significant impact on bank performance in Zambia.

1.1.1 Importance of mobile banking services

In the banking industry, mobile banking agility describes the degree to which commercial banks prosper in the current competitive environment by embracing emerging trends through mobile banking in a more agile manner (Tchouassi, 2019). It is impossible to overstate the value of mobile banking. Financial companies have a chance to offer new consumers banking services due to mobile banking (Lee, Lee & Kim, 2007).

By cutting down on travel time and distance to the closest retail bank offices, it can increase accessibility to essential financial services (CGAP, 2006), opening bank accounts, checking

account balances, sending money between accounts, and paying bills online or using a mobile device are just a few of the available options (Salzaman, Palen & Harper, 2001). The first European banks began to provide mobile banking to their customers on this platform in 1999, when smartphones with Wireless Application Protocol (WAP) compatibility made it possible to use mobile web. According to some empirical data, there have not been many studies specifically examining how mobile phones are used to increase productivity among users in the developing world. Some firms are likewise unaware of the opportunities presented by the usage of mobile devices and ICTs.

The most recent innovation in electronic banking is mobile banking, which uses Short Message Service (SMS) and WAP services to make it easier for users to conduct online transactions (Lee & Benbasat, 2003). Due to expensive bank fees, impersonal bank products and services, and a geographically constrained banking industry in Zambia, banking was formerly only accessible to a select few people (Phiri, 2018). The number of people using financial services has increased as a result of advancements in the banking industry. Various M-banking products have been developed by a variety of banks, including ZANACO's *Xapit*, Atlas Mara's *Tenga*, and Standard Chartered's SC Mobile. By reducing the time and distance to the closest retail bank branches associated with traditional banking, mobile banking provides users with simple access to financial services. Both banks and users have benefited from mobile banking since it lowers transaction-related costs and bank overheads while also being quick and affordable because fewer fees are applied to mobile transactions. A mobile banking user can manage their bank and stock market transactions, pay their bills, and request a bank mini statement under transactions. Wire transfers, credit/debit transfers, interbank networking, and the provision of local and foreign currencies are all examples of electronic funds transfer services.

1.1.2 Mobile banking services and companies in Zambia

The landscape of mobile banking in Zambia has witnessed significant growth and evolution, reflecting a concerted effort to enhance financial inclusion and accessibility to banking services.
A variety of mobile banking services are available in Zambia, catering to the diverse needs of consumers and businesses alike. These services encompass a wide range of functionalities, including fund transfers, bill payments, airtime purchases, account management, and more, all

accessible through mobile banking platforms offered by both mobile network operators and financial institutions (Mwamba, 2019).

Leading the charge in mobile banking services are prominent mobile network operators such as MTN Zambia, Airtel Zambia, and Zamtel. These operators have established robust mobile banking platforms that enable users to conduct a myriad of financial transactions conveniently and securely from their mobile devices. MTN Zambia, for instance, offers its customers the MTN Mobile Money service, which facilitates seamless fund transfers, bill payments, airtime purchases, and even merchant payments at various retail outlets across the country. Similarly, Airtel Zambia's Airtel Money platform provides a comprehensive suite of mobile banking services, including peer-to-peer transfers, utility bill payments, and mobile wallet top-ups, catering to the diverse financial needs of its user base (Mwamba, 2019).

In addition to mobile network operators, several financial institutions in Zambia have also ventured into the realm of mobile banking, leveraging technological advancements to expand their service offerings and reach a broader customer base. Notable players in this space include Zambia National Commercial Bank (Zanaco), ABSA Zambia, and Stanbic Bank Zambia, among others. These banks have introduced innovative mobile banking solutions that empower customers to manage their finances conveniently and efficiently from their mobile devices. Zanaco, for example, launched its Xapit mobile banking service, which allows users to perform a wide range of transactions, including account transfers, bill payments, and balance inquiries, all through a user-friendly mobile application (Kawimbe et al., 2022).

With the proliferation of mobile banking services offered by both mobile network operators and financial institutions, Zambia's mobile banking ecosystem has become increasingly vibrant and dynamic (Larina et al., 2021). Consumers and businesses alike are embracing the convenience and accessibility afforded by mobile banking, driving significant growth and adoption across the country.

Against this backdrop, it becomes imperative to analyse the potential implications of mobile banking on the financial performance of commercial banks in Zambia, considering the evolving dynamics of the mobile banking landscape and its impact on the broader financial services

industry. Such an analysis would provide valuable insights into the opportunities and challenges facing commercial banks in Zambia as they navigate the digital transformation of the banking sector.

1.2 Statement of the Problem

Mobile banking services increase money velocity and circulation, which should boost commercial bank profits. Except for labour expenditures, mobile technology is commercial banks' greatest and fastest-growing expense (Kawimbe et al., 2022). Most banks' operating costs have increased due to ICT and network infrastructure investments, such as Atlas Mara Zambia's Tenga mobile platform (Phiri, 2020). Zulu (2022) claims Standard Chartered Bank Zambia invested heavily in ICT to improve mobile banking. Thus, mobile banking innovations must be based on risk and cost analysis to avoid bank performance damage. Rapid developments in wireless technology and widespread cell phone use have driven banks to invest huge sums on mobile banking systems, raising the functional costs of many Zambian commercial banks, causing operational issues. Banks must profit to continue intermediation. Investment in mobile banking technologies may improve or hurt commercial bank financial performance. Only a few commercial banks have prioritised mobile banking, as seen by their dismal ROA in the third quarter of 2022 (Standard Chartered Bank Zambia, 2022). Despite the fact that many customers avoid bank branches, mobile banking uptake by banks is limited.

According to recent data, global mobile banking usage has increased, transforming the banking industry. Statista (2018) predicts 1.3 billion mobile banking users by 2023, up from 0.8 billion in 2019. The Federal Reserve (2021) found that 55% of respondents used mobile banking in 2020, up from 39% in 2019. According to Deloitte's (2020) research, 73% of consumers worldwide choose digital channels for routine transactions and inquiries, highlighting mobile banking systems' simplicity and accessibility. Due to their use of mobile banking apps, Accenture reports that 35% of US banking consumers visit branches less often.

Despite these advancements, 64% of US consumers worry about mobile banking app security, according to Javelin Strategy & Research. However, banks worldwide are investing in digital channels to improve consumer engagement and happiness due to mobile banking's disruptive impact.

Numerous studies have examined the relationship between mobile banking and financial performance, but this study addresses a knowledge gap by focusing on Zambian banking sector dynamics. According to Zindiye and Roberts (2017), most research is generalised or regional, ignoring the complexities and intricacies of individual banking markets. This study focuses on Atlas Mara Zambia to better understand mobile banking uptake and its effects on Zambian financial performance. While prior studies have explored the broad effects of mobile banking on financial performance parameters including profitability and efficiency, few have examined particular bank mobile banking access, loans, and risks. According to Nkundabanyanga and Kiyaga-Mulindwa (2018), there is little study on the nuanced implications of mobile banking services on financial performance, particularly for commercial banks in developing countries such as Zambia. This study focuses on these specific dimensions of mobile banking and their impact on Atlas Mara Zambia's financial performance to inform strategic decision-making and better understand mobile banking's role in shaping Zambia's banking landscape.

1.3 Research Objectives

The general objective of this study was to establish the effects of mobile banking services on the financial performance of Atlas Mara Zambia. In order to achieve the primary objective of the study, the following secondary objectives of the research were identified:

i. To establish the effects of mobile banking access on the financial performance of Atlas Mara Zambia.
ii. To evaluate the effect of mobile banking loans on the financial performance of Atlas Mara Zambia.
iii. To assess the effect of mobile banking risks on the financial performance of Atlas Mara Zambia.

1.4 Research Questions

Arising from the above specific objectives, the study focused on answering the following main research questions:

i. What is the effect of mobile banking access on the financial performance of Atlas Mara Zambia?
ii. What is the effect of mobile banking loans on the financial performance of Atlas Mara Zambia?
iii. What is the effect of mobile banking risks on the financial performance of Atlas Mara Zambia?

1.5 Scope of the Study

The scope of the study involved a comprehensive investigation into the effects of mobile banking services on the financial performance of Atlas Mara Zambia, with a specific focus on access, loans, and risks. The study aimed to achieve its primary objective by examining three key secondary objectives: firstly, to understand how mobile banking access affected the financial performance of the bank; secondly, to evaluate the influence of mobile banking loans on financial performance; and thirdly, to assess the impact of mobile banking risks on financial performance. The study's respondents were employees of Atlas Mara Zambia, chosen through a stratified random sampling method to ensure representation across all hierarchies and departments. The dataset obtained from the head of human resources included employee names, departments, job positions, length of service, and email addresses. Additionally, the financial performance data, represented by ROA of the bank for a five-year period, was obtained from secondary sources being the Bank's Annual Reports. Through surveys and analysis of relevant financial and operational data, the study explored the experiences, perceptions, and insights of these employees regarding mobile banking practices within the organisation. By utilising quantitative research methods, the study aimed to provide a nuanced understanding of the relationship between mobile banking activities and the financial performance of Atlas Mara Zambia, offering valuable insights for strategic decision-making and future direction.

1.6 Significance of the study

The significance of the study lies in its potential to provide valuable insights and benefits to various stakeholders involved in the mobile banking ecosystem in Zambia.

Firstly, for Atlas Mara Zambia, the study's findings can serve as a strategic roadmap for optimising their mobile banking services. By understanding the impact of mobile banking access, loans, and

risks on financial performance, the bank can refine its service offerings, improve customer satisfaction, and enhance overall profitability. Additionally, the study can help the bank identify areas of improvement in risk management practices, leading to more robust and resilient operations.

Secondly, for customers of Atlas Mara Zambia, the study can lead to improved access to convenient and tailored mobile banking services. By identifying the effects of mobile banking access and loans on financial performance, the bank can better address the needs and preferences of its customers, potentially leading to increased usage and satisfaction with mobile banking services. Furthermore, by assessing the impact of mobile banking risks, the study can contribute to enhancing the security and trustworthiness of mobile banking transactions, thereby bolstering customer confidence in digital financial services.

Thirdly, for regulators and policymakers in Zambia, the study can provide valuable insights into the role of mobile banking in promoting financial inclusion and stability. By understanding the effects of mobile banking access, loans, and risks on the financial performance of Atlas Mara Zambia, regulators can tailor policies and regulations to foster a conducive environment for the growth of mobile banking while safeguarding the interests of consumers and maintaining the stability of the financial system.

Finally, for researchers and academia, the study can contribute to the existing body of knowledge on mobile banking and its implications for financial performance in emerging markets like Zambia. By highlighting the specific effects of mobile banking access, loans, and risks on the financial performance of Atlas Mara Zambia, the study can inform future research endeavours and academic discourse on digital finance, financial inclusion, and risk management.
Overall, the significance of the study extends beyond Atlas Mara Zambia to encompass a wide range of stakeholders, including customers, regulators, and researchers, with the potential to drive positive change and innovation in the mobile banking landscape in Zambia.

1.7 Thesis Outline

Chapter Two gives a review of the literature related to the study with a view of determining the gap in what is known about the subject at hand.

Chapter Three provides the theoretical and conceptual framework of the study. Chapter Four covers the research methodology and describes how the data was collected and analysed. Chapter Five consists of analysis of the data collected and presentation of the findings. Chapter Six details the summary of findings, conclusion of the study and makes recommendations to the relevant stakeholders for implementation and/or further study.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

This chapter presents the literature review of related previous studies. The chapter includes sections on the overview of mobile banking, commercial bank financial performance and empirical review, which cover the particular study variables. This chapter further includes a part on critique review of literature and lessons learnt from the related studies presented. The chapter concludes by presenting a summary of research on mobile banking that was conducted by other researchers.

2.2 Overview of Mobile Banking

Mobile banking is defined as "a form of banking transaction carried out via a mobile phone" (Lennart, 2008). Moreover, it is defined as a "type of execution of financial services in the course of which - within an electronic procedure- the customer uses mobile communication techniques in conjunction with mobile devices". Mobile banking is classified into three types – App-based banking, SMS banking, and USSD Banking. Mobile banking applications encompass the broadest range of banking services. The technologies generally used for mobile banking are Interactive Voice Response (IVR), Standalone mobile application clients, SMS and WAP. The delivery of a mobile banking service to a consumer involves the participation of four primary players; a bank, mobile network operator (MNO), a mobile banking technology vendor, and the consumer (Chakraborty, 2018).

In most instances the mobile banking vendor has been the pioneer in shaping industry adoption and lobbying the other two principal stakeholders on the value of extending the banking franchise to mobile. The early pioneers of mobile transacting go back around 10 years. These initial visionaries have persisted in lobbying the banking industry over this time with little success, and where implemented, little consumer adoption (Dineshaw & Steven, 2013). However, the consumer mobile market has matured and the various stakeholders (banks and MNOs) seem to have taken an interest and realised the potential value of the high penetration in mobile phones amongst their respective customer bases (Porteous, 2006).

According to Lennart (2008), m-banking is the term used to describe financial services delivered via mobile networks using mobile phones. Normally, such services include depositing, withdrawing, sending and saving money, as well as making payments. According to Owen (2013), mobile banking refers to provision and availing of banking and financial service with the help of mobile telecommunication devices as a mobile phone which is most used in developing countries or Personal Digital Assistant (PDA). The scope of offered service may include facilities to conduct banking transaction, to administer accounts and to access customized information.

According to Nasikye (2009), m-banking today can be performed through SMS. It is usually implemented through the use of special software called client that can be downloaded to the mobile phone. These services may or may not be defined as banking services by the regulator, depending on the legislation of the country in question, as well as on which services are offered. Hence, an initiative may be referred to as m-banking service even though it would not fall into the banking definitions under that particular country's regulatory regime (Lennart, 2008). M-banking is separated into two categories; additive, where the model uses M-banking as an extra access channel for existing clients and transformational is where it is categorized by a new type of services that could attract users from rural areas and poorer segments of the market, and hence can have a transformational effect (Porteous, 2006). This is commonly used among retail banks.

A number of enabling technologies are being used in the delivery of m-banking service applications. According to Abunyang (2007) they include IVR, SMS, WAP and stand-alone Mobile Application Clients (MAC). The SMS banking uses text messaging and works in either a push or a pull mode. In pull mode, the bank sends a one-way text message to alert a mobile subscriber of a 'certain account situation or to promote a new bank service. In push mode, the mobile subscriber sends a text message with a predefined request code to specific number. The bank then responds with a reply SMS containing the specific information (Lennart, 2008).

Mobile banking has emerged as a transformative force in the financial services industry, offering unprecedented convenience and accessibility to users worldwide.

Scholars such as Jiang, Rosenbloom, and Worden (2013) have highlighted the role of mobile banking in bridging the gap between traditional banking services and the unbanked or underbanked populations, particularly in emerging economies.

Mobile banking enables users to conduct a wide range of financial transactions, including account management, fund transfers, bill payments, and loan applications, all through their mobile devices. According to Pew Research Center (2021), the global adoption of mobile banking has been steadily increasing, with mobile phones becoming the primary means of accessing banking services for millions of individuals globally. This trend underscores the significance of mobile banking as a catalyst for financial inclusion and empowerment, particularly in regions with limited access to traditional banking infrastructure.

2.2.1 Mobile access

The accessibility of mobile banking services plays a crucial role in determining its impact on financial inclusion and economic development. Researchers such as Suh and Han (2019) emphasise the importance of mobile access in overcoming barriers to financial services, such as geographical constraints and limited physical infrastructure. Mobile access enables individuals to conveniently access banking services anytime and anywhere, thereby reducing the reliance on brick-and-mortar branches and enhancing financial inclusion. Additionally, mobile access facilitates greater engagement with banking services among marginalised populations, including women, rural communities, and low-income individuals (GSMA, 2020). This underscores the transformative potential of mobile access in promoting inclusive economic growth and reducing disparities in access to financial services.

2.2.2 Mobile loans

Mobile loans have emerged as a viable alternative to traditional banking loans, offering quick and convenient access to credit for individuals and small businesses. Studies by Mas and Ng'weno (2018) have highlighted the role of mobile loans in addressing the financing needs of underserved populations, particularly in developing countries where access to formal credit is limited.

Mobile loan platforms leverage digital technologies to streamline the loan application process, assess creditworthiness, and disburse funds rapidly, thereby overcoming traditional barriers to accessing credit. This has profound implications for financial inclusion and entrepreneurship, as mobile loans enable individuals to invest in income-generating activities, smooth consumption, and build financial resilience (Jack and Suri, 2014). However, scholars also caution against the potential risks associated with mobile loans, including over-indebtedness, predatory lending practices, and data privacy concerns, highlighting the need for robust regulatory frameworks to safeguard consumer interests (Aker and Mbiti, 2010).

