

**EFFECT OF DIGITAL FINANCE ON THE FINANCIAL PERFORMANCE
OF COMMERCIAL BANKS IN KENYA DURING COVID 19 PANDEMIC**

BY

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**MASTER OF SCIENCE IN COMMERCE
(FINANCE AND ACCOUNTING)**

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**A DISSERTATION SUBMITTED IN PARTIAL FULFILMENT OF THE
REQUIREMENTS FOR THE AWARD OF DEGREE OF MASTER OF SCIENCE IN
COMMERCE FINANCE & ACCOUNTING IN THE SCHOOL OF BUSINESS AT
KCA UNIVERSITY.**

OCTOBER, 2023

DECLARATION

I declare that the work in this dissertation has not been previously published or submitted elsewhere for a ward of a degree. I also declare that this is my own original work and contains no material written or published by other people except where due reference is made and author duly acknowledged.

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I do hereby confirm that I have examined the master's dissertation of
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And have certified that all revisions that the dissertation panel and examiners recommended have been adequately addressed

Sign  _____ Date

Dr. Gabriel Laiboni

ABSTRACT

Digital financial services play a very key role to the public because it enables them to access services without a physical visit to the service provider and it builds security to some extent. Through digital financial services, banks can provide services to their customers during covid 19 pandemic, which hurt economic development and affected the banking sector in a wide range and many financial institutions. Digital financial services consist of agency banking, mobile banking, mobile wallet, and internet banking. Since the outbreak of covid 19 pandemic in the year 2020 banking sector has encountered so many challenges in the world, banks were forced to embrace digital banking in full capacity in order to serve all the customers including those who were in remote areas, and to avoid overcrowding in the banking hole with the purpose to reduce the spread of covid 19 virus and to remain in business operations during this time. The main objective of this dissertation was to find out the effect of digital finance on the financial performance of commercial banks in Kenya during covid 19 pandemic. This study has aimed at discussing the benefits of embracing digital transaction activities in the banking sector, especially during covid 19 pandemic, many research have been conducted out in regard to the financial performance of commercial banks, but they did not factor performance of banks in presence of pandemics like what we are facing now i.e. the covid 19 pandemic. However, there exist gaps as many institutions encountered many challenges during covid 19 pandemic. The study was carried out on commercial banks in Kenya. First objective was to analyze the effect of mobile banking on the financial performance of commercial banks in Kenya during covid 19 pandemic. The second objective was to determine the effect of mobile wallets on the financial performance of commercial banks in Kenya during covid 19 pandemic. The third objective was to determine the effect of internet banking on the financial performance of commercial banks in Kenya during covid 19 pandemic. Finally, the fourth objective was to determine the effect of agency banking on the financial performance of commercial banks in Kenya. The target population for the study will be 42 commercial banks in Kenya, and the research will be based on secondary data that will be collected from commercial bank records that will be provided by relevant people during the study.

Keywords: Digital finance, mobile banking, internet banking, mobile wallet, agency banking, financial performance, covid 19 pandemic commercial banks

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DEDICATION

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ACRONYMS AND ABBREVIATIONS

BIS- Bank of international settlement

CBK- Central Bank of Kenya

CMA-Capital market Authority

GOK- Government of Kenya

ICT- Information communication technology

KBA-Kenya Bankers Association

ROA - Return on Assets

ROE- Return on equity

V.I.F- Variation inflation factor

OPERATIONAL DEFINITION OF TERMS

COVID-19 is an infectious disease caused by the SARS-CoV-2 virus

Bank: It is an institution that allows people and businesses to deposit, borrow and invest money.

Digital transactions: These are automated or online transactions that are carried out between organizations and human beings without paperwork taking place during the process.

Economic development: This is the process of wealth creation for a nation, region, individual, or even a group of people with common interest.

Bank of international settlement: This is an international financial institution that offers banking services for national central banks.

Credit swaps: It is an insurance cover against credit risks, a third party agrees to pay the lender in case the loan defaults.

Policies: These are rules, regulations, and procedures that are put in place to guide a certain process or activity.

Technology: It is the practical application of knowledge and innovations.

E-Banking: Use of computers in banking process rather than human interactions.

Commercial banks: Is an institution that allows people and businesses to deposit, borrow and invest money

Inflation: It is the rate of increase in price over a given period. I e increase in the cost-of-living standards in a certain country.

Cybercrimes: These are the criminal activity that is associated with the computer, network, or networked devices.

Knock-on effect: Something like an event, process, or action that triggers other things to happen.

Recession: Significant decline in economic activities of a certain country or region.

Policymakers: They are people who formulate policies of a given country or organization and policy decisions.

CHAPTER ONE.

INTRODUCTION.

1.1 Background of the study

Commercial banks provide positive contribution when it comes to the economic growth of the country and resource allocation, banks channels revenues collected from depositors who have surplus resources to the investors who need the resources for the investment process, banks are able to do so if they are in a position to generate income to cover their operational cost and generate profit by the end of the whole process. Good financial performance of commercial banks rewards its shareholders through profit maximization. Thus the study analysis on financial performance of commercial banks in Kenya has been of major interest to academic research more so during covid 19 pandemic. The financial performance of commercial banks is likely to be affected by two factors I e internal factor and external factor. The study focused on the external factor I e the covid 19 pandemic. Internal factors are those factors that are related to a given bank character which affects a specific bank but not the entire banking sector. External factors are those that banks have no control over them and they have an effect on the profitability of the banks. Most studies carried out concentrated on internal factors instead of external factors (Chantapong, 2015; Olweny and Shipho, 2017) after all there is a need to factor in external factors that has negative or positive effect on the financial performance of commercial banks in Kenya thus this study incorporated key external factor (digital finance and covid 19 pandemic).

Covid 19 pandemic has affected the banking sector since its outbreak in the year 2020, the emergency and rapid spread of covid 19 virus forced the whole world to reconsider the implementation of change in order to improve old and develop new approaches taking into account

the current covid 19 pandemic, and respond in a new way to rapid changes that are taking place because of rapid spread of covid 19 pandemic in all the fields, both nationally and globally. The banking sector is the most dynamic and vulnerable organization, and they are faced by different challenges that require swift response.

According to (Goodell, 2020) high rate of spread of covid 19 pandemic caused negative market forces which merged in impacting the banking sector. Banks had to put more emphasis on environmental and social as well as economic factors to enable them manage rapid spread of covid 19 pandemic (Melamedov, 2020), during this period the competition in the banking sector increased, and the main aim was to exceed customers' expectations and customer loyalty are necessitated during this time of hardship to the banking industry and business. During this crisis period, banks were operating under pressure in order to cater to the sympathetic needs of the society in which they operate. For instance, Banks are likely to anticipate increasing their microfinance operations through increasing digital transaction activities and reducing interest collections (Skoufias, 2003), Stakeholders require that banks need to come up with agent ways to cope with the covid 19 pandemic in different situations by ensuring they remain in operation during this hard time of the pandemic.

Covid 19 has caused a negative impact on all human activities and circles and more so on the economic part of human life, as per the report by the bank of international settlement (2020) the banking sector around the world has observed a degradation in returns because of outbreak of covid 19 pandemic since many customers lost their sources of income. The report indicates that the pandemic has caused a more dangerous effect on the economy, banking institutions is one of the areas that are affected more by covid 19 pandemic, Lehman Brothers in (2020). Bank of

international settlement has also indicated in their report that security selling by commercial banks was underperforming since the outbreak of covid 19, and according to the report credit swaps caused more pressure by higher costs up to March 2020, the government came up with policies to ensure that banking sector remains in operation in order to keep economy growing during covid 19 pandemic (Aldasoro, Fender, Hardy, & Tarashev, 2020).

Banking industries operate on a very volatile and uncertain areas, hence need to put in place measurer to ensure financial performance of commercial banks is maintained during covid 19 pandemic since its outbreak in the year 2020. Due to advancements in technology, many businesses have transformed the way they do business, technology acts as a bridging point in the economic growth and improvement in efficiency of business services delivery in the country and worldwide. Banks are also enjoying the advancement of technology for a long, covid 19 pandemic caught many organizations unaware which triggered consumers and organizations to realize the change in business activities, and many businesses have embarked on full utilization of digital finance since the outbreak of covid 19 pandemic in the year 2020 in order to remain in operation to avoid overcrowding more so in the banking sector. (Seetharamam, 2020). Covid 19 is one of the major pandemics to hit the world recently that tested financial systems in the world, pandemic forced the government to implement control measures to reduce the rapid spread of the disease which placed the whole financial system in the world on hold, Banks noticed customers shifted to digital finance platforms and electronic banking during this covid 19 pandemic in the country. (Baldwin and Mauro, 2020; Wójcik and Ioannou, 2020). Many gossip regarding the rapid spreading of the virus through the use of cash also helped to force many customers to embrace the digital finance banking process, it helped many customers to tilt towards e-banking in fear of

contracting the virus through the use of cash. (Auer 2020; SivaKumar 2020). Traditional banking has declined since the start of the covid 19 pandemic in the year 2020 and consequently increased e-banking platforms, thus a research to analyze the effects of digital finance on the financial performance of commercial banks in Kenya during covid 19 pandemic is required. Digital banking helps the organization to provide services to its customers efficiently at a reduced operational cost, especially during covid 19 pandemic, may customers of different entities be able to get services from their service providers, like in the banking sector, customers were able to access their account, deposit cash, withdraw cash and pay bills without a physical visit to the banks.

Several studies carried out show that covid 19 pandemic has already impacted the economy by causing all kinds of microeconomic indicators including trade flow savings and investment which could trigger possible depression. Barua, B., & Barua, S. (2021). COVID-19 impact on banks: outcome witnessed by an emerging economy. Aldasoro, I, Fender, I., Hardy, B., & Tarashev, N. (2020). Impact of Covid-19 on the banking industry; the market's assessment (No. 12). Bank for worldwide settlement.

This research examined the effect of digital finance on the financial performance of commercial banks in Kenya during covid 19 pandemic. The studies carried out indicate that digital finance played a very big role in the banking sector from the year 2020 when covid 19 pandemic started. Agur, I., Peria, S. M., & Rochon, C. (2020). The banking sector plays very positive roles in ensuring the economic growth of the country is maintained because banks have control of money circulation and the proper functioning of financial systems in the country. Banks are faced with several challenges such as changes in inflation rates, cybercrimes, and majorly covid 19 since its outbreak in the year 2020 which affected many people in terms of income-generating activities,

and some even ended up closing businesses. Covid 19 has generally caused significant economic instability not only in Kenya as a country but also in the whole world, the economic instability is likely to go on from the virus's knock-on effects. Global banking M & A 2020 report, report covers the area of the overall banking sector most likely to be affected during covid 19 pandemic and profitability. Both economic and social crisis that is caused by covid 19 pandemic has put a spotlight on embracing digital finance in providing breakthrough to commercial banks in Kenya. Outbreak of Covid 19 pandemic occurred in the year 2020 when the economy was already in the recession stage Sułkowski, Ł. (2020), commercial banks need to embrace digital finance in order to restore the declined economy. Despite the challenges that are faced by commercial banks in Kenya, covid 19 provides unique opportunities for them to build trust in their customers and embrace the full use of digital finance in order to increase their customer base.

Studies show that digital finance factors play a very big role when it comes to the performance of any institutions in the country Bergman, Benmelech, & Ricardo, 2012.

When banks experiences reduced profitability level, operating condition is likely to deteriorate, and huge financial burden and wages are also likely to deteriorate downwards if the covid 19 situation continues. However, when managements put in place a proper digital financial platform then it can recover and start experiencing an increase in profit yearly. This research will provide valuable information to policymakers and financial players during this covid 19 pandemic period.

Covid 19 has influenced human activities in different ways, policymakers in the banking sector must put in place measures to protect them in order to remain in operation during covid 19 pandemic.

1.1.1 Digital transactional platform

A digital transactional platform involves an intermediate using transactions between end customers and independent sellers and service providers in different parts of the economy (Berg, 2016). Examples are the use of amazon.com intermediate transaction between end customers and a thousand independent sellers across the world while etsy.com connects artists and crafters with buyers worldwide. The increase in demand for digital transactional platforms has a very huge effect on the financial performance of commercial banks and economic growth of a country in general, in the year 2020 when covid 19 pandemic started as the existing interaction pattern in the value chain are increasingly replaced by the upcoming digital intermediaries (Submaramayan, 2015). Therefore, the aim of this dissertation was to find out, through the extensive impact of digital transaction platforms on the financial performances of commercial banks in Kenya since the outbreak of covid 19 pandemic in the year 2020. However, the provision of digital finance by commercial banks in Kenya involves different types of players in order to achieve a 100% embrace of digital finance by commercial banks such as banks themselves, agents, financial technology service providers, clients, mobile network operators and financial institutions. Digital finance mechanism requires improvement of income generating activities to make the services cost effective and secure, and more important user friendly to the final users who are customers and plays a very wide contribution in the financial performance of commercial banks in Kenya (World Bank 2015)

1.1.2 Commercial banks in Kenya.

The banking sector in Kenya is governed by the banking act, the companies act and central bank of Kenya (CBK) act. As reported by Said, F. H., & Kaplelach, S. (2019). The uplifting of swap control and liberalization of the banking industry occurred in 1995. According to Macharia (2013), information regarding the financial performance of commercial banks was published by the central bank of Kenya (CBK). As reported by Otuori, O. H. (2013). Several banks came together to form the (KBA) Kenya Bankers Association. Challenges that are faced by members of (KBA) are solved and banks' interests are supported for, as reported by the central bank of Kenya (CBK), (2017) the report indicated that 42 commercial banks are regulated by central bank of Kenya, and of these 42 commercial banks 13 commercial banks are owned by foreigners while 28 commercial banks are locally owned, in terms of asset holding, locally-owned banks cover 65% while foreign banks cover 35% as reported by Ongore, O. (2014). Kenya commercial banks has positive contribution in controlling the financial sector and economic growth of the country. According to Mulwa, (2015) underperformance of commercial banks has a negative impact on the economic growth of the country.

