ELECTRONIC BANKING AND PROFITABILITY OF COMMERCIAL BANKS IN KENYA.

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A RESEARCH PROJECT SUBMITTED TO THE SCHOOL OF BUSINESS,

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DECLARATION

This study project is my own creation and has never been previously presented for any award in any other educational institution.

Signature: _____ **Date** _____

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SUPERVISOR

I hereby endorse the submission of this research project for review as the University Supervisor.

Signature_____ **Date** _____

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DEDICATION

I dedicate this endeavor to my parents, my spouse; Winfred, and my sons; Ryan and Raymond. They continued to be a source of inspiration to me while I worked on my project.

ACKNOWLEDGEMENT

I convey thankfulness to the Most High Lord for His immense affection, robust well-being, and benevolence that have guided me during the process of developing this study project. It would have not been possible without His Grace. My truthful thankfulness and appreciativeness to my supervisor, Dr. Mark Suva for his unwavering support, academic advice and guidance through the entire process of proposal development and writing this project. In addition, I extend my earnest thankfulness to all the lecturers and staff in the Department of Accounting and Finance.

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ABBREVIATIONS AND ACRONYMS

ATM:	Automatic Teller Machine
B2C:	Business to Customer.
CBK:	Central Bank of Kenya
E-banking:	Electronic banking
EFT:	Electronic Fund Transfer
GMM:	Generalized Method of Moment's estimator
ICT:	Information Communication Technology
IDT:	Information Diffusion Theory
IMF:	International Monetary Fund
KBA	Kenya Bankers Association
KCB:	Kenya commercial bank
NACOSTI:	National Council of Science, Technology and Innovation
POS:	Point of Sale
ROA:	Return on Assets
ROE:	Return on Equity
SDT:	Self-Determination Theory
TAM:	Technology acceptance model
TPB:	Theory of planned Behaviour
USSD:	Unstructured Supplementary Service Data
VAR:	Value at Risk

OPERATIONAL DEFINITION OF SIGNIFICANT TERMS

Card banking: This is the use of debit and credit electronic cards to access financial services over the ATM machine. Banks charge some transaction fees for use of these services. The impact of card banking on profitability of financial institutions in this research will be measured by the percentage of transactions carried out though the electronic cards.

Commercial banks: This is a financial institution that aims to collect deposits from the general public while offering loans and other services for spending and investment so as to generate profits.

Internet banking: This is a web-based mode of payment that allows customers of a bank or financial institution to do various financial activities via the firm's website. Access to these services attracts bank charges which form part of banks revenues. The present study intends to assess the impact of online banking on the profitability of financial institutions. It will be done by analyzing the proportion of transactions conducted by consumers using internet banking.

Internet banking transactions: These are dealings involving money carried out through the internet**.** These online activities allow customers to withdraw money, transfer money and settle utility bills from the customer's account over the internet.

Mobile banking: This is the application of mobile devices to carry out banking and other financial transactions offered by the banks. Commercial banks offer a variety of mobile banking services in which some of the services like transfer of money from bank account to the mobile device attracts bank charges. The aim of this research is to evaluate the influence of mobile banking on the economic viability of financial institutions via an analysis of the percentage of transactions done utilizing mobile banking.

Mobile banking transactions: Mobile banking transactions are transactions involving money, which is carried out through mobile phones. There are

transactions that are charged while others are not charged. In this research the emphasis will be on mobile banking transactions that attract bank charges and will be measured by the percentage volume of transactions that are carried out through mobile banking.

POS banking: Point of sale banking involves use of hardware system which processes card payments at retail locations to facilitate payments. POS terminals are linked with bank accounts of the operator and anytime a customer transacts, the operator is charged some fees by the bank. These charges form part of the commercial banks revenues. In this study, its impact on profitability of commercial will be measured by the percentage volume of transactions that are carried out through POS terminals.

Profitability: Profitability is a measure of how well an organization generates profit over its expenses. In this research, profitability of commercial banks will be evaluated on ROA.

Rivalry: This is an ongoing relationship between channels which compete for superiority in financial mobilization. The channels try to outdo each other in market domination through the revenues that they contribute to the overall commercial banks profitability.

Technology: Technology encompasses the utilization of scientific knowledge to create practical techniques, systems, and technologies.

ABSTRACT

Commercial banks have a crucial role in mobilizing financial resources for investment and wealth creation, making them an important intermediary for financial services in Kenya. In doing this banks must strive to attain favorable profitability levels to enable them cover their operating costs and foster growth. Driven by advancement in technology, the banks have been able to establish E-banking platform which is comprised of services such as internet banking, m-banking, card banking and POS banking. This has enabled the banking sector to serve customers efficiently. Although investment in technology has presented banks with numerous advantages, on the other hand laying the technological infrastructure takes huge amounts of the banks' financial resources. This is evidenced by the huge budget allocations for maintenance of their tech-based assets. With this demand, it is imperative that commercial banks need to observe their operating costs and risks link with electronic banking so as to maximize on profitability. Given this context, the intent of this research was to analyze the impact of e-banking on the financial health of these financial institutions in Kenya. The research objectives were to ascertain the effect of internet banking, mobile banking, card banking and POS banking on the profitability of commercial banks in Kenya. The research was supported by the subsequent theories: Innovation theory of profits, technology acceptance model, theory of planned behavior, innovation diffusion theory, and self-determination theory. A descriptive research design was adopted. The study focused on a period of 5 years from 2018 to 2022. The target audience was the 39 financial institutions in Kenya. A census was adopted due of the limited population size. The research employed both primary and secondary data. Primary data was collected by interviewing commercial banks senior employees and while secondary data was gathered from commercial banks annual financial statements and CBK's Annual Banks' Supervision Reports. Data was then analysed utilizing descriptive and inferential statistics and displayed in form of tables, graphs with appropriate descriptions. A regression model was adopted to illustrate the link between the variables. Diagnostics tests carried out were Normality of distribution tests, multicollinearity tests and homoscedasticity tests. To address ethical considerations, the researcher built rapport with the respondents by ensuring their confidentiality and providing them with an authorization letter from the university and research permission from NACOSTI. The findings revealed a positive and significant relationship between mobile banking and profitability ($p=0.019$); there was a significant relationship between internet banking and profitability ($p=0.037$); there was a positive and insignificant relationship between card banking and profitability ($p=0.226$) and there was positive and insignificant relationship between POS and profitability ($p=0.431$) of licensed commercial banks in Kenya. Further the study concludes that there was business rivalry in three sets of channels: Mobile banking-Internet banking, Internet banking-POS banking; point of sale banking-card banking. It is recommended for the banking sector to further strategize by enhancing the channels based on the competition and they should work on a trade-off set of strategies in deciding which channels to enhance as some are rivals. This study recommends further research for others in the area of mobile money banking and Profitability and what factors could be challenging this relationship. Further research should also focus on how mobile banking and internet banking can be integrated for positive relationship.

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

The global financial environment has presented banks with the need to innovate and revolutionize their mode of operation to remain competitive and meet the customers' demands effectively. A robust banking sector is crucial in facilitating a nation's economic progress by providing effective financial services (Salehi & Azary, 2008). Banks provide a diverse array of services to their customers either by traditional bank branch offering or via use of electronic means. The use of electronic means has been enabled by widespread adoption of information technology which allows relay of information within a short duration of time. This has proven to be more efficient since it reaches customers who are even remotely situated (Gichuki & Jagongo, 2017). This increases customer service delivery which translates general increase in bulk of transactions.

E-banking uses interactive alternative channels to offer the same services that traditional bank branches offer. The application of e-banking by financial institutions is influenced by the need to serve customers efficiently and minimize costs of operation. It allows customers to access services like checking account balances, deposit money to their accounts, payment of utility bills, transfer of funds among other services without physically visiting the branches (Mutisya & Atheru, 2019).

The financial world has experienced major setbacks in the banking industry dating back in 1819 in U.S. In 2008 there was a great recession that resulted in the failure of 500 banks in the U.S. During the period of global financial crisis, Canadian banks maintained a high level of stability, which may be ascribed to the well-established regulatory discipline and

cultural attitude that exists among them (Elliot, 2008). The great recession of the Greeks economy of 2007 also led to struggling of major banks due to the repeated negative adjustments of the Greek public debt leading to liquidity deficiencies among the banks (Andreas, 2013).

According to IMF working paper, banking on Sub-Saharan Africa (2004), in 1980's several banks collapsed in the wide sub-Saharan Africa. This resulted to major costs to some of the governments due to the resolutions that were made to protect the financial industry. Lartey, Antwi and Boadi (2013) on financial institutions in Ghana posit that most of the listed financial institutions were facing liquidity and profitability problems due to inability to generate revenue to cover cost incurred.

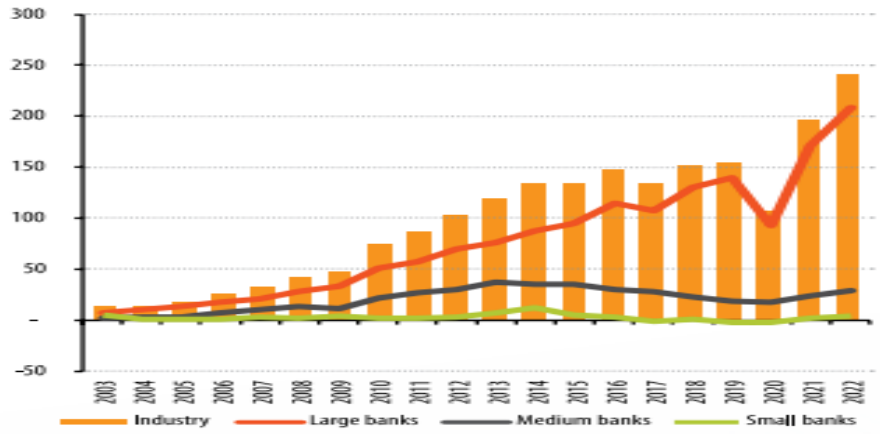
In Kenya since 1986 and at different phases, commercial banks have experienced financial crisis (Kithinji & Waweru, 2007; Ngugi, 2001). In 1998 a record high of 38 banks failed. The main cause of this crisis has been declining in profitability occasioned by political interference, NPLs, unpredictable global financial trends, and ineffective leadership.

1.1.1 Profitability of commercial banks

The fluctuating performance of commercial banks in both domestic and global economies has necessitated the need to have strong regulations and reforms to project banks towards profitability. These reforms come with associated costs which if not well assessed may strain banks finances (Aduda & Kingoo, 2012). Occasioned by high investment in banks assets, profitability levels have been varying from one bank to the other over the last couple of years. Despite economic growth in the region, the commercial banks in Kenya have not attained the desired levels and have struggled to achieve consistent profitability levels. According to the Kenya Bankers Association (KBA) State of banking report (2023) the pre-tax profit for most of the commercial banks have been unpredictable with a notable

decline noted in 2020 as shown in Table 1.1. This decline can be attributed to a group of macroeconomic and bank specific variables that influence performance of banks.