2.2.3 Mobile risks

The proliferation of mobile banking and digital financial services has brought about new risks and challenges that must be addressed to ensure the integrity and security of the financial system. Scholars such as Aloudat and Michael (2012) emphasise the importance of understanding and mitigating mobile risks, including cybersecurity threats, fraud, identity theft, and data breaches. The ubiquity of mobile devices and the interconnected nature of digital ecosystems make them vulnerable to various forms of exploitation by malicious actors, posing significant risks to users' financial assets and personal information. Additionally, the rapid pace of technological innovation and adoption in the mobile banking sector introduces complexities and uncertainties that may exacerbate existing vulnerabilities (ITU, 2021). Therefore, effective risk management strategies, robust cybersecurity measures, and collaboration between stakeholders are essential to mitigate mobile risks and maintain trust and confidence in digital financial services.

2.3 Financial Performance

According to Greenwood and Jovanovic (1990) financial performance is looked at from the use of assets in generating organisational revenue. Financial performance results of organisation can be between comparable organisations or a comparison of the same among industries of sectors together. Jayawardhera and Foley (2000) are of the opinion that financial performance can be measured in aggregation. Line items they proposed for the measure include income or flow from operations, revenues and unit sales. Profitability is also the ultimate goal for firms. To measure the profits of a firm there are a range of ratios that can be used such as NIM, ROE and ROA (Murthy & Sree, 2003). Return on Asset is the main ratio that banks can use to measure their profitability.

This ratio measures organisations' revenues to its total assets for a specific period (Khrawish, 2011). This ratio measures how the organisation leadership to generated revenue using organisations` assets. Financial performance refers to the financial soundness where deposits are safe in a stable banking system. Some of the measures of financial performance are abbreviated as CAMELS (Capital adequecy, Assest quality, Management, Earning, Equity, Liquidity and Sensitivity analysis) which guides the banking sector to establish their financial soundness (Madhyam, 2010).

The activities undertaken in mobile banking contribute to the financial performance of the commercial banks in Zambia. Some external environmental factors can cause banks to fail such as deregulation, lack of information among customers and the similarity in services offered by many banks. Therefore, the commercial banks have to be innovative and embrace technology to enable them offer diversified products attractive to the customers. Financial performance is a measure of how well a firm can use assets from its primary mode of business and generate revenues. This term is also used as a general measure of a firm's overall financial health over a given period of time, and can be used to compare similar firms across the same industry or to compare industries or sectors in aggregation. There are many different ways to measure financial performance, but all measures should be taken in aggregation. Line items such as revenue from operations, operating income or cash flow from operations can be used, as well as total unit sales (Handema & Haabazoka, 2020).

Alam et al. (2011) in their study argued that firm performance has four main components of financial and market performance which has items such as profitability, cycle involving cash to cash, position in the market and revenue. There is also customer-focused performance with components such as product or service performance and customer satisfaction. Human resource performance had items such as employee satisfaction and lastly organisational effectiveness with components such as level of innovation, time to market, supply chain flexibility and production.

2.4 Effect of Mobile Banking Access on Commercial Bank Financial Performance

The number of banking offices per unit of market area, which is an essential component of service supplied to financial consumers where banks offices are relatively scarce, reflects the significance

of service accessibility in the banking sector (Gunther, 2003). This gap has been closed by mobile banking, which offers easy access to financial services and goods at the touch of a button. The literature on mobile banking access and the financial health of commercial banks is reviewed in this section. The subject is covered in detail under three headings: time and convenience, time and security, and lastly, the infrastructure development of mobile banking among commercial banks.

2.4.1 Easy accessibility and more secure

According to Jen and Michael (2006), the use of mobile banking has given businesses and banks around the world hitherto unheard-of options in how they manage the creation, distribution, and marketing of financial products online. While technology presents banks with new opportunities, it also comes with a number of difficulties, including the development of new technology applications, the blending of market boundaries, the overcoming of barriers in the workplace, the entry of new rivals, and the introduction of new business models (Liao & Cheung, 2003). Access to information must be made available to clients, partners, and staff members in a managed and secure manner for mobile banking to function (Soludo, 2005). To overcome the difficulties mobile banking faces, technology must offer security. Almost all software and hardware providers assert that their products are secure, but how can an e-banking be sure that a product is secure? Mobile banking seeks a definitive response to the contradictory security assurances they hear from suppliers. How can one feel secure with the security features incorporated into a product? Vendor security claims are validated by independent security assessments against internationally recognised security standards. Due to the promise and fulfilment of the internet, customers' expectations in terms of service delivery and other important criteria have increased considerably in recent years (Mattila, 2016).

In a study titled Mobile Banking, Increasing Access to Financial Services, McGregor (2013) examined the ways in which this technology enables underbanked and unbanked people to lower their financial risk and obtain access to safer financial services. The findings suggested that when banking services are not widely accessible, people may increasingly turn to their mobile phones to handle their personal financial demands. Klein and Mayer (2011) refer to this as the transformative model. According to a similar study, there are three reasons why mobile banking is important: first, it can provide financial services in areas where there are no banks.

In addition, by breaking down and decomposing financial services into their component pieces, it provides crucial conceptual insights into the nature of financial services. Finally, it raises major regulatory and competition policy challenges.

Chitungo and Munongo (2013) in Zimbabwe examined the factors that affect the uptake of mobile banking in the country's rural areas. The study's findings indicated that variables like perceived usefulness, PEOU, relative advantage, individual inventiveness, and societal norms affected participants' intentions to accept and use mobile banking. The researcher used stratified random sampling to collect data for the study.

2.4.2 Convenience and time

According to Mattila (2016), it is thought that if mobile banking is well-matched with the needs of the consumer for bank transactions, it can be implemented. If an invention is compatible with job accountabilities, customer requirements, and value systems, it is more likely to be adopted (Argarwal & Prasad, 1998).

According to Liou (2008), a lot of research is being done in Taiwan on mobile banking with the aim of creating a much faster service than PC internet banking because it is now understood that mobile banking is crucial from both the perspective of the client and from a commercial standpoint. Shaikh and Karjaluoto (2015) report that most articles published in the m-banking literature between 2005 and 2014 address the motivations, attitudes, behavioural intention, social systems, and associations that influenced the potential adopters of that technology in their review of the literature, which includes 55 studies. Moreover, attitude and perceived utility are the two key factors influencing intentions to use mobile banking.

Other academic publications examine adoption from the critical viewpoint of the customer. According to this viewpoint, Ghobadian, Speller and Jones (1994) show that customers valued quality more than perceived quality and cost and that these two factors actually facilitated the adoption process. The level of quality that customers openly or subconsciously want and expect from service providers is known as sought quality. The desired quality (customer expectations) is produced by a number of elements, but the main one is a customer's prior, personal interaction

with a service. In addition, the customer is influenced by the experiences of other users and by the reputation of an organisation. In light of this, Ghobadian et al. (1994) proposed that the perceived quality places emphasis on the general impression and experience a client has regarding the degree of quality after receiving a service. Khan (2001) further suggests that the potential discrepancy between the desired quality and the perceived quality offers the service provider the chance to gauge customer satisfaction based on defining the precise and actual standards by which the customers are rating the service.

In a study by Oluoch (2012), the factors influencing the uptake of mobile banking in Kenya were examined through the lens of bank clients in the Nakuru municipality. According to this study, perceived utility positively influenced the uptake of mobile banking while perceived risk negatively impacted it. Kasyoki (2012) employed a sample size of 60 mobile banking users and concentrated on identifying the elements that influenced Kenyan mobile banking customers' adoption of mobile banking. According to the report, respondents utilised mobile banking because they thought it was more affordable, secure, and dependable overall. The study also discovered that mobile banking offers a variety of services is practical for carrying out financial transactions and gaining access to bank services, saves time, and has a fast connection. Customers of the bank anticipate that mobile banking will function as expected and be secure. Customers also anticipate not losing any privacy information or money when using mobile banking.

2.4.3 Infrastructure of the Internet and networks

According to Bons, Alt and Lee (2012), the majority of retail banks today offer an Internet channel through which customers can access their accounts and, to varying degrees, initiate instructions, modify personal data, and do similar tasks. Ching et al. (2011) sought to explore Malaysians' acceptance of mobile banking by extending the Technology Acceptance Model (TAM). With regard to behavioural intention to use mobile banking, the study specifically looked at the interaction between variables of perceived innovativeness, perceived ease of use, social norms, perceived dangers, and perceived relative benefit. The findings showed that only social norms were determined to be statistically insignificant in the study among all the criteria taken into account.

Mari and Minna (2003) conducted research on the uptake of mobile banking in Finland. The study's findings showed that some m-banking innovation's benefits motivate its use. Relative advantage, compatibility, and communication are some of the characteristics. The complexity and risk of adopting M-banking were not shown to be adoption roadblocks in the research. The results also showed that attitudes towards technology and particular customer demographic factors have a big impact on adoption.

A thorough Mobile Banking Evaluation Framework (MoBEF) is offered by Zarifopoulos and Economides (2009). This framework had 164 criteria divided into six groups: reliability, technological aspects, offered services, interface, navigation, and content. According to the study's findings, banks would be interested in growing both the proportion of regular and mobile consumers. Multiple channels would draw new, dependable clients. Customers would be free to use whatever alternative channels that were accessible. Offering simple, dependable, and secure mobile banking would draw in mobile users.

Customers in Finland were surveyed by Laukkanen and Lauronen (2005), who discovered that they value location-free access and the ability to respond quickly to service needs for the creation of ease and efficiency in service consumption.

2.5 Effect of Mobile Loans on Commercial Banks' Financial Performance

The under-served are served by mobile credit by using their phone to access credit (GSMA, 2016). Digital credit differs significantly from traditional credit in a number of important ways, including CGAP. First off, the entire process—from loan application to approval—takes essentially no time at all. Second, because digital credit products use past user data to produce credit ratings, the review of loan applications is automated. Third, loans can be processed remotely, avoiding the need for customers to physically visit a location or an agent. The study of non-traditional digital data sources, as opposed to the traditional credit scores established by a typical credit agency, is regularly used to make lending choices, which is a final characteristic of digital credit. The literature on mobile loans and digital credit is reviewed in this section in relation to the services provided by mobile lending, consumer acceptance, and default trends.

2.5.1 Products for mobile loans

The foundational elements of digital credit—mobile phones, identity-linked digital footprints, automated credit scoring, agent networks, and credit information sharing—have made it possible for lenders to disburse loans rapidly and widely (Gubbins & Totolo, 2018). The amount of money lent through mobile banking services served as the benchmark for measuring mobile loans. Short-term, high-interest loans issued directly to customers are currently the most common type of digital credit (Soursourian, 2018). In the most typical arrangement, which is collaboration between a bank and a telecom, the bank initiates the loan, but customer interactions, such as loan disbursal and repayment, are handled through the mobile money platform. The typical M-Shwari loan is just about USD 12 (Cook & McKay, 2015), hence loan amounts are not particularly substantial. The normal loan length is no more than one month (for example, M-Shwari), however other lenders, like Airtel Malawi, only offer loans for one week. While late costs vary from provider to provider and loans are typically not secured, consumers are typically formally charged a predetermined "facilitation fee" instead of an interest rate. The mobile money and airtime systems are often separate, so while some businesses can automatically withdraw mobile money balances in the event of late payment, they typically cannot do so from airtime recharges.

According to Chakraborty (2018), using a digital lending platform can significantly reduce the costs associated with hiring staff, maintaining fixed assets, and handling daily transactions that must be manually documented. The first is technology and data processing; in the modern world, technology is quite affordable, and the data processing services offered globally are in high demand. As a result, managing numerous clients simultaneously at various locations becomes simple. The second factor is speed; with the right information being collected, validated, and distributed quickly, a loan application can receive their money within a day or two. Thirdly, there is the multilevel network; with digital lending, different processes are carried out on several levels where lending institutions from various organisations and channels associate with one another, ultimately resulting in a vast network of institutions expanding together. The fourth topic is borrower satisfaction; the client who works with such an advanced organisation receives good support from them and is happy with the services rendered to him in such a short amount of time.

The impact of mobile-based loan management practises on the financial performance of commercial banks in Kenya was studied by Wainaina (2017). The research design used in the study was descriptive. A sample of 52 credit risk and finance managers from Kenyan commercial banks who were chosen for the study from a total of 86 participants made up the responders. Structured questionnaires were used to gather primary data. Statistics that are both descriptive and inferential were used to analyse the data. According to the study's findings, credit rating and payback terms significantly improved the financial performance of Kenya's commercial banks.

The study also came to the conclusion that the financial performance of commercial banks was strongly impacted negatively by default patterns and risk profile. The study's final finding was that credit scoring, rather than default patterns, repayment time, or risk profile, had a bigger impact on the financial success of commercial banks.

2.5.2 Utilisation of mobile loans

Mobile payments, according to Slade, Williams, Dwivedi and Piercy (2015), did not develop as a result of technological advancement but rather as a response to an unmet need. In order to give consumers, the ability to begin, approve, and/or complete a financial operation in which funds are transferred through mobile system to the desired receiver, the researchers point out that mobile payments represent a culmination of innovations, integrating payment systems with mobile devices. Their study ignored mobile loans, a crucial element of mobile commerce, and solely examined the effects of mobile payments.

Tchouassi (2012) used empirical data from a few sub-Saharan African nations to investigate whether mobile phones can successfully provide banking services to the unbanked. The goal of this study was to discuss the potential for using mobile devices to provide financial services to the unbanked, underbanked, and vulnerable populations. The study found that poor, vulnerable, and low-income households frequently lacked access to bank accounts in Sub-Saharan African (SSA) nations and encountered exorbitant fees for carrying out even the most basic financial transactions. The cell phone offered a fantastic opportunity for the unbanked to receive financial services. To make these services a reality, policy and regulatory innovation was required in addition to technological and economic innovation.

According to the GSMA (2016) report, mobile banking showed amazing income growth. According to Vodacom, M-Pesa accounted for 22.6% of service income in Tanzania in 2015. According to Millicom Group, overall revenue from mobile money-related operations increased by 23.1% in the third quarter of 2015 compared to the same period in 2014 across nine markets in Sub-Saharan Africa, Latin America, and the Caribbean.

According to MTN Group (2016), MTN Mobile Money income climbed by 55.8% in 2015, making up 16.8% of its overall revenue in Uganda, 6.0% in Ghana, and 6.2% in Rwanda. Orange reported in its financial year 2015 report that mobile money produced 64% more revenue than it did the year before. According to Ellen (2018), the majority of customers of commercial banks prefer utilising their phones to obtain any services rather than going to the physical locations and waiting in queue. They are unable to afford the time anymore. The risk of interest income returns presented by lending through the use of mobile-based technologies, however, is a significant cause for concern.

2.5.3 Mobile-Based Loan Default Trends

Nyaga (2013) investigated whether SMEs in Naivasha Town were aware of and used mobile money services, as well as whether this use had any bearing on SMEs' ability to grow through increased sales or access to savings and loans. They also sought to ascertain whether the low cost, convenience, and accessibility of mobile money services have any impact on SMEs' performance. It has been proven that mobile money has significantly benefited the SME industry. The majority of traders use it instead of the traditional banking system for their daily transactions. Second, it is clear that everyone who participated in this survey had a thorough understanding of how mobile money services worked. The use of mobile money services increases sales. Efficiency and dependability are more important to the use of mobile money and the expansion of SMEs. It is important to note that the majority of respondents expressed scepticism about the service's pricing and convenience due to issues with its functionality.

Nearly half of digital borrowers in each country reported having paid a loan off late at some time, according to a Soursourian (2018) survey.

Both Tanzania and Kenya recorded default rates of 31% and 12% respectively. In Kenya, 20% of digital borrowers and in Tanzania, 9% of borrowers said they had to make less food purchases to repay a loan. Additionally, a sizeable minority in each market complained about low transparency, which is associated with greater rates of late repayment and default.

Mobile loans are accessible from many banks and non-banking institutions, are short-term, have a high interest rate, and are simple to obtain (Kariuku, 2018). Three million borrowers reported late loan payments that resulted in significant fines, with 9% of defaulters being flagged as risk-averse loanees by the credit reference agency.

The performance of commercial banks' loan portfolios was the subject of a research by Nakayiza (2013) that focused on Uganda's Centenary Bank, which has its main office on Entebbe Street. The analysis found that even though the Bank made an effort to extend credit in accordance with established standards, certain customers continued to miss credit payback deadlines, which increased the impact of bad debts on the bank's performance. This led to risk in the loan portfolio's performance and had an impact on its profitability. The study's findings also showed a failure to properly examine how rising interest rates might affect past and present trends in loan repayment.