As reported by Richie (2013), Commercial banks act as a middle person to regulate the circulation of resources in the banking industries. Commercial banks are usually governed by the act, banking act, and central banks act (CBK), and Kenya capital markets regulations authority (CMA). CBK and CMA oversee regulation, suspension of statutory management, and liquidation of commercial banks.

The Kenyan saving money framework has gone through major monetary growth in the past period and in addition adventure to advance budgetary incorporation which triggered innovation

and improvement in the financial performance of firms especially commercial banks in Kenya. Based on Richie (2013), commercial banks play the role of middleman to enable the smooth circulation of revenue and funds in the banking sector. According to Crawford (2011), commercial banks grants credits to investors in order to invest in investment opportunities that are riskier more so financial securities, and grant credit facilities using deposits made by customers. Farhan (2011) also indicated that most of the commercial banks offer digital financial services across the financial sector and commercial banks as the financial intermediation process concerned in the past.

Commercial banks in Kenya are surrounded by several risks including credit sequence, increases in the number of nonperforming loans, and default of loan rate, leading to the reduction in returns from loans and investments. The banking industry is likely to see an increase in some risks like market risks and liquidity risks as covid 19 continues to strike the whole world.

1.1.5 Financial performance of commercial banks

Financial performance shows the extent of operation of the bank over a certain period, this is measured by returns for a given period Mulwa, J. M., Tarus, D., & Kosgei, D. (2015). As reported by Mulwa, J. M., Tarus, D., & Kosgei, D. (2015). Business outcome is judged by all stakeholders and strategies in objective monetary terms by evaluating the return of the operation of the bank. Kithinji, (2010) defined financial performance as how the firm utilizes its scarce resources and its extensive effort to generate income for its stakeholders. The financial performance of commercial banks is also called profitability and it is measured in ratio terms. Banks' performance can be measured through; (ROA) return on asset, the (ROE) return on equity or net profit in relation to the total asset of the firm, and net profits relative to the shareholder's

fund Khrawish, H. A., & Al-Sa'di, N. M. (2011). The return on asset (ROA) ratio is also another indicator of a bank's financial performance, the ratio tries to evaluate if the firm can generate revenue using the firm's assets at its disposal. As explained by (Nzuri, 2016), the return on assets further explains how the company's resources may be used to positively produce revenue. The higher the return on asset leads to maximizing shareholder wealth while the lower the return on asset reduces shareholders' wealth, The following are the best ratios to analyze the financial performance of a given firm i.e. (ROA)Return on assets and (ROE)return on equity. The best financial performance of the firm can be measured by the (ROE) return on equity of between 15% and 30%, while the (ROA) return on asset is at least 1%. According to Kwakwa (2014), (ROE)return on equity is the best ratio to measure the financial performance of the firm, therefore this research adopted (ROE) return on equity as the measure of financial performance of commercial banks in Kenya.

Majority of developing countries, commercial banks, and banking industry as whole have experienced massive positive change in the last few decades i.e., the banking sector is diverse, comprising of foreign and local private commercial banks which are accompanied by negative performance as measured by (ROA) return on asset and (ROE) return on equity. As per the report issued by central bank of Kenya (2016), In Kenya a very good example of poor performance was experienced in the failure to report positive return for a given period of time, the following banks were affected; Chase bank, Imperial bank, and Dubai bank Munywoki, A. N. (2017).

According to (Nasserinia, Ariff & Fan-tah, 2014), commercial banks are financial institutions that are likely to have a strong effect on the development and economic growth of the country i.e., slight changes in structure and performance have severe implications for the economic

growth of a country. Total liabilities in the banking industry are about 85% from deposit from bankers' depositors which makes it more fragile as reported by Kiganda, E. O. (2014). Several research have been carried out by different scholars and researchers regarding the financial performance of commercial banks in Kenya. Based on the analysis for the research that were carried out is currently used by different stakeholders i.e., Management of different banks, policy makers, government, customers, employees, and lenders in making key decisions and provide an overview on the state of the economy. As reported by central bank of Kenya (CBK 2015) commercial banks have embraced financial innovation as the means of driving their performance and increase the stakeholders' confidence, value to investor, and firm reputation.

Higher costs of accessing bank services and even physical barriers from traveling in order to access banking services greatly affected the access to financial services in Kenya (Financial survey, 2015). The demand side limitation to the access of digital finance resulted in a lack of profit maximization, these challenges triggered the reform of the financial sector and introduce digital finance Waihenya, H. M. (2012). With this initiative within the banking sector, Kenyans have enjoyed growth and transformation in efficiency and stability in financial sectors.

According to (Kenyonu, 2013), commercial banks have over the last six years able to reach out to low-income clients who are in remote areas at reduced transactional costs, this was achieved through a strong contribution from Safaricom Mpesa services which played a very big role in transforming banks strategy and now they are embracing mobile banking and other digital finance services.

1.2 Statement Problem

The problem facing commercial banks in Kenya is changing, the recently commercial banks are experiencing disruptive challenges since the outbreak of covid 19 in the year 2020 which was never experienced since the era of the industrial revolution. These challenges caused by the outbreak of covid 19 also affect people's behavior, habit, communication, relationship, and general way of living. This has called up the organizations and the banks to fully embrace the use of digital finance during this global pandemic to survive the competitive environment. With the dynamic and volatile competitive environment, banks have made good use of digital finance during this global pandemic in order to remain relevant and competitive (CBK integrated report 2020).

Different past studies carried out in regards to the subject of digital technology and its impact to firm performance Barua and Barua (2021) carried out the study on implication of covid 19 pandemic on financial performance of banks according to the information from an emerging economy. Obeidat, Tarawneh, Khataibeh and Ghassan (2020) carried out the study on the effect of covid 19 and weather the pandemic caused any variation in the developing economy. They showed that covid 19 had negative impact on financial performance of commercial banks in Kenya, Gathuku (2018) carried out research on the influence of digital banking in regard to customer relationships. He concluded that digital banking has a positive influence on customer relationships. Muluka (2015) carried out research on the effect of digital banking on customer satisfaction. He concluded that digital banking has improved customer satisfaction in the banking sector due to its operational improvement. Cathles, A., Nayyar, G., & Rückert, D. (2020) Researched on digital technology and firm performance in Europe. The study found that use of digital technology across different organizations improves on productivity level. Maiyo (2013).

Maiyo carried out research on how digital finance influenced financial performance of commercial banks in Kenya, in his report it shows that embracing digital finance has a decisive contribution on the financial performance of commercial banks in Kenya, in terms of efficiency, productivity, and effectiveness, based on studies undertaken by different researchers there is need to factor in the impact of covid 19 pandemic in relation to the financial performance of commercial banks in Kenya. Kiragu (2017) also carried out studies on how digital finance affected the performance of commercial banks in Kenya, as reported by Kiragu (2017), the financial performance of commercial banks has increased exponentially upon embracing digital finance in different commercial banks in Kenya.

Even though several studies have been carried out to evaluate how digital technology have impacted firm performance, very few studies have conclusively addressed the challenges that firms encounter in case of pandemic like what we are experiencing now of covid 19 pandemic. Based on the previous studies done on commercial banks in Kenya there are some gaps in literature that needs to be covered, the studies also omitted several dimensions of digital finance that has an impact on the financial performance of commercial banks in Kenya with majority of the studies only focusing a few elements of electronic banking. In addition, most studies were based on specific banks or surveys of all commercial banks in Kenya, The research analyzed the effect of digital finance on financial performance of commercial banks in Kenya during covid 19 pandemic.

1.3 Objectives

1.3.1 General Objective

To determine the effect of digital finance on the financial performance of commercial banks in Kenya during covid 19 pandemic.

1.3.2 Specific objective

i. To determine the effect of mobile banking on the financial performance of commercial banks in Kenya during covid 19 pandemic.

ii. To determine the effect of mobile wallets on the financial performance of commercial banks in Kenya during covid 19 pandemic.

iii. To determine the effect of internet banking on the financial performance of commercial banks in Kenya during covid 19 pandemic.

iv. To determine the effect of agency banking on the financial performance of commercial banks in Kenya.

1.4 Research Hypothesis

These research focuses to test the following null hypothesis

H1: There are no significant relationship between mobile banking, and the financial performance of commercial banks in Kenya.

H2: There is no significant relationship between internet banking and the financial performance of the f commercial banks in Kenya.

H3: There is no significant relationship between agency banking and the financial performance of the f commercial banks in Kenya.

H4: There is no significant relationship between mobile wallets and the financial performance of the f commercial banks in Kenya.

1.5 Justification of the study

The main aim of this research was to analyse how digital finance impacted the financial performance of commercial banks during covid 19 pandemic in Kenya, embrace of digital finance is very important for commercial banks, especially during this period of covid 19 pandemic when the government of Kenya rolled out restrictive measures to mitigate the rapid spread of covid 19 virus. The higher the rate of utilization of digital finance the higher the performance level of a financial institution like banks because customers will be able to carry out transactions at anytime and anywhere and banks will be able to serve many customers at the same time. Therefore, it was very important to find out the effects of digital finance on the financial performance of commercial banks during covid 19 pandemic. The application of digital finance is very important to the banking sector especially during this covid 19 pandemic period, finally, technical support by digital service providers is very important in the move towards the achievement of 100% digital finance adoption, especially during this covid 19 pandemic period, and it will ease on the access to digital financial services by customers and how will increase the financial performance of commercial banks during covid 19 pandemic.

1.6 Significance of the study

Different stakeholders are likely to benefit from the findings of the studies, parties include Banks management, banks customers, government, and financial institutions. Bank management will use the findings in terms of decision making, future planning, and day to day activities of the bank, bank customers will use the finding as the point of study on the ways of using digital finance and also will help to build trust between banks and its customer's, especially during covid 19 pandemic, government personnel will use the study in developing strategies and regulation in

order to curb the increase in the spread of covid 19 pandemic and also to seal loophole for the cybercrime activities which are likely to hinder customers from using digital transaction platforms.

.The key stakeholders involves; commercial bank managers, future researchers, bank customers and public in general they might find the findings after the research to be more useful in identifying the best digital finance platform, (CBK) Central bank of Kenya, which provide guideline to regulate commercial banks in Kenya may find the study more useful in development of policies to regulate the use of digital financial platform and also to improve on digital finance usage which in the long run will have positive contribution on financial performance of commercial banks in Kenya during this covid 19 pandemic period and communication council of Kenya (CCK) may find this study important in preparing policies that can be used in regulating online money transfer from one person to the other through commercial banks, the ministry of information technology may use the findings after the study in developing ICT platform which will encourage the use of digital transaction platform, the study will help the administration of monetary organization in terms of decision making in the country, outcome of the research will be of importance to the investors in terms of establishing the pros and cons of digital finance on commercial banks in Kenya during covid 19 pandemic, the analysis and findings from this research will be of importance to the law makers in Kenya and (CBK) central bank of Kenya who are the key policy makers for regulating banking industries in Kenya, enabling digital and financial infrastructure, systems, finally customers may use the study to assist them to develop trust in the digital finance process and encourage them to switch into it fully during this covid 19 pandemic time.

1.7. Scope of the study.

The research aimed at identifying the effect of digital finance on the financial performance of commercial banks in Kenya during covid 19 pandemic. This research also helped to understand whether the outbreak of covid 19 pandemic facilitated the full utilization of digital finance by commercial banks in Kenya.

1.8 Limitation For the study

This study used primary methods of data collection, this method involved the use of questionnaires which were administered to the respondents, this method needs enough time to scrutinize them after returned from the respondents, time factor was a major limiting factor during this study period.

This study concentrated only on digital finance of commercial banks leaving other factors that are likely to affect the financial performance of commercial banks in Kenya during covid 19 pandemic and also the study concentrated on banks leaving out other financial institutions and organizations that uses digital finance, therefore the result for the study may also be limited to benefit the banking sector and future researchers only and not the entire economy of the country. Due to the lack of time and scarce resources during this study the researcher only covered banks within Nairobi region leaving out other parts of the country. This could be of benefit because it would provide entire picture on the effect of digital finance on financial performance of commercial banks in Kenya, also it would be important to potential customers in other parts of the country.

Finally, the respondents had limited trust to the researcher, some of them thought that the researcher was investigating them on one way or the other, moreover the researcher had financial limitations during this study i.e. transport cost, printing, typing, stationary and other expenses that were required during the study.

CHAPTER TWO

LITERATURE REVIEW

1.2 Introduction

This chapter covers related literature, theories and concepts related to the research that covers digital finance elements and financial performance as shown in the conceptual framework in this chapter, the literature review provides explanation to the reader theoretical reason of the problem being researched, elements of digital banking as well as findings for other studies that were carried out by another researcher the main aim of the literature review is to avoid duplication of material already used in other studies. This literature review reviewed past studies that had been carried out to address the issue in digital finance. It has two sections, section one covers an Empirical review which reviews the previous, data, literature, and statistics carried out by other scholars and analyses the relationship with the topic under the study and section two covers the theoretical review which analyses the theories which are relevant to the topic under the studies. It starts by analyzing theories that are related to the area of financial performance, mobile wallet, agency banking, internet banking and mobile banking. A conceptual framework formed the basis for evaluating the existing relationship between the main variables in this research. The research gap on financial performance and empirical review are discussed in this chapter as well.

2.2 Theoretical Literature Review

This area focused on the relevant theories in relation to the variables and the research. As reported by (Saunders et al., 2007) theory is a statement that uses evidence to support given happenings This study used the following theories to assist in explaining the effect of digital

finance on the financial performance of the commercial bank in Kenya during covid 19 pandemic:

Catastrophe theory, Risk theory, and Black swan theory

2.2.1 Catastrophe Theory

Catastrophe theory was developed by Vladimir I. Rene Thom, Arnold, and Christopher Zeemann, in 1960, this theory became very common due to effort put in by Christopher Zeeman during his study regarding this theory in the 1970s. During his study, he considered the specific case where the long-run stable equilibrium can be easily allocated as the minimum of a smooth, well-elaborated major function (Lyapunov function). In 1970, this theory tries to explain and classifies phenomenon which is characterized by the sudden shift in changes in routine arising from minor changes in pandemics or negative happenings that impact certain community, country or even the whole world.