Table 1. 1 Profits before tax



Source: KBA (2023)

According to some studies, profitability of firms forms a major part in measuring the financial performance of banking institutions. Dao (2020) argued that profitability is one of the most crucial indicators of the banking health of which failure to maintain good profitability levels threatens their survival. Two widely accepted indicators of profitability in banking literature are Return on Assets (ROA) and Return on Equity (ROE).

Return on Equity (ROE) measures financial performance by comparing net income to shareholders equity. This metric show how well a company generates returns from the shareholders' investment but it excludes debt in determination of profitability levels. Studies by Athanasoglou, Brissimis, & Delis (2008) suggest that ROE is positively influenced by capital adequacy and revenue diversification.

Karkrah and Ameyaw (2010) described ROA as the quotient of a firm's net income divided by its total assets. ROA helps investors to measure the efficiency of the

management in using its assets to create more income. Unlike ROE, ROA is more beneficial since it is less affected by financial leverage and gives a clearer view of asset efficiency without the distortion caused by debt capital. This helps in providing a clearer view of the operational efficiency of the commercial banks in the short run and thereby influencing the management's policy formulation. Empirical studies, such as those by Flamini, McDonald, & Schumacher (2009**)** on Sub-Saharan African banks, have shown that higher credit risk and operational inefficiencies tend to lower ROA. The efficiency of the management in using its assets to create profits is a key factor that makes it suitable for this research.

The commercial banking sector in Kenya has experienced fluctuating profitability levels due to external and internal factors. The COVID-19 pandemic in 2020 led to a sharp decline in banking profits due to increased loan defaults, reduced business activity, and heightened provisioning for non-performing loans (NPLs). Empirical research by Ng'etich & Wanjiru (2021) confirms that NPL ratios significantly impact profitability in Kenyan banks, as higher defaults reduce net interest margins and increase operational costs.

A comparative analysis with other East African economies shows that Kenyan banks face more regulatory costs and credit risks, affecting their overall profitability (Mugwe, 2022). Additionally, research by Demirgüç-Kunt & Huizinga (1999) indicates that macroeconomic factors such as GDP growth, inflation, and interest rates play a critical role in determining bank profitability.

1.1.2 Electronic banking

Advancement in technology has given banks an edge in widening their market and remaining competitive in the ever changing financial markets. Among the recent innovations in banking is the application of e-banking in delivery of banking services.

Various scholars have provided multiple definitions for electronic banking. As stated by Steven (2002), electronic banking pertains to the utilization of telecommunication and electronic systems to furnish bank customers with a diverse array of supplementary products and services. E-banking, as defined by Daniel (1999), refers to the dissemination of banks' information and services to consumers using a range of delivery platforms, such as portable computers, cell phones with browser or desktop software, telephones, and digital TVs. It entails using technological equipment to provide remote banking services over the internet. Simpson (2002) avers that electronic banking encompasses the use of telephone banking, plastic money, ATMs, EFT, and mobile phone banking to provide financial services. Ovia (2001) defined e-banking as a result of e-commerce inside the banking and financial services sector. Academic opinion is divided on the definition of electronic banking, which encompasses a variety of services that enable bank customers to conduct financial transactions and access information (Alsmadi & Alwabel, 2011).

Primarily, E- banking allows customers to access a wide variety of online services such as opening of account, depositing money, withdrawal of money, balance inquiry, payment of utility bills, cash transfer and cheque books request among many other services. These services are either offered directly to customers or through interbank transfers. EFT and RTGS are electronic fund transfer services which facilitate inter-bank funds transfers via the central bank of Kenya. Card banking, internet banking, POS banking and M-banking are the most highly used bank to customer e-banking services available in Kenya and

forms the independent variables of this study. These variables were measured based on the percentage volume of transactions carried through each element of electronic banking.

1.1.3 Commercial banks in Kenya

Electronic banking was first adopted in Kenya in 1982 by Barclays bank of Kenya (currently Absa) where they computerized all their operation and then thereafter, Standard chartered bank followed by in 1985. Cooperative bank launched mobile banking in 2004 through 'the bank on the move initiative' where they used a van to reach out to their markets. This move was enhanced by the entry of mobile money transfer service, M-pesa, in 2007 through Safaricom's mobile network which allowed customers to access a variety of services. (KBA, 2013). As per the CBK, Annual Bank supervision report (2022), the Kenyan financial industry is made up of 39 financial institutions. The banks are categorized into three tiers as per their market share. Tier 1 is comprised of banks with a market share of more than 5%. This category has a total of 9 banks. Tier 2 banks' market share ranges from 1% to 5% and there are 8 banks under this category. Tier 3 is comprised of banks with a market share of less than 1% and in this category there are 22 banks. According to Banking Sector Innovation Survey (2021) 92% of commercial banks have fully adopted e-banking.

The popularity of E-banking among Kenyan banks varies depending on the specific product. ATM banking was the first and primarily utilized platform in Kenya (Nyangosi, Arora & Sing, 2009). However, its use has declined slightly in 2022 by 2.8 percent in December 2022, due to the prevalence of agency, mobile and digital banking in the banking sector, Bank supervision annual report (2022). The CBK study (2008) shows that the adoption of mobile banking (M-banking) has seen significant growth. This may be due to its user-friendly nature and the large number of mobile phone users. By 2022, 98% of

commercial banks had fully adopted m-banking with the intention to foster banking and customer service relationship (CBK, 2022). Online banking is on the rise among bankers in Kenya as 96% of branches that were surveyed in 2022 were found to have adopted internet banking, majorly through the use of Mobile banking app or the USSD (CBK, 2022).

1.1.4 Electronic banking and profitability of commercial banks

Electronic banking has varied outcomes to the banking sector which touch on both the customer and the bank. Investigation by Njogu (2014) showed that the banks are able to broaden their market and serve customers effectively as and when their needs arise. Customers are able to get convenient services without the need to travel to the bank branches to access some services. This may translate to higher customer deposits hence more liquidity to the bank.

On the other hand, the cost of laying and maintaining the e-banking infrastructure also takes huge budgets and this makes it necessary to undertake a thorough cost analysis to ascertain the impact on profitability as asserted by Aduda and Kingoo (2012). Based on the Banking Sector Innovation Survey (2021), 8% of financial institutions reported investing over Ksh.200 million in 2021 for secure software development and database-related operations. This is an increase from 4 percent in 2020. Cited by Gichuki and Jagongo (2017), adoption of technology also has its fair share of challenges to the customers ranging from acceptance to use of innovated products to cyber security issues. Cyber-attack risks are also on the rise and this may deter customers from accessing online transactions for the fear of their data being hacked. Varied age brackets also have different adoption rates as asserted by Stephanie (2020) where old people have low adoption rates.

The premise that electronic banking leads to the profitability of commercial banks has not been conclusively confirmed. Numerous studies have been undertaken to ascertain the

correlation between e-banking and the financial prosperity of financial institutions, yielding inconclusive findings. In their study, Onay and Ozsoz (2013) researched the influence of e-banking on the viability of banks in Turkey, specifically in relation to the net interest margin. It has been shown that online banking has a detrimental influence on the profitability of banks. The duration of their research was two years. In his research on Jordanian banks, Siam (2006) also observed that e-banking had a detrimental impact on banks' profitability in the near term. This is mostly due to the expenses associated with educating workers and establishing the necessary infrastructure. In contrast, Hernando and Nieto (2006) saw an enhancement in the ROE and ROA of Spanish banks in their analysis. The findings of Njogu (2014) and Kingoo (2012) support the results of this research, since they also demonstrated an upward trend between e-banking and the financial viability of banking institutions in Kenya. All of these studies used banks' financial performance as a more comprehensive idea. However, it is necessary to focus the research specifically on profitability.

1.2 Statement of the Problem

The financial wellbeing of commercial banks cannot be determined effectively without measuring its profitability since it guides on the banks growth and sustainability in the dynamic-competitive environment. Profitability is assessed by the utilization of profitability measures, which indicate the company's capacity to make profits from the investment made by shareholders. Aburime (2009) avers that the significance of banks viability can be examined at the micro and macro perspective of the economy. At a micro level, profitability serves a crucial role in establishing an entity's capacity to satisfy its

financial commitments and in shaping its development plan. At macro perspective, the bank is able to absorb shock from fluctuation in the world's financial markets.

Electronic banking is on the forefront in guiding the profitability of commercial banks. It offers a wide berth of advantages ranging from cost reduction, customer satisfaction and accessibility of financial services to a wide market using a variety of channels like card banking, internet banking, POS banking and mobile banking. E-banking has obviated the necessity of clients to physically visit bank branches in order to get certain services. Advancement in technology has made it possible for banks to interconnect and have a common database which helps to serve customers wherever their need arises without having to visit their parent branch. There is a growing array of banks in Kenya that are providing e-banking services to the populace (CBK, 2022)

E-banking is associated with high financial outlay and this has forced banks to allocate huge amounts of money within their budgets which is used in setting up the relevant infrastructure, Banking Sector Innovation Survey (2021). Cyber-attacks and internet downtime are also rampant and this demands heavy investment to ensure customers data is safe and efficient services are provided failure to which it may deter customers from online banking. These financial demands driven by E-banking are likely to threaten the bank's profitability if these costs and risks are not managed well.

Despite the potential of e-banking in support of banking activities, there has been a debate on its effects on the economic viability of Kenya's financial institutions. Prior studies conducted on the impact of e-banking on success of banking institutions have left the users of the information in a dilemma since their findings are contradicting. Onay et al. (2013) on their study on electronic banking and profitability of commercial banks, basing their study in Turkey, established a negative implication which raises a contextual gap for this

study. Siam (2006) in his separate study established a negative implication of electronic banking on Jordanian banks profitability. This raises contextual gap since the study was carried out in a different set up. Hernando and Nieto (2007), Njogu (2014) and Kingoo (2012) in their separate study, though they found that e-banking positively impacts on the performance of commercial banks, they anchored their problem on banks performance which is a general structure and this raises a conceptual gap. Heber et al. (2022) on the effect of banking channels and efficiency indicators on bank profitability in Mexico raises a contextual and methodological gap. Basing on this empirical perspective, the effects of electronic banking on Profitability are cannot be generalized due to challenges in uniformity in terms of methodological, contextual, conceptual and geopolitical environment differences.

It is on this context that this study focused on addressing the dilemma created by differing opinions on the influence of e-banking on success of financial firms. The analysis sought to establish how different e-banking channels contribute to the profitability of commercial banks, weighing in the huge costs incurred in establishing and maintenance of the support infrastructure. Therefore, this research aims at providing clarity and filling this research gap. Given the importance of banks in financial intermediation, this research sought to establish the effect of electronic banking on profitability of Kenya's commercial banks.

1.3 Objectives of the Study

1.3.1 General objective of the study

The purpose of this study was to examine the effect of electronic banking on the profitability of commercial banks in Kenya.

1.3.2 Specific objectives

The study was grounded on the subsequent precise objectives;

i. To determine the effect of internet banking on the profitability of Kenyan commercial banks.
ii. To ascertain the effect of mobile banking on the profitability of Kenyan commercial banks.
iii. To establish the influence of card banking on the profitability of Kenyan commercial banks.
iv. To determine the effect of POS banking on profitability of Kenyan commercial banks.