2.6 Effect of Mobile Banking Risks on Commercial Banks' Financial Performance

Mobile banking is prone to a variety of dangers. It appears that the majority of these threats are initiated through the mobile banking app. Risks associated with mobile banking have been identified as the biggest obstacle to the development of a sustainable business model in this nascent and promising sector. Financial institutions that offer mobile banking services face major security difficulties, and each delivery method entails particular risks for the institutions and the users (Kopchik, 2011). Risks include hacking into mobile banking systems, issues with privacy and security, problems with trust, and concerns with the moral ethos of mobile banking. As a result, this section covers the security hazards, financial risks, and ethical guidelines associated with mobile banking.

2.6.1 Security Risk

Different kinds of security dangers have emerged as wireless technology has improved and expanded widely, just as mobile banking.

Security is one of the most significant problems consumers encounter and acts as a barrier to the adoption of new technology (Wang et al., 2006). According to Mattila (2016), using a mobile device for banking is reliable. Fain and Robberts (1997) demonstrated that risk is a human perception rather than a product. The consumer is influenced by this view to use mobile banking.

According to a study by Wang et al. (2006), people who use mobile banking may worry about security issues such loss of connection, data transmission, and money concern. Black et al. (2001) and Kuisma, Laukkanen and Hilfunen (2007) both state that mobile banking service providers need to create a method that ensures the security of sensitive data and financial transactions. Security must be impenetrable and prohibit usage that is not authorised. Sensitive information should only be utilised by linked parties, as stated by Brown et al. (2004) and Laukkanen and Lauronen (2005). Users must also guarantee their financial transactions, which will persuade customers to adopt. Numerous researches, including Souranta (2003), Laukkanen and Lauronen (2005), and Soroor (2006), asserted that only a minor concern—security—resists users' adoption of mobile banking.

There are also other obstacles to using mobile banking, such as location, mobility, and personalisation, as noted by Souranta (2003). According to ABI Research's estimate, more than 14 billion tablet apps and over 56 billion smartphone apps were downloaded globally in 2013 (Grimshaw, 2014). The number of harmful or potentially unwanted applications (PUAs) for Android increased exponentially in 2013, reaching over 1.59 million, according to the Webroot Mobile Threat Research team. Only 45% of all apps, according to the Webroot Mobile Threat Research team, are genuinely trustworthy or benign. With so many apps being created and downloaded, there are lots of opportunities for fraudsters to find security holes and infect user devices. According to a 2015 estimate by the British insurance giant Lloyd's, the cost of cyberattacks on organisations might reach $400 billion annually, including direct losses and post-attack disruptions to regular operations. Over the past year, certain vendors and media outlets have predicted that cybercrime will cost $500 billion or more (Morgan, 2016).

Young people in Germany's use of the mobile banking system were the focus of a study by Koening, Palmer and Moll (2010). Their research used the Technology Acceptance concept (TAM) concept as its foundation.

They utilised a structural equation modelling (SEM) approach to test the hypothesis and received 155 replies from all the surveys they issued. According to the study's findings, compatibility, perceived utility, and risk are important determinants of whether mobile banking systems are adopted in Germany.

Dineshaw and Steven (2013) looked into the intricate variables that keep clients in Mauritius from utilising mobile banking services. To further understand how m-banking is regarded in Mauritius, the researchers employed a quantitative method and merged the TAM, IDT, and perceived risk and cost constructs. According to the study, adoption of banking was affected by convenience, compatibility, and banking demands more than age, gender, or salary. However, it was discovered that the only barriers to using mobile banking were perceived security risk and reliability, and that these barriers were unrelated to age, gender, or pay.

In a study of user adoption factors for mobile banking services based on trust and mistrust, Yao (2013) contends that the quality of customer information will influence adoption. According to Yao, there is currently information asymmetry between the user and the bank, with the latter being in a position of information superiority and well aware of the workings and benefits of the mobile banking product. Instead, the inferior party is the user.

According to Porteous's (2007) research, the majority of unbanked persons lack bank accounts for "economic reasons," which include their employment status and the belief that having a job in a formal capacity is a requirement for opening an account. The study also discovered that young people typically do not have bank accounts and do not perceive the need for them. Additionally, it discovered that m-banking users are generally slightly older, have higher incomes, and are more likely to reside in urban areas and hold formal employment than non-m-banking mobile phone users. According to Porteous (2007), the early adopter profile seems to be more correlated with the required functionality than with variables that suggest risk tolerance, including age. Additionally, a significant part of people who are banked either do not comprehend or have never heard of m-banking. Banked people still have a strong critical attitude about m-banking notwithstanding the high levels of ignorance they exhibit.

The main obstacles to the adoption of electronic banking in the Ethiopian banking sector, according to Ayana (2014), are security risk, a lack of trust, a lack of legislative and regulatory framework, a lack of ICT infrastructure, and a lack of competitiveness between domestic and foreign banks.

Another barrier to the adoption of new technologies in the banking sector is the absence of an appropriate legal and regulatory framework for electronic commerce and payments. The enforcement of the legality of electronic contracts, the use of digital signatures, intellectual property rights, and restrictions on the use of encryption technology, as well as the high rates of illiteracy, are all unaddressed by separate legislation. Because it makes banking services less accessible, Ethiopia's low literacy rate is a major barrier to the implementation of e-banking. Citizens must not only be literate in reading and writing but also have a foundational understanding of ICT in order to fully benefit from e-banking (Gardachew, 2010).

2.6.2 Economic Risk

Due to the fact that banking has grown to be a crucial necessity of life, dealing with banks and other financial institutions could be difficult. The cost of mobile banking is a significant barrier to its adoption from the perspective of financial hazards (Tarasewich, Nicleerson & Warkatin, 2002). The current mobile banking system requires a mobile device and wireless internet access, which results in financial issues (Nah, Siau & Sheng, 2005).

According to a study by Luarn and Lin (2005), the cost of adopting mobile banking has a detrimental impact on behaviour. Sadi, Azad and Noourdin (2010) conducted an examination of 196 respondents in the Sultanate of Oman and found that the biggest barrier to adopting mobile banking was the high cost. Financial risk is defined as the misappropriation of a bank account, a transactional error, and monetary losses (Lee & Kim, 2007).

Performance risk, social risk, security risk, financial risk, and time risk were identified by Lee, Lee, and Kim (2007) as the main five hazards that banks and consumers should take into account. All of these risks are barriers to adopting mobile banking, and social risks in particular were found to have negligible effects on behavioural intentions.

Kenyan banks particularly profited from the Internet's development due to its global nature. In contrast to US banks before the Gramm-Leach-Bliley Act of 1999, several European banks, including Kenyan banks, have benefited from "broad banking" (Barth, Brumbaug & Wilcox, 2000). The ability for banks to conduct a wide range of financial activities, such as managing mutual funds and trading securities, has been granted. When mutual funds are added to other earning assets, according to Valverde and Rodriguez's (2007) research, cost and profit global scope economies considerably improve, demonstrating the advantages of cross-selling and portfolio diversification in Kenyan banks.

2.6.3 Ethics

Due to moral and serious ethical problems in mobile banking organisations—problems that these financial institutions have not yet attempted to address—there are many opportunities for unethical corporate conduct (Boatright, 2009). Every institution has its own set of written operating procedures, industry principles, and ethical standards (Badi & Badi, 2009). Lack of trust and confidentiality on the Internet is a major barrier to the adoption of mobile banking (Quelch & Klein, 1996; Cockburn & Wilson, 1996). The various financial institutions haven't done any work on the ethics because telecom businesses are adopting new technology at a breakneck pace. If no effective steps have been taken for ethical way of interactions, it will conduct unethical business and will erode the faith of both customers and financial institutions (Boatright, 2009). Every company firm needs to have extremely explicit and documented ethical standards because every business firm has its own business concepts, methods, procedures, and processes (Badi & Badi, 2009).

Ibrahim et al. (2015) examined how risk and ethics affected customer behaviour in Pakistan when using mobile banking. The main objective of this research was to check the impact of innovations on adoption of mobile banking in Pakistan. The research was based on primary data, which was collected from 500 students of all the public and private universities of Pothohar region (Islamabad/Rawalpindu) by means of a questionnaire. Random sampling technique was used and through SPSS the correlation analysis and regression analysis were calculated. The correlation analysis results showed that there is positive significant relationship between innovations, with adoption of mobile banking in Pakistan.

The regression analysis showed the value of R square = 0.621, which means that the independent variable of innovation has 62% effect on dependent variable of mobile banking adoption.

Biteya (2013) investigated the difficulties mobile banking services in Tanzania had in obtaining clients at NMB in coastal Region. Customers and bank employees who made up a sample size of 80 respondents were given questionnaires and questioned as appropriate. The results showed that the majority of respondents were unaware of many of the services that NMB offers through mobile banking. According to the report, few clients are afraid to utilise the bank's mobile banking extensions of its existing services. They worry about service reliability, excessive prices, and insecurity. However, some clients choose not to use the services because they are unfamiliar with the ones provided by mobile banking. The study also demonstrated how customers' ability to use mobile banking effectively was impacted by their distance from the nearest branch or ATM.

Karanja (2017) used a descriptive research design to look into the dangers associated with mobile banking among Kenyan commercial banks. The study's participants were the 41 information technology managers employed by each of Kenya's 41 commercial banks as of June 30, 2016. Regarding the study's first goal, which was to identify hazards brought on by malware, the vast majority of respondents were in agreement that there were no known risks from malware virus attacks on the mobile banking platform. The second goal identified problems with security and, to a lesser extent, security against third-party access and privacy invasion. The third goal demonstrated that one-time SMS verification codes are widely used in addition to the standard Personal Identification Number (PIN).

2.7 Review of Similar Studies

Heinle and Verrecchia (2016) carried out an on-line survey in Ireland and collected their data using the snowball sampling technique. According to research, consumers' behavioural intention to use mobile banking in Ireland was significantly influenced by compatibility, perceived utility, and trust. Ireland's consumers do not shun mobile banking because of inconvenience, security, or perceived risk issues.

Aziz, Badrawy and Hussein (2014) put forth a paradigm with the goal of examining and contrasting the factors and difficulties that affect Egyptian consumers' intentions to use or adopt alternative self-service banking technologies. The data was analysed using cross tabulations, frequencies, and chi square tests. The three groups diverge greatly in terms of usage, value, risk, tradition, and image barriers. Significant correlations between adoption choices and knowledge of Internet banking, level of education, and type of mobile device ownership were also discovered.

Al-Jabri (2012) used the dispersion of innovation hypothesis to examine Saudi Arabia's choice in mobile banking. The study evaluated a variety of specialised characteristics and their effect on how flexible banking is received in third-world countries like Saudi Arabia. To evaluate the hypotheses and investigate factors that might affect mobile banking usage and reception, dispersion of progress was used. The report recommended that Saudi Arabian financial institutions offer mobile good banking services that take into account a variety of customers' requirements, convictions, prior experiences, and habits while also satisfying customers' needs. The study recognised and distinguished the impact of varied trade volumes on the financial planning of commercial banks.

Muisyo, Alala and Musiega (2014) evaluated the effect of mobile money services on banking institutions in Kenya. The study focused on commercial banks operating in Kakamega County. The study reveals that the introduction of a myriad of mobile money services (MMS) by various mobile money service providers to customers has become common in the recent years as a way of gaining competitive advantage through diversification, maintaining customer loyalty and increasing market share in order to grow their profitability and improve their financial position. The roll out of these services in developing countries has generated a lot of interest among various players in the financial sector of the economy. Such services include person to person (P2P) mobile money transfer (MMT), pay bill services, loan to customers and access to a wide range of banking services e.g. a/c balances, mini statements, transfer of money from one`s mobile line a/c to one`s own bank account.

Mutua (2013) examined how flexible savings affected the financial health of commercial banks in Kenya. The research outline was either descriptive or illustrative.

The sample size included mobile utility administrators and 43 business banks operating in Kenya as of December 2012. The total amount of money transferred over mobile devices for the previous five years was gathered, and the number of customers was compared to the profitability of the bank as determined by investment returns. According to the study, there is only a weakly favourable association between mobile savings and Kenya's business banks' financial performance.

Kithaka (2014) studied how Kenyan business banks' budgetary performance was impacted by their versatility. For this case, a cross-sectional survey research plan was used. This provided who, how, and what information about Kenya's commercial banks' use of mobile banking. All of the commercial banks in Kenya that offer mobile banking were examined as part of the study, which included a census survey. Secondary data were utilised in the study. The study concluded that mobile banking had a good and significant impact on Kenyan business banks' financial performance.

Kathuo, Rotich and Anyango (2015) conducted a study on how mobile banking has affected Kenyan business banks' financial success. In the study, a descriptive research plan was used. A total of 42 active Kenyan business banks were included in the sample as of December 2014. Primary data were gathered through questionnaires. Clear measurements were used for the analysis of measurable data, while descriptions were used to display subjective data. According to the survey, the number of mobile exchanges has dramatically increased in the most recent five years since the introduction of mobile banking. They concluded that banks that embraced mobile money services had an unfathomably wide customer base and, as a result, had significantly improved their financial performance.

Katema and Lungu (2019) looked into the variables affecting Kitwe commercial banks' adoption of mobile banking in Zambia. The study used simple random sampling to get a sample size of 60 while using purposive sampling to choose the commercial banks. The researchers employed descriptive statistics (measures of central tendency). According to the study findings, the majority of account holders are knowledgeable about using electronic banking services and are eager to adopt them for their banking requirements.

According to the study findings, clients may now access their money whenever they want and believe that mobile banking is a cost-effective solution to reach the un-banked.

Mwiya et al. (2017) conducted an empirical study examining factors influencing e-banking adoption in Zambia. The study examined the influence of e-banking technology's PU, PEU and trust (safety and credibility) on e-banking adoption. The findings indicated that modified TAM was applicable to the Zambian scenario for assessing, monitoring and increasing the adoption of e-banking services and that that PU, PEU and trust significantly and positively influences attitude to e-banking. In turn attitudes to e-banking influence intention and the actual adoption of e-banking services.

Lusaya and Kalumba (2018) conducted research in Zambia, which was aimed at investigating the challenges of adopting the use of e-banking by customers. The results of the study found that e-banking usage dependent on the availability of e-banking information. This means that there is increased publicity on e-banking, it is expected that if many customers would use the service. The results also showed that education levels also have a statistically significant influence on e-banking usage. This means that the higher the level of education, the more the usage of e-banking services. This is in line with the technological acceptance model. The study found that at 5% level of significant, concern for personal security was not related to usage of e-banking services.

2.8 Critique of Existing Literature

The majority of the articles written about mobile banking between 2009 and 2019 focus on the attitudes, motivations, behavioural intentions, social systems, and associations that affected those who would use that technology. Aduda and Kingoo (2012) looked into how Kenyan commercial banks' financial results were impacted by electronic banking. They did not focus on mobile banking in their investigation. Okiro and Ndungu's (2013) study which examined how mobile and Internet banking affected the performance of Kenya's financial institutions is another important one. The study's emphasis was on non-financial factors. Ngari and Muiruri (2014) evaluated how financial innovations affected the performance of Kenya's commercial banks. Mobile banking services were not the main focus of the study.

The analysis of the empirical literature on the impact of mobile banking services on commercial banks' financial performance reveals a mixed bag of findings from both emerging and industrialised nations. The majority of empirical studies have concentrated more on factors not included in this study, such as information and communication technology, money transfers between accounts, requests for statements and balance inquiries, improved access to information, and service fees. Among the others were mobile funds transfers, mobile loans, bank innovations, and utility bill payment. Other institutions, besides commercial banks, which were the major subject of this study, have also been the subject of similar studies. Therefore, the goal of this study was to close the knowledge gap that exists about the impact of mobile banking services on the financial health of Kenyan commercial banks. The research gaps that the present study aimed to close are shown in the following table.

Katema and Lungu (2019) looked into the variables affecting Kitwe commercial banks' adoption of mobile banking in Zambia. The effect of mobile banking on the financial performance of commercial banks was not further examined in this study. According to the review of the theoretical and empirical literature, there are not many studies that have been done on how the implementation of mobile banking will affect the profitability of commercial banks in Zambia. Therefore, the current study's main focus is on how mobile banking affects banks in Zambia's financial performance.

2.9 Lessons Learnt

Numerous participants in the financial sector of the economy have expressed a great deal of interest in the introduction of mobile services in emerging nations (Jenkins, 2014). Commercial banks have been at the forefront of adopting mobile money technology and integrating it into their core operations in order to gain competitive advantages and manage their operational costs. In emerging nations where millions of individuals have access to a cell phone, mobile banking presents a viable solution. By cutting down on travel time and distance to the closest retail bank branches, as well as the bank's own overhead and transaction-related costs, mobile services increase access to fundamental financial services (Benedict, 2013). In order to offer mobile banking services, commercial banks are forming partnerships with organisations that offer utility services and mobile service operators.