In the late 1970s, different scholars applied catastrophe theory in areas outside its scope which caused many critics, especially in social science and biology. Susan and Zahler in a 1977 article in nature, referred to such application as being characterized by a lack of reasoning, and suspicious assumptions.

This theory explains that minor changes in each framework of a nonlinear system are likely to cause the equilibrium to occur or not to occur or to change from repelling to attracting which will lead to huge changes in the behavior of the system. The catastrophe theory has been applied in different fields including biological and social phenomena. Based on the mathematical concept, catastrophe theory is an extension of bifurcation theory in the research of systems that are dynamic in nature, it is also a unique cover of nonconformity theory in geometry. Bifurcation theory tries to group happenings that are symbolized by an abrupt change in action that arises from minor

changes in a certain happening, this is likely to lead to dramatic and abrupt changes, for example, the uncertain covid 19 pandemic which caused dramatic changes in the whole world.

2.2.2 Black Swan Theory

The black swan is generated when the gap between what we know and what we think we know happens to be dangerously wide (Nassim Nicholas Taleb 2007). This theory was suggested by Nassim Nicholas Taleb in the year 2001, the theory is also called the black swan event, and the theory is symbolic that describes a certain event that comes as shock to the whole world or the country or a certain group of people in each area. Black swan events have a major impact and are often improperly intellectualized after the fact with the benefit of flashbacks. The term ‘black swan event’ is based on an out-of-date saying that takes for granted black swan did not take place, a says that makes another study and teaches different lessons after the first European encounter with the black swan event. Nassim Nicholas Taleb tried to explain in this theory the asymmetric role of high profile, unpredictable, the non-accountability of the feasibility of substantial unusual events using experimental methods and he also explained the emotional favoritism that make people blind, individually and in a certain group of people, to uncertain and unpredicted events massive role that creates historical affairs. According to Nassim Nicholas Taleb, black swans are abrupt happening of large consequence and their major impact in history, these kinds of happenings are categorized as the irregularity in his theory.

The phrase “black swan or black event was driven from the expression; its oldest known circumstance is from the second-century Roma poet Juveniles’ characterization in his sarcasm of something that is rarer. When the phrase was brainstormed, the black swan theory was considered not to be real. Nassim Nicholas Taleb discussed the black swan in his 2001 book’ Fooled by

Randomness, in which he was much concerned about finance-related occurrences, He wrote another book in 2007 “The black swan” where he extended the personification to events that occur not within the financial markets. Nassim Nicholas Taleb regards almost all major mathematical innovation, and archival and unpredicted events as “black swan” unpredicted. Taleb gives rise to the personal computer, the internet, the breakup of the Soviet Union, and September 11, 2001. Taleb came up with three attributes during his study; first, “it is an” irregularity, “as it lies outside the” orbit of regular assumption since there is no anything in the past that can impressively mark to its likelihood to take place, secondly, it is associated with a negative impact and retrospective predictability, “third, regardless of its” an irregularity status, human nature is characterized by discovery and explanations for its occurrence after the event occurred and damage caused, making it explainable and predictable. Very few number of black swans try to explain majority of the happenings in the world, from the start of ideas and religions to the dynamics of historical events. According to Taleb 2007, he makes a case that 9 out of 11 occurrence was a black swan event. The following are examples of the latest black swan event; the Lehman Brothers’ bankruptcy in 2008, the 2008 credit crisis, the 2010 BP gulf oil spill, the 2011 Japanese earthquake and tsunami, and the latest one Covid 19 pandemic which affected the whole world, covid 19 pandemic is compatible with statistical properties.

The main aim of Taleb’s research occurrence sild vigor against negative occurrence while still exploiting positive happenings. Taleb content that firms inclusive of banks especially trading firms are very exposed to hazardous black swan events and are vulnerable to unpredictable losses.

According to Taleb, he stated that a black swan event depends on the final person who is likely to face its impact, for example, what may be a black swan surprise for a blackhead is not a

black swan to its skinner, hence his main aim should be to avoid being the blockhead by spotting out areas that are vulnerable in order to change black swan to white swan.

2.2.3 Systematic Risk Theory

Boeri and Giorgio (2021) defined systematic risk as the risk of the failure or collapse of the whole banking system, which they termed as financial instability. According to Boeri and Giorgio the reason is that there are some special occurrence or events that have triggered the situation to worsen and eventually lead to catastrophe consequences. Duane (2021) stated that shocks such as the 2008 global financial crisis leads to an increase in poor performance of banks which contributed to the collapse of the whole financial system.

Boeri and Giorgio (2021) carried out research and analyzed the systematic risk of major European banks for the last twenty years and three different crises that occurred; the European sovereign debt crisis, the great financial crisis, and covid 19 pandemic crisis. They carried out research and evaluate the significant effect of covid 19 pandemic on systematic risk, they focused on major banks in 64 different countries, there finding were similar to those for Duane (2021), the findings show that large, highly leveraged, riskier, high loan to asset banks are faced by systematic risk due to the pandemic.

2.3 Empirical Literature Review.

This study has four independent variables and one dependent variable. The independent variables in this research include mobile banking, mobile wallet, agency banking and internet banking while the dependent variable includes financial performance

Barua and Barua (2021) carried out studies on the challenges of covid 19 pandemic on the financial performance of banks based on evidence from developing markets and the economy. He

used Bangladesh to refer to the case of the developing market and evaluated the possible effect of covid 19 pandemic on the banking sector. Before the outbreak of the covid 19 pandemic, the banking sector of Bangladesh already had some challenges that were affecting its performance, for example, non-performing loans (NPLs) and the covid 19 pandemic were likely to cause more harm to the banking sector in the country. In his study he measured the impact of covid 19 using a state-designed stress testing model, he estimated the effect of covid 19 on three forms; capital adequacy, value of the firm and interest income under different non-performing loans shocks methodology. The findings showed that all banks in the country were likely to face a reduction in risk-weighted asset values, capital-to-risk weighted asset ratio and accumulated interest at each specific bank and regional levels.

Candera, Muslimin and Permatasari (2021) carried out study on the financial performance of Islamic banks before and after the outbreak of covid 19 pandemic in Indonesia. In the study the following variables were used to analyses financial performance of banks, earnings, risk characteristics, and capital. The study used financial reports published Jasa Keuangan Otoritas. The study used multivariate Analysis of Variance (MANOVA) to analyze data. The outcome indicated that there was no difference in the financial performance of banks in the country on risk characteristics, earnings, and capital signal before and during covid 19 pandemic and there was no change in the financial performance of predominant banking earning signal during covid 19 pandemic. The findings of the study showed that the performance of Islamic finance still has capacity to deal with the effect of the covid 19 pandemic in Indonesia.

Jaganathan and Mohanraj (2017) studied on how mobile banking affects customer's attitude and behavior in India. The researcher applied descriptive research design. The study used

questionnaires in data collection and secondary data from the bank's statement was used. The outcomes of the research showed that mobile banking improves on the customer loyalty, trust and communication among many customers.

Agboola (2019) researched on the influence of digital technology on financial performance of commercial banks in Abuja Nigeria. The researcher used descriptive design while primary data was used to collect data using questionnaires. The findings of the study showed that digital technology has strong positive impact on financial performance of commercial banks in Nigeria. The study proposed policy to embrace innovation in order to improve on efficiency in operations that meets customer demand and expectation.

Ngando (2017) studied on effect of technological innovation on the financial performance of commercial banks in Tanzania. The researcher applied descriptive survey design while questionnaire was used to collect primary data from commercial banks representatives. The research findings explained that adoption of technological innovations by majority of commercial banks in Tanzania contributed positively on financial performance of commercial banks and an improvement in service delivery during business operation was witnessed.

Ehijiele (2018) carried out study to evaluate how use of mobile banking channels affects customer experience in Nigeria. The researcher applied survey design and questionnaires was used in collecting primary data. The research findings explained that the use of mobile banking has positive influence on customer experience.

Kiberia and Muathe (2021) carried out study on the challenges of covid 19 pandemic on the financial performance of women owned micro, small and medium sized organizations in Kenya. The study utilized primary data resources; case studies, stakeholders reports, research

papers, and resources available online. The findings for the study indicated that women owned organization are excessively affected by the outbreak of covid 19 pandemic. The study proposed projected policy and resource funding to assist small and medium size organization to prepare for repetition of similar epidemic through comeback of same or even new pandemics in future.

Bosire and Ndungu (2020) carried out study to evaluate the determinant of financial performance of commercial banks listed at Nairobi Securities Exchange (NSE) in Kenya. They applied descriptive study design to arrive at census approach targeting eleven commercial banks listed in Kenya. The study utilized secondary data available on the comprehensive audited financial statement of eleven commercial banks listed to Nairobi Securities Exchange, correlation between the research variables was created from the data obtained from audited financial statements. The data was analyzed using SPSS and the outcome obtained and presented in tables using statistical aspects. The study findings explained that government securities had strong positive correlation with financial performance of commercial banks listed in Nairobi Security Exchange, real estate, loans and stocks had weak positive correlation with financial performance of commercial banks listed in the Nairobi Security Exchange in Kenya. Finding for the study indicated that the following variables determines the financial performance of commercial banks listed in the Nairobi Security Exchange in Kenya if other factors are held constant; government securities, real estate, stocks and loans.

Ndede and Ratemo (2021) carried out study on liquidity risk and financial performance of commercial banks in Kenya. Secondary data was obtained from financial statement of each individual commercial banks and central bank of Kenya (CBK) report. The stata 14.0 was used to analyze data obtained from financial statements and panel models were generated. The findings

for the study indicated that the bank's size has positive and significant relation to the financial performance of commercial banks in Kenya.

2.4 Digital Transaction Platforms

According to Iggy Global (2018), digital transaction platforms are intermediaries which are digital, and they facilitate transactions between different types of actors. These platforms cover, monetize and transmit data through the internet and other types of networks. Banks use digital finance in the process called digital banking through transaction platforms. The platforms allow the banks' customers to carry out transactions on their account and also be able to get other services like access of their bank statement and message notification whenever transaction is carried out on their account at any given time and place. Digital lending involves giving loans applied for, disbursement of funds to the loan applicant, and managing loan repayment through digital platforms (Berger 2019). Digital finance involves digital lending which uses online technology to access loans or renew the existing loan using an online platform, digital platform is one of the fastest means to get loans from banks and facilitate the repayment process (Cuesta et al, 2015). E-banking and digital finance are growing faster as technology is advancing daily which makes the banking industry grow faster and hence easier to lend to their customers. This is the current point for financial institutions like banks to understand and get clear clarity in order to adopt the digital finance platforms and remains competitive in the market (Cuesta et al, 2015).

In regards to the report issued by the world bank 2014, on digital finance in empowering the poor through the use of new technologies, the report indicated that digital financial platforms are the best convenient and easily accessible by people of low income since they are cost-effective compared to other methods of accessing bank services because through use of digital platforms

bank customers will not be required to spend transport in order to visit the bank to access services they will just be able to access services at any place and any time they need to access the bank services and also through the use of digital financial platform helps on time-saving since customers will not spend any time on the queue in the bank in order to get services. The report further indicated that the use of digital finance has been on the rising compared to traditional methods of accessing bank services and it is multi-generation by nature.

A digital transaction platform provides smooth interaction between commercial banks and their customers, its facilities a clear flow of information and efficient communication between commercial banks and their customers. Digital finance platforms allow customers to access all the required services which can be provided on the bank virtually especial during covid 19 pandemic bank customers were able to access all thank services without a physical visit to the bank in order to observe social distance protocol that was put in place by the ministry of health in order to reduce the spread of covid 19 virus, customers were able to access the following services during this pandemic; deposit of funds to their account, cash withdrawal, accessing bank statement, purchase of goods, pay bills and customer account balances (Berger 2020). Due to advancements in technology daily, digital finance needs to be very innovative due come up with new products for the users in order to facilitate customer satisfaction and meet their preferences/ exceed their needs.

In regard to the research carried out by Gasser (2017) on digital banking by 2025, found that as time moves by in the market, the digital finance that is being used by banks and other digital banking services will be shorter since more financial technologies are coming up and they are on an increasing trend which will lead to the role out of new product. However, efficiency service

delivery to the customer will be realized and simplifying the access of bank services by customer (FinTech).

Banking platforms operate within different forms of communities including the rural areas which were initially inaccessible on digital finance platforms due to internet challenges.

2.5 Digital finance

Digital finance reduces the cost of many financial transactions by commercial banks in Kenya because customers can transact without a physical visit to the banks, by the end of the day very few employees will be able to serve many customers at the same time during covid 19 pandemic period compared to a physical visit to the banks where they are required to observe social distancing measures that the government of Kenya came up with in order to minimize the rapid spread of covid 19 virus.

Based on a World Bank report (2015) computerized fund transfer processes referenced to the proper use of technological innovation to get to monetary administration in commercial banks in Kenya. Thus, digital finance refers to the utilization of technological innovation to perform financial services from a wider number of service providers to an extensive category of final users. This is through card payments e-money, mobile money transfer, and electronic fund transfer (Asian Development Bank 2016).

Digital financial payment helps customers to access funds without visiting the banks during moments of crisis like covid 19.