1.4 Hypotheses of the Study

H_{01}: Internet banking has no significant effect on profitability of commercial banks in Kenya.

H_{02}: Mobile banking has no significant effect on profitability of commercial banks in Kenya.

H_{03}: Card banking has no significant effect on profitability of commercial banks in Kenya.

H_{04}: Point of sale terminals has no significant effect on profitability of commercial banks in Kenya.

1.5 Significance of the Study

The findings of this study may be of great value to the listed commercial banks in formulation of policy on investment in electronic banking portfolio. Bank management may use the study findings to make informed decisions on how to reach their diverse markets at a minimal cost as the study can provide further insight of e-banking on the banking industry. The outcomes may be of help to the emerging banks and other financial institutions as it provides cost-benefit analysis of investment in e-banking thereby assisting them in making decisions.

Financial management practices, policy regulators and finance theorist may use the study finding to enhance their control and formulation of policies geared at improving the economic sector.

This work contributes to the current body of literature and will be very valuable to future researchers and academicians. It will act as a crucial reference for subsequent research and anyone seeking in-depth knowledge about electronic banking.

1.6 Scope of the Study

The contextual scope of this study was examining the effect of electronic banking on the financial viability of financial institutions in Kenya. Commercial banks are considered in this study since they serve a wide clientele as compared to the other financial institutions.

The study considered a time scope of five years from 2018-2022. The period was considered since there was no economic crisis within the country and the economy was fairly stable.

The methodological scope of this study was by regression where the profitability as the dependent variable was regressed against internet banking, m-banking, card banking, and POS banking to ascertain the nature of their relationship.

Demographic scope was all the 39 licensed commercial banks in Kenya operating during the research period.

1.7 Limitations of the Study

Skepticism was observed and this was countered by using an introduction letter from the University and research license from NACOSTI. Uncooperative behavior from some bank staff was experienced in some instances when collecting data. The researcher created a rapport with the subjects involved. The subjects would occasionally give false information on some of the items of inquiry. Accuracy of the data given was ascertained by confirming with a third person.

1.8 Organization of the Study

This research runs from chapter one to five. Chapter one provides an overview of the study's history, issue description, study goals, research hypothesis, importance, scope, and limits. The second chapter provides an overview of the theoretical and empirical literature, a synthesis of the existing research, and presents the research conceptual framework subject. Chapter three presents the study techniques which are; research design, target audience, sample design, data collecting, and analysis. Chapters four entails the study findings while Chapter five provides a summary of the findings and suggestions derived from the study.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter offers an inclusive analysis of the literature that is applicable to the study variables of the present research. The dependent variable being profitability of commercial banks in Kenya while the independent variables being elements of electronic banking. The chapter reviews theoretical literature guiding the study. Under this, the study focused on the following theories; Innovation theory of profits, Technology acceptance theory (TAM), Theory of planned behavior, Innovation diffusion theory, and Self-determination theory (SDT). The chapter provides an overview of empirical studies that explore the impact of e-banking on the success of commercial banks. Finally, the conceptual framework will demonstrate the correlation between the dependent variables and the independent factors.

2.2 Theoretical Review

2.2.1 Innovation theory of profits

The theory was hypothesized by Joseph A. Schumpeter in 1934. According to this theory, economic profits arise due to innovations introduced by entrepreneurs which facilitate creation of market positions of power. The entrepreneur's duty is to introduce innovation into the economy and if it succeeds, he's rewarded profits. According to Schumpeter, an innovation is any measure introduced to reduce the cost of production and or increase the demand for a product. On the application of technology, innovation theory states that this pushes companies in the discovery and exploitation of new markets, introduction of new goods, and enhancement of current ones. Schumpeter (1943) furthered this thesis where he

restated his view of the uniqueness of profits from innovation as opposed to market dominance. In the present institutional setting, as mentioned by Cantwell (2000), organizations that integrate new and old technology successfully succeed in unearthing the most favorable new domains of application. This theory has been criticized because it does not take profits as a reward for risk-taking and also it does not take into consideration profits as a reward for uncertainty but as wages for management.

The innovation theory of profits anchors on the dependent variable of this study on success of commercial banks. It guides management in the adoption of innovative policies and programs that aim at cost reduction with the hope that if the innovation succeeds, the banks will make profits.

2.2.2 Technology acceptance theory (TAM)

Davis, Bagozzi, and Warshaw (1989) proposed a hypothesis that identifies two factors influencing an individual's propensity to adopt a computer system: perceived utility and perceived ease of use. The perceived value is the level to which an individual feels that employing a certain technology would improve their ability to accomplish their job. Perceived ease of use describes an individual's belief that utilizing a certain technology requires minimal effort, hence removing barriers and enhancing their attitude towards it. In 2000, Davis and Venkatesh introduced TAM2 as a modification of TAM. TAM2 aims to explain the perception of utility and intents to utilize a technology by including social impact and cognitive instrumental processes. TAM has been found highly useful in the study of adoption of e-banking among local banks as cited by Kibicho and Mungai (2019), Mulwa (2017) and Sabi (2014) since the success of e-banking anchors on user-acceptance of new technologies.

The correlation between this theory, m-banking, Internet banking, and POS banking is essential to this research. If clients see technology as advantageous and user-friendly, they will readily embrace it to enhance convenience and thus increase pleasure.

2.2.3 Theory of planned behavior (TPB)

The TPB theory was postulated by Ajzen and Fishbein in 1991. It states that three components link individuals' beliefs to behaviour that is attitude, subjective norm, and perceived behavioural control. Attitude underlines a person's intention to favour or unfavour behavior of interest. Subjective norm aligns with society's expectations as it reflects the general approval or disapproval of specific behaviors by most individuals. Behavioural control alludes to an individual's evaluation of the level of simplicity or challenges involved in performing a particular task. Nevertheless, TPB does not capture the complexity of human behaviour. The rate of use of Internet banking is based on the degree to which a person may favour or not favour it, anchored on the perceived outcome. Cited in Teo and Tan's (2000) research on elements influencing the uptake of internet banking, e-banking offers a wide range of advantages. This theory is relevant to this study and links well with the application of Internet banking to profitability of the commercial banks since most banks view investment in Internet banking infrastructure as widening their market and enhancing customer service.

2.2.4 Innovation diffusion theory (IDT)

This theory was hypothesized by Everett M. Rogers (1962). Its purpose is to elucidate the mechanisms by which novel concepts and methodologies are embraced and disseminated, as well as the factors influencing the pace of their adoption. It provides guidance on how to effectively exploit innovations, which ultimately leads to the success of a firm. Innovation refers to any concept, item, or method that is considered to be novel, whereas

diffusion of innovation is the procedure by which the invention is conveyed via different means over a duration of time (Ekechukwu, 2016). Rogers established a model consisting of five distinct steps that describe the process of how information spreads and is adopted: knowledge, persuasion, choice, implementation, and confirmation. The need to have relative advantage over other players in the industry drives banks towards technological diffusion (Taylor, 1995). Based on Mutisya and Atheru (2019), this theory elucidates how clients may do banking transactions at their convenience, without the need of physically visiting the bank. Despite these strengths of innovation diffusion theory it fails to consider an individual's resources and social support to adopt an innovation.

Innovation diffusion theory relates well with the objectives of this study in that, it guides the acceptance and use of e-cards, mobile banking, POS banking and internet banking among the customer populace where this study is anchored.

2.2.5 Self-determination theory (SDT)

Ryan and Deci (2000) developed this theory to explain how individuals interact and depend on the social environment. It is centred on human motivation in that intrinsic and extrinsic motivation influences several domains of an individual's social and cognitive domains. Ryan and Deci (2000) argue that an individual's motivation, well-being, and personal development are impacted by their psychological demands for autonomy, competence, and relatedness. SDT is founded on the premise that humans innately and intentionally focus on self-improvement and the creation of structure, therefore assimilating novel encounters and establishing connections with others. SDT posits that humans are always involved in a dynamic interchange with the social environment. They are simultaneously attempting to fulfill their wants and adapting to the environmental circumstances that either facilitate or hinder the realization of those needs (Lisa, 2017).

The main weakness of SDT is that it doesn't account for the social and cultural factors that influence motivation and behavior.

The connection between this theory and the four objectives of this study makes it relevant to the study since the use of POS banking, m-banking and Internet banking by customers accords them independence thereby motivating them. This enables them to access banking services electronically without physically visiting bank branches.

2.3 Empirical Review

2.3.1 Internet banking and profitability of commercial banks.

Hernando and Nieto (2007) conducted a study to identify and estimate the impact of the implementation of a transactional website on the financial success of Spanish Banks. A sample of 72 financial institutions was considered for this study. Multivariate analysis was used to analyse data. It was suggested that the introduction of transactional websites had a detrimental effect on the success of banks during the initial 18 months. It was concluded that the implementation of a transactional website has an adverse effect on the financial health of Spanish banks in the short term. However, over time, these banks can eventually generate profits. This suggests the presence of a contextual disparity, since the research was conducted in Spain, making it inappropriate to extrapolate the results to Kenya's banking industry.

Kombe &Wafula (2015) researched the effect of Internet banking on the financial success of Kenyan financial institutions. The research utilized a descriptive survey approach and focused on a group consisting of 31 workers from KCB. Data was collected by administering questionnaires and assessed via statistical methods. They sought to ascertain the effect of cheaper internet connectivity, 24-hour e-banking, and ICT skills of the

customers on the financial success of banks. It was discovered that reduced internet costs lowers transaction costs and 24-hour e-banking creates a strategic advantage against competitors while the Internet banking outcomes are influenced by the availability of IT services. The research was restricted in scope since it solely focused on a small population of employees of KCB hence raising a contextual gap in the study. This research will concentrate on 39 listed commercial banks in Kenya by the year 2022.

Eze and Egoro (2016) investigated e-banking and the viability of Nigerian Commercial Banks. The study's independent variables were the use of ATMs, e-mobile banking, internet banking transactions, and POS services. This study adopted investigative econometric research design and utilized multiple regression and correlation analysis to analyze data and establish associations. The results revealed that e-banking is significant to profitability though the results for solution variables were varying. It was resolved that Internet banking favorably influences the profitability of Nigerian financial institutions. Although the study demonstrates a favorable effect on profitability, it was carried out in Nigeria, thus highlighting the contextual gap.

Njuguna, Ritho, Olweny and Wanderi (2012) examined Internet banking implementation: A Case of Nairobi County, Kenya. The intent of the research was to highlight the components that impact the implementation of Internet banking. A poll was done with a specific focus on 300 respondents. The research used an exploratory methodology and the data was analyzed utilizing multi-linear regression. The study uncovered that the utilization of Internet banking in Kenya is exceedingly limited, and there is no notable association between the profitability of financial institutions. Consequently, the research determined that Internet banking did not have a substantial impact on the profitability of financial institutions in Kenya. The study done by Njuguna et al. (2012) identified a lack of evidence in their research, as they primarily examined the extent of Internet banking usage.