These services have grown at an unprecedented rate over the past few years, and they are now serving as a significant driver for social and economic development in many nations. Since its launch in 2007, mobile banking services in Zambia have had a massive penetration. Commercial banks have kept putting significant resources into mobile banking services. Investigating how mobile banking services affect the financial performance of commercial banks is necessary because more and more banks in Zambia are strategically releasing newer and newer mobile banking platforms.

Given the crucial role that commercial banks play in the economy, research on commercial bank performance in Zambia is essential. Phiri (2019) notes that the commercial banks in Zambia were forced to change from their traditional way of doing business to incorporate mobile transactions into their operations due to the convenience, accessibility, affordability, security, and ease of use that have come along with the introduction of the mobile banking concept. Commercial banks currently face a variety of difficulties, from financial problems to fierce market competition. According to Kawimbe (2018), this has prevented commercial banks in Zambia from meeting their goals, particularly in terms of ROI and ROE. As Kumar (2010) asserts, communication businesses have maintained a very high technology standard and are now providing banking services to the Zambian populace that has been shut out by the commercial banks. Commercial banks in Zambia must consider important problems such the cost of mobile banking services, system security, service speed, and talent requirements as they implement mobile banking technology in their operations. In order to determine their total impact on the performance of commercial banks, this is being done.

Numerous obstacles stand in the way of alternative banking channels' ability to boost bank profits (Maungu, 2015). The author also mentions a number of other challenges that were faced, including unsafe platforms, dubious clients, technological difficulties, communication network failures, and mistakes in transactional operations. It is also interesting that despite the availability of mobile banking services, clients continue to line up in banks to receive services (EBL, 2014), even though they could have completed those tasks using their mobile devices.

While banks have been successful in utilising current technology and offering customers additional channels for financial services, they now confront a difficulty in optimising the use of these channels. Any commercial bank operating in Zambia can only disregard that fact at its own peril, according to the FSD Annual Report (2018), which claims that mobile banking in Zambia has entirely altered the banking business.

2.10 Chapter Summary

There is a mix of findings from both developing and industrialised countries, according to a review of the empirical literature on the impact of mobile banking services on commercial banks' financial performance. The majority of empirical studies have concentrated more on factors not included in this study, such as information and communication technology, money transfers between accounts, requests for statements and balance inquiries, improved access to information, and service fees. Among the others were mobile funds transfers, mobile loans, bank innovations, and utility bill payment. Most of the same studies were also not done in Zambia. Therefore, the purpose of this study was to close the knowledge gap about the impact of mobile banking services on the financial performance of commercial banks in Zambia. The theoretical and conceptual underpinnings that support the investigation are described in the next chapter.

CHAPTER 3

THEORETICAL AND CONCEPTUAL FRAMEWORK

3.1 Introduction

The chapter presents theoretical background, a review of empirical studies based on the research questions and finally presents the conceptual framework for the study. It will focus on four theories to support the study. The conceptual framework will focus on the independent variables which are the services provided on mobile banking and dependent variables which are measures of the banks' financial performance and include ROA.

3.2 Theoretical Framework

This is a framework that looks at all the theories and models that already exist**.** The theoretical framework is the blueprint for the entire research study. Osanloo (2014) explains that, "it serves as the guide on which to build and support your study, and also provides the structure to define how you will philosophically, epistemologically, methodologically, and analytically approach the dissertation as a whole." This study covered three theories as explained below:

3.2.1 Technology Acceptance Model (TAM)

The Technology Acceptance Model (TAM), proposed by Fred Davis in 1989, provides a framework for understanding the factors that influence the acceptance and adoption of technology by users. TAM posits that users' intention to use a technology is primarily determined by two key factors: perceived usefulness and perceived ease of use. Perceived usefulness refers to the degree to which individuals believe that using the technology will enhance their performance or facilitate their tasks, while perceived ease of use pertains to the extent to which individuals perceive the technology as easy to use and learn. According to Davis, these two factors significantly influence users' attitudes and behavioural intentions towards adopting a technology. The Technology Acceptance Model is a widely recognised theoretical framework for understanding user acceptance and adoption of technology.

In the context of mobile banking, TAM posits that users' intention to use mobile banking services is influenced by perceived usefulness and perceived ease of use (Davis, 1989). For this study, TAM can be applied to examine employees' attitudes and perceptions towards mobile banking access, loans, and risks within Atlas Mara Zambia. By understanding employees' perceptions of the usefulness and ease of use of mobile banking services, the study can identify factors that facilitate or hinder adoption and utilization, thereby shedding light on the impact of mobile banking on the financial performance of the bank.

In the context of mobile banking, TAM has been instrumental in understanding users' adoption behaviour and predicting the success of mobile banking services. Research studies applying TAM have found that users are more likely to embrace mobile banking if they perceive it as useful for managing their finances conveniently and if they find it easy to navigate the mobile banking interface (Larina et al., 2021). By leveraging TAM, researchers and practitioners in the banking industry can identify strategies to enhance the perceived usefulness and ease of use of mobile banking applications, thereby promoting greater adoption and usage among customers.

Venkatesh, Morris, Davis, and Davis (2003) conducted a comprehensive review of user acceptance of information technology, emphasizing the significance of the Technology Acceptance Model (TAM). Their study synthesized research findings to develop a unified view of the factors influencing user acceptance and adoption of various technologies. Similarly, Lai and Li (2005) applied TAM to investigate users' acceptance of internet banking services. Their research underscored the importance of perceived usefulness and perceived ease of use in shaping users' attitudes and intentions towards adopting internet banking, insights that are also applicable to understanding mobile banking adoption.

3.2.2 Financial Intermediation Theory

The Financial Intermediation Theory, developed by Franklin Allen and Anthony M. Santomero in 1997, focuses on the role of financial intermediaries in facilitating the flow of funds between savers and borrowers in an economy. Financial intermediaries, such as banks, play a crucial role in mobilising savings from surplus units (savers) and channelling them towards deficit units

(borrowers) in the form of loans or investments. This process of intermediation helps to bridge the gap between those who have excess funds and those who need capital for productive purposes.

In the context of mobile banking, the Financial Intermediation Theory provides insights into how mobile banking platforms serve as intermediaries, connecting borrowers seeking credit with lenders.

By offering mobile banking loans, financial institutions can extend credit to individuals and businesses that may not have access to traditional banking services. This can stimulate economic activity, promote entrepreneurship, and foster financial inclusion. Moreover, the theory underscores the importance of effective risk management practices by financial intermediaries to mitigate credit risk and ensure the stability of the financial system.

Financial Intermediation Theory provides insights into the role of financial institutions, such as banks, in facilitating the flow of funds between savers and borrowers. In the context of mobile banking loans, this theory can be applied to understand how mobile banking platforms serve as intermediaries, connecting borrowers seeking credit with lenders. By evaluating the effect of mobile banking loans on the financial performance of Atlas Mara Zambia, the study can assess the bank's effectiveness in intermediating funds, managing credit risk, and generating returns from lending activities conducted through mobile channels.

The classic paper by Diamond and Dybvig (1983) presents a seminal model of bank runs and the role of financial intermediaries in providing liquidity to depositors. Their theoretical framework offers foundational insights into the functions and importance of financial intermediaries in mitigating liquidity risk in banking systems, aligning with the principles of Financial Intermediation Theory. Furthermore, Rajan and Zingales (1998) explore the relationship between financial dependence and economic growth. Their empirical research provides support for the role of financial intermediaries in allocating capital efficiently and promoting investment and entrepreneurship, corroborating the principles of Financial Intermediation Theory.

3.2.3 Market Power Theory

In his seminal analysis in 1934, Lerner explains that a firm with market power would price above marginal cost and receive economic rents to the harm of consumers in the form of what economists call dead weight loss. Increased market forces increase market power.

Market power is the ability of firms increasing prices without losing all its customers. This theory can take two forms in the banking sector which includes differentiations of products and service. Banks with a large market share and diversified product and services are most likely to exert their market power to determine prices for their products and services which in turn results into profits (Mensi, 2010). Market power theory consist of two hypotheses namely the traditional structure conduct hypothesis and relative market theory. Traditional structure conduct hypothesis argues that the more concentrated markets are, the lesser the competition due to high interest rates and lower deposits. Relative market hypothesis argues that only banks with big brands can influence pricing and rise profits.

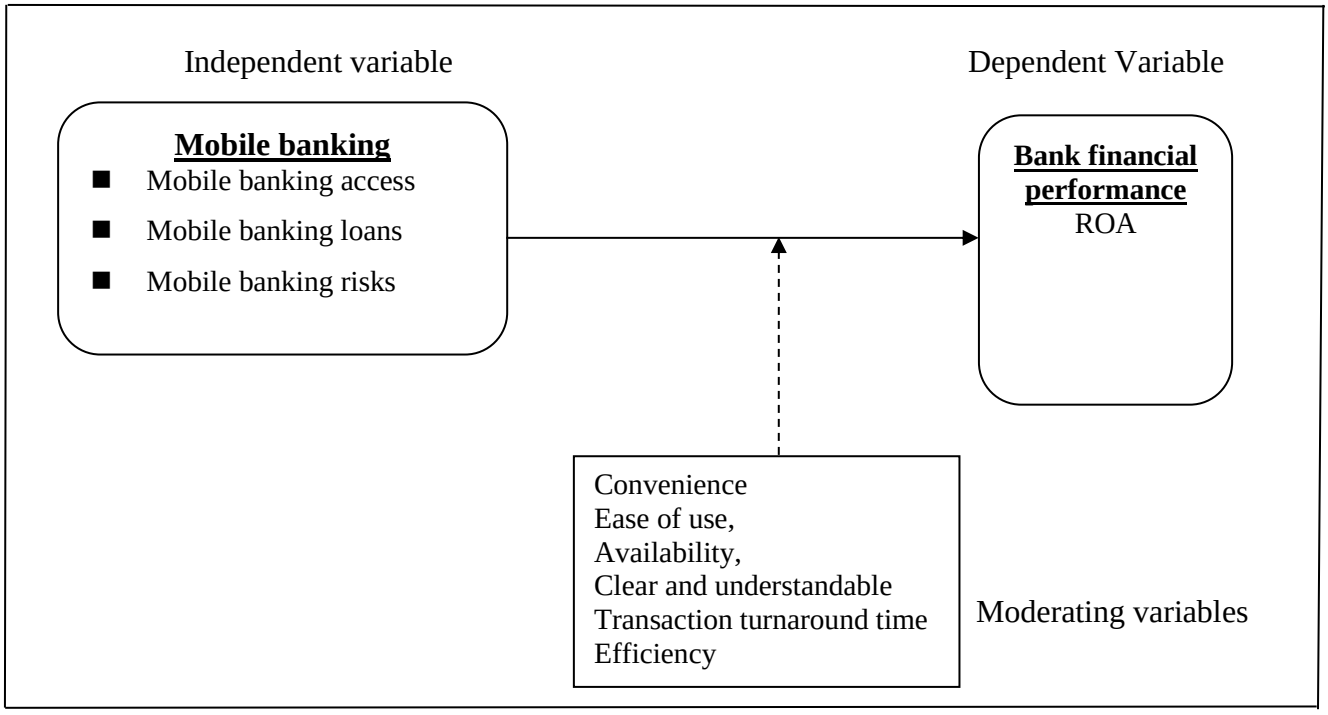
In market power hypothesis, banks with market power are less concerned with efficiency because of the exploitation through market power when determining prices for their goods and services which in turn allows them to automatically make profits. The benefits from Market power have been the most reason why there is a concentration of mergers and acquisitions in the banking sector as it increases the market share or merging firms.

Mobile banking access tends to increase market power as a result of easy accessibility as well as convenience which in turn increases financial performance of commercial banks.

3.3 Conceptual Framework

This is concerned with the researcher's own theories, concepts, beliefs and assumption which they could come up with in order to support and provide information about the study. It provides focus for the study. Conceptual framework is also defined as a visual written product that explains either graphically or in narrative form the key factors, concepts, variables and their alleged relationships among them. The conceptual framework is used to explain the relationship between independent and dependent variables in form of a diagram as depicted in Figure 3.1.

Figure 3.1: Conceptual Framework



Source: Researcher (2023)

3.3.1 Mobile banking access

The number of banking offices per unit of market area, which is a crucial aspect of the service given to financial customers where banking offices are very sparse, demonstrates the significance of service accessibility in the banking sector (Gunther, 2003). This gap has been closed by mobile banking, which offers easy access to financial services and goods at the touch of a button. Therefore, the following hypothesis was developed:

H_{01}: Mobile banking access has no effect on the financial performance of commercial banks
H_1: Mobile banking access has an effect on the financial performance of commercial banks

3.3.2 Mobile banking loans

Utilising mobile technology, mobile credit offers credit services to disadvantaged populations (GSMA, 2016). Digital credit differs significantly from traditional credit in a number of important ways, including CGAP. First off, the entire process—from loan application to approval—takes essentially no time at all. Second, because digital credit products use past user data to produce credit ratings, the review of loan applications is automated. Third, loans can be processed remotely, avoiding the need for customers to physically visit a location or an agent.

The study of non-traditional digital data sources, as opposed to the traditional credit scores established by a typical credit agency, is regularly used to make lending choices, which is a final characteristic of digital credit. Therefore, the following hypothesis was developed:

H_{02}: Mobile banking loans have no effect on the financial performance of commercial banks
H_2: Mobile banking loans have an effect on the financial performance of commercial banks

3.3.3 Mobile banking risks

Mobile banking is prone to a variety of dangers. It appears that the majority of these threats are initiated through the mobile banking app. Risks associated with mobile banking have been identified as the biggest obstacle to the development of a sustainable business model in this nascent and promising sector. Financial institutions that offer mobile banking services face major security problems, and each method of delivery has specific risks for both the institutions and the users (Kopchik, 2011). Risks include hacking into mobile banking systems, issues with privacy and security, problems with trust, and concerns with the moral ethos of mobile banking. The number of banking offices per unit of market area, which is a crucial aspect of the service given to financial customers where banking offices are very sparse, demonstrates the significance of service accessibility in the banking sector (Gunther, 2003). This gap has been closed by mobile banking, which offers easy access to financial services and goods at the touch of a button. Therefore, the following hypothesis was developed:

H_{03}: Mobile banking risks have no effect on the financial performance of commercial banks
H_3: Mobile banking risks have an effect on the financial performance of commercial banks

3.3.4 Return on Assets

Return on Assets is a fundamental financial metric used to evaluate a company's efficiency in generating profits from its assets. It provides insights into how effectively a company is utilizing its resources to generate earnings. ROA is calculated by dividing net income by total assets and is expressed as a percentage.

The formula for ROA is as follows:

$$ROA = \frac{\text{Net Income}}{\text{Total Assets}}$$

ROA serves as a key indicator of a company's profitability and operational efficiency. A higher ROA suggests that a company is generating more profit per unit of assets, indicating efficient asset utilization and effective management. According to Brigham and Houston (2012), ROA measures the return generated by a company's assets and is an essential component of financial analysis. It helps investors and analysts assess a company's performance relative to its asset base. Additionally, Penman (2013) highlights ROA as a crucial metric in financial statement analysis, providing insights into a company's ability to generate profits from its investments in assets. The ROA is particularly useful for comparing companies within the same industry or analyzing a company's performance over time. Industries with high capital intensity, such as manufacturing, may have lower ROA due to significant investments in assets, whereas industries with lower capital requirements, such as technology, may exhibit higher ROA. Penman (2013) emphasises the importance of ROA in evaluating a company's financial health and investment potential. A consistent increase in ROA over time indicates improving profitability and operational efficiency, which may be indicative of a well-managed company. However, it's essential to interpret ROA in the context of industry norms and company-specific factors. As Damodaran (2012) notes, ROA should be analyzed alongside other financial metrics and qualitative factors to gain a comprehensive understanding of a company's performance and prospects. In conclusion, ROA is a vital metric for assessing a company's profitability and operational efficiency. It provides valuable insights into how effectively a company is utilizing its assets to generate profits and is widely used by investors, analysts, and financial professionals in evaluating investment opportunities and making informed decisions.

3.4 Chapter Summary

This chapter provided the theoretical and conceptual framework, giving an overview of the theories that were suitable for the study.

The chapter further gave an outline of the relationship of independent and dependent variables upon which the study was premised. The next chapter gives an overview of the methodology adopted to gather data and process it into information for the purposes of analysing the findings.

CHAPTER 4

RESEARCH METHODOLOGY

4.1 Introduction

This chapter describes the general approach and specific techniques adopted to address the objectives of the study. The chapter also discusses the research design, the population, the sample and sampling techniques as well as data collection methods. In addition, the procedure for the administration of instruments for the study and the data analysis that the study employed are also discussed.