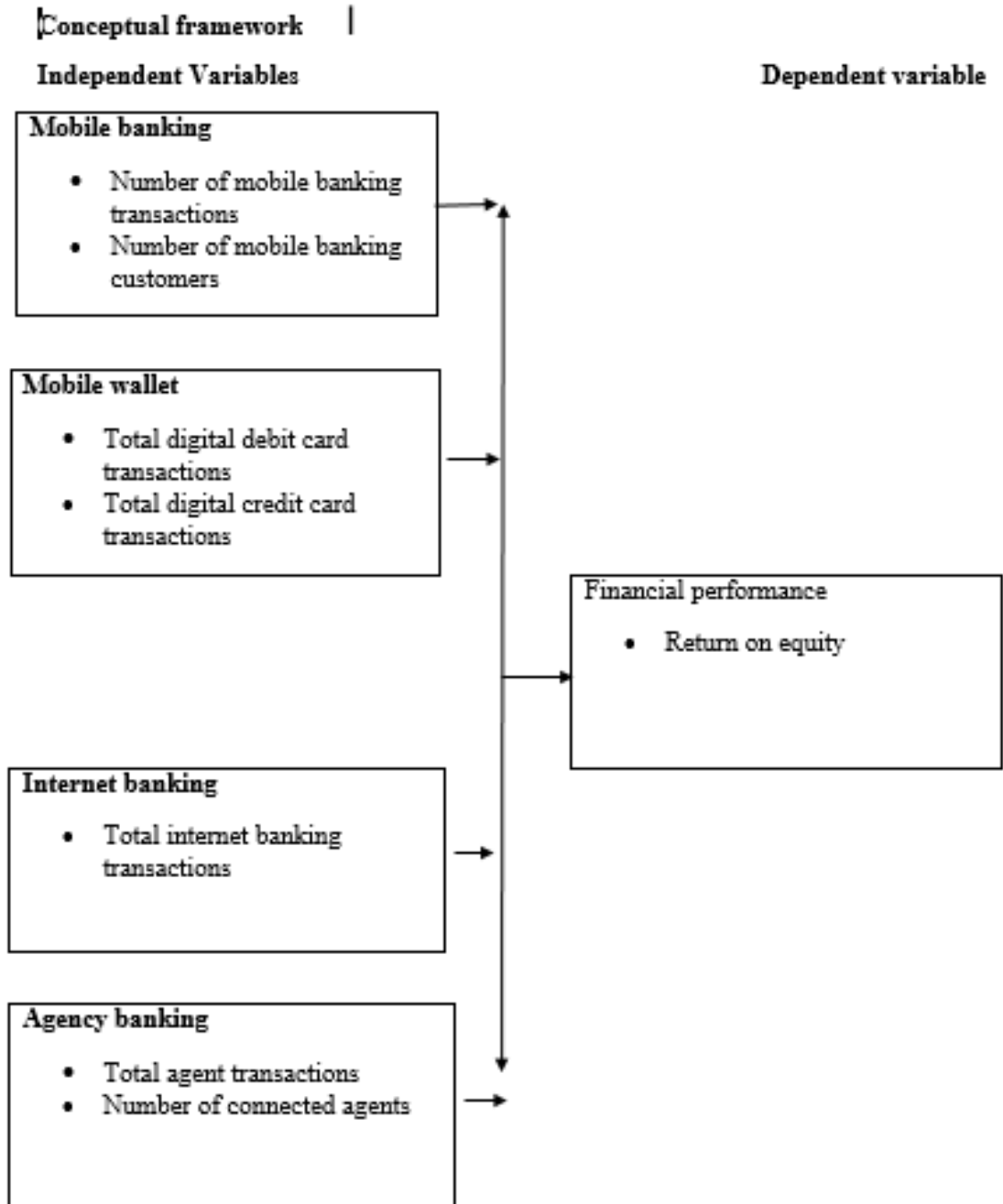
Access to affordable digital finance services since the outbreak of covid 19 pandemic is very key to the financial performance of commercial banks and the economic growth of a country.

Digital financial services have the capacity to lower the cost-of-service delivery to the customers since customers can access services anywhere, anytime, and at any place.

2.6 Conceptual Framework

A conceptual framework is a diagrammatical expression of relationships amongst different variables in the studies. Based on this study there are independent variables and dependent variables, independent variables include mobile banking, mobile wallet, internet banking, and agency banking while dependent variables include financial performance which is determined by the return on total assets and return on equity. Theoretically, the technology acceptance theory states that acknowledgement of digital financial services improves the accessibility of financial services by different customers while the financial innovations theory suggests that the application of digital financial innovations enhances financial performance. Empirically a number of studies showed that digital finance influence not only the financial performance of banking industries but also enhances the access to financial services by customers without a physical visit to the banking facility. The conceptual framework for the study is shown below.

FIGURE 1



2.7 Operational Framework

TABLE 1

Operationalization of Variables

Types of variables	Variables	Scale of measurements	Data collection tools	Data analysis tools
Independent variables	<p>Mobile banking</p> <ul style="list-style-type: none"> • Number of mobile banking transactions • Mobile banking customers • Mobile banking failure 	Number of mobile banking transactions	Administering of questionnaires	Frequency and percentages

	<p style="text-align: center;">Mobile wallets</p> <ul style="list-style-type: none"> • Digital debit card transactions • Digital credit card transactions • Number of digital ID application users 	<p>Number of digital debit card transactions</p> <p>Number of digital credit card transactions</p> <p>Number of digital ID application uses</p>	<p>Administering of questionnaires</p>	<p>Frequency and percentages</p>
	<p style="text-align: center;">Internet banking</p> <ul style="list-style-type: none"> • Total internet banking transactions 	<p>Number of digital transactions platforms</p>	<p>Administering of questionnaires</p>	<p>Frequency and percentages</p>
	<p style="text-align: center;">Agency banking</p>		<p>Administering of questionnaires</p>	

	<ul style="list-style-type: none"> • Number of connected agents • Agent returns • Agent failure 	Number of digital transactions platforms		Frequency and percentages
Dependent Variable	Financial performance <ul style="list-style-type: none"> • Income • Return on equity 	Return on equity	Administering of questionnaires	Frequency and percentages

2.8 Summary of Literature Review and Research Gap.

This research reviews literature related to financial performance of banks and covid 19 pandemic both local and international. The empirical studies reviewed mainly focused on both developed and developing economies which are likely to be affected in different way by the pandemic. Studies have been carried out on financial institutions mainly focusing on the financial performance of commercial banks in a normal situation, based on a past review of relevant literature, it clearly indicates that studies in the area of digital finance has been carried out but not in a broad and comprehensive approach and not in consideration of pandemics like the outbreak

of covid 19 pandemic which we are facing now. Furthermore, there are not enough studies carried out on the effect of digital finance element in the banking sector during pandemic like what we are experiencing of covid 19 pandemic. The study seeks to fill the gap by evaluating the effects of digital finance from the literature review and their effects on the financial performance of commercial banks in Kenya during the covid 19 pandemic. The review has clearly indicated that various gaps exist in the area of financial performance of commercial banks and covid 19 pandemic. The scholars focused on different approach and context with different outcome witnessed by the reviews. This study was to sought out and bridge this gaps. The research analyzed the effects of digital finance on financial performance of commercial banks in Kenya during covid 19 pandemic.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter evaluates the methodology applied by the researcher during research process i.e. it helped the researcher to discuss the research design and research methodology it also assisted in the collection of data and also allowed the researcher to answer the research questions. This chapter covers the different sections: the research design, target population, sampling and sampling procedures, and research instrument. It also covers the reliability and validity of the research instrument, data collection procedure, data analysis, and ethical considerations during this study. The following steps were use in data collection and analysis. It also included the research instrument intended to be applied in the research process. It describes the following: the research

design, target population, data collection techniques, data processing, and analysis, and ethical consideration.

3.2 Research Design

Research design, it is the general plan that explains how the researcher conducted his research process and procedures. Simply it means how researcher addresses the research issues that aroused during the study process (Orodho 2004). Research design can also be defined as the structure in the jurisdiction within which the study was carried out and provide a master plan of data collection, measurement, and analysis (Kothari 2014). Polit, Beck, and Owen (2003) defined a study design as the general way of acquiring solution to the research questions that are being studied and for solving the main challenges that are likely to encounter by the researcher during the study process. Ngumi (2013) Explained that a study design is the structure of the research that helps to guide the whole process of study from the point of formulation of the study hypothesis and research questions up to the point of reporting the final findings of the research. The descriptive design was used in this research, as reported by (Mugenda 2011), descriptive studies was used to test in-depth issues and problems within the organization that has not been sorted out in order to evaluate the effects of digital finance on financial performance of commercial banks in Kenya during covid 19 pandemic while Obino, S. (2021) asserts that descriptive design allows the researcher to acquire the information in regards to the happenings and it tries to explain its interrelationship with the variables during the study. During the study, descriptive explore and describe the variables thereon (Roger & Uma 2010). Therefore, descriptive helps to lay a better foundation for the application of regression analysis to evaluate the relationship between the independent variable and dependent variable. Descriptive design is the most singled out because

one is able to adapt them easily to collect valuable information during the study and come up with findings and conclusions on the effect of digital finance on the financial performance of commercial banks during covid 19 that is likely to be used as a representative of the entire population (Robbins 2010).

The study used primary data that was obtained by use of questionnaires to the finance managers and operation managers of commercial banks in Kenya.

3.4 Target population

The target population is the group of people that the researcher intends to carry on the research and come up with the findings and conclusion during his study (Mugenda & Mugenda 2011). The target population consists of individuals with common characteristics. While a population can be defined as any precise or uncounted combination of individual elements (Lavrakas, 2014). Hyndman and Booth (2009) defined a population as the whole combination of “things” where the researcher has an interest during his research process while Dawson (2009) argued that a target population is a population where the researcher can easily apply his conclusion during his research process. Dawson (2009) further explained that a target population is a galaxy of the research as all members of a hypothetical set of people to which the findings would like to generalize the outcome of the research process. The study focused on both susceptible and target populations. The susceptible population is the population where the researcher is able to draw his conclusion during his research process (Johnon 2012). The target population on other hand is the whole group of individuals to which researchers are interested in generalizing the conclusion for the study (Johnson 2012). The target population will comprise the 42 commercial banks in Kenya

which are licensed by the central bank of Kenya. The target unit respondents are the finance managers and the ICT managers.

3.5 Sampling frame

In regards to this study, the sampling frame for the intended target population was 42 commercial banks that are regulated by the central bank of Kenya (CBK) Lavrakas (2014) defined a sampling frame as a list of the target population from which the sample is obtained and that for descriptive survey designs, a sampling frame comprises of uncounted population, while Polit, Beck, and Owen (2003) defined sampling frame as the list of all the elements from which the sample is selected during the study process. Kothari (2010) defined a sampling frame as a list that consists of the names of all the elements in a universe. A sample is the list of chosen players from a population (Polit & Beck, 2010). The sampling frame for this study consisted of all the 42 registered commercial banks which are regulated by commercial banks of Kenya i.e. those banks that appear in the database of commercial banks of Kenya. The central bank of Kenya supervision report also availed the list and contact details of all the commercial banks in Kenya. The researcher carried out a census in relation to all the items in the target population.

3.5 Instrumentation

Instrumentation is the most preferred tool for data collection in a given research or study (Nun & Kawamura). It is related not only to construction, selection, assessment, and instrument design but also to the conditions under which the designated instruments are administered the instrument is the device used by investigators for collecting data. During the process of data collection, the researcher may fail to identify those changes in the calibration of the measuring instruments can easily lead to biased outcomes or findings for the research process. Therefore,

instrumentation is a specific term with respect to a threat to internal validity in the research process.

The best instruments for this study was self-administered questionnaires.

3.6 Validity and Reliability of Instruments

Validity is the accuracy and meaningful of the in the findings arrived at in a research study (Golafshani, 2013).It is the point at which the research instruments measures what it intended to measure during research study (Mbweza, 2006). It explains that if an instrument measures anything that it is not intended to measure then it is termed to be invalid. In this case the questionnaires were structured in such a way that they were simple and precise to make it easier to all respondent.

Reliability of an instrument in other words is the extent to which the instrument is not biased and ensure consistence and proper movement in various research items Uma and Roger, (2010). The study used test-rest method to evaluate the reliability of the instruments. Test-rest reliability approach is used to evaluate the consistency of two similar test administered to the same sample issued at different time or location Bhattacharjee (2012). During his research Bhattacharjee 2012, he concluded that if an instrument is consistence after a given number of tests over a time, then it is termed as reliable. According to (Mbweza 2006). The interval between this tests should not be too long in order to obtain accurate information. The researcher used self-administered questionnaires with his work mate in order to test for validity and reliability.

3.7 Data collection

The data on independent and dependent variables will be gathered through the application of primary data by use of questionnaires. Miles, Huberman, and Johnny (2014) defined data collection in study as the way of gathering and measuring collected resources on targeted

independent and dependent variables in an established systematic manner that allows the target individual to draft relevant questions and measure the expected results for the study. Based on Johnstone (2014), quantitative research prefers a primary data analysis to the secondary data source of analysis. Johnstone (2014) said that the use of primary data analysis is viable because it uses the process of survey in research that are prone to biases. Primary data is that data that is collected analyzed and stored by researcher for the first time (first hand data) for other researcher to use in future for different purposes, the current data provides a viable option for researchers who may experience time constraints, resources or researchers with other limiting factors (Hui & Philips, 2014). Two questionnaires were administered to each and every 42 commercial banks in Kenya. The targeted group was finance managers and operations managers of each and every 42 commercial banks in Kenya

3.8 Diagnostic Tests.

Diagnostic test is a test that is carried out to evaluate assumption of linear regression are met. The test was done to determine how significant the model was randomness of error terms, normality, multicollinearity, and heteroscedasticity are some of the tests that were carried out during this study.

3.8.1 Randomness of Error

Randomness of error was tested using RVF test that plots the residual against fitted value in the model. This graph helped to determine the outliers and residual and nonlinearity in the data collected (Anderson 2013). This tests explains the difference between observations made and true value of the research findings.

3.8.2 Multicollinearity

Test for Multicollinearity was carried out using variation inflation factor (VIF) analysis, multicollinearity test the extent of severity in a multi-collinear ordinary least square regression.

3.8.3 Normality Test

Normality test was carried out using histogram diagram to ascertain that the data collected is normal, identically distributed, and independent. According to the rule of (Zofia 2016), kurtosis and skewness should lie between the range of -1.0 and +1.0.