In contrast, our study specifically explored the impact of Internet banking on the effectiveness of commercial banks.

2.3.2 Mobile banking and profitability of commercial banks.

Mutua (2013) researched the influence of m-banking on the financial success of Kenyan banking institutions. The research utilized a descriptive research methodology. The emphasis of the study was on the six mobile service providers that were operating during that period. The investigation used preexisting data. Multiple regression analysis was adopted to analyze the data. The research discovered a tenuous but advantageous correlation between m-banking and the financial health of Kenyan financial institutions. The research's conclusions had a conceptual gap since they did not include the success aspect of commercial banks, which this research aims to remedy.

Wadhwaa (2016) researched the influence of m-banking on the success of regulated commercial banks in India. The research adopted a descriptive research method. The data was gathered from secondary sources and analyzed through multiple regression approaches. The research revealed that despite the substantial growth in the use of mobile banking, it has not had a noteworthy impact on the banks' profitability improvement. This study was based on a different geographical context from Kenya thereby raising a contextual gap which will be addressed in this study.

Momanyi (2015) studied the influence of m-banking on the financial gain of Kenyan commercial banks. The research utilized a descriptive research approach. The research focused on the specific group of 43 financial institutions that were active in Kenya in December 2014, as well as four mobile phone service providers. The study employed secondary data gotten from the CBK and KNBS, which was then subjected to analysis using multiple regression. The study's results demonstrated that m-banking had a beneficial

impact on the profitability of commercial banks in Kenya. This research will focus on three mobile service providers as at December 2022 hence raising a contextual gap due to a decrease in mobile phone service providers in Kenya as compared to December 2014.

2.3.3 Card banking and profitability of commercial banks.

Valahzaghard and Bilandi (2014) examined the impact of e-banking on success and market share in Iranian banks. Considering a demographic of 16 banks, the study adopted simple linear regression analysis and VAR technique to evaluate the impact of e-banking on banks' ROA and market share (MS) as two independent variables and ATM, POS, and Pin Pad as the dependent variables. The research concluded that the existence of ATM and POS systems can't significantly impact the financial health of banks, however the utilization of pin pad devices may favorably affect the ROA. This research will employ multiple regression analysis to evaluate relationships and it will be based in Kenya hence addressing this methodological gap.

In a separate investigation, Chelangat, Kiprop, and Mutai (2022) aimed to determine the correlation between payment cards and the financial efficacy of Kenyan financial institutions. The researchers used a cross-sectional descriptive survey study approach. The data was analyzed utilizing descriptive statistics and a panel model. The study's results demonstrated that the presence of Debit cards at ATMs significantly impacted the financial health of Kenyan financial institutions. The impact of credit cards and other cards used on POS machines on the financial health of commercial banks is limited. Similarly, the usage of prepaid cards on ATMs is unlikely to have any significant effect on the financial success of banking institutions in Kenya. This raises a debate over the overall effect of card banking on the profitability of commercial banks. This research will use a longitudinal strategy to address the methodological gap.

Adewoye and Omoregie (2013) studied the effect of the intensity of ATM positioning on the cost efficiency of banks in Lagos state, Nigeria. The research was undertaken on a sample of 22 financial institutions in Nigeria. Descriptive and inferential statistical tools were utilized to analyse data. The research suggested that the use of ATM debit cards led to cost efficiency based on the cost-to-income ratio and asset management rate in Nigerian financial institutions. The above study was based in Lagos state in Nigeria and focuses on cost efficiency thereby raising the conceptual gap.

2.3.4 Point of sale terminal (POS) banking and profitability of commercial banks.

Sujud &Hashem (2017) researched the effect of bank innovations on the profitability and ROA of financial institutions in Lebanon. The research identified the independent variables likely to influence the profitability of commercial banks as m-banking, debit and credit cards, ATM, internet banking, POS terminals, and EFT. A descriptive survey research design was applied in this study and questionnaires were employed to collect data from sampled senior management employees. The research utilized multiple regression analysis to investigate the impact of the independent factors on profitability. The study's results indicated that POS terminals had no substantial effect on the profitability of Lebanese financial institutions. Whilst the study utilized questionnaires to gather data, which are often subjective, this research will utilize secondary data to address the noted methodological gap.

Le and Ngo (2020) conducted cross-country research to examine the factors that influence bank profitability. The study focused on 23 countries and used national aggregated data from these nations for the period of 2002 to 2016. Given the panel data format used in this work, the data was controlled for unobserved heterogeneity and endogeneity issues using a generalized method of moment's estimator (GMM). The research revealed that the presence of POS terminals has a beneficial effect on bank viability. This implies that banks

that have a greater number of POS terminals are able to produce more interest revenue by charging interest on each transaction. Transferring the conclusions drawn from a research on banks in 23 countries, which included many macro aspects, to the specific context of Kenya reveals a significant lack of relevant information. Therefore, it is necessary to do a study specifically focused on the Kenyan banking system.

Heber, Evaristo and Oscar (2022) examined the effect of banking channels and efficiency indicators on bank profitability in Mexico. The study employed panel data to establish the link between metrics of operational efficiency and banking channels, with an emphasis on the bias on ROA and ROE. Panel data econometric model was employed to analyse data. The study outcomes suggested that point-of-sale terminals present a negative relationship with ROA. This research only looked at Mexican banks surrounded by different micro and macro environments than their Kenyan counterparts hence raising a contextual gap.

2.4 Summary of the Review

The previous empirical literature clearly shows that there are research gaps in the study of e-banking and the profitability of Kenyan commercial banks. The research gaps identified are summarized in Table 2.1.

Table 2.1 Literature review Summary and Research gaps

Author(s)	Topic of Study	Findings	Research Gap	Addressing the gaps
Hernando & Nieto (2007)	Impact of the implementation of a transactional website on the financial success of Spanish Banks	The performance of banks was unfavorable over the first eighteen months after implementation.	Contextual gap: The research was conducted in a nation that is distinct from the one being examined.	The study will be carried out in Kenya.
Njuguna et al. (2012)	Internet banking implementation. A Case of Nairobi County, Kenya	Internet banking adoption is extremely low in Kenya, and there is no notable	Evidence gap: The study emphasized on levels of implementation of	The primary emphasis will be on the domain of

		association between the two factors and the profitability of commercial institutions.	internet banking.	Internet banking and the financial gain of commercial banks.
Mutua (2013)	The influence of m-banking on the financial success of Kenyan financial institutions	The financial health of Kenyan financial firms was moderately positively correlated with m-banking.	Conceptual gap: The research ascertained the financial health of Kenyan financial firms.	The research will address profitability of financial institutions in Kenya.
Adewoye & Omoregie (2013)	Effects of the intensity of ATM positioning on the cost efficiency of banks in Lagos state	ATM debit cards led to cost efficiency.	Conceptual gap: The emphasis of this study differs from the research, as it specifically targeted the cost efficiency of banks in Lagos state. .	The research will concentrate on the success of financial institutions in Kenya.
Valahzaghard & Bilandi (2014)	Impact of e-banking on success and market share in Iranian banks.	ATM and POS systems may not have a substantial effect on the success of banks; nevertheless, the use of a PIN pad may have a beneficial effect on the ROA.	Methodological gap: The Study adopted simple linear regression analysis	The study will adopt multiple regression analysis.
Momanyi (2015)	Effect of m-banking on success of financial institutions in Kenya.	The fiscal health of Kenyan financial firms is positively affected by m-banking.	Contextual gap: The study focused on four mobile phone service providers: Safaricom, Airtel Kenya, Orange and Yu.	The research will emphasize on three mobile phone service providers: Safaricom, Airtel Kenya, and Telcom Kenya.
Eze & Egoro (2016)	E-banking and success of financial institutions in Nigeria.	E-banking certainly influences the profitability of financial institutions in Nigeria.	Contextual gap: The research precisely analyzed the banking sector in Nigeria, which exhibits distinct economic characteristics compared to Kenya.	The research will specifically concentrate on financial institutions in Kenya.
Wadhwaa (2016)	The influence of m-banking on the viability of	M-banking has not had a substantial impact on the	Contextual gap: The study focused on banks in India which	The research will concentrate on

	regulated financial institutions in India	enhancement of financial institutions' profitability.	has different macro environment to Kenya.	banks in Kenya.
Sujud & Hashem (2017)	The effect of bank innovations on the success and ROA of banking institutions in Lebanon	POS terminals have little influence on the profitability of Lebanese financial institutions.	Methodological gap: The research utilized primary data collection methods to gather data.	This research will employ secondary data.
Le & Ngo (2020)	Determinants of bank profitability, a cross country analysis.	POS has a positive impact on bank profitability.	Contextual gap: Focus was on commercial banks in 23 countries and the findings may be biased if generalized to Kenyan set up.	The focus will be on 39 commercial banks in Kenya.
Chelangat, et al. (2022)	Correlation between payment cards and the financial efficacy of financial institutions in Kenya	The impact of Debit cards on ATM transactions significantly affected the financial health of financial firms in Kenya.	Methodological gap: The study utilized a cross-sectional descriptive survey research method.	The Study will adopt a longitudinal approach.
Heber et al. (2022)	Banking channels and efficiency indicators on bank profitability in Mexico.	Point-of-sale terminals present a negative relationship with ROA.	Contextual gap: Focus was on banking channels in Mexico and this represents a different financial environment to Kenya.	The focus will be on the influence of POS terminals on the success of financial institutions in Kenya.

Source: Researcher (2023)

2.5 Conceptual Framework

The research conceptual framework depicts the correlation between electronic banking, which is the independent variable, and the profitability of commercial banks, which is the dependent variable. Profitability in this context will be assessed via ROA. The research categorizes Internet banking, card banking, m-banking, and POS banking as the four

primary independent variables that make up e-banking. The connection is seen in figure 2.1