4.2 Research Design

Saunders, Lewis and Thornhill (2012) define research design as the general plan of how the research questions would be answered. It constitutes a blue print for the collection, measurement and analysis of data. The study adopted a descriptive research design with a quantitative approach. In the descriptive design, the researcher does not manipulate the variables but rather describes the sample or the variables (Siedlecki, 2020). The design focused on the population or its subset to collect data that assisted to answer all the research questions. Primary data were collected using a questionnaire which was administered to the sample and secondary data were collected from published financial statements of Atlas Mara Zambia and Bank of Zambia for the years 2018-2022 and will focus on before and post mobile banking performance of the bank and the effects on its financial performance.

4.3 Target Population

Population is a group of individuals, objects or items from which samples are taken for measurement and have at least one thing in common (Kombo & Tromp, 2011). Mugenda and Mugenda (2003) state that, “a population is a group of individuals or objects with a common observable characteristic.” The target population of this study comprised of all the 1020 Atlas Mara Zambia employees as at 31st December 2021. In a study focusing on "the effects of mobile banking on the financial performance of Atlas Mara Zambia," employees were considered suitable respondents for several reasons. Firstly, employees are directly involved in the day-to-day

operations of the bank and have first-hand experience with the implementation and utilization of mobile banking services.
Their insights can provide valuable perspectives on how mobile banking affects various aspects of the bank's operations, including customer interactions, loan processing, and risk management.

Secondly, employees possess in-depth knowledge of the bank's internal processes, policies, and procedures related to mobile banking. They can offer insights into the specific challenges, opportunities, and implications associated with mobile banking initiatives within the organisation. Additionally, employees may have access to internal data and performance metrics that can provide a comprehensive understanding of the impact of mobile banking on the bank's financial performance.

Furthermore, employees represent diverse roles and departments within the bank, including frontline staff, customer service representatives, loan officers, and risk managers. Their perspectives may vary based on their roles and responsibilities, providing a holistic view of the effects of mobile banking across different functions and levels of the organisation. By engaging employees as respondents, the study captured a wide range of perspectives and ensured comprehensive coverage of the various dimensions of mobile banking's effect on financial performance.

Overall, employees were considered suitable respondents for this study due to their first-hand experience, in-depth knowledge, and diverse perspectives on mobile banking within Atlas Mara Zambia. Their insights contributed significantly to understanding the complex dynamics between mobile banking initiatives and the bank's financial performance.

4.4 Sample Design, Sample Size and Sampling Technique

Sampling design can be defined as a procedure or plan drawn up before any data is collected to obtain a representative sample from a given population (Saunders et al., 2012). The sampling frame, sampling technique and sample size, all make up the sample design. A sampling frame is a list of elements from which a sample can be drawn. A sample refers to a small representative unit or group that is derived from the study population (Mugenda & Mugenda. 2013). Sampling

technique is the process of selecting several individuals for a study in such a way that they represent the large group from which they were selected from.

In order to carry out the above, the researcher requested for a list of employees from the head of human resources. The said list provided names of employees, their departments, and job positions, length of service and email addresses. The study adopted a stratified random sampling method to choose a fully representative of the sample from all hierarchies and departments of the Bank.

Various types of employees within Atlas Mara Zambia were considered suitable respondents. Frontline staff members, such as tellers, customer service representatives, and branch managers, interact directly with customers on a daily basis, providing valuable insights into customer behaviours and experiences with mobile banking services. Loan officers play a pivotal role in evaluating loan applications and managing credit risk, offering perspectives on the impact of mobile banking on lending activities. Risk managers are tasked with identifying and mitigating various risks, including those associated with mobile banking; while IT and technology staff members provide expertise on the technical aspects of mobile banking platforms. Lastly, senior management offers strategic direction and oversight, providing insights into the strategic objectives and performance metrics related to mobile banking initiatives. By considering these diverse employee roles across different departments and hierarchical levels, the study ensured a comprehensive analysis of the effects of mobile banking on Atlas Mara Zambia's financial performance. The main goal of such a sampling method is to focus on characteristics of a population that are of interest, which then guide the researcher to answer the study's research objectives. The sample of the study was 287 respondents as determined below. The sample size was established using De Vaus' (2016) formula as follows:

$X=n/(1+n(e)^2)$

X=Sample size, n=total population, e=level of error which is 5% at 95% confidence level.

Therefore, the calculation for sample size in this study is as follows:

$= 1020/(1+1020(0.05)^2)$

$= 1020/(1+1020(0.0025)$

$= 1020/(1+2.55)$

= 1020/(3.55)

= 287 respondents

4.5 Data Collection Methods

Both primary and secondary data were used in this research. Thus, primary data were collected through the use of structured questionnaires administered to participants. The data collected for this study were taken from Atlas Mara Zambia employees. The questions were simple and straight forward to avoid ambiguity. Secondary data for this study were obtained from the bank's financial statements before and after the introduction of mobile banking focusing on the years 2019 to 2022.

4.6 Data Analysis

Data analysis is typically used to describe an approach for extracting meaning from obtained data by methodically and objectively identifying key characteristics (Bryman & Bell, 2015). Overall, Statistical Package for the Social Sciences (SPSS) served as the comprehensive tool for quantitative analysis, providing the researcher with the means to manage, analyse, and interpret data effectively. The SPSS allowed the researcher to enter, organise, and manage data efficiently. It provides tools for data cleaning, manipulation, and transformation, enabling users to prepare their datasets for analysis. The study used both construct and content validity, as advised by Polit and Hungler (2006), and separated the questionnaires into different sections to make sure each component closely matched the conceptual framework and assessed information for each objective. To give the data in this study context, descriptive statistics like means, percentages, and frequencies were applied. Tables and figures were used to present the data. The analysis

The strength and connection between the independent factors and financial performance were evaluated using Pearson's correlation method. ANOVA (Analysis of Variance) and regression of coefficients were used in the analysis, and regression analysis was also used to evaluate the model's fitness (R-square). Tables and figures were used to present the data. The degree to which all of the independent variables together predict financial performance was explained by the model's fitness. Using the standard threshold of significance of 0.05, ANOVA statistics explained the model's overall significance. Specifically, the regression model listed below was used:

$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \mu$

Where;

Y= Financial Performance (ROA)

X_1 = Mobile Banking Access

X_2 = Mobile Banking Loans

X_3 = Mobile Banking Risks

α = constant

μ= error term

$\beta 1, \beta 2, \beta 3$ = beta coefficients

4.7 Validity and Reliability

Ensuring the validity and reliability of data is crucial for any research endeavor, particularly when investigating the effects of mobile banking on the financial performance of Atlas Mara Zambia. To achieve this, the study employed a rigorous methodological approach focused on the use of close-ended questionnaires administered to employees of Atlas Mara. The validity of the study was upheld by carefully designing the questionnaire to capture relevant constructs related to mobile banking access, loans, and risks, aligning with the research objectives. Additionally, content validity was ensured through expert reviews and pilot testing of the questionnaire to assess clarity, comprehensiveness, and relevance of the items. Furthermore, construct validity was established by selecting measurement scales and items that are theoretically grounded and supported by existing literature on mobile banking and financial performance.

Reliability, on the other hand, was maintained through standardised data collection procedures and techniques. The questionnaire utilised closed-ended questions with fixed response options to minimise ambiguity and subjectivity in respondents' answers, thereby enhancing the consistency and repeatability of data collection. Moreover, the study ensured reliability by employing a large sample size of employees across different departments and hierarchical levels within Atlas Mara Zambia, reducing the likelihood of sampling errors and enhancing the generalizability of findings. Additionally, measures of internal consistency, such as Cronbach's alpha, were calculated to assess the reliability of the questionnaire items and ensure their consistency in measuring the intended

constructs. In the context of this study, Cronbach's alpha can be calculated for each section of the questionnaire related to mobile banking access, loans, and risks. To evaluate reliability, the responses to the questionnaire items were scored and analysed

using statistical software. The resulting Cronbach's alpha coefficient indicated the degree to which the items within each section of the questionnaire were interrelated and measured the intended construct consistently. A high Cronbach's alpha value, typically above 0.70, suggests strong internal consistency among the items and indicates that the questionnaire reliably measures the targeted constructs. By calculating Cronbach's alpha, the study was able to assess the reliability of the questionnaire items and ensure their consistency in measuring the effects of mobile banking access, loans, and risks on the financial performance of Atlas Mara Zambia. By adhering to these rigorous methodological principles, the study enhanced the validity and reliability of its findings, providing robust insights into the effects of mobile banking on the financial performance of Atlas Mara Zambia.

4.8 Ethical Considerations

Saunders et al. (2012) note that researchers frequently think about protecting the rights of participants when ethics are addressed in research design. To ensure that the principles of research ethics were maintained, the researcher did the following: The researcher ensured that participants had informed consent in the cover letter of Appendix I. The researcher further ensured that participants were encouraged by asking them to participate without coercion. Indication of the names of the respondents on the questionnaire was not a requirement. This was done to protect the rights of the respondents to participate. With no disclosure of the respondent's identity, the researcher managed all the information collected from the respondents confidentially. This was done to guarantee that the respondents had the freedom to express themselves during the data collection procedure. It was made clear to the participants that the sole motivation behind the conduct of this research was academic, but they were informed that the findings may be useful in the process of changing policies.

4.9 Chapter Summary

This chapter is all about the research methodology. It has defined and explained the chosen research design which was used in this project. It also explains the population and sampling design. That is, it specifies and shows the population size and it also defines and explains the chosen sampling design that is, the sampling frame, the sampling technique and the sampling size. It also helps understand the data collection methods, the research procedures and the data analysis methods. The next chapter presents the results and findings in relation to the study's specific objectives.

CHAPTER 5

PRESENTATION AND DISCUSSION OF FINDINGS.

5.1 Introduction

This chapter presents the analysis and conclusions of the information that was acquired in relation to the perspectives of the respondents in order to ascertain the influence of mobile banking on the financial performance of Atlas Mara Zambia. The chapter opens with describing the demographic details of the respondents. The following are findings about the financial health of Atlas Mara Zambia and mobile banking accessibility. The study later presents the findings on mobile loans and the financial performance of Atlas Mara Zambia. The findings regarding the financial performance of Atlas Mara Zambia and risks associated with mobile banking are the last ones to be presented in this chapter.

5.2 Response Rate

According to Section 3.5, the questionnaire was given out to the targeted respondents (senior and middle banking employees) for a two-week period. After 10 days, 256 responses were received in total out of 287, representing 89.2% response rate. Due to the 256 total responses, the outcome is fairly accurate. Therefore, it was determined that prequalifying the analysis of the remaining data and presenting the findings afterwards was sufficient.

Table 5.1: Response rate

	Frequency	**Percentage**
Responded	256	89.2%
Failed to Respond	31	10.8%
Total	**287**	**100**

Source: Field data (2023)

5.3 Respondents' Demographic Profile

In this section, the demographic profile of the responders is shown. Demographic characteristics include gender, age, marital status, and level of education, and respondent's position within the

bank. In reality, the researcher's ability to judge how well a respondent answers survey questions was greatly influenced by their demographic characteristics.
The percentages that represent the demographic findings of the current study were derived from the proportions of the overall frequencies.

Collecting demographic information of bank employees as respondents in a study of this nature is crucial for gaining comprehensive insights into the impact of mobile banking initiatives within the organisation. Demographic data such as age, gender, educational background, and years of experience offer valuable context for understanding the diverse perspectives and experiences of employees regarding mobile banking. By analysing demographic characteristics, the study can identify specific training and support needs of employees, assess levels of engagement and involvement in mobile banking initiatives, and address diversity and inclusion considerations within the workforce.

Furthermore, demographic information informs human resource strategies by guiding recruitment, training, and talent management practices, ensuring that the organisation effectively leverages mobile banking to enhance financial performance while supporting the needs and preferences of its employees. Overall, collecting demographic data of bank employees enriches the study's analysis and facilitates a more holistic understanding of the implications of mobile banking on Atlas Mara Zambia's financial performance.

Research by Venkatesh and Davis (2000) titled "A Theoretical Extension of the Technology Acceptance Model: Four Longitudinal Field Studies" emphasises the importance of understanding employee perspectives in technology adoption. The study suggests that individual characteristics such as age, gender, and experience can influence employees' perceptions and attitudes towards adopting new technologies, including mobile banking systems. This highlights the relevance of demographic information in assessing employees' readiness and willingness to embrace mobile banking initiatives within commercial banks.

Studies such as "Workforce Demographics and Training Needs Assessment: Findings from the 2018 Training Survey" conducted by the Association for Talent Development (ATD) highlight the importance of considering demographic factors in identifying training and support needs.
Demographic information such as age, education level, and job role can inform the design and delivery of training programs aimed at enhancing employees' skills and competencies in utilising mobile banking technologies effectively. This underscores the relevance of demographic data in addressing the training and support needs of bank employees in the context of mobile banking adoption.

5.3.1 Gender of respondents

The sample was composed of 40% women and 60% men. The gender ratios of women to men were two to three (2:3). The gender percentage disparity was caused by the low percentage of women in the sampled employed population. The detailed demographic profile is shown in Figure 5.1**.**

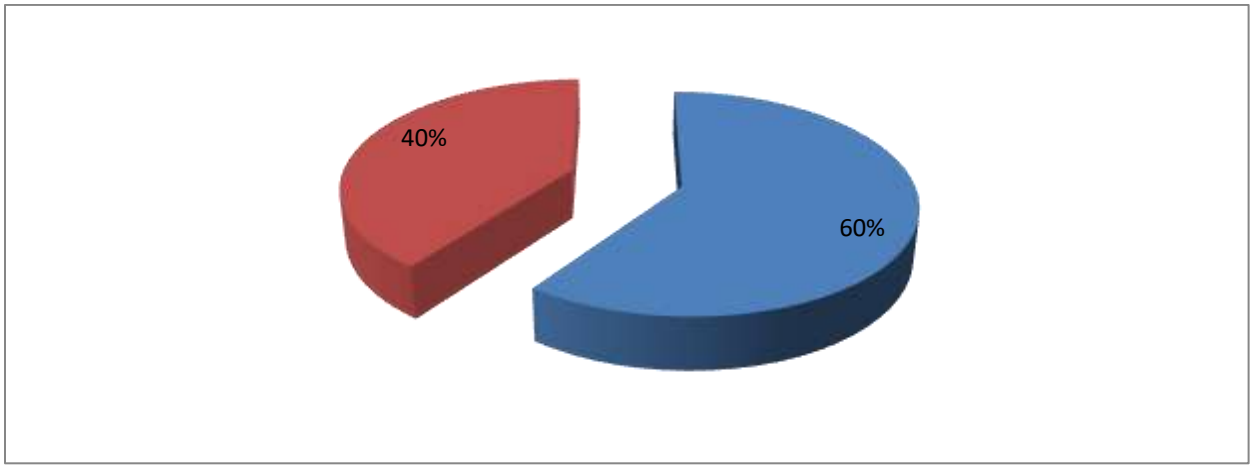


Figure 5.1: Gender of respondents

Source: Field data (2023)

5.3.2 Marital status of respondents

The married population, which made up 62.9%, was the largest group of respondents from the total sample.

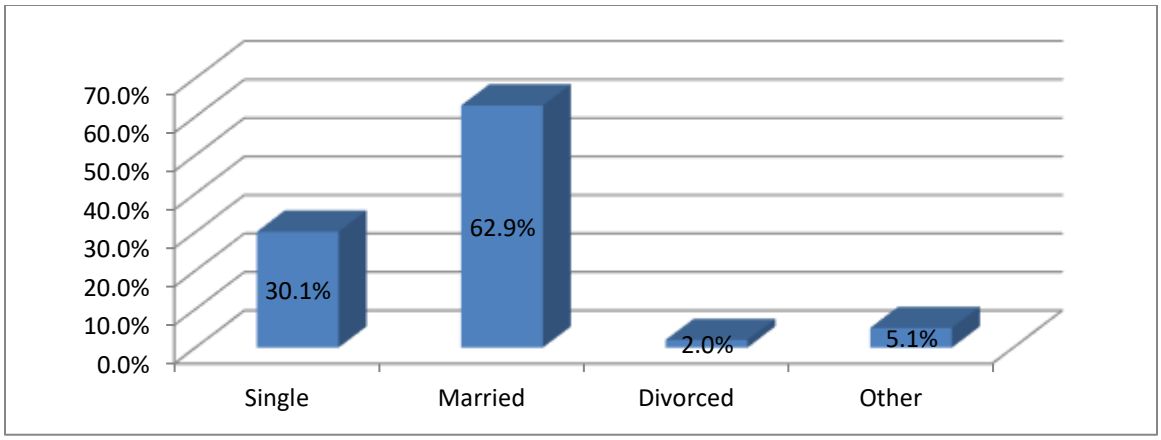


Figure 5.2: Marital status of respondents

Source: Field data (2023)

The large percentage of married respondents supports the age group of the samples' distribution, which was supported by the fact that the majority of respondents were 30 years of age or older. Figure 4.2 shows that only 2% of respondents were divorced, compared to 30.1% of respondents who were single.