3.8.4 Heteroscedasticity

Heteroscedasticity is the use of Breusch-pagan test to determine the multiple linear equation, in other word it test the null hypothesis that the variance of errors is similar verses the other alternative hypothesis (Richard 2015). Heteroscedasticity in most cases it happens when the variance of error terms are not similar across the entire observation. Heteroscedasticity test is carried out to determine whether there are any variation in residual variance of observation from one season compare to another season

3.9 Data Analysis

The study used a regression discontinuity framework to analyze data which will help identify the potential breaks in two parametric series estimate pre- and post-outbreak of covid 19 pandemic

Based on Blumberg, Cooper, Donald, and Schindler (2014) data processing involved the following: coding, tabulation, classification, and graphical presentation. This research used to extract data that consists of quantitative information from relevant institutions, and the data was

evaluated quantitatively using regression equations using the Stata software tool. Olweny (2012) explained that multiple regression techniques provide both qualitative and quantitative output that is enough and exhibiting for making conclusions regarding the studies. Stata software was used to provide descriptive statistics and multiple linear regression analysis between dependent variables (financial performance) and independent variables, mobile banking, mobile wallet, internet banking, and agency banking. Based on Polit and Beck (2006), the quantity of data collected in a research study can't be evaluated and measured using simple numeric information, data collected requires to be analyzed and evaluated in an orderly manner. Quantitative information collected is usually analyzed through statistical procedures where procedures carried out covers a broad range of techniques.

The regression equation

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \varepsilon$$

Where;

Y = Financial performance of commercial banks in Kenya.

β_0 = Intercept, which is equivalent to the value of Y when the value of X is zero.

X_1 = Internet banking

X_2 = Mobile banking

X_3 = Agency banking

X_4 = Mobile wallets

ε = Error term

β_1 , β_2 , β_3 and β_4 are coefficients for mobile banking, mobile wallet, internet banking, and agency banking respectively. To analyze the effect of digital finance on financial performance of commercial banks in Kenya during covid 19 pandemic, data collected was analyzed by use of tables, graphs, charts and figures.

CHAPTER FOUR

DATA ANALYSIS, RESULT AND DISCUSION.

This chapter considers and provide an analysis of the finding of the research and presents the outcome obtained during the analysis of data obtained. The chapter portrays the analysis of the data to determine the effects of digital finance on the financial performance of commercial banks in Kenya during covid 19 pandemic putting into consideration the fundamental outcome of the research process. The chapter presents the descriptive statistics, regression analysis, correlation analysis and interpretation of the outcome of the study. The researcher edited and coded the data collected during data collection process, there after the researcher analyzed the data by using STATA software. The researcher collected data for the study using questionnaire administered during research process and the findings presented in tables, standard deviation and means.

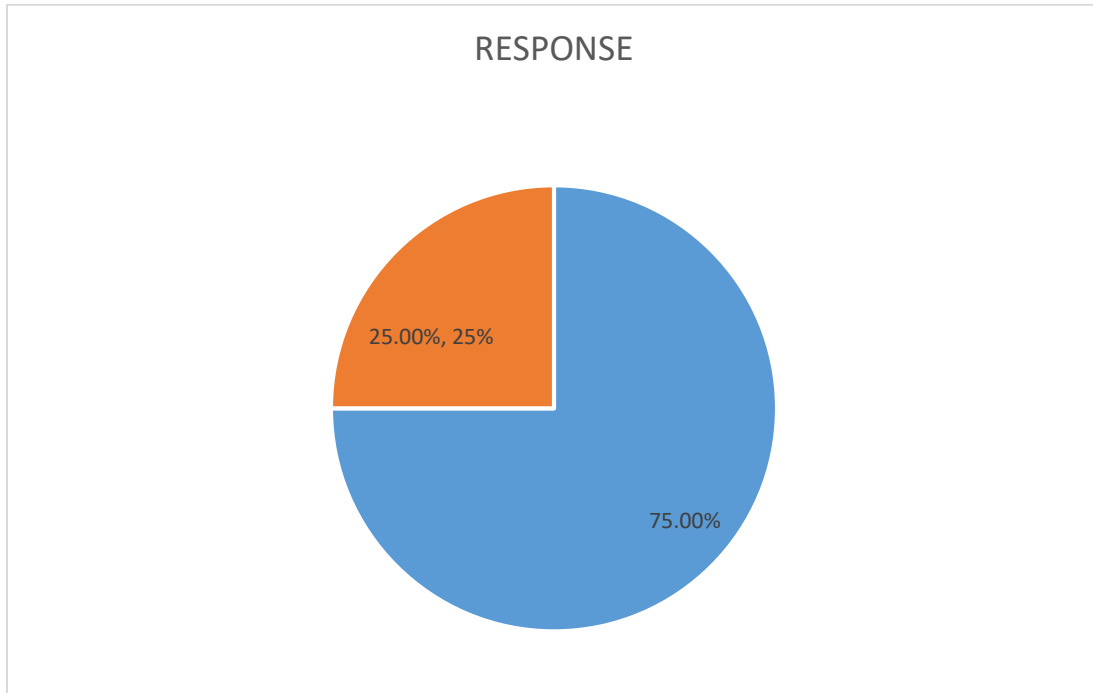
4.2 Response Rate

Two questionnaires were given out to each and every 42 commercial banks in Kenya. Out of 84 questionnaires issued to the banks only 63 questionnaires were dully filled and returned successfully for the research analysis, thus constituting to a response of 75% which is very good response for the researcher to proceed with research process. According to Bobbie (2004) the response rate above 50% percent are allowed for the analysis, above 60% but less than 70% are good, the response rate above 70% but less than 80% are very good while the response rate above 80% are considered excellent for research analysis by the researcher, While 52 of the administered questionnaires were not returned by the respondent constituting of 25% of the total questionnaires administered for the research process.

TABLE 2

Distribution of Response Rate

Response Rate	Frequency	Percentage (%)
Those responded	63	75%
Non- Response	21	25%
Total	<u>84</u>	<u>100%</u>



4.3 Demographic Characteristics

This section explains the gender, age level of education, position held by the respondents and experience level of the respondent.

4.3.1 Gender of the respondents

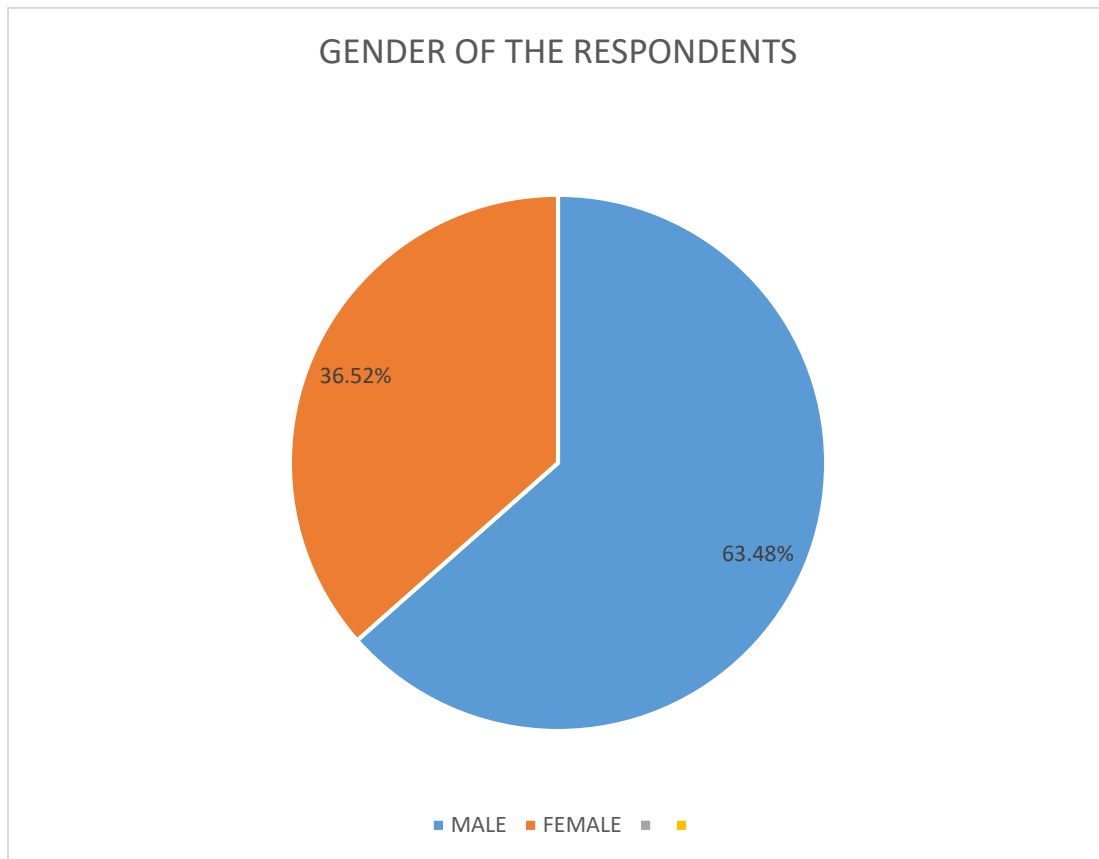
The researcher urged the respondent to mark their gender and the illustration were shown as per the below table.

TABLE 3

Gender of the respondents

Gender	Response	Percentage (%)
Male	40	63.48 %
Female	23	36.52 %
Total	63	100 %

From the findings expressed by the questionnaires from the respondents, 63 out of 84 of the respondents were men representing 75 % of the response while 21 of the respondents were female representing 25 % of the respondents.



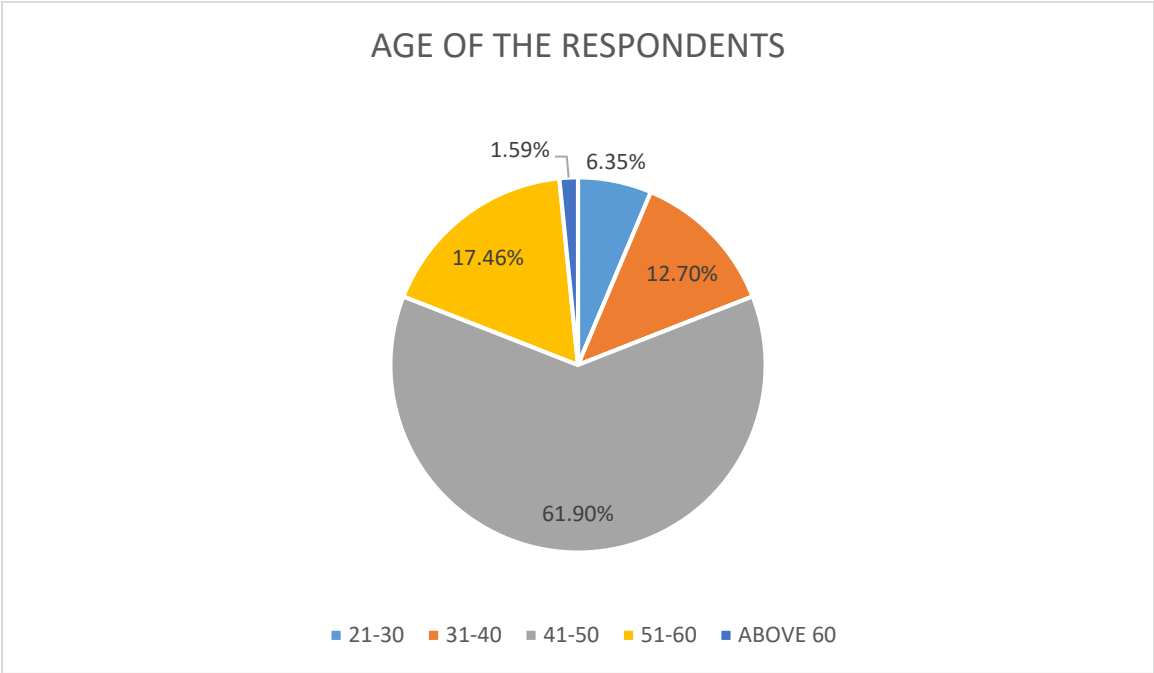
4.3.2 Age of the respondents

According to the questionnaires from the respondents, 4 of the respondents showed that they are between the age of 21-30 representing 6.35 % of the respondents, 8 of them indicated that their age was between 31-40 representing 12.70 % of the respondents, 39 of them indicated that their age was between 41-50 representing 61.90 % of the respondents, 11 of them indicated that their age was between 51-60 representing 17.46 % of the respondents and 1 of them indicated that he was above 60 representing 1.59 % of the respondents,

TABLE 4

Age of the respondents

Age (Years)	Frequency	Percentage %
21-30	4	6.35 %
31-40	8	12.70 %
41-50	39	61.90 %
51-60	11	17.46 %
Over 60	1	1.59 %
<u>Total</u>	<u>63</u>	<u>100 %</u>