Independent variables **Dependent variable**

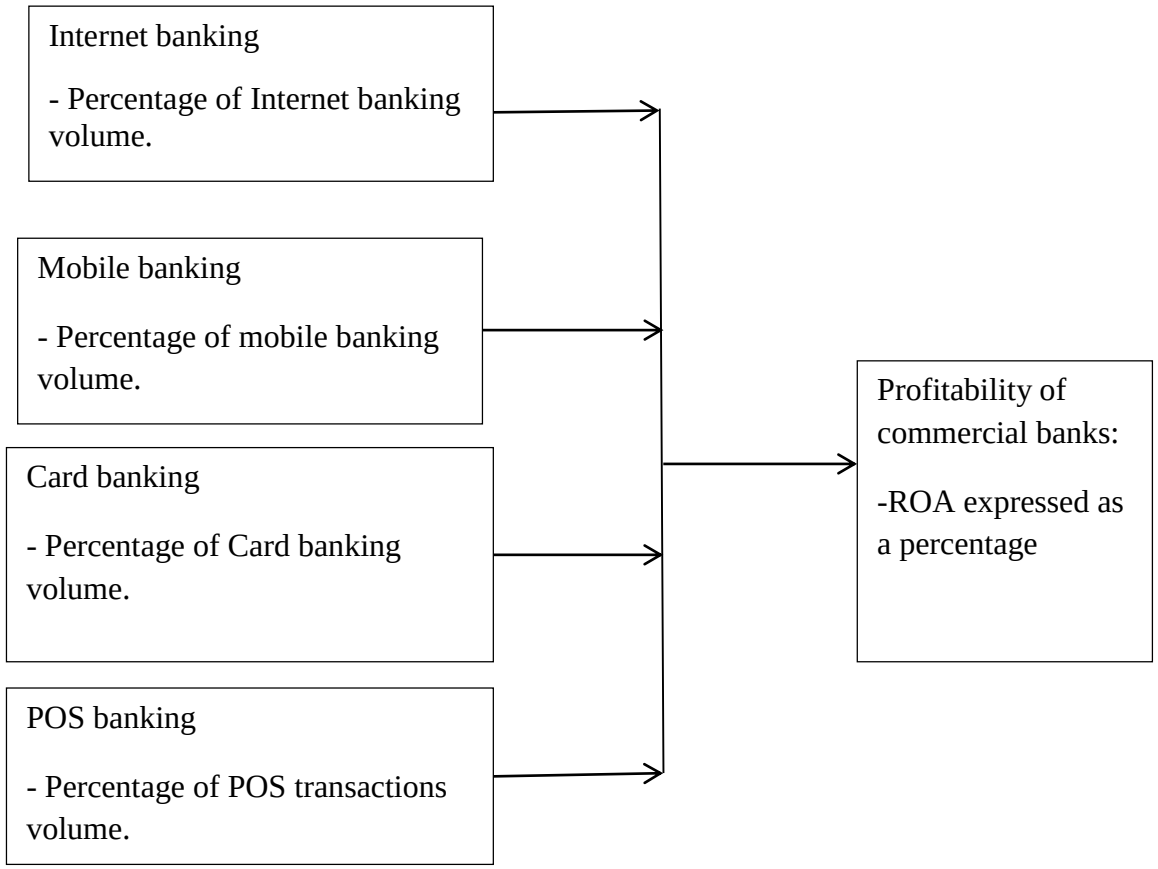


Figure 2.1 Conceptual framework

Source: Researcher (2023)

CHAPTER 3

RESEARCH METHODOLOGY

3.1 Introduction

This chapter covers the overview of the study research methodology. These includes; the target audience, sampling strategy, data collecting, analysis, and ethical concerns.

3.2 Research Design

The study design elucidates the methodologies to be used in the acquisition, quantification, interpretation, and analysis of research data (Creswell, 2014). The research design serves as a comprehensive plan that guides the researcher in systematically and coherently integrating various elements of the study to effectively address the research topic at hand (Saunders et al., 2012). This study adopted a descriptive research approach. The design was deemed suitable since it offers valuable insights into the study topic by elucidating the interplay between factors.

3.3 Target Population

The population of this study comprised all the regulated financial institutions in Kenya, considered from year 2018 to year 2022. As at 31st December 2022, there were 39 commercial banks categorised into three based on their market share as, larger peer group comprising of 9 banks, medium peer group of 8 banks and small peer group made up of 22 banks. The list of these commercial banks is exhibited in Appendix I.

3.4 Sample Size and Sampling Technique

This research utilised census technique since the population was not large and was easily accessible. All the 39 banks were considered for this study since the size of the population

was relatively small. From each bank, a respondent was purposefully chosen from the senior management with bias on the age, professional experience, and engagement with the studied variables. This was following the presumption of possession of good knowledge on the organization and access to the transaction records. These were the ones who filled the data capture sheet.

3.5 Data Collection Instruments

The research acquired quantitative primary and secondary data. There are many benefits associated with the utilisation of secondary data. Cooper and Schindler (2008) assert that secondary data serves as a valuable qualitative method for assessing both historical and present secret public records, reports, government records, and views. A data capture sheet was adopted to collect data as summarized in Appendix II. Primary data collected through a data capture sheet was filled by the senior management staff while secondary data was gathered from the accounting records of all regulated financial institutions in Kenya and from CBK's Annual Banks' Supervision Reports. Data collected using a data capture sheet was summarized in the data extraction table in Appendix V. The research spans from 2018 until 2022.

3.6 Data Collection Procedure

The researcher obtained consent from appropriate authorities prior to conducting data collection. The authorization from the university, NACOSTI and individual commercial banks was sought. Primary data was collected though semi-structured interviews. The secondary data was collected from financial institutions' financial statements and central banks' Annual banks' Supervision Reports, through banking officials who had access to these documents as well. Upon collection, the data was standardized to mimic a 5-point likert scale, summarized and analyzed following the research objectives.

3.7 Data Analysis and Presentation

Primary and secondary quantitative data was analyzed utilizing descriptive statistics, correlation analysis and inferential statistical techniques such as regression analysis for each of the study objectives to describe their significance and how they relate to banks' performance. The analysis employed the SPSS. According to Leyla (2001), SPSS provides a wide range of data processing capabilities and a multitude of statistical analysis procedures that are capable of analysing data sets of varying sizes, ranging from tiny to extremely big. The research conducted descriptive analyses to display findings, including frequency tables, percentages, charts, as well as measures of central tendency such as mean and standard deviations. Multiple regression was utilized to obtain the model to describe the effects of e-banking variables on profitability of Kenyan's commercial banks.

The regression model was as in the form:

$$\mathbf{Y = \beta 0 + \beta 1 X1 + \beta 2 X2 + \beta 3 X3 + \beta 4 X4 + \varepsilon}$$

Whereby:

Y = Profitability measured through ROA

β i = Regression coefficients

X1 = Percentage of Internet banking volume.

X2 = Percentage of mobile banking volume.

X3 = Percentage of Card banking volume.

X4 = Percentage of POS transactions volume.

ε = Stochastic Error Term

3.8 Diagnostic Tests

The research performed analytical tests to verify the fulfillment of the assumptions of regression analysis. Following Everitt and Skrondal (2010), Diagnostic tests were done to evaluate the soundness and reliability of the model. The null hypotheses were that that there is no multicollinearity, heteroscedasticity, autocorrelation and abnormality of distribution, amongst the predictor variables and normality of collected data.

3.8.1 Normality test

The Shapiro-Wilk test was utilised to assess the normality of the gathered data. Normality tests are statistical procedures used to evaluate whether the data obtained from a sample is derived from a population that adheres to a normal distribution (Ahmed, 2014; Shapiro & Wilk, 1965). The Shapiro-Wilk test is generally recognised as the most often used test for evaluating normality (Ahmed, 2014; Yap & Sim, 2011). Ahmet (2014) asserts that when the p-value is below the predetermined alpha threshold ($p < 0.05$), it is appropriate to reject the null hypothesis. This rejection offers substantiation for the assertion that the tested data does not stem from a population that adheres to a normal distribution. The research employed the Shapiro Wilk and Kolmongorov-Smirnov tests to assess the normality of the data.

3.8.2 Heteroscedasticity

In the context of heteroscedasticity, the regression model is capable of producing unbiased estimates pertaining to the association between the study variables. However, caution must be used when interpreting the standard errors and drawing inferences from the data analysis. This assumption is based on the premise that the disturbances seen in the regression model exhibit homoscedasticity. The White test will be used to examine the

presence of heteroscedasticity. This process will include acquiring the R2, followed by the F statistic and the chi-squared statistic. If one of the statistics is shown to be statistically significant, it may be concluded that heteroscedasticity is present. In order to address or mitigate the issue of heteroscedasticity, it is possible to apply a logarithmic transformation to the dataset used in the research (Gujarati, 2003).

3.8.3 Multicollinearity

Multicollinearity is a statistical occurrence that arises when there is an elevated correlation between multiple independent variables. Multicollinearity is a phenomenon seen in multiple regression models where two or more explanatory variables have a robust linear connection, implying that a single explanatory variable may be able to accurately and successfully anticipate the others (Gujarati, 2003). The scenario described is a circumstance in which one or more predictor variables exhibit correlation with other variables within the model (Yoo et al., 2014). Tolerance is often used as a diagnostic measure to identify the existence of multicollinearity inside a regression model. Tolerance levels are used for the purpose of quantifying the extent of multicollinearity. Calculated as 1 minus the coefficient of determination (R2), the tolerance statistic—defined by Sosa-Escudero, Bera, and Rojas (2009)—represents the amount of variation in the dependent variable that the independent factors help to explain. According to Weisburd and Britt (2014), the presence of serious collinearity difficulties in the model is indicated when the tolerance level falls below 0.20. The present research used tolerance level threshold of 0.20 in order to evaluate the extent of multicollinearity in the regression analysis.

3.9 Operationalization and Measurement of Variables

Table 3. 1 Operationalization and Measurement of Variables

Variable	Type	Operationalization	Measurement
Profitability	Dependent	ROA	Ratio of Earnings After Tax / Total Assets
Internet banking	Independent	Internet banking transactions.	Percentage of Internet banking volume.
Mobile banking	Independent	Mobile banking transactions.	Percentage of mobile banking volume.
Card banking	Independent	Electronic Cards transactions	Percentage of Card banking volume.
POS banking	Independent	POS transactions.	Percentage of POS transactions volume.

Source: Researcher (2023)

3.10 Ethical Consideration

In order to uphold ethical standards throughout the data collecting phase, the researcher first got an introductory letter from the University and research permission from the NACOSTI. These documents helped in formally introducing the researcher to the pertinent authorities involved. Information gathered would only be utilized for academic study and data collected will be kept safely and confidentially.

CHAPTER FOUR

RESEARCH FINDINGS AND DISCUSSIONS

4.1 Introduction

This chapter discusses the findings of this study determining the effect of electronic banking on the profitability of Kenyan commercial banks with no moderating effect. From the data capture sheet, the data was standardized to mimic a 5 point likert-scale. Three levels of data summary and processing were employed in the study: exploratory data summary, descriptive analysis and inferential analysis. The latter being for significance determination and testing of the hypotheses postulated. Chapter four also includes model diagnostic tests and interrogation of the findings vis-à-vis empirical literature presented in earlier chapters.

4.2 Exploratory Data summary

In this section, the study presents categorical variables in the study and their summary, giving general respondents sample characteristics. These variables included internet banking, POS banking, Card banking and mobile banking. The respondents providing data were in two categories and different age brackets, as exhibited in Table 4.1.

Table 4. 1 Data Capture Respondents' age and gender

	Respondent's age category in years				Total
	<=30	31-40	41-50	>50	
Male	4	7	4	5	***20***
Female	2	6	7	4	***19***
Total	6	13	11	9	***39***

Source: Research data (2024)

From the research results, the data capture respondents were fairly distributed across the age and gender categories. Table 4.2 presents the statistical details of the distribution of gender categories to age brackets.

Table 4. 2 Age-Gender category Distribution

Symmetric measure	Value	Approximate Significance
Contingency Coefficient	0.10	0.233
Number of valid cases	39	

Source: Research data (2024)

In terms of age-gender category distribution, there was insignificant sampling bias because the contingency coefficient of 0.233 is greater than the hypothetical 0.05 for significant difference in effect. The sample can hence be said to have been gender and age-unbiased.