5.3.3 Age distribution of respondents

Figure 4.3 shows that the age group between 31 and 40 years included 35% of the sample's total population, closely followed by the age group between 41 and 50 years, which comprised 24%. Ages 21 to 30 placed third with 20% of the vote. Age groups above 51 came in fourth with 12% of the vote. Only 9% of participants were less than 20 years old. The older the respondents, the more mature and knowledgeable their responses were.

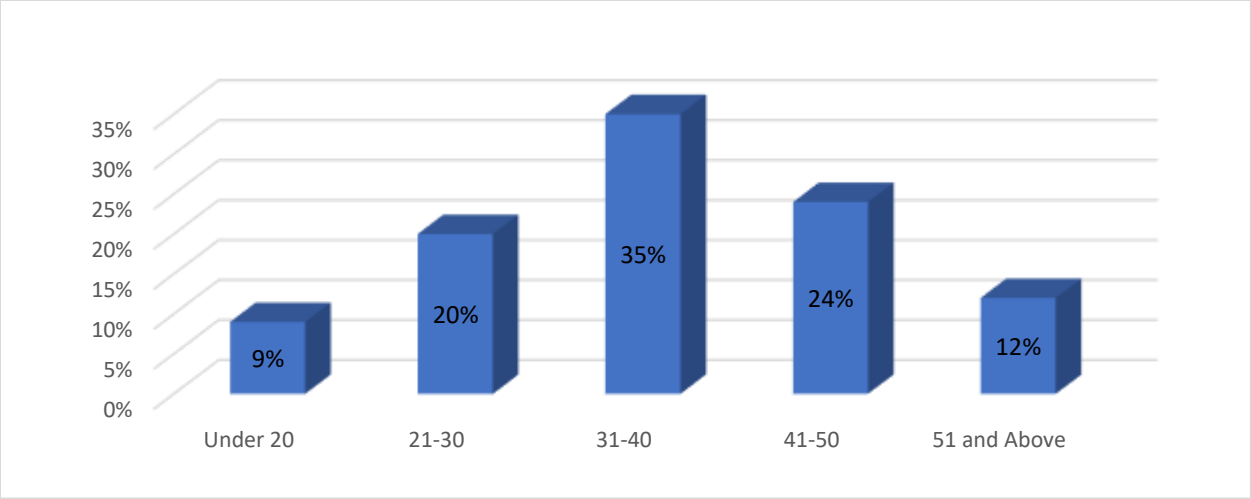


Figure 5.3: Age of respondents

Source: Field data (2023)

5.3.4 Education levels of respondents

According to the distribution of respondents by educational level, 47% of all respondents had a bachelor's degree. Figure 4.5 shows that the respondents with PhD qualifications were 0.39% and 27.61% accounted for respondents with master's degrees and 25% for respondents with diplomas. The respondents' completion of formal high school and post-high school education indicates that they had the knowledge needed to respond to the questionnaire.

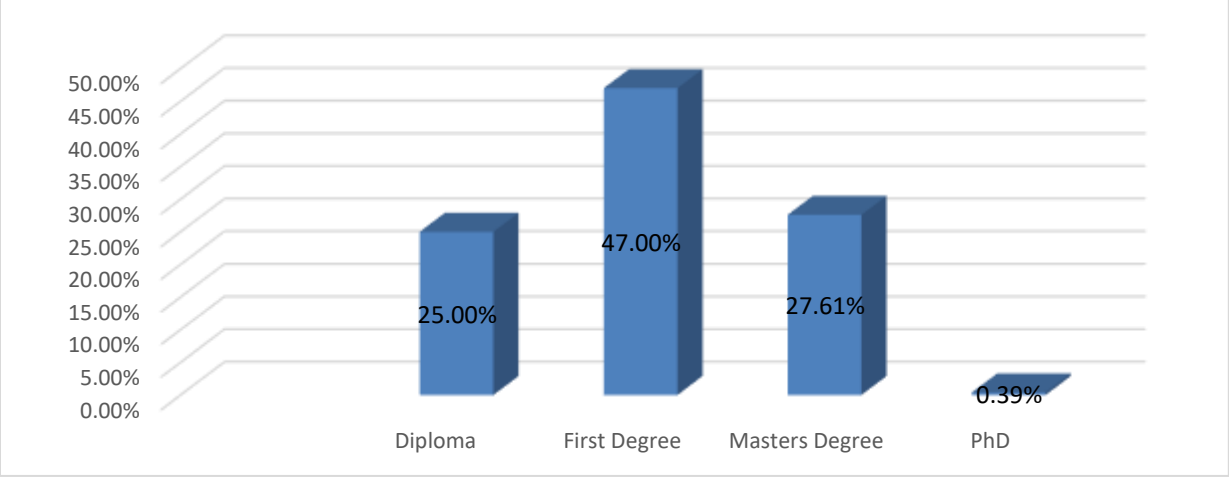


Figure 5.4: Education levels of respondents

Source: Field data (2023)

5.3.5 Position of respondents in the bank

Finding out the positions that the respondents held was one of the requirements in this study. The results are as presented in Figure 5.5. Managers made up only 8% of the survey population, according to the findings. The majority of respondents were subordinate employees (48%), followed by supervisors (26%), and heads of departments or functional units (18%). The respondents were qualified to respond to the questionnaire since they held significant roles in the banking sector and had greater hands-on experience with mobile banking.

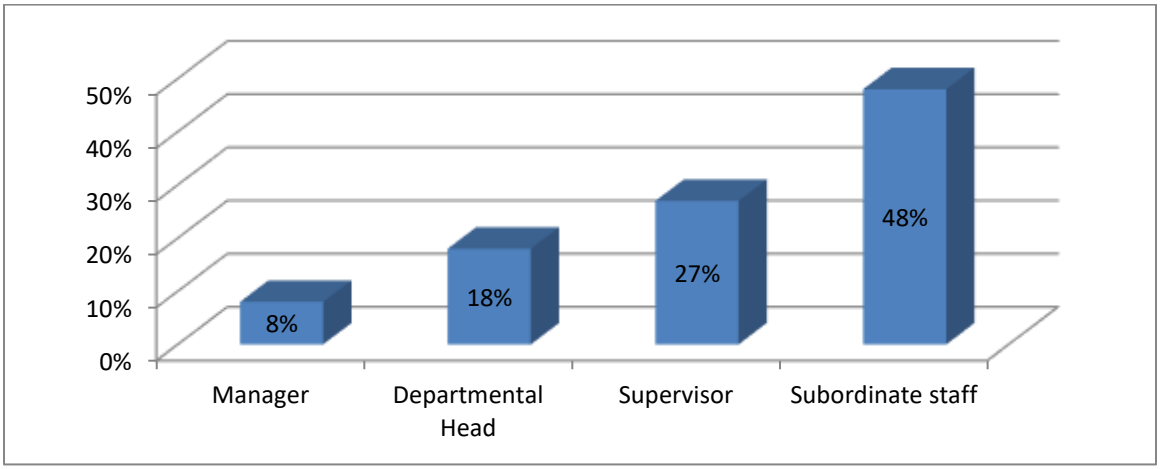


Figure 5.5: Position of respondents in the bank

Source: Field data (2023)

5.4 Mobile Banking Transaction Volumes

Table 5.2 presents data on mobile banking transactions for Atlas Mara, measured in Zambian Kwacha (ZMW) millions, spanning from 2019 to 2022. The total transactions show a consistent upward trend, starting at 11.17 million ZMW in 2019 and reaching 12.45 million ZMW in 2022. The mean transaction value also increases steadily over the years, from 9.95 million ZMW in 2019 to 11.96 million ZMW in 2022. Similarly, the median and mode values follow a similar pattern, indicating a general increase in transaction sizes. However, the standard deviation of transactions sees a notable increase in 2022, suggesting a greater variance in transaction amounts compared to previous years. The skewness values remain relatively stable over the period, indicating a slight right-skewness in the distribution of transaction values. This data was sourced by the researcher from Atlas Mara Annual Reports.

Table 5.2: Mobile banking transactions (ZMW millions)

Year	2019	2020	2021	2022
Total	11.17	11.49	11.93	12.45
Mean	9.95	10.33	10.78	11.96
Median	9.84	10.22	10.67	11.97
Mode	9.62	10.00	10.45	10.50
Standard Deviation	0.62	0.62	0.62	1.12
Skewness	0.35	0.35	0.35	0.28

Source: Atlas Mara (2023)

5.5 Reliability of Instrument

Overall Cronbach Alpha of the research tool was found reliable (0.805) as shown on Table 5.3. Mobile banking access had 10 items yielding Cronbach Alpha of 0.818, Mobile banking loans also had 10 items yielding 0.755, and Mobile banking risks also had 10 items yielding 0.842, giving an average of 0.805. That means that these factors were regarded by respondents as significant. In analysing the effects of mobile banking on the financial performance of Atlas Mara Zambia, it is imperative to consider various factors that influence access, loans, and risks within the mobile banking ecosystem.

Table 5.3: Reliability of transformed data

Variables	Number of Items	Cronbach's Alpha value
Mobile banking access	10	0.818
Mobile banking loans	9	0.755
Mobile banking risks	8	0.842
Overall Cronbach's Alpha	**36**	**0.798**

5.6 Effect of Mobile Banking Access on Financial Performance of Atlas Mara

A total of 45% of respondents agreed that mobile banking enabled 24/7 access to financial services.

Table 5.4: Descriptive statistics of mobile banking access

Mobile banking access variables	SD	D	N	A	SA	Mean	Std Dev.
Mobile banking has enabled 24/7 accessibility to financial services	5	5	38	92	115	4.2	0.9
Time spent in mobile banking is low compared to the traditional banking	5	18	61	133	38	3.7	0.9
Our clients can easily transact, pay bills and access their accounts through mobile banking	0	3	33	136	82	4.2	0.7
Our clients can bank anytime anywhere, check their balance and access bank statements.	0	8	46	113	87	4.0	0.8
Mobile banking is accessible, in terms of virtual locations and general national footprint.	3	8	51	131	64	4.1	0.8
Clients can easily interact with bank; express themselves without visiting their branches	0	5	13	102	136	4.4	0.7
There is great potential of using this for tapping into the unbanked community	0	0	0	0	0	4.1	1.0
Mobile banking has led to accessibility of financial service to customers in remote areas	8	8	49	82	110	4.2	3.6
Mobile banking has led to profitability of commercial banks.	3	15	59	108	72	4.1	0.7
Mobile banking increases effectiveness and efficiency of service delivery.	0	3	41	138	72	4.5	0.9
Overall Mean	0	5	49	128	74	**4.1**	**1.1**

Key: SD- Strongly Disagree, D- Disagree, N- Neutral, A- Agree, SA-Strongly Agree, Std Dev- Standard Deviation

Source: Field data (2023)

There were 52% of respondents who claimed they used mobile banking less frequently than traditional banking. In addition, 53% of respondents believed that users would find it easy to use mobile banking for transactions, bill payments, and account access.

Customers can access their bank statements, check their balances, and bank anywhere, according to 44% of respondents. Additionally, 51% of respondents said that mobile banking could be accessed virtually.

In addition to the ease of banking, 53% of respondents said that customers can communicate their grievances and problems. A total of 42% of respondents claimed that mobile banking had made it possible for residents of rural areas to access financial services. The respondents' 54% level of agreement offered more proof that mobile banking had increased profitability. More than 50% of those surveyed concurred that mobile banking improved service delivery by boosting effectiveness and efficiency.

The study determined the direction and strength of the relationship between mobile banking use and the financial performance of Atlas Mara Zambia. The study discovered a strong positive link between using mobile banking and the financial performance of commercial banks (r = 0.677**, p=0.000) with a significance level of 0.5%. The outcomes of the correlation analysis are shown in Table 5.5.

Table 5.5: Correlation between mobile banking access and bank performance

Correlations		**ROA**	**Mobile Banking Access**
	Pearson Correlation	1	0.677**
ROA	Sig. (2-tailed)		0.000
	N	256	256
	Pearson Correlation	0.677** 1	Pearson Correlation
Mobile banking access	Sig. (2-tailed)	0.000	Mobile banking access
	N	**256**	**256**

**. Correlation is significant at the 0.01 level (2-tailed).

Source: SPSS output (2023)

Table 5.6's R squared value of 0.458 indicates that access to mobile banking may be responsible for a variation of 45.8% in the financial performance of commercial banks.

Table 5.6: Model summary for mobile banking access

Model	R	R Square	Adjusted Square	R Std.	Error of the Estimate	Durbin-Watson
1	0.677[a]	0.458	0.456	0.7194 3	1.311	

a. Predictors: (Constant), Mobile Banking Access

b. Dependent Variable: ROA

Source: SPSS output (2023)

The regression equation implies that constant performance of Atlas Mara Zambia is at 1.935 units before the influence of factors associated with mobile banking access. But a unit increase in financial accessibility leads to 0.629 unit increase in the financial performance of the banking sector. Based on the findings of the correlation coefficients, the following regression model was developed:

$Y = 1.935 + 0.629X_1$……...Equation I

Table 5.7: Regression coefficients for mobile banking access and bank performance

Model		**Un-standardised Coefficients**		**Standardised Coefficients**	**t**	**Sig.**	**95.0% Interval for Lower Bound**	**Confidence B Upper Bound**
		B	Std. Error	Beta				
1	(Constant)	1.935	0.170		11.398	.000	1.601	2.270
	Mobile banking access	0.629	0.043	0.677	14.647	.000	0.545	0.714

a. Dependent variable: ROA

Source: SPSS output (2023)

5.7 Effect of Mobile Loans on the Financial Performance of Atlas Mara

Table 5.8 results suggest that a total of 44% of respondents were not sure whether mobile loans led to a rise in non-performing loans or not.

Table 5.8: Descriptive statistics for mobile loans and financial performance of Atlas Mara

Mobile Loans Variables	**SD**	**D**	**N**	**A**	**SA**	**Mean**	**Std. Dev**
Use of mobile loan platforms increases the nonperforming loan portfolio.	15	74	113	46	10	2.9	0.9
Mobile loans have led to increased profitability of commercial banks.	0	5	56	128	69	4.0	0.8
Use of credit scoring systems has increased the revenue generated from mobile loans.	8	20	61	102	64	3.8	1.0
Presence of well-defined repayment mobile loan periods has boosted commercial banks income.	13	23	72	90	59	3.6	1.1
Commercial banks have put measures in place to reduce default patterns	5	18	61	95	77	3.8	1.0
Use of mobile loan systems increases the risk profile, for commercial banks	74	74	74	23	10	2.3	1.1
Mobile loan customers delay to repay by less than 30 days	5	54	118	59	18	2.2	0.9
The probability of default is higher for mobile loans compared to other loans.	10	46	102	77	20	2.0	0.7
Mobile loan clients always pay on time	61	97	79	18	3	3.1	0.9
Mobile loan borrowers usually make the payment before the intervention measures.	61	133	56	5	0	3.2	1.0
Overall Mean						**3.1**	**0.9**

Key: SD- Strongly Disagree, D-Disagree, N- Neutral, A- Agree, SA- Strongly Agree, St Dev-Standard Deviation
Source: Field data (2023)

A total of 50% of respondents agreed that mobile loans improved Atlas Mara's profits. A total of 40% of respondents said that mobile lending's use of credit scoring had increased revenues.

At least 35% of respondents thought that loan defaults actually happen. Further, 37% of those surveyed attested to the bank's efforts to reduce mobile loan default.

In response to the question of whether mobile loans would increase the bank's credit risk, 25% of the respondents disagreed. Forty six percent (46%) of the respondents were undecided when asked if the 30-day repayment period for mobile loans might be extended. Forty percent (40%) of respondents were not sure whether the likelihood of default on mobile loans was higher than that with conventional loans. When asked if mobile loans were repaid on time, 38% of respondents said they were not. A total of 52% of respondents claimed that when the bank got involved, mobile loans were paid back.

The correlation coefficient was used to determine the degree and direction of a linear relationship between two independent variables. The results showed a moderate relationship between the independent factors. At the 0.05 level of significance, the association ($r= 0.531^{**}$, $p<0.05$) was significant. These results suggest a positive correlation between mobile loans and commercial banks' financial performance.

Table 5.9: Correlation of mobile loans and bank financial performance

Correlations		**ROA**	**Mobile Loans**
ROA	Pearson Correlation Sig. (2-tailed)	1	0.531^{**} 0.002
	N	256	256
	Pearson Correlation Sig. (2-tailed)	0.531^{**} 0.002	1
Mobile loans	N	256	256

**. Correlation is significant at the 0.01 level (2-tailed).

Source: SPSS output (2023)

The summary results from the regression model are shown in Table 5.10. The results show a weak positive correlation ($R^2 = 0.531$) between the independent variables and the financial performance of Atlas Mara. According to the R^2, the model explained 28.22% of the performance variation.