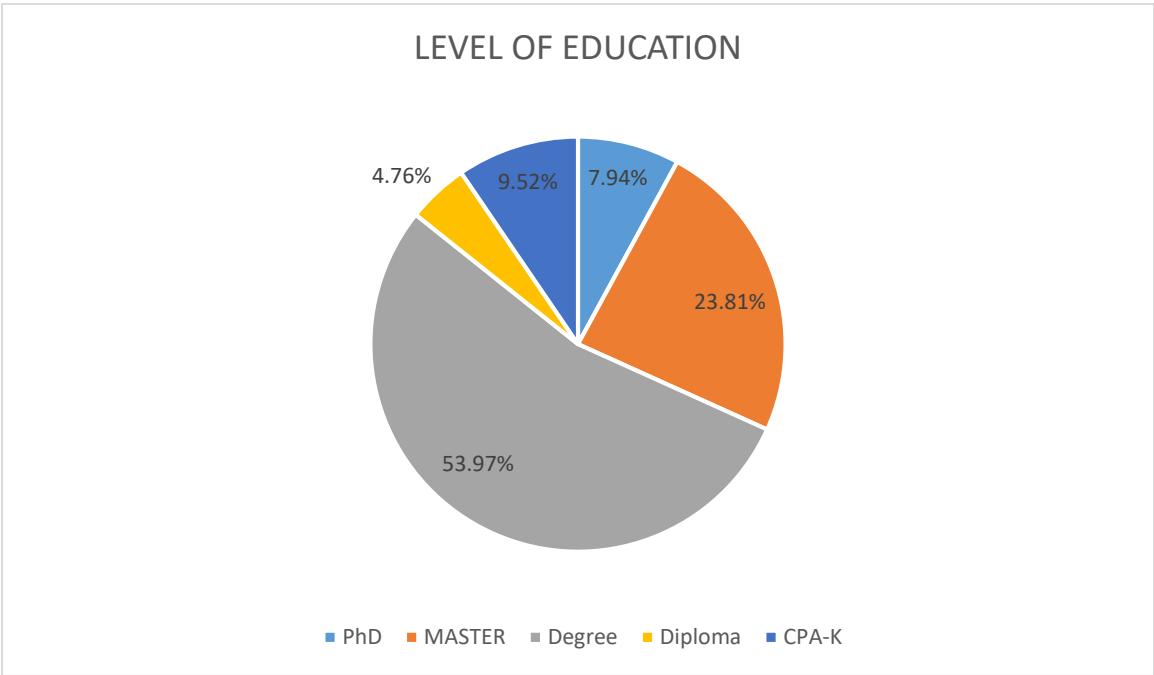
4.3.3 Education level of the Respondents

TABLE 5

Education level of the Respondents

Education level	Frequency	Percentage %
PhD	5	7.94 %
Master	15	23.81 %
Degree	34	53.97 %
Diploma	3	4.76 %
C.P.A-K	6	9.52 %
<u>Total</u>	<u>63</u>	<u>100 %</u>

According to the respondents, majority of the them were degree holder, 5 of the respondents indicated that they are PhD holder representing 7.94 % of the respondents, 15 of the respondents indicated that they are master degree holder representing 23.81 % of the respondents, 34 of the respondents indicated that they are degree holder representing 53.97 % of the respondents, 3 of the respondents indicated that they are PhD holder representing 4.76 % of the respondents and 6 of the respondents indicated that they are C.P.A-K holder representing 9.52 % of the respondents.



4.3.4 Experience Level of the respondents in the banking industry.

TABLE 6

Experience Level of the respondents in the banking industry.

Level of experience (Years)	Frequency	Percentage
1-5	2	3.17 %
6-10	14	22.22 %
11-15	26	41.27 %
16-20	16	25.40 %
Above 20	5	7.94 %
<u>Total</u>	<u>63</u>	<u>100</u>

According to the respondents, majority of them had experience of between 11-15 years representing 41.27 %, 2 of the respondents indicated that they had experience of between 1-5 years in the banking industry representing 3.17 % of the respondents, 14 of the respondents indicated that they had experience of between 6-10 years in the banking industry representing 22.22 % of the respondents, 26 of the respondents indicated that they had experience of between 11-15 years in the banking industry representing 41.27% of the respondents, 16 of the respondents indicated that they had experience of between 16-20 years in the banking industry representing 25.40 % of the respondents and 5 of the respondents indicated that they had experience of above 20 years in the banking industry representing 7.94 % of the respondents.

4.4 Study Variables

4.4.1 Analysis on Mobile Banking

The study targeted to find out the effect of mobile banking on the financial performance of commercial banks in Kenya during covid 19 pandemic. The respondents were urged to show the level of utilization of mobile banking by commercial banks during covid 19 pandemic. The response were classified in 5 scale; 5=strongly agree, (SA) 4= agree (A), 3=neutral (N), 2=disagree (D) and 1=strongly disagree (SD). The findings were as indicated on the below table

TABLE 7

Level of agreement on the implementation of use of mobile banking

Variables	Observation	Mmean	Standard deviation	Min	Max	M
Mobile banking provide customers with easy access to real time banking services	63	4	1	1	5	5
Mobile banking provide customers with easy access to value-added mobile banking services	63	3	1	1	5	5
Customers finds it easy to carry out transactions using their mobile phone without any difficulties.	63	2.7	1.3	1	5	5
Access of customer account using mobile phones is secure and risk free. Customers information is safe through use of mobile phone	63	3	1	1	5	5
Customers have positive attitude towards use of mobile banking	63	3.6	0.9	1	5	5

Based on the findings above the respondents agreed that Mobile banking provide customers with easy access to real time banking services with the mean of 4, Mobile banking provide customers with easy access to value-added mobile banking services with the mean of 3, Customers finds it easy to carry out transactions using their mobile phone without any difficulties with the mean of 2.7, Access of customer account using mobile phones is secure and risk free. Customer's information is safe through use of mobile phone with the mean of 3 and Customers have positive attitude towards use of mobile banking with the mean of 3.6.

4.4.2 Analysis on Mobile Wallet

Further the study targeted to find out the effect of mobile wallet on the financial performance of commercial banks in Kenya during covid 19 pandemic. The respondents were urged by the researcher to indicate the level of utilization of mobile wallet on financial performance of commercial banks in Kenya during covid 19 pandemic. The response were classified in 5 scale; 5=strongly agree, (SA) 4= agree (A), 3=neutral (N), 2= disagree (D) and 1=strongly disagree (SD). The findings were as indicated on the below table

TABLE 8

Analysis on Mobile Wallet

Variables	Observation	Mean	Standard deviation	Min	Max
Mobile wallet provide customers with easy access to real time banking services	63	2	1	1	5
Mobile wallet provide customers with easy access to value-added mobile banking services	63	3.1	1.3	1	5
Customers finds it easy to carry out transactions using mobile wallet while carrying out transactions like shopping in the	63	3.1	1.2	1	5

supermarket without any difficulties.					
Access of customer account using mobile wallet while shopping is secure and risk free. Customers information is safe through use of mobile phone	63	3.2	1.2	1	5
Customers have positive attitude towards use of mobile wallet during shopping	63	2	1	1	5

Based on the findings above the respondents agreed that utilization of Mobile wallet provide customers with easy access to real time banking services with the mean of 2, use of Mobile wallet during shopping provide customers with easy access to value-added mobile banking services with the mean of 3.1, Customers finds it easy to carry out transactions using mobile wallet

to transact during shopping without any difficulties with the mean of 3.1, Access of customer account using mobile wallet during shopping is secure and risk free. Customer's information is safe through use of mobile wallet with the mean of 3.2 and Customers have positive attitude towards use of mobile wallet during online shopping with the mean of 2.

4.4.3 Analysis on Internet Banking

Further the study targeted to find out the effect of internet banking on the financial performance of commercial banks in Kenya during covid 19 pandemic. The respondents were urged by the researcher to indicate the level of utilization of internet banking on financial performance of commercial banks in Kenya during covid 19 pandemic. The response were classified in 5 scale; 5=strongly agree, (SA) 4= agree (A), 3=neutral (N), 2= disagree (D) and 1=strongly disagree (SD). The findings were as indicated on the below table

TABLE 9**Analysis on Internet Banking**

Variables	Observation	Mean	Standard deviation	Min	Max
Internet connectivity cost (affordability of internet services) have improved since the outbreak of covid 19 in the year 2020	63	3.1	1	1	5
The internet banking services have improved (efficiency) since the outbreak of covid 19 pandemic in the year 2020	63	3.09	1.2	1	5
Banks have the capacity to serve all its customers and acquire more customers	63	3.57	1	1	5
Banks have effectively improved cyber-	63	3.06	1	1	5

security related safety structure since the outbreak of covid 19 pandemic in the year 2020					
Security is the key factor that influences the use of internet banking since the outbreak of covid 19 in the year 2020	63	1.98	1	1	5

Based on the findings above the respondents agreed that Internet connectivity cost (affordability of internet services) have improved since the outbreak of covid 19 in the year 2020 with the mean of 1.01, the internet banking services have improved (efficiency) since the outbreak of covid 19 pandemic in the year 2020 with the mean of 1.15, banks have capacity to authenticate, secure and protect customer’s information from unauthorized people, with the mean of 1.06, Banks have effectively improved cyber-security related safety structure since the outbreak of covid 19 pandemic in the year 2020, with the mean of 1.04 and Security is the key factor that influences the use of internet banking since the outbreak of covid 19 in the year 2020 with the mean of 0.84.

4.4.4 Analysis on Agency Banking

Further the study targeted to find out the effect of agency banking on the financial performance of commercial banks in Kenya during covid 19 pandemic. The respondents were urged by the researcher to select the level of utilization of agency banking on financial performance of commercial banks in Kenya during covid 19 pandemic. The response were classified in 5 scale; 5=strongly agree, (SA) 4= agree (A), 3=neutral (N), 2= disagree (D) and 1=strongly disagree (SD).

The findings were as indicated on the below table

TABLE 10**Analysis on Agency Banking**

Variables	Observation	Mean	Standard deviation	Min	Max
Agency transaction cost t (affordability of agency banking services) have improved since the outbreak of covid 19 in the year 2020	63	1.5	1	1	5
The use of agency banking services have improved on efficiency and reduced the need of ATM since the outbreak of covid 19 pandemic in the year 2020	63	3.1	1.3	1	5
Agency banking have reduced the total banking cost since the outbreak of covid 19 pandemic in the year 2020	63	3	1.4	1	5

Total number of customers have increased due to the wide spread of the number of agents spread across the country since the outbreak of covid 19 pandemic in the year 2020	63	2	1.1	1	5
Customer service agent have reduced total customer service cost and more convenient since the outbreak of covid 19 pandemic in the year 2020	63	2	1.1	1	5

Based on the analysis and the findings above the respondents concluded that Agency transaction cost t (affordability of agency banking services) have improved since the outbreak of covid 19 in the year 2020 with the mean of 1.5, The use of agency banking services have improved on efficiency and reduced the need of ATM since the outbreak of covid 19 pandemic in the year 2020 with the mean of 3.1, Agency banking have reduced the total banking cost since the outbreak of covid 19 pandemic in the year 2020 with the mean of 3, total number of customers have increased due to the numerous increase in the number of agents spread across the country since

the outbreak of covid 19 pandemic in the year 2020, with the mean of 2 and customer service agent have reduced total customer service cost and more convenient since the outbreak of covid 19 pandemic in the year 2020 with the mean of 2.

4.4.5 Analysis on Financial Performance

The study targeted to find out the effects of digital finance on the financial performance of commercial banks in Kenya during covid 19 pandemic. The respondents were urged by the researcher to indicate the effects of mobile banking, mobile wallet, internet banking and agency banking on financial on financial performance of commercial banks in Kenya during covid 19 pandemic. The response were classified in 5 scale; 5=strongly agree, (SA) 4= agree (A), 3=neutral (N), 2= disagree (D) and 1=strongly disagree (SD).

TABLE 11

Variables	Observation	Mean	Standard deviation	Min	Max
Did the use of mobile banking improved financial performance of commercial banks in Kenya since the outbreak of covid 19 pandemic	63	2	1.1	1	5
The use of agency banking	63	3.1	1.1	1	5

services have improved on efficiency and reduced the need of ATM since the outbreak of covid 19 pandemic in the year 2020					
Use of internet banking have positive impact on financial performance of commercial bank since the outbreak of covid 19 pandemic in the year 2020	63	3.3	1	1	5
Increase in the spread of agents across the country increase the number of customers served	63	3.2	1	1	5

since the outbreak of covid 19 pandemic					
Digital finance has a positive impact on financial performance of commercial banks if other factors are kept constant since the outbreak of covid 19 pandemic in the year 2020	63	3.1	1	1	5

The table above sought to evaluate that the use of mobile banking improved financial performance of commercial banks in Kenya since the outbreak of covid 19 pandemic as shown by the mean of 2 and standard deviation of 1, it also established that the use of mobile wallet to transact during shopping have increased financial performance of commercial banks in Kenya since the outbreak of covid 19 pandemic as shown by the mean of 3.1 and standard deviation of 1.1, it was also established that the use of internet banking have positive impact on financial performance of commercial bank since the outbreak of covid 19 pandemic in the year 2020 as shown by the mean of 3.3 and standard deviation of 1, It was established that the Increase in the

spread of agents across the country increased the number of customers served since the outbreak of covid 19 pandemic as indicated by the mean of 3.2 and standard deviation of 1 and finally it was established that digital finance has a positive impact on financial performance of commercial banks if other factors are kept constant since the outbreak of covid 19 pandemic in the year 2020 as indicated by the mean of 3.1 and standard deviation of 0.9.