Table 4. 3 Respondents' age and experience in the records section

		Respondent's age category in years				***Total***
		<=30	31-40	41-50	>=51	
Years in the reports section	<2 years	2	3	3	2	***8***
	2-4 years	1	3	3	2	***9***
	5-7 years	1	3	4	3	***11***
	>7 years	2	3	3	3	***11***
Total		***6***	***12***	***11***	***10***	***39***

Source: Research data (2024)

The distribution of the survey respondents' age was positively related to the length of the working duration in the records section of the financial institutions. As per this observation, the majority of the respondents (25 of the 39), were aged above 30 years and had worked in the records section for at least two years. The symmetry of the relationship is scientifically examined Table 4.4.

Table 4. 4 Concordance of age and experience

	Value	Asymptotic Standard Error[a]	Approximate T[b]	Approximate Significance
Gamma	0.018	0.037	0.411	0.772
Number of valid cases	39			

Source: Research data (2024)

From Table 4.4, a Gamma coefficient (for ordinal by ordinal concordance measurement) is 0.0.772 (with p-value of 0.018 < 0.05) hence significant. It signifies a substantially positive age-experience relationship. This is to say that those interviewed from lower age brackets were not as experienced as their higher-aged counterparts. Since the object of the purposive sample was to get respondents with above-average knowledge of their banks' reports, this purpose was achieved. As this study reveals, this result validates the tilt of the participant's age and working expertise to the upper age and experience ranges.

4.3 Descriptive and Inferential analyses

From the field data, the researcher sought to statistically describe the questionnaire responses. The summary is exhibited in Table 4.5, following.

Table 4. 5 Response location and dispersion

Variables	N	Minimum	Maximum	Mean	Std. Deviation	Coefficient of variation
POS banking	39	1.25	4.17	2.68	0.86	27%
Card banking	39	1.25	4.17	2.74	0.84	30%
Internet Banking	39	1.25	4.17	2.74	0.84	24%
Mobile Banking	39	1.25	4.17	2.69	0.87	20%
Profitability	39	1.00	5.00	2.95	1.17	38%

Source: Researcher (2024)

It can be noted that e-banking and profitability levels in licensed commercial banks in Kenya over the study period were at higher-than average levels, according to the standardized scores in Table 4.5. For all these, the aggregate likert scale scores were above 2.5 with coefficients of variation ranging between 20% and 30% for the electronic banking and 38% for Profitability.

In terms of correlation among the study variables, no significant correlation was found between the data sets. Notably, there was a weak correlation among the study variables sets such as POS and Card banking, mobile and Internet banking. POS and Internet banking were all negatively correlated though to insignificant levels. This signifies business segment rivalry, which was not severe. Moreover, each of these electronic banking channels were positively correlated with profitability, but to insignificant levels. The foregoing details are exhibited in Table 4.6.

Table 4. 6 Correlation relationships

Variable	Description	Mobile Banking	Internet Banking	POS banking	Card banking	Profitability
Mobile Banking	Correlation	1	-0.084	0.030	0.331	0.449
	P-value	-	0.073	0.523	0.433	0.612
Internet Banking	Correlation	-	1	-0.063	0.014	0.031
	P-value	-	-	0.174	0.761	0.508
POS banking	Correlation	-	-	1	-0.020	0.018
	P-value	-	-	-	0.511	0.704
Card banking	Correlation	-	-	-	1	0.054
	P-value	-	-	-	-	0.246

Source: Research Data (2024)

4.3.1 Validity and reliability test results

Tested for all the five variables, the Cronbach's Alpha was 0.799 which indicated a high level of validity of the instrument. All the components were loaded to the variables and yielded a Sampling adequacy measure (Kaiser-Meyer-Olkin-KMO) of 0.747 with a 0.0000 significance level signifying validity and Cronbach's Alpha statistic of 0.799 on the five variables. Compared to the consensual 0.700, this demonstrates a high level of reliability of the data collection instrument.

4.4 Diagnostic Tests

Tests for normality, multicollinearity, heteroscedasticity, were used to confirm the study's data quality.

4.4.1 Normality Test

Following the normality test, the researcher utilized the Shapiro-Wilk Test to ensure the data were evenly distributed before working on these outcomes. Table 4.7's outcomes highlight the findings of the research;

Table 4. 7 Normality Test

	Kolmogorov-Smirnov			Shapiro-Wilk		
	Statistic	**df**	**Sig.**	**Statistic**	**df**	**Sig.**
Mobile Banking	0.077	39	0.111	0.912	39	0.274
Internet Banking	0.089	39	0.103	0.788	39	0.176
POS Banking	0.080	39	0.186	0.932	39	0.155
Card Banking	0.066	39	0.192	0.977	39	0.189

Source: Research data (2024)

From Table 4.7, all the study variables (M-banking, Internet banking, POS banking and Card banking) were determined to have p-values of at least 5% on K-S and Shapiro-Wilk tests. On the basis of the two tests and 95% confidence level, it was not possible to reject

the null hypothesis that the data collected on the variables was normally distributed. The variables were therefore found amenable for regression analysis.

4.4.2 Multicollinearity Test

The VIF was employed to verify multicollinearity after a multicollinearity test was performed to ensure that the independent variables are not correlated. From the benchmarks, a VIF factor less than 10 indicates the absence of multicollinearity. In Table 4.8 are the findings.

Table 4. 8: Multicollinearity Test results

	Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
	B	**Std. Error**	**Beta**	**t**	**Sig.**	**Tolerance**	**VIF**
(Constant)	3.049	0.352		8.657	0.000		
Mobile Banking	0.018	0.063	0.013	0.281	0.779	0.991	1.009
Internet Banking	0.041	0.065	0.030	0.632	0.528	0.989	1.011
POS Banking	0.019	0.063	0.014	0.307	0.759	0.995	1.005
Card Banking	-0.075	0.065	-0.054	-1.151	0.250	0.998	1.002

Source: Research Data (2024)

Table 4.8 results suggests that there was no multicollinearity because none of the variables posted a VIF >10. Accordingly, the variables can be modeled in regression relationships.

4.4.3 Heteroscedasticity

To determine how the independent factors affected the variation in the error, the heteroscedasticity test was conducted. This analysis employed the Breusch Pagan test and the outcomes of the study test are exhibited in Table 4.9.

Table 4. 9 Heteroscedasticity test results

Breusch-Pagan/Cooke-Weisberg test for heteroscedasticity
H_0: Constant variance
Variables: Fitted values of Financial reporting quality
Ch2(1) = 2.57 Prob. Ch2 = 0.161

Source: Research data (2024)

Table 4.9 suggests that the probability value of the Breusch-Pagan test exceeds the 0.05 expected for rejection of null hypothesis. Accordingly, there are no grounds to support heteroscedasticity, meaning that the dependent variable's errors do not significantly change with changing independents. The variables are thus fit for regression relationship modeling.

4.5 Regression Analysis

4.5.1 Empirical model

To confirm the variables were appropriate for the study, a regression analysis was conducted after the diagnostic tests were run. To ascertain the effects of e-banking on profitability of commercial banks in Kenya, the data was analyzed utilizing multiple regression and the empirical model presented as follows:

Table 4. 10 Multiple Regression Analysis Results

Coefficients						
Model		Unstandardized		Standardized		
	Variable/Effect	B	Std. Error	Beta	t	Sig.
1	(Constant)	3.558	0.311		7.774	0
	Mobile Banking	0.22	0.088	0.755	0.982	0.019
	Internet Banking	0.611	0.066	0.641	0.666	0.037
	POS banking	0.198	0.072	0.220	0.247	0.431
	Card banking	0.176	0.065	0.065	0.173	0.226
Dependent Variable: Profitability ; Rsquare = 0.679						

Source: Research data (2024)

The results of Table 4.10 reveal that all the independent variables all of the electronic banking variables had individual positive effects on Profitability. Mobile banking (β=0.755) had the strongest impact on profitability followed by Internet banking (β=0.641). Card banking (β=0.065) and POS banking (β=0.220) trail the rest and this implies that they have weaker impact on profitability of commercial banks in Kenya. From the findings, only the effect of Internet (0.019) and Mobile banking (0.037) were significant to Profitability. POS banking (0.431) and card banking (0.226) do not have significant impact on profitability as their p-values are above 0.05. Overall, changes in electronic banking caused a 67.9% change in profitability of licensed commercial banks in

Kenya over the studied period. The imminent multiple regression relationship was therefore as follows:

PROFIB= 3.558+0.755MBB +0.641INTB+0.220POSB+0.065CARDB with:

PROFIB=Profitability, MBB=Mobile banking, INTB=Internet banking, POSB=POS banking and CARDB=Card banking.

4.6 Hypothesis Test Results

Following the first specific objective of this study, hypothesis H_{01} was postulated.

H_{01}: Mobile banking has no significant effect on Profitability among the licensed commercial banks in Kenya.

From the findings, the study was unable to validate the null hypothesis since the p-value was 0.019, lower than the hypothetical 5%. The relationship was positive and significant. On the basis of positive effect, these study results are consistent with Mutua (2013) and Momanyi (2015). The results however differ with Wadhwaa (2016) on effect as the latter is inconclusive. Despite this finding concurring with others on the direction of effect, it is divergent on the significance, since for the Kenyan scenario, the causal effect is significant; different. Accordingly, no generality can be averred from the findings because of geopolitical environment disparities of the comparative studies.

H_{02}: Internet banking has no significant effect on Profitability among the licensed commercial banks in Kenya.

In this study, the regression analysis yielded an insignificant positive effect (0.641) with a p-value of 0.037 > 0.05 signifying significance. There was hence a substantial positive

effect of internet banking on Profitability of licensed commercial banks in Kenya over the sampled study period. The findings are contrary to those by Hernando and Nieto (2007) which revealed a negative relationship, though with unspecified level of significance. Conversely, they concur with those in Kombe and Wafula (2015) and Eze and Egoro (2016) safe for methodological disparities. The findings also partly disagree with Njuguna et al. (2012) on existence and significance of a relationship.

H_{03}: Card banking has no significant effect on Profitability among the licensed commercial banks in Kenya.

To interrogate this hypothesis, the linear regression results obtained from the field data revealed Card banking had insignificant effect on Profitability among the licensed commercial banks in Kenya ((β=0.065 coefficient and p-value of 0.226). Though the relationship is positive, it is insignificant, hence weak. This result agrees with Chelagat et al. (2022); Valahzaghard and Bilandi (2014), partly agreeing with Adewoye and Omoregie (2013). It is therefore consistent with this finding to assert that though there is a positive relationship, the effect is not critical.

H_{04}: POS banking has no significant effect on Profitability among the licensed commercial banks in Kenya.

The fourth aim of the study was to ascertain the impact of POS banking on the financial viability of regulated commercial banks in Kenya. Out of this specific objective, the researcher postulated the foregoing null hypothesis. According to analysis outcome, the null hypothesis was found to be valid at 5% significance level since the p-value of 0.431 is greater than the hypothetical 0.05. On the direction of effect, the study finding is consistent with Le and Ngo (2020), but ambivalent with Eber et al. (2022). It is incomparable with Sujud and Hashem (2017) who do not draw any conclusion on a relationship. Furthermore,

the foregoing studies agree or differ on direction and are all straddled on the significance. This results in lack of generality.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter provides a comprehensive overview of the entire study. Additionally, the study provides conclusions and policy recommendations for different sections, as well as suggestions for future research themes.