Table 5.10: Model summary for mobile loans and bank financial performance

Model	R	R Square	Adjusted R Square	R Std. Error of the Durbin-	
				Estimate	Watson
1	0.531[a]	0.282	0.279	0.82795	1.270

a. Predictors: (Constant), Mobile loans

b. Dependent Variable: ROA

Source: SPSS output (2023)

The regression equation implies that constant performance of banking institutions is at 2.413 units before the influence of factors associated with mobile banking. But a unit increase in financial accessibility leads to 0.953 unit increase in the financial performance of the banking sector.

Table 5.11: R**egression coefficients for mobile loans and bank financial performance**

Model	**Unstandardised Coefficients**		**Standardised Coefficients**	**t**	**Sig.**	**95.0% Confidence Interval for B**	
	B	**Std. Error**	**Beta**			**Lower Bound**	**Upper**
(Constant)	2.413	0.396		6.093	0.002	-0.366	1.193
1 Mobile loans	0.953	0.095	0.531	9.988	0.000	0.765	1.141

a. Dependent Variable: ROA

Source: SPSS output (2023)

Based on the findings of the correlation coefficients, the following regression model was developed:

$Y = 2.413 + 0.953X_2$……..Equation II

Rising trends in loan acquisition using mobile platforms is aiding the profitability of commercial banks in several ways:

1. **Cost Efficiency**: Mobile platforms reduce the need for physical branches and manual processes, thus lowering operational costs associated with loan origination. This cost efficiency can contribute to increased profitability for banks.
2. **Increased Reach**: Mobile platforms enable banks to reach a wider audience, including those in remote areas or without access to traditional banking services. By tapping into previously underserved markets, banks can increase their customer base and loan portfolios, ultimately boosting profitability.
3. **Faster Loan Processing**: Mobile loan acquisition typically involves streamlined processes and quicker approvals compared to traditional methods. This speed can attract more customers and encourage repeat business, leading to higher loan volumes and profitability.
4. **Data Analytics**: Mobile platforms generate vast amounts of data regarding customer behavior, preferences, and creditworthiness. Banks can leverage this data through advanced analytics to make more informed lending decisions, reducing the risk of defaults and improving overall loan portfolio performance.
5. **Cross-Selling Opportunities**: Mobile platforms provide a direct channel for banks to offer additional products and services to customers. By integrating loan acquisition with other banking functions such as savings accounts, investments, and insurance, banks can enhance customer engagement and potentially increase revenue streams.
6. **Customer Convenience and Satisfaction**: Offering loan acquisition through mobile platforms provides customers with greater convenience and flexibility. This improved customer experience can lead to higher retention rates, increased referrals, and ultimately, greater profitability for the bank.
7. **Risk Management**: While there are risks associated with mobile lending, such as cybersecurity threats and potential fraud, banks can mitigate these risks through robust security measures and thorough risk management practices. Effective risk management ensures the sustainability of profitability in mobile loan acquisition ventures.

Overall, embracing the rising trend of loan acquisition via mobile platforms enables commercial banks to adapt to changing consumer preferences, enhance operational efficiency, and ultimately drive profitability in today's digital era.

5.8 Effect of Mobile Banking Risks on Financial Performance of Atlas Mara

The third and final objective of the study sought to investigate the effects of mobile banking risks on the financial performance of Atlas Mara. Mobile banking risks can significantly impact the financial performance of banks in several ways. Firstly, security risks such as data breaches, identity theft, and fraud can lead to financial losses due to unauthorized access to customer accounts and sensitive information. Incidents of security breaches not only result in direct financial costs associated with fraud investigations, customer reimbursements, and regulatory fines but also damage the bank's reputation and erode customer trust, potentially leading to a loss of clientele and revenues. Secondly, operational risks inherent in mobile banking systems, such as system outages, technical failures, and service disruptions, can disrupt banking operations and impede customer access to essential services. These operational disruptions can result in financial losses due to service downtime, customer dissatisfaction, and potential legal liabilities. Moreover, the inability to promptly resolve technical issues may lead to reputational damage and loss of competitive advantage in the market.

Thirdly, compliance and regulatory risks associated with mobile banking, including non-compliance with data protection laws, anti-money laundering regulations, and consumer protection standards, can result in hefty fines and legal penalties. Failure to adhere to regulatory requirements not only incurs direct financial costs but also undermines the bank's credibility and trustworthiness in the eyes of regulators, customers, and investors, potentially leading to a decline in market share and profitability. Lastly, strategic risks stemming from rapid technological advancements, changing consumer preferences and competitive pressures in the mobile banking landscape can pose challenges to Atlas Mara Zambia's long-term financial sustainability. Failure to adapt to evolving market trends, innovate new mobile banking services, and differentiate from competitors may result in a loss of market relevance and competitiveness, thereby affecting the bank's financial performance and shareholder value.

Table 5.12 displays the results of the descriptive analysis. Effectively managing these risks requires a comprehensive risk management framework that integrates robust cybersecurity measures, operational resilience strategies, regulatory compliance protocols, and proactive strategic planning to safeguard the bank's financial stability and competitiveness in the dynamic mobile banking landscape.

Table 5.12: Descriptive statistics for mobile risks' effect on bank financial performance

Mobile Banking Risks Variables	SD	D	N	A	SA	Mean	Std. Dev
Due to poor network of mobile, some areas may take a lot of time to do transactions through mobile banking	13	26	82	84	51	3.5	1.1
When transferring money through mobile banking the users are afraid that they will lose money due carelessness and mistakes.	8	18	79	97	51	3.7	1.0
There are backdoor attacks that allow secret entry points into the mobile banking programs	10	41	92	90	23	3.3	1.0
There is the presence of spywares which gather information from our mobile banking platform systems	15	33	77	92	38	3.4	1.1
Radical programmers break into our web servers to replace information with unwanted content	38	92	97	26	5	2.5	0.9
There is threat of criminal deception by system administrators for financial gain	15	46	113	61	20	3.2	1.6
There are radical programmers who steal mobile banking PINs and codes	44	72	79	46	15	2.7	1.1
There is unauthorised Access of former employees using old passwords to gain unauthorised access to our mobile banking system	44	72	79	46	15	2.7	1.1
There are unauthorized persons gaining access to mobile banking systems when the users carelessly leave their computers	38	59	77	56	26	2.9	1.2
There is criminal deception by customers	13	26	82	84	51	3.3	1.1
Overall mean						**3.2**	**1.1**

Source: Field data (2023)

Overall, mobile banking risks present multifaceted challenges to Atlas Mara Zambia's financial performance, encompassing security, operational, compliance, and strategic dimensions.

Table 5.13: Correlation of mobile banking risks and bank financial performance

Correlations		**ROA**	**Mobile Loans**
ROA	Pearson Correlation Sig. (2-tailed)	1	-0.325** 0.000
	N	256	256
	Pearson Correlation Sig. (2-tailed)	-0.325** 0.000	1
Mobile banking risks	N	256	256

**. Correlation is significant at the 0.01 level (2-tailed).

Source: Field data (2023)

The results in Table 5.13 showed a weakly negative correlation between the two variables (r= -0.325). The correlation was also found to be significant ($p<0.05$) at the 5% level of significance, showing that our model's presumptions regarding the independent variable were accurate.

Table 5.14 shows the regression model summary results. The results show that the independent variables had a moderate positive correlation with the financial performance of commercial banks ($R^2 = 0.106$). The model accounted for 10.6% of the variance in performance as shown by the R^2.

Table 5.14: Model summary for mobile banking risks and bank financial performance

Model	**R**	**R Square**	**Adjusted R Square**	**R Std. Error of the Durbin-**	
				Estimate	**Watson**
1	0.325[a]	0.106	0.102	1.33969	2.248

a. Predictors: (Constant), Mobile Banking Risks

b. Dependent Variable: ROA

Source: Field data (2023)

Table 5.15 shows the results of the regression coefficients.

Table 5.15: Regression coefficients for mobile banking risks vs. bank financial performance

Model	Unstandardised Coefficients		Standardised Coefficients	t	Sig.	95.0% Confidence Interval for B	
	B	Std. Error	Beta			Lower Bound	Upper
(Constant)	3.383	0.167		23.300	0.000	0.355	4.212
1 Mobile banking risks	-0.323	0.059	-0.325	-5.479	0.000	-0.440	-0.207

a. Dependent Variable: ROA

Source: Field data (2023)

$Y = 3.883 – 0.323X_3$ ……Equation III

The above regression equation implies that constant performance of banking institutions is at 3.883 units before the influence of factors associated with mobile banking risks.

But a unit increase in mobile banking risks leads to 0.323 unit decrease in the financial performance of the banking sector.

Table 5.16 presents the summary of hypotheses tests of the entire study.

Table 5.16: Summary of hypotheses testing

No.	Null hypothesis	Correlation	p-value	Decision	Direction of effect
i.	Mobile banking access has no effect on financial performance of commercial banks	0.677	0.000	Reject	Positive
ii.	Mobile banking loans have no effect on financial performance of commercial banks	0.531	0.000	Reject	Positive
iii.	Mobile banking risks have no effect on financial performance of commercial banks	**-0.325**	0.000	Reject	**Negative**

Source: Author's compilation (2023)

Profitability can indeed be influenced by various factors, including the Gross Domestic Product (GDP), but it is important to understand how GDP affects profitability and how businesses justify their profitability despite such external factors.

1. **Impact of GDP on profitability**: GDP reflects the overall health and growth of the economy. When GDP is growing, businesses tend to experience higher demand for their goods and services, leading to increased sales and potentially higher profitability. Conversely, during economic downturns or recessions when GDP contracts, businesses may face reduced demand, lower sales, and decreased profitability.

2. **Diversification and risk management**: To justify profitability despite fluctuations in GDP, businesses often employ strategies such as diversification and risk management. Diversification involves expanding into multiple markets, products, or services, reducing dependence on any single market or economic condition. By diversifying their operations, businesses can mitigate the impact of GDP fluctuations on their profitability.

3. **Efficiency and cost management**: Regardless of economic conditions, businesses strive to improve efficiency and manage costs effectively. This involves streamlining operations, optimising resource utilisation, and controlling expenses. By enhancing operational efficiency and reducing costs, businesses can maintain profitability even during periods of economic uncertainty or slowdown.

4. **Innovation and adaptation**: Successful businesses continuously innovate and adapt to changing market dynamics, including fluctuations in GDP. They invest in research and development to create innovative products or services that meet evolving customer needs and preferences. By staying ahead of the competition and adapting to economic changes, businesses can sustain profitability over the long term.

5. **Financial management**: Effective financial management practices, such as prudent investment decisions, strategic capital allocation, and efficient capital structure management, play a crucial role in justifying profitability. Businesses focus on maximisin ROA and other financial metrics while minimising risk and ensuring sustainable growth.

6. **Long-term perspective**: Rather than focusing solely on short-term fluctuations in profitability, businesses often take a long-term perspective and invest in strategies that yield sustainable growth over time. This may involve sacrificing short-term profits for future expansion, market penetration, or strategic initiatives that enhance competitiveness and profitability in the long run.

Overall, while GDP and other external factors can influence profitability, businesses employ various strategies and practices to justify and sustain profitability despite economic fluctuations. By diversifying operations, managing costs efficiently, innovating, adapting to market changes, and maintaining a long-term perspective, businesses can mitigate the impact of external factors and achieve sustainable profitability.

5.9 Summary

The chapter conta**ined** findings regarding the effect of mobile banking on the banking industry. The study looked at and assessed both descriptive and inferential statistics. Results indicate that using mobile banking has been simpler over time. Commercial banks have eliminated the physical restrictions associated with the outdated banking paradigm, made mobile banking services accessible 24/7, seven days a week, and have also embraced mobile banking to satisfy customer service needs. The findings also indicated that commercial banks are making use of mobile loans more frequently, which has improved their profitability. Nowadays, commercial banks offer loans through SMS texts or mobile loan applications. They have also been successful in gaining clients who do not have bank accounts. Research also revealed a growth in technological risks like malware, phishing, and general fraud committed via mobile banking. These concerns hardly ever had an effect on the commercial banks' financial performance. The following chapter contains a summary and a recommendation related to the research results.

5.10 DISCUSSION OF FINDINGS

5.11 Introduction

This section discusses the primary findings in relation to the literature review. The discussion is presented in accordance with the flow of the objectives and draws on comparisons with other studies carried out in various parts of the world. It also discusses the conclusion as well as suggestions of the study in connection to the findings are the primary focuses of the final chapter of the report. It includes a discussion of the findings of the research, ideas for how those findings could be improved, recommendations for additional research as well as recommendations for policymakers and academics

5.12 Discussion of Findings

The section below presents a discussion of findings, linking the primary results to the literature review.

5.13 Effect of mobile banking access on financial performance of Atlas Mara

The main objective of the study was to determine the effect of mobile banking on the financial performance of commercial banks focusing on Atlas Mara Zambia as a case study. Access to mobile banking and the bank's financial performance were found to be positively correlated in a significant way. This is in line with the findings of earlier research like Kithaka (2014). The results are in line with those by Kathuo, Rotich and Anyango (2015), who found that, banks which have embraced M-banking services have significantly expanded their client base and consequently enhanced their financial performance.

The study concurs with Kemboi, Ayuma and Kiprop's (2014) assessment that fast money transfers would be simpler with mobile banking. It also came to the conclusion that mobile banking ensures easy tracking of lenders and easy monitoring, that mobile banking ensures quick money transfers because it saves time, that mobile banking ensures simple bill payment and prevents cash payments, and that mobile banking bill payment affects the productivity of banks in the area.

The results corroborate earlier research by Hernando and Nieto (2007), which examined the relationship between mobile banking and the financial performance of Spanish commercial banks. They found that banks that implemented mobile banking were able to draw in more clients, and this undoubtedly led to increased contact with customer deposits and favourable financial performance.

The finding is further supported by Khan, Bagudu and Abdul-Hakim (2017), who draw the conclusion that mobile banking considerably and favourably affects the financial performance of commercial banks with headquarters in Nigeria. The study also concurs with Haddad and Asfour (2014) that the overall features of mobile banking services have a statically significant impact on customer e-satisfaction. The advantages of mobile banking services for customers include the convenience of doing banking operations whenever, whenever.

According to Migdadi (2012), the international trend was toward decreasing the number of branches as a result of investing in alternative delivery service channels as automated teller machines (ATM), which reduced operating cost for example the Bank of America closed one third

of their overall branch network while increasing automatic machines by declined over 9% from 6,480 in 1983 down to 5,876 in 1993. According to Zeithaml, Parasuraman and Malhotra (2002), consumers may visit websites or applications based on how simple they are to use and how well they assist them in completing their duties.

According to a survey of 2,600 banking customers in six African countries conducted by the international management consulting firm McKinsey (2019), the majority of customers (53%) across all economic segments preferred using mobile or the Internet as opposed to branches (26%). Financial service providers are abandoning the traditional four-walls banking paradigm in favour of digital ones as a result of this evolution.

In West Africa, Nigeria's Fidelity Bank Plc sought to boost customer numbers by 20% in 2018 by pushing its digital channels and offering loans to low-income borrowers via their mobile phones. The bank hoped to increase its clients from 4.5 million in 2018 and expects return on equity to rise to 13% from 11.8%. More than 150,000 customers had applied for digital loans since it started providing them a month later (Chiku, 2018). According to Khan, Bagudu and Abdul-Hakim (2017), mobile banking has a favourable and considerable impact on the financial performance of commercial banks in Nigeria. This study supports their findings.

Tchouassi (2012) used empirical data from a few countries in Sub-Saharan Africa to examine if mobile phones may be used to provide banking services to the unbanked. The study's findings indicate that vulnerable, underprivileged, and low-income households typically lacked access to bank accounts and encountered significant costs while managing basic financial activities in Sub-Saharan African nations. The introduction of mobile phones created fantastic prospects for the delivery of financial services to the unbanked. To make these services a reality, governmental and regulatory innovation was required in addition to technological and economic innovation.

5.14 Effect of mobile loans on financial performance of Atlas Mara

The second research goal was to determine how mobile loans affected Atlas Mara Zambia's financial performance. Results indicated a somewhat significant and positive association between commercial banks' financial performance and mobile loans. The study supports Nzayisenga's

(2017) assertion that mobile lending has a favourable effect on commercial banks' level of financial performance. The results concur with Yousof's (2018) assertion that mobile banking has a direct and considerable impact on commercial banks' performance. The study corroborates Waiganjo's (2018) findings that a significant portion of monthly value moved through mobile banking and that the volume of customers has a significant impact on banks' financial profitability.