4.5 Diagnostic Tests

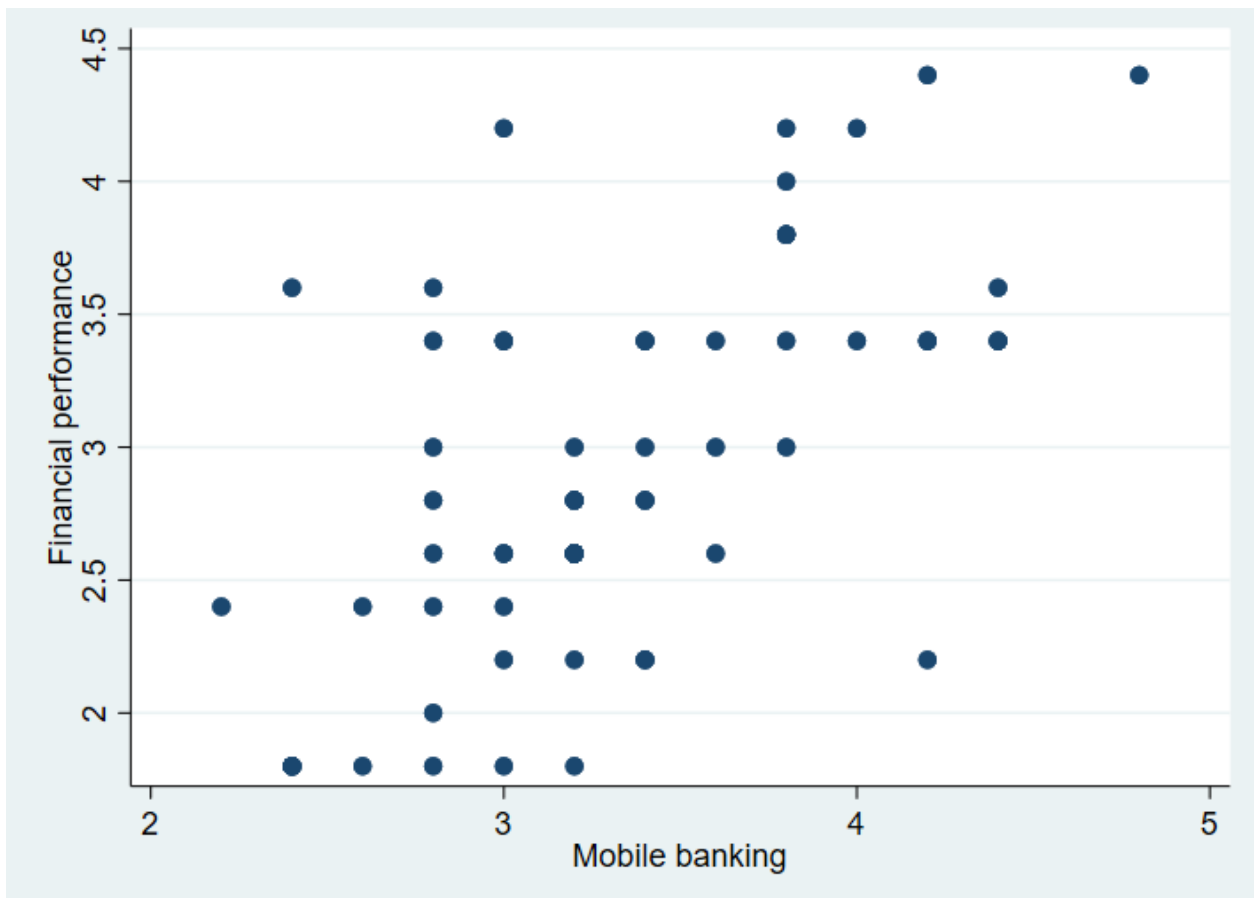
According to (Akenhed& Wilkinson, 2013), when researcher carry out statistical test or procedure, there are statistical assumption that guides the researcher where by when the researcher violates them then the whole research process will be of no meaning to the stakeholders and will lead to the interpretation that are not useful. So as to ensure this basic assumption are not violated some tests were carried out by the researcher to ensure that; (i) There exist a linear relationship between each of the independent variables and dependent variable, (ii) There are no outliers, (iii) Error term have a constant variance to avoid heteroscedasticity, (v) Strong correlation does not exist between the independent variable or multicollinearity and finally the error terns are normally distributed with a mean of zero.

4.5.1 Linearity variables test.

During the study the researcher tested weather there exist between dependent variable and each of the independent variables, the researcher used scatter plot illustration as indicated on the figure below.

FIGURE 2

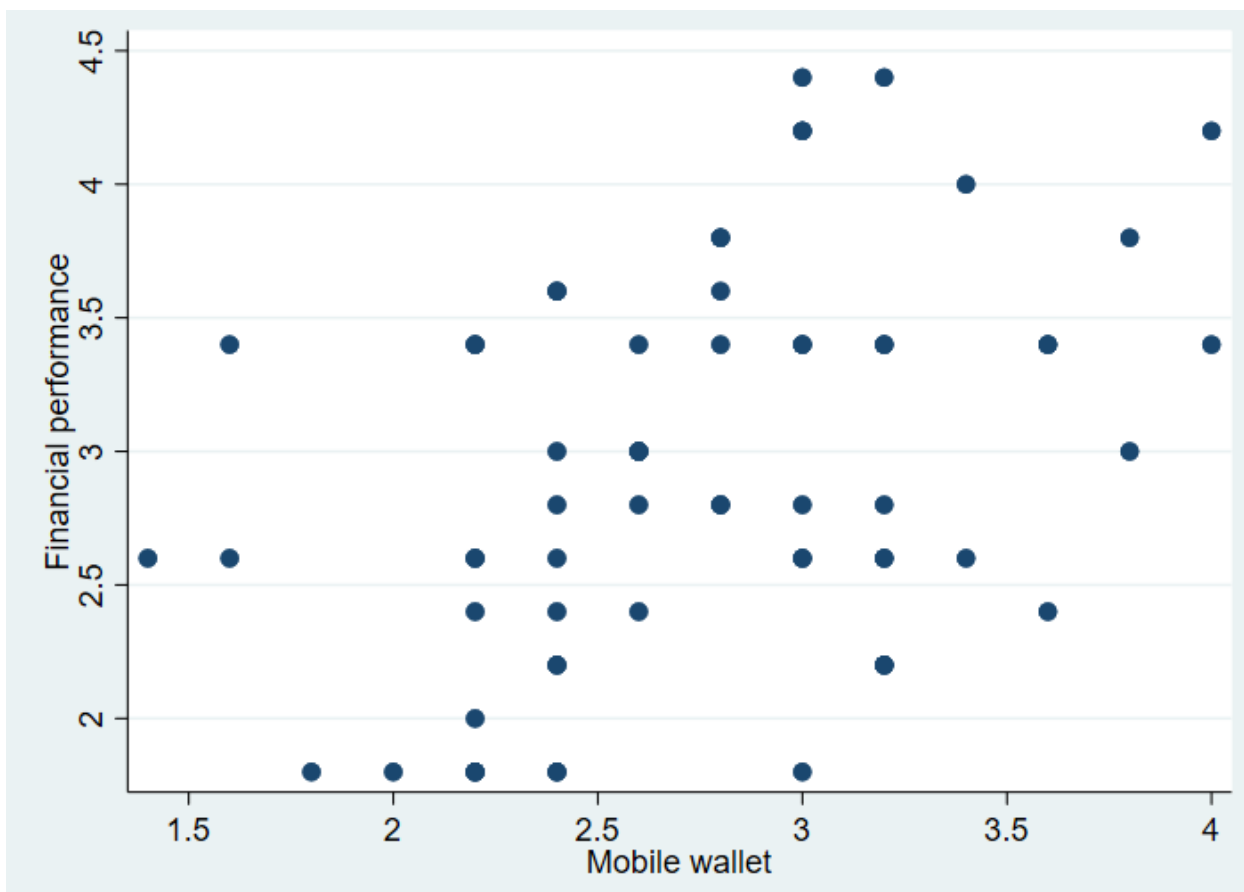
Linear relationship between mobile banking (MB) and financial performance (FP)



From the above figure it is indicated that there was a linear relationship between mobile banking (MB) and financial performance (FP) of commercial banks in Kenya

Linear relationship between mobile wallets (MW) and financial performance (FP)

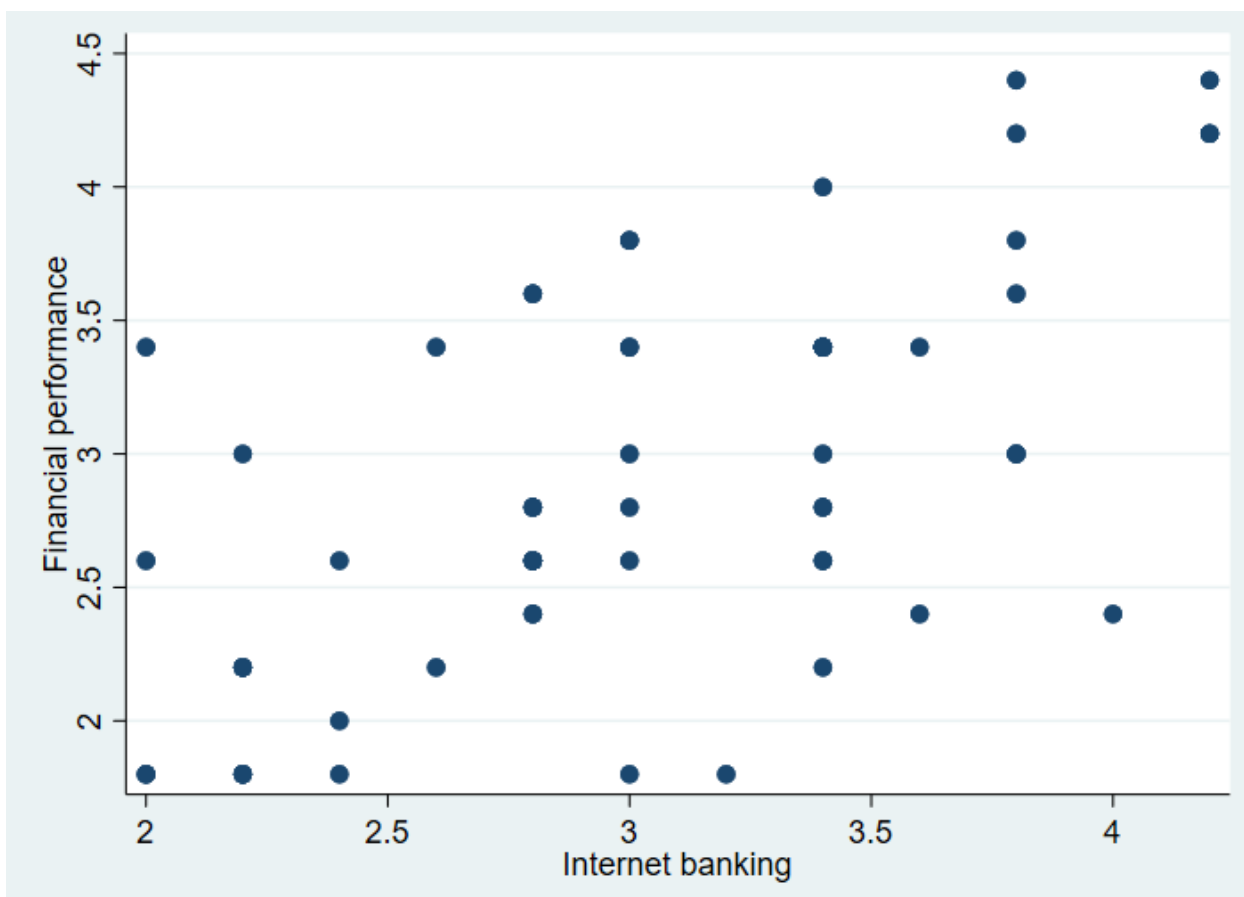
FIGURE 3



From the above figure it is indicated that there was a linear relationship between mobile wallets (MW) and financial performance (FP) of commercial banks in Kenya

FIGURE 4

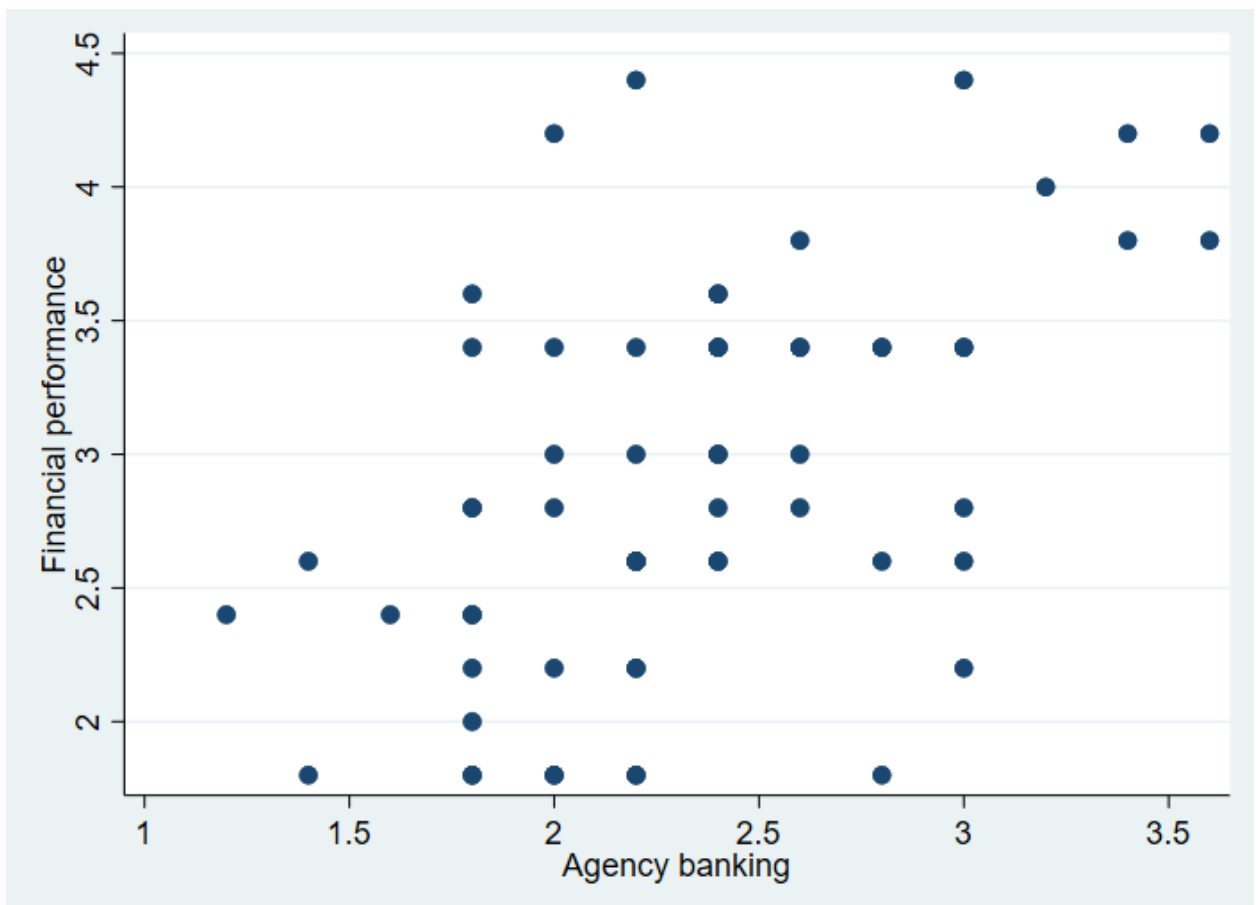
Linear relationship between internet banking (IB) and financial performance (FP)