5.2 Summary of the Study

The main aim of this research was to assess the influence of electronic banking on Profitability among the licensed Kenyan commercial banks. The objectives it sought to evaluate were the effect of Mobile banking, Internet banking, POS banking and Card banking on profitability of licensed commercial banks in Kenya. It interrogated four null hypotheses proposing that Mobile banking, Internet banking, POS banking and Card banking had no significant effects on Profitability of licensed commercial banks in Kenya, at the 5% significance level.

The study was guided by Innovation theory of profits, TAM, theory of planned behavior, innovation diffusion theory, and self-determination theory (SDT). Following the positivism research philosophy, the research was explanatory in design, covering a five-year period (2018-2022) on 39 licensed Kenyan commercial banks. A multiple linear regression analysis model was used to analyze the data. The diagnostics tests carried out included multicollinearity, heteroscedasticity, normality tests. Further, a data capture sheet structured according to the objective was presented to respondents in each commercial

bank. The instrument (having preliminary questions) was tested for validity and reliability using factor analysis and Cronbach's Alpha, whose results were affirmative.

From the analyses, the study sought to establish the effect of Mobile banking on profitability of commercial banks. Mobile banking plays a significant role in increasing customer engagements and expanding banks' reach and thereby playing a pivotal role in financial intermediation. Mobile banking has helped in remote banking by increasing the access to utility services. This has resulted to increase in the banking transactions. In this study it was measured by the percentage volume of transactions that were carried out though the USSD codes and mobile phone applications. The study hypothesized that there is no significant effects of mobile banking on profitability. The findings revealed that mobile banking is statistically significant to the profitability of commercial banks. This implies that mobile banking immensely contributes to the profitability of commercial banks.

The study also sought to establish the effect of internet banking on profitability of commercial banks. Internet banking was measured by the percentage volume of internet banking transactions. The study hypothesized that there is no significant effects of internet banking on profitability. The analysis findings invalidated the null and found results statistically significant highlighting internet banking role in improving profitability of commercial banks.

The third objective sought to establish the effect of card banking on profitability of commercial banks. Card banking was evaluated on the percentage volume of transactions that were carried out using the ATM cards. The study hypothesized that there is no significant effects of card banking on profitability. The analysis findings did agreed with the null hypotheses as the results found the relationship statistically insignificant and

thereby there is a need to explore further on its contribution to profitability of commercial banks.

The last objective sought to establish the effects of POS banking on profitability of commercial banks. Point of sale banking was evaluated using the percentage volume of transactions carried out over the point of sale terminals. The study hypothesized that there is no significant effects of POS banking on profitability. The analysis findings validated the null and found that there was insignificant relationship. This calls for an exploration on the efficiency of point of sale banking.

Generally, the direct effects of Mobile banking, Internet banking, POS banking and Card banking were positive. This positive effect was significant for Mobile and Internet banking but insignificant for Point of Sale and Card banking. The results were partially consistent with those in empirical literature.

5.3 Conclusion

The Kenyan commercial banking sector provides impetus for economic development and specifically to the livelihoods of the country's citizenry. With advancement in technology and brusque business and competitive environments, Profitability is a crucial component of the blueprint for success. From an empirical perspective, the effects of electronic banking on Profitability are not generalizable. This is occasioned by challenges to uniformity, like methodological, contextual, conceptual and geopolitical environment differences.

The study concluded that that there is statistically significant relationship between mobile banking and profitability of commercial banks. Mobile banking allows remote access to banking services and therefore banks should foster for high mobile banking connectivity. Remote access to banking services attracts banks charges in services such as money

transfers and payment of utility bills. High volume of transactions carried out through mobile banking attracts high revenues to the bank hence profitability.

The study concluded that that there is statistically significant relationship between internet banking and profitability of commercial banks. When most customers have their accounts linked with internet banking, they are able to carry out several transactions online. Most of these transactions attract bank charges which increases banks revenues hence leading to their profitability.

The study concluded that that there is statistically insignificant relationship between card banking and profitability of commercial banks. This means that card banking does not contribute significantly to the profitability of commercial banks. Commercial banks should delve into finding ways of improving on the acceptance and use of card banking.

The study concluded that that there is statistically insignificant relationship between point of sale banking and profitability of commercial banks. The contribution of POS banking on profitability of commercial banks is low and therefore, there is need to invest more on use of POS banking channels.

Partly supported by empirical evidence, this study found the relationship to be inconclusive, according to a mix of significant and insignificant beta coefficients of the electronic banking on the multiple linear regression model. The researcher also concludes that there is rivalry among the electronic banking channels, hence the need for channel-based strategy. This rivalry was found between the following pairs of banking channels: Mobile banking-Internet banking, Internet banking-POS banking; POS banking-card banking.

5.4 Policy Recommendations

The study makes some policy recommendations based on the electronic banking that were shown to have positive influence as follows: The banking sector should first make effort to enhance multi-channel banking strategies to integrate all electronic banking channels in order to boost profitability.

The commercial banks should target huge investment on the infrastructure of high impact channels such as mobile banking and internet banking. They will boost the adoption of mobile banking and internet banking and also ensure all customers' accounts are well linked.

Banks should also investment on regulatory framework and technological innovations to avert low acceptance and poor prevalence of card banking and Point of sale terminal-banking by their customers.

Commercial banks should also work on a trade-off set of strategies in deciding which channels to enhance as some are rivals.

5.5 Suggestions for Further Research

This study recommends further research for others in the area of mobile money banking and Profitability and what factors could be challenging this relationship. Other study areas include an inquiry on how mobile and internet banking can be integrated for a positive growth relationship. This study should also be replicated in another developing country to see if the findings would be similar.

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APPENDIX I: LIST OF COMMERCIAL BANKS IN KENYA

1	KCB Bank Kenya Ltd
2	Equity Bank Kenya
3	Co-operative Bank of Kenya Ltd
4	NCBA Bank Kenya PLC
5	Absa Bank Kenya Plc
6	Standard Chartered Bank Kenya Ltd
7	I&M Bank Ltd
8	Stanbic Bank Kenya Ltd
9	Citibank N.A. Kenya
10	Bank of Baroda (Kenya) Limited
11	Diamond Trust Bank Kenya Ltd
12	Bank of India
13	Family Bank Ltd
14	Prime Bank Ltd
15	Guaranty Trust Bank
16	National Bank of Kenya Ltd
17	Gulf African Bank Ltd
18	Kingdom Bank Ltd
19	Victoria Commercial Bank Plc
20	Middle East Bank (K) Ltd
21	Sidian Bank Ltd
22	Habib AG Zurich
23	Bank of Africa (K) Ltd
24	Guardian Bank Ltd
25	Paramount Bank Ltd
26	African Banking Corporation Ltd
27	M-Oriental Bank Ltd
28	Ecobank Kenya Ltd
29	HFC Ltd
30	Development Bank of Kenya Ltd
31	SBM Bank Kenya Ltd
32	Credit Bank Plc
33	First Community Bank Ltd
34	Access Bank (Kenya) PLC
35	UBA Kenya Bank Ltd
36	Consolidated Bank of Kenya Ltd
37	Mayfair CIB Bank Ltd
38	DIB Bank Kenya Ltd
39	Spire Bank Limited

Source: CBK 2022

APPENDIX II: SECONDARY DATA CAPTURE SHEET

(A) RESPONDENT'S DEMOGRAPHICS

	AGE	GENDER	WORKING EXPERIENCE
Respondent			

(B) COMMERCIAL BANKS DATA

BANK NAME: _____

YEAR	2018	2019	2020	2021	2022
ROA(%)					
Percentage of Internet banking volume.					
Percentage of mobile banking volume.					
Percentage of Card banking volume.					
Percentage of POS transactions volume.					

APPENDIX III: RESEARCH AUTHORISATION FROM GRADUATE SCHOOL

KENYATTA UNIVERSITY
GRADUATE SCHOOL

E-mail: dean-graduate@ku.ac.ke

Website: www.ku.ac.ke

P.O. Box 43844, 00100
NAIROBI, KENYA
Tel. 8710901 Ext. 57530

Our Ref: D53/CE/25938/2014

DATE: 20th June, 2024

Director General,
National Commission for Science, Technology
and Innovation
P.O. Box 30623-00100
NAIROBI

Dear Sir/Madam,

RE: RESEARCH AUTHORIZATION FOR KYALO BENJAMIN MBONDO - REG. NO. D53/CE/25938/2014

I write to introduce **Kyalo Benjamin Mbondo** who is a Postgraduate Student of this University. The student is registered for M.B.A degree programme in the **Department of Accounting and Finance.**

Kyalo intends to conduct research for a M.B.A Project Proposal entitled, **"Electronic Banking and Profitability of Commercial Banks in Kenya."**

Any assistance given will be highly appreciated.

Yours faithfully,

PROF. ELISHIBA KIMANI
EXECUTIVE DEAN, GRADUATE SCHOOL

AM/mo

APPENDIX IV: RESEARCH PERMIT FROM NACOSTI

REPUBLIC OF KENYA

NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

Ref No: **447548**

Date of Issue: **16/July/2024**

RESEARCH LICENSE

[redacted]

This is to Certify that Mr.. BENJAMIN MBONDO KYALO of Kenyatta University, has been licensed to conduct research as per the provision of the Science, Technology and Innovation Act, 2013 (Rev.2014) in Baringo, Bomet, Bungoma, Busia, Elgeyo-Marakwet, Embu, Garissa, Homabay, Isiolo, Kajiado, Kakamega, Kericho, Kiambu, Kilifi, Kirinyaga, Kisii, Kisumu, Kitui, Kwale, Laikipia, Lamu, Machakos, Makueni, Mandera, Marsabit, Meru, Migori, Mombasa, Muranga, Nairobi, Nakuru, Nandi, Narok, Nyamira, Nyandarua, Nyeri, Samburu, Siaya, Taita-Taveta, Tanariver, Tharaka-Nithi, Transnzoia, Turkana, Uasin-Gishu, Vihiga, Wajir, Westpokotion the topic: ELECTRONIC BANKING AND PROFITABILITY OF COMMERCIAL BANKS IN KENYA for the period ending : 16/July/2025.