The study's findings support Mokoro et al. (2010), who claim that financial institutions have the difficult problem of processing a large number of small loans, which greatly raises transaction costs. Numerous studies have confirmed that the launch of mobile banking was made to provide services to current customers and to broaden the clientele, not necessarily to cut expenses. The analysis also supports Kumar et al. (2010) who claim that the cost savings per transaction or client will be relatively limited, and that huge transaction volumes are, therefore, necessary to support this new channel economically. They continue by saying that MFIs should conduct a detailed cost-benefit analysis to comprehend their cost factors and determine whether mobile banking might lower those expenses.

The findings agree with Kajewski (2014), who discovered that mobile banking enhanced commercial banks' profitability. Another way that mobile loans reduce costs is on the supplier's end.

Banks are not required to employ personnel to examine the supporting documentation of loan applicants and collect data or collateral in order to assess their creditworthiness. Instead, the entire process of evaluating credit is fully automated. Mobile loans have, in essence, changed the way that lenders and borrowers do business.

According to a study by Wei (2013), the three main reasons why mobile users choose not to borrow money online are fear of loans, a lack of need, and ignorance. Absence of trust, absence of account requirements (such as not having a mobile money account), and dislike of specific product aspects (such as the quantity of the loan or the loan length) were the three least popular explanations. Commercial banks must, therefore, address the irregularities and anxiety surrounding the use of mobile loans.

5.15 Effect of mobile banking risks on financial performance of Atlas Mara Zambia

A negative and significant association between mobile banking risks and Atlas Mara's financial performance was shown to exist. Malicious cyber threats like phishing, denial of service attacks, malware attacks, and mobile application attacks have a negative impact on mobile banking. The risks connected with mobile banking, such as fraud and money laundering, remain a substantial threat and are a barrier to the adoption of mobile banking despite the high growth rate of subscriptions to mobile and internet banking. Cruz, Neto and Laukkanen (2010) examined the variables preventing Brazilian internet users from adopting mobile banking in the same dimension. Based on their findings, they came to the conclusion that bank customers did not use mobile banking as frequently. The primary obstacles to using mobile banking services were recognised as risk, expense, complexity, and a lack of knowledge regarding the relative merits of different services.

The study backs up Amadala's (2019) earlier prediction that phishing, in which hackers steal account holders' banking and credit card information to conduct fraud, is set to increase. Three local hacker networks may be connected to bank robberies in Kenya, according to OnNet Services, a cyber-security company with headquarters in Poland that predicted the theft of Sh11 million at four Barclays Bank ATMs over the Easter vacation. A hacker group going by the name of Silent Cards was attacking an institution during Easter celebrations, the agency had tweeted on April 17, 2019. Other harmful actions are making it difficult for Kenyan commercial banks to operate. Customers who are ignorant, especially children, are now simple prey.

The study is in line with Olongo's (2013) findings, which demonstrate that fraud loss significantly affects banks' ROA with a negative connection. The study backs up earlier claims made by Kamanthe, Kiragu and Musumba (2018) that commercial banks must address security issues in light of the rising number of occurrences of online banking fraud. Adesina and Ayo (2010) believe that the advantages of internet banking have been acknowledged for the case of developing nations using Nigeria as a case study. However, the hesitation and poor adoption of internet banking are related to factors including low levels of trust in the security safeguards of the service. Eastlick and Lotz (2011) emphasise this issue by pointing out that trust is the primary driver of the expansion of electronic commerce. Another issue arises from the fact that mobile banking

investment may be deterred by the fact that internet penetration in rural areas is still in its early stages (Gikandi & Bloor, 2010).

Wasonga (2019) claims that organised groups commit the majority of these crimes. According to police records, such fraud results in the loss of enormous quantities of money from banks and other financial institutions, with a loss of Ksh 17 billion in 2016 as opposed to Ksh 14 billion in 2015. The National Bank of Kenya (NBK) acknowledged losing Sh29 million in a fraud attack at the beginning of 2018. According to Wainainah (2019), in Kenya, 29.7% of mobile users experienced malware attacks on their devices in 2018. These attacks included Trojan-Dropper, Risk Tool, and adware. The majority of mobile malware is downloaded onto mobile devices from dubious App Store applications that include the dangerous software. The programme takes over the device once it has been installed by the users.

Additionally, hackers can cause a totally legitimate programme to run a banking app so they can send money directly from the victim's smartphone through accessibility services. Dynamic analysis has also been combated with techniques; for instance, the Rotexy Trojan checks to determine if it is executing in a sandbox. However, given we have seen similar behaviour before; it is not precisely a new occurrence. Nevertheless, it should be emphasised that when used in conjunction with obfuscation, anti-dynamic analysis techniques can be effective.
However, if virus authors are able to embed their Trojan into a well-known app store, both static and dynamic processing may be rendered useless. Although it cannot be argued that sandbox detection is a regular practise among hackers, the tendency is clear, and we are inclined to think that such approaches will soon become extremely sophisticated.

The study, however, disputes Karanja's (2017) claim that commercial banks had made an effort to mitigate risks associated to malware assaults. At the time of conducting this survey, he believed that only hacking remained a prevalent challenge for many commercial banks. Global statistics show that Android banking malware has grown over the last few years, peaking many times in 2016. There were 786,325 users who were assaulted overall. In 2017, things were more stable and there were 515,816 people who came into contact with mobile malware. A game-changing event did occur though. Attacked users first began to increase quickly in April 2018, and by the end of

the year, the total had increased by more than three times to 1,799,891. According to the research, Asacub, Faketoken and Hqwar (2017) were the absolute leaders in terms of detections.

According to cyber security experts, financial services firms are the target of increasingly frequent and sophisticated cyberattacks (Cuomo, 2014; Ryan, 2014). In general, there are many cyber security issues with mobile banking. Due to the wide range of mobile platforms and devices, mobile banking security is challenging (Lee, Zhang & Chen, 2013). One of the key issues with acceptance of mobile banking applications is the security and privacy of sensitive financial data (Elkhodr, Shahrestani & Kourouche, 2012). The efficiency of cyber security protection on mobile applications is reduced by independent developers' poor familiarity with privacy protection and lack of resources (Balebako & Cranor, 2015). The signature, PIN, password, and Card Security Code (CSC)-based weak and rigid authentication methods used in mobile banking have many shortcomings and security gaps (Edge & Sampaio, 2009).

Approximately 2 million people have been registered as defaulters to the Kenyan credit bureau for M-Shwari, many of whom owe little amounts of money (Francis, Blumenstock & Robinson, 2017). When compared to other, less expensive goods, the reviewed digital credit products frequently feature quite high interest rates and additional fees, which may be detrimental to borrowers.
Most lending options ask for social media and other personal information from borrowers, which may help those without formal credit histories access formal loans but also raises privacy issues (Anderson, Reynolds & Klawitter, 2018).

5.16 Summary of Findings

The study discovered that there is a rather high positive link between commercial banks' financial success and their ability to use mobile banking ($r = 0.677$, $p<0.05$). Additionally, regression analysis demonstrated a significant association ($R^2 = 0.458$, $p<0.05$) between the two variables. Therefore, it could be argued that mobile banking's success was largely due to its 24/7 availability, shorter transaction times, ease of use, reduction of physical barriers to conducting financial transactions, including in remote areas, and overall goal of service delivery in financial transactions.

The study revealed that mobile banking loans affected financial performance positively. The findings pointed to a very slender positive association. The results are significant at a 5% significance level according to the Pearson correlation coefficient value of 0.531 and the significance level of 0.05. Overall, the results showed that banks are rapidly inventing digital lending platforms as a substitute to offer customers loans more quickly.

The results showed a substantial inverse association between commercial banks' financial performance and mobile banking risks. The results are significant at the 5% level of significance based on the Pearson correlation coefficient, which was -0.325, and the significance level of 0.05. The R value of 0.106 demonstrates that a unit increase in mobile banking risks caused a unit loss in commercial banks' financial performance of 10.6%.

Overall, the study refutes earlier findings that suggest there is only a slight positive association between commercial banks' financial performance and their use of mobile banking. The study contends that, with the exception of mobile banking hazards, which have a negative influence, the relationship between the two factors is favourable and significant.

CHAPTER 6
CONCLUSION AND RECOMMENDATIONS

6.1 Conclusion

6.1.1 Mobile banking access

Mobile banking access and financial performance of commercial banks have a fairly strong positive correlation ($r = 0.677$, $p<0.05$). The Pearson correlation coefficient value was 0.531 and $p<0.05$, implying a significance of the findings at 5% level, suggesting a very weak positive correlation between mobile banking loans and financial performance. A significant negative relationship between mobile banking risks and financial performance of commercial banks was found to exist. The Pearson correlation coefficient value was -0.325 and the significate level $p< 0.05$ implying significance of the findings at 5% significance level. The results showed that mobile banking has a favourable and considerable impact on Atlas Mara Zambia's financial performance. Mobile banking is anticipated to keep expanding as more people utilise mobile services overall. Customers benefit from improved convenience thanks to mobile banking because it enables them to do chores "on the go." However, there is a need to remove any obstacles that may be in the way of clients' quicker access to mobile banking. This study's findings suggest that commercial banks will experience improved financial performance as they expand their mobile banking coverage, raise consumer awareness of the benefits of mobile banking, educate them about its uses, and lessen the risks and threats associated with it.

6.1.2 Mobile banking loans

The results showed a moderately substantial association between mobile loans, such as transactions made through bank lending apps, and the financial health of commercial banks. Accordingly, the study's conclusion is that a large number of customers are taking advantage of the digital loans that banks are offering. This presents a chance for the banks to strengthen digital lending as the next strategic source of competitive performance in the bank's loan portfolio.

6.1.3 Mobile banking risks

The results demonstrated that there were numerous risks associated with mobile banking. The risks can be divided into two categories: internal risks, which are typically launched by bank insiders,

and external risks, which are launched by outside attackers against financial systems, including those used by bank customers.

The study comes to the conclusion that while mobile banking has improved the financial performance of commercial banks, its future growth is threatened by the risks linked with the Internet and technological advances.

6.2 Recommendations

Arising from the findings and analysis of the study results, the following recommendations are made:

6.2.1 Mobile banking access and financial performance of commercial banks

i. There is need for the banking sector to enter into a partnership arrangement with the telecommunication service providers so that the strength of Internet and network coverage countrywide can be strengthened.

ii. Commercial banks should focus beyond enhanced accessibility and begin evaluating the effectiveness of customer service offered by mobile banking.

6.2.2 Mobile loans and financial performance of commercial banks

i. Commercial banks should invest in consumer awareness with regard to emerging products and services tailored to mobile banking.
ii. Commercial banks should deploy adequate resources in conducting research that could aid product innovation on existing mobile banking platforms.

6.2.3 Mobile banking risks and financial performance of commercial banks

i. It is evident that mobile banking is suffering from frequent system attacks. To mitigate this risk, banking institutions should implement controls to verify the person accessing the mobile banking service is the customer.
ii. The BOZ should ensure adequate implementation of the Guidance Note on Cybersecurity it issued. The guidance laid out the regulatory standards to industry participants on assessment and mitigation of Cybersecurity threats. This can play a significant contribution

towards supervisory guidance on strong customer authentication that applies to mobile banking.

6.4 Recommendations for Further Studies

This research was conducted only at Atlas Mara Zambia. As a result, future research might take into account respondents from different banks around the nation. Only three independent variables, out of a number of potential factors, are taken into account by the researcher; hence, future studies might take additional variables into account. Further research on the relationship between trust and perceived risk of mobile banking for the low-income market is advised because perceived technology risks showed a negative relationship. Investigating the geographic impact would be interesting, particularly in rural places were getting to the nearest banking facility is more difficult and expensive. Last but not least, the utilisation of mobile loans is a developing idea inside the banking business model. The efficacy of credit scoring techniques used by banks in mobile lending might be evaluated by a different study.

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APPENDICES

Appendix I: Questionnaire

The purpose of this questionnaire is to identify and analyse the impact of mobile banking on the financial performance of commercial banks in Zambia. Kindly, respond by selecting the response among the choices given that best represents to your views.

Section I: Demographic Information

(Please tick [√] appropriately)

1. What is your gender? Male [ ] Female [ ]
2. Marital Status: Single [ ] Married [ ] Divorced [ ] Other [ ]
3. Age: 20 or under [ ] 21-30 [ ] 31-40 [ ] 41-50 [ ] 51+ [ ]
4. Level of education:
5. High School and below [ ] Diploma [ ] First degree [ ] Masters [ ] Ph.D. [ ]
6. Position in your Organisation:
7. Manager [ ] Departmental Head [ ] Supervisor [ ] Subordinate Staff [ ]

Section II: Mobile Banking Access and Performance of Commercial Bank

8. Kindly indicate by ticking (√) the extent to which the following factors of mobile banking access influence performance of commercial banks on a 5-point Likert scale. 1-Strongly Disagree, 2-Disagree, 3Neutral, 4-Agree and 5-Strongly Agree.

	Mobile Banking Access	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
i	Mobile banking has enabled 24/7 accessibility to financial services					
ii	Time spent in mobile banking is low compared to the traditional banking					

iii	Our clients can easily transact, pay bills and access their accounts through mobile banking.					
iv	Mobile banking is accessible, in terms of virtual locations and general national footprint.					
v	Our clients can bank anytime anywhere, check their balance and access bank statements.					
vi	Our clients can easily interact with their bank; express their opinions and grievances without visiting their branches					
vii	There is great potential of using this in agent banking for provision of banking services to unbanked community					
viii	Mobile banking has led to accessibility of financial service to many customers in remote areas					
ix	Accessibility of banking service through mobile banking has led to profitability of commercial banks					
x	Mobile banking increases effectiveness and efficiency of service delivery in commercial banks in Kenya					

Section III: Mobile Loans and Performance of Commercial Bank

9. Kindly indicate by ticking (√) the extent to which the following elements of mobile loans influence performance of commercial banks on a 5-point Likert scale. 1-Strongly Disagree, 2-Disagree, 3Neutral, 4-Agree and 5-Strongly Agree.

	Mobile Loans	Strongly	Disagree	Neutral	Agree	Strongly
i	The use of mobile loan platforms increases the nonperforming loan portfolio					
ii	The advancement of mobile loans to customers has led to increased profitability of the commercial banks					
iii	The use of credit scoring systems has increased the revenue generated from mobile loans by the commercial banks.					
iv	The presence of well-defined repayment mobile loan periods has boosted commercial banks income, since there are minimum cases of default.					
v	The commercial banks have put measures in place to ensure that there are minimum default patterns.					
vi	The use of mobile loan systems increases the risk profile, where commercial banks are likely to loss more finances compared to other types of loans.					
vii	Mobile loan clients always pay on time					
viii	Mobile loan borrowers usually make the payment before the intervention measures.					
ix	Mobile loan customers delay to repay by less than 30 days					
x	The probability of default is higher for mobile loans compared to other loans.					

Section IV: Mobile Banking Risks and Performance of Commercial Bank

10. Kindly indicate by ticking (√) the extent to which the following elements of mobile banking risks influence performance of commercial banks on a 5-point Likert scale. 1-Strongly Disagree, 2-Disagree, 3-Neutral, 4-Agree and 5-Strongly Agree.

	Financial Accessibility	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
i	Due to poor network of mobile in some areas clients may take a lot of time to do transactions through Mobile Banking					
ii	When transferring money through Mobile Banking the users afraid that they will lose money due careless and mistakes.					
iii	Backdoor attacks that allow secret entry points into the mobile banking programs without normal security check					
iv	Presence of spywares which gather information from our mobile banking platform systems					
v	Radical programmers who break into our web servers to replace information with unwanted content					
vi	Criminal deception by system administrators for financial gain					
vii	Radical programmers who steal mobile banking PINs and codes					
viii	Unauthorized Access Former colleagues using old passwords to gain unauthorized access to our mobile banking system					
ix	Unauthorized persons gaining access to mobile banking systems when the users carelessly leaves their computers it logged on					
x	Criminal deception by customers for financial gain					

Thank You for Your Time and Responses

Appendix II: Secondary Data Collection Sheet - Mobile Banking Loans

		Mobile Banking Volume (Millions) (ZMW)				
Year	2017	2018	2019	2020	2021	2022
Atlas Mara	10.27	10.50	10.78	11.16	11.61	12.42

Mobile Banking Loans

Total amount of mobile loans							
Year	2016	2017	2018	2019	2020	2021	2022
Atlas Mara	-	-		2450	7550	9815	12760

Total mobile loan applicants (Thousands)							
Year	2016	2017	2018	2019	2020	2021	2022
Atlas Mara				8.1	9.3	11.2	12.7

Appendix III: Secondary Data Collection Sheet – Financial Performance

Source: Atlas Mara Limited – Annual Reports 2016-2022

Year	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**
		ROA	ROA	ROA	ROA	ROA	ROA
Atlas Mara		4.80%	4.80%	4.35%	3.65%	5.26%	6.31%