License No: **NACOSTI/P/24/37710**

447548

Applicant Identification Number

Director General
NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

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APPENDIX V: DATA EXTRACTION TABLE

	GENDER	AGE	WORKING EXPERIENCE
Respondent 1	F	56	4
Respondent 2	F	30	9
Respondent 3	M	28	9
Respondent 4	F	44	10
Respondent 5	M	27	4
Respondent 6	F	31	8
Respondent 7	M	33	4
Respondent 8	M	57	6
Respondent 9	F	23	1
Respondent 10	M	37	1
Respondent 11	M	55	8
Respondent 12	M	41	4
Respondent 13	F	33	9
Respondent 14	M	28	6
Respondent 15	M	34	3
Respondent 16	F	41	4
Respondent 17	M	59	7
Respondent 18	F	48	3
Respondent 19	M	20	1
Respondent 20	F	32	1
Respondent 21	F	45	3
Respondent 22	M	45	7
Respondent 23	F	37	3
Respondent 24	F	34	6
Respondent 25	M	39	10
Respondent 26	M	45	8
Respondent 27	F	38	7
Respondent 28	M	58	8
Respondent 29	M	43	8
Respondent 30	F	58	1
Respondent 31	F	57	2
Respondent 32	M	60	10
Respondent 33	F	48	7
Respondent 34	M	37	7
Respondent 35	F	54	2
Respondent 36	M	56	6
Respondent 37	F	43	5
Respondent 38	F	40	5
Respondent 39	M	32	1

YEAR	BANK	ROA	%CCUIB	%CCUMB	%CCUCB	%CCPST
2022	KCB	5	74	86	63	83
2022	EQUITY	5.6	50	89	29	20
2022	Co-operative	4.8	36	75	50	61
2022	NCBA	3.7	57	74	69	15
2022	ABSA	4.2	31	71	58	21
2022	Stan Chart	4	45	53	42	39
2022	I&M	3.9	36	85	70	31
2022	Stanbic	4.2	66	47	28	37
2022	citibank	7	29	35	44	47
2022	Baroda	3.6	37	89	52	17
2022	DTB	1.8	23	51	74	35
2022	BANK of India	3.2	87	79	77	78
2022	Family Bank	2.9	64	57	70	40
2022	Prime Bank	2.5	63	64	40	20
2022	Guaranty	4	18	61	63	45
2022	NBK	0.6	18	57	50	39
2022	GAB	2.2	22	35	50	36
2022	Kingdom	2.3	27	87	75	30
2022	Victoria	1.3	77	69	31	27
2022	Middle East	4.2	42	83	88	10
2022	sidian	1.3	32	87	55	13
2022	Habib	1.6	45	82	15	20
2022	BOA	0.6	79	67	40	49
2022	Guardian	1.7	54	50	45	29
2022	Paramount	1.8	63	88	33	13
2022	ABC	0.45	73	81	82	12
2022	M-Oriental	1.4	88	71	35	41
2022	Ecobank	0.1	36	21	59	51
2022	HFC	0.2	57	35	38	24
2022	DBK	0.5	76	48	83	11
2022	SBM	0.1	50	65	23	25
2022	Credit bank	-0.3	72	68	28	44
2022	FCB	-1.7	46	20	25	84
2022	ACCESS BANK	-2.4	36	85	49	15
2022	UBA	-2.7	54	39	47	15
2022	CONSOLIDATED	-2.9	76	59	43	38
2022	MAYFAIR CIB	-4	44	45	65	51
2022	DIB	2.9	79	51	62	40
2022	SPIRE	-37	13	10	69	17
2021	KCB	4.7	43	74	32	37
2021	EQUITY	5.1	49	59	30	37
2021	Co-operative	3.9	24	55	65	28
2021	NCBA	3.1	61	72	54	73
2021	ABSA	3.4	82	45	37	76
2021	Stan Chart	4.2	80	72	62	36
2021	I&M	3.4	21	81	74	49
2021	Stanbic	3.4	15	24	56	24
2021	citibank	4.5	52	85	27	26
2021	Baroda	3.7	47	73	50	14
2021	DTB	1.4	74	77	85	74
2021	BANK of India	4	25	34	81	46
2021	family bank	2.8	23	76	54	69
2021	prime bank	2.3	31	49	66	78
2021	Guaranty	2.6	75	77	81	41
2021	NBK	0.9	28	15	20	15
2021	GAB	1.8	63	58	56	30
2021	Kingdom	1.6	67	79	61	15
2021	Victoria	1.2	57	79	69	24
2021	Middle East	1.3	68	27	80	55
2021	sidian	1.7	75	70	17	53
2021	Habib	1.9	43	69	68	23
2021	BOA	0.7	16	63	57	47
2021	Guardian	0.8	61	23	80	38
2021	Paramount	1.2	16	58	76	72
2021	ABC	0.3	84	72	35	73
2021	M-Oriental	0.5	22	48	77	15
2021	Ecobank	0.6	47	67	21	17
2021	HFC	-1.3	38	59	15	39
2021	DBK	0.4	39	51	37	25
2021	SBM	0.3	72	73	45	45
2021	Credit bank	0.8	28	56	65	61

73	2021	FCB	2.4	78	22	55	62
74	2021	ACCESS BANK	0.7	55	48	77	56
75	2021	UBA	-10.2	26	29	76	75
76	2021	CONSOLIDATED	-2	22	34	74	75
77	2021	MAYFAIR CIB	0.06	35	40	52	73
78	2021	DIB	-4.4	36	55	82	57
79	2021	SPIRE	-30.2	42	71	48	22
80	2020	KCB	3.11	27	60	56	69
81	2020	EQUITY	2.13	48	63	41	69
82	2020	Co-operative	3.4	27	35	73	32
83	2020	NCBA	1.41	47	73	61	20
84	2020	ABSA	2.2	37	73	49	56
85	2020	Stan Chart	2.15	41	77	45	58
86	2020	I&M	3.63	69	42	35	71
87	2020	Stanbic	1.96	75	65	73	38
88	2020	citibank	5.15	31	28	53	69
89	2020	Baroda	3.48	27	67	80	20
90	2020	DTB	1.26	63	54	54	20
91	2020	BANK of India	3.64	42	71	70	38
92	2020	family bank	1.46	26	26	68	64
93	2020	prime bank	1.59	72	72	38	25
94	2020	Guaranty	1.56	71	24	50	28
95	2020	NBK	0.25	33	67	78	24
96	2020	GAB	1.49	27	31	67	59
97	2020	Kingdom	-0.41	36	73	75	63
98	2020	Victoria	1.27	62	26	26	54
99	2020	Middle East	0.9	42	45	69	53
100	2020	sidian	0.31	59	71	47	61
101	2020	Habib	1.66	72	28	62	38
102	2020	BOA	-1.51	62	51	69	72
103	2020	Guardian	0.45	45	38	65	22
104	2020	Paramount	0.85	20	44	39	43
105	2020	ABC	0.45	64	20	20	39
106	2020	M-Oriental	0.33	31	73	26	25
107	2020	Ecobank	0.01	21	34	58	35
108	2020	HFC	-1.77	57	79	21	36
109	2020	DBK	0.11	38	76	25	75
110	2020	SBM	0.78	42	49	21	38
111	2020	Credit bank	0.04	30	41	73	26
112	2020	FCB	1.09	39	40	50	78
113	2020	ACCESS BANK	-19.81	21	60	54	79
114	2020	UBA	0.3	52	24	60	59
115	2020	CONSOLIDATED	-2.03	37	47	36	36
116	2020	MAYFAIR CIB	-2.76	38	25	40	34
117	2020	DIB	-5.22	75	30	45	55
118	2020	SPIRE	-24.59	29	42	52	45
119	2019	KCB	4.9	26	34	74	71
120	2019	EQUITY	4.7	35	51	75	63
121	2019	Co-operative	4.5	44	29	32	25
122	2019	NCBA	2	34	64	70	55
123	2019	ABSA	3.2	43	47	67	40
124	2019	Stan Chart	3.6	56	68	49	49
125	2019	I&M	4.7	35	74	34	49
126	2019	Stanbic	2.8	45	61	44	39
127	2019	citibank	5.8	73	41	73	71
128	2019	Baroda	3.8	28	27	45	48
129	2019	DTB	3.2	64	41	27	66
130	2019	BANK of India	4.5	52	66	36	28
131	2019	family bank	1.7	74	26	38	38
132	2019	prime bank	2.3	68	58	29	50
133	2019	Guaranty	1.7	33	74	60	34
134	2019	NBK	-0.7	62	39	67	61
135	2019	GAB	0.6	57	46	55	52
136	2019	Victoria	1.9	61	25	59	45
137	2019	Middle East	0.7	75	26	55	48
138	2019	sidian	0.2	66	31	63	53
139	2019	Habib	1.6	58	38	28	31
140	2019	BOA	-6.7	45	26	56	38
141	2019	Guardian	1.5	68	72	60	55
142	2019	Paramount	0.8	33	55	37	49
143	2019	ABC	0.6	61	30	50	26
144	2019	M-Oriental	0.5	36	58	62	53
145	2019	Ecobank	0.3	74	59	30	41
146	2019	HFC	0	51	59	59	52
147	2019	DBK	7.4	69	45	54	42
148	2019	SBM	1.6	68	28	25	49
149	2019	Credit bank	1.4	71	25	52	63
150	2019	FCB	1	32	54	58	29
151	2019	UBA	0.7	64	57	47	51
152	2019	CONSOLIDATED	-4.4	47	54	56	25
153	2019	MAYFAIR CIB	-4.2	67	36	44	29
154	2019	DIB	-8.8	55	68	54	68
155	2019	SPIRE	-6.6	61	37	50	47
156	2018	KCB	5	40	43	54	57
157	2018	EQUITY	4.7	68	74	59	13
158	2018	Co-operative	4.3	48	45	38	72
159	2018	ABSA	3.2	29	11	58	69
160	2018	Stan Chart	4.5	20	47	45	19
161	2018	I&M	3.8	50	55	18	33
162	2018	Stanbic	3.1	32	11	73	16
163	2018	citibank	6.6	29	33	19	39
164	2018	Baroda	4.2	23	20	41	13
165	2018	DTB	3.3	57	49	50	33
166	2018	BANK of India	3.9	65	37	65	22
167	2018	family bank	0.7	44	46	19	23
168	2018	prime bank	2.1	14	29	45	21
169	2018	Guaranty	1.2	35	15	33	40
170	2018	NBK	0.5	48	32	66	24
171	2018	GAB	0.9	16	38	11	16
172	2018	Victoria	1.7	14	65	72	72
173	2018	Middle East	0	57	26	11	53
174	2018	sidian	-2.2	70	67	11	41
175	2018	Habib	1.7	20	44	10	69
176	2018	BOA	0.4	59	11	59	50
177	2018	Guardian	2.2	23	43	61	48
178	2018	Paramount	1.5	17	73	67	50
179	2018	ABC	0.6	54	60	29	67
180	2018	M-Oriental	1	32	68	49	59
181	2018	Ecobank	0.3	53	71	55	57
182	2018	HFC	-0.7	10	18	57	41
183	2018	DBK	1.1	63	35	69	31
184	2018	SBM	1.4	58	58	20	35
185	2018	Credit bank	1.9	31	55	33	53
186	2018	FCB	-1.6	50	48	16	30
187	2018	UBA	0.2	13	20	69	60
188	2018	CONSOLIDATED	-2.7	57	25	10	59
189	2018	MAYFAIR CIB	-3.9	66	15	52	27
190	2018	DIB	-16.6	47	55	19	10
191	2018	SPIRE	-3.3	43	44	53	10