From the above figure it is indicated that there was a linear relationship between internet banking and financial performance of commercial banks in Kenya

FIGURE 5

Linear relationship between agency banking (AB) and financial performance (FP)



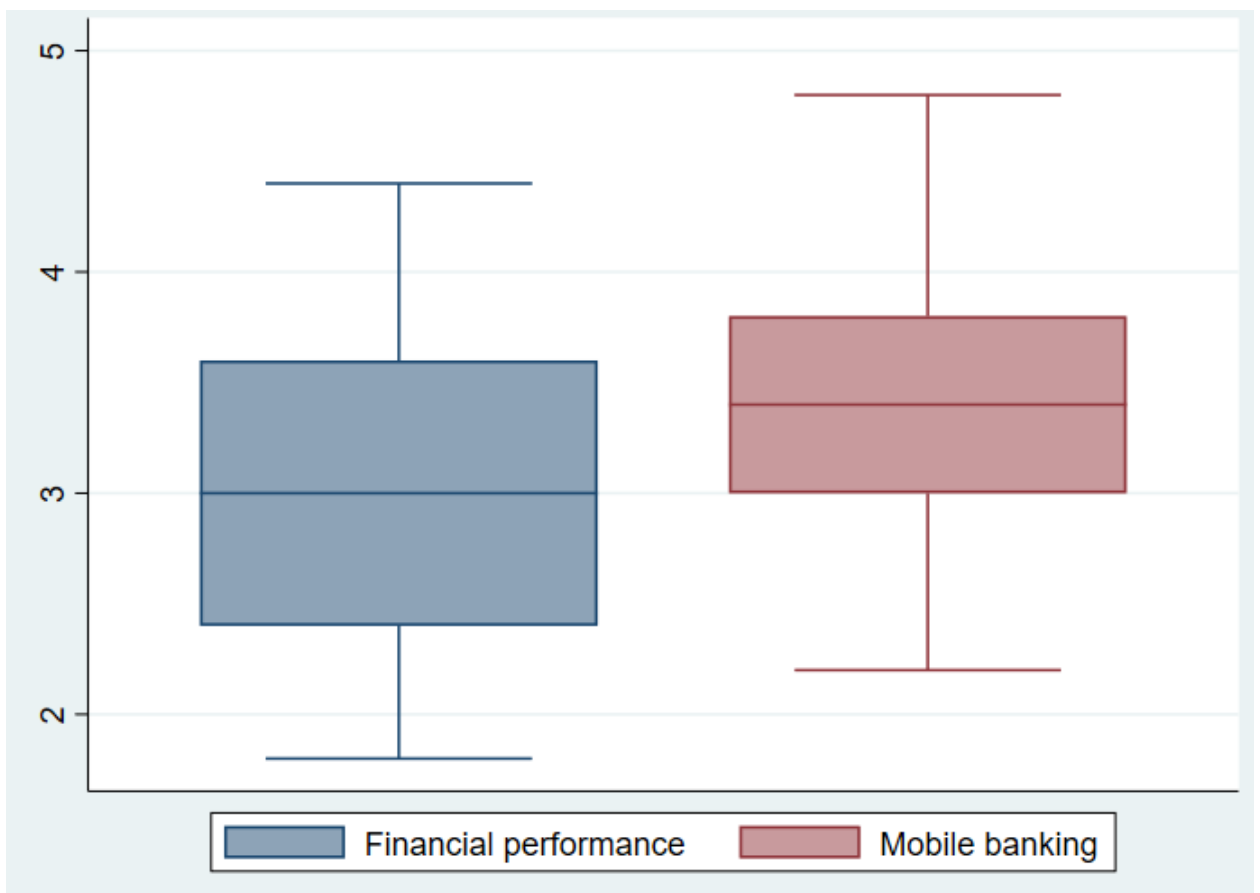
From the above figure it is indicated that there was a linear relationship between agency banking (AB) and financial performance (FP) of commercial banks in Kenya.

4.5.2 Test for outliers

During this study the researcher tested for the outlier to ensure that the data acquired during the research process is not skewed which could result into in appropriate outcome. The results for the test were as below.

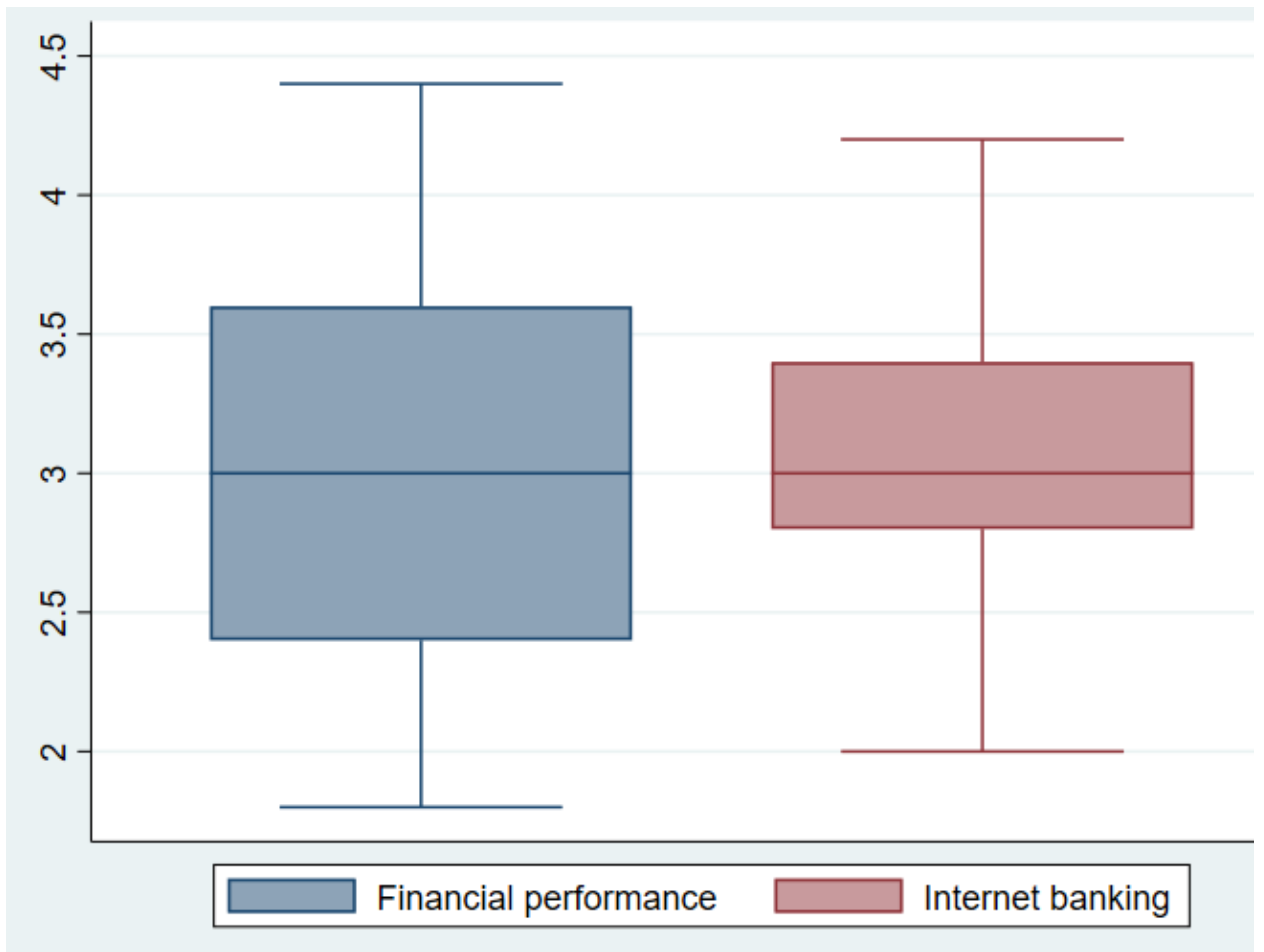
Outliers test in mobile banking (MB)

FIGURE 6



Outliers test in mobile wallets (MW)

FIGURE 7



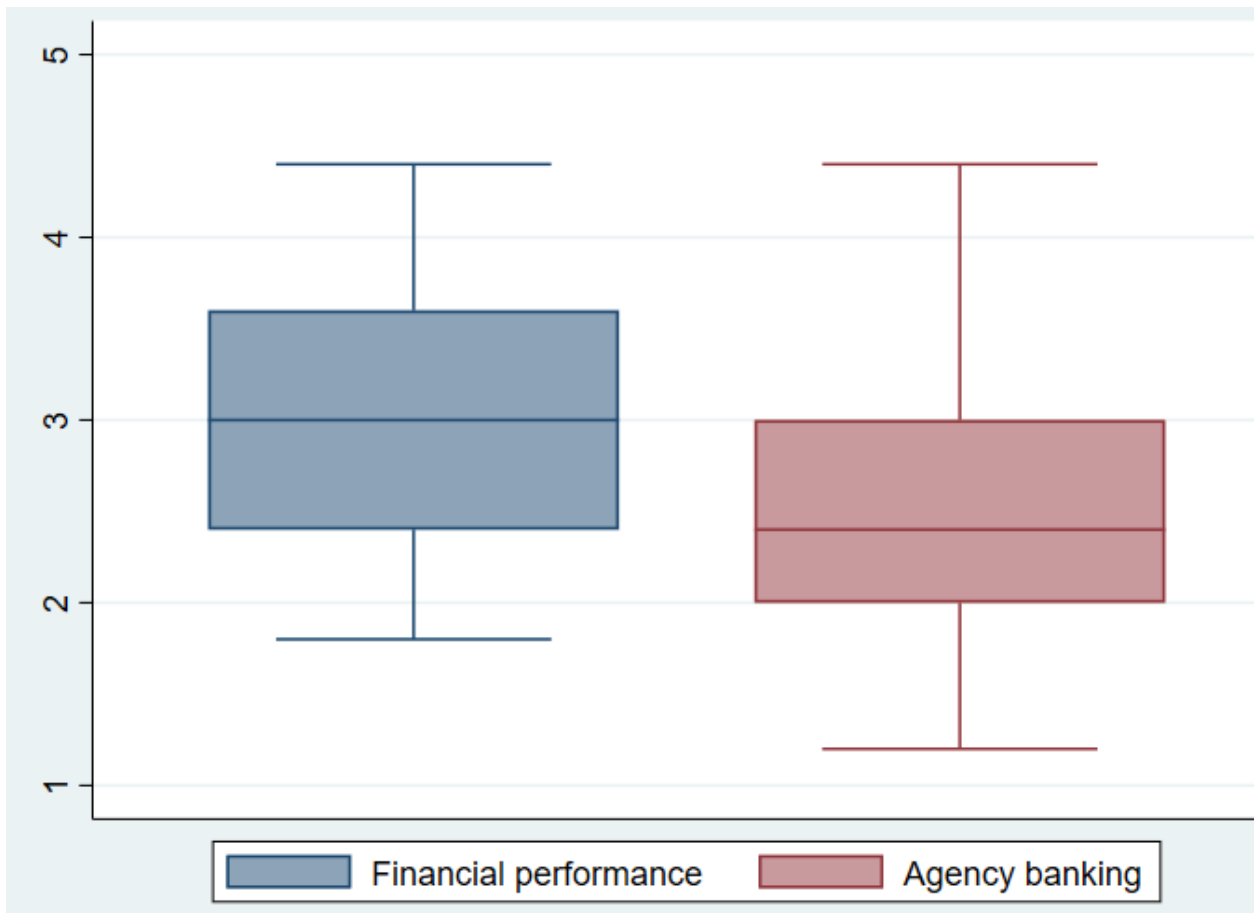
Outliers test in internet banking (IB)

FIGURE 8



Outliers test in agency banking (AB)

FIGURE 9



From the above figure it illustrates that there was no outliers detected during data analysis

4.5.3 Test for correlation

Pwcorr test for correlation was done for detecting the presence of correlation between variables. The correlation effect was identified and transformation was done through the use of logarithm. The below table shows the test for correlation.

Correlation analysis

4.5.4 Test for multicollinearity

The test for multicollinearity was carried out by the use of variance inflation factor (VIF). In a normal scenarios, variance inflation factor (VIF) of more than 10 shows the presence of multicollinearity in a data set.

TABLE 12
VIF test for multicollinearity

Financialpeve	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
Mobilebanking	.4982659	.1186545	4.20	0.000	.2607531	.7357787
Internetbanking	.5999821	.115899	5.18	0.000	.367985	.8319791
Mobilewallet	-.1004531	.1238797	-0.81	0.421	-.3484252	.147519
Agencybanking	.2625391	.1289238	2.04	0.046	.0044701	.5206082
_cons	-.8932564	.4003711	-2.23	0.030	-1.694686	-.0918266

. vif		
Variable	VIF	1/VIF
Mobilewallet	1.54	0.650674
Internetbanking	1.46	0.686694
Mobilebanking	1.44	0.692136
Agencybanking	1.41	0.709644
Mean VIF	1.46	

Based on the findings on the above table, mobile banking had a VIF of 1.44, mobile wallets had a VIF of 1.54, internet banking had a VIF of 1.46 and agency banking had a VIF of 1.41. Finally the overall VIF mean was 1.46 meaning that there was no presence of multicollinearity in the data.

4.5.5 Test for heteroscedasticity

Heteroscedasticity in most cases it happens when the variance of error terms are not similar across the entire observation. Heteroscedasticity test is carried out to determine whether there are any variation in residual variance of observation from one season compare to another season Godfrey (1996). Glejser (1969), also carried out the same test on residual regression value of the independent variables. His test was based on the assumption that when the value of p is more than 0.05 then there is no heteroscedasticity problem while when the p value is less than 0.05 then it shows the presence of heteroscedasticity. The outcome for the heteroscedasticity carried out during the study are shown in the below table

TABLE 13

```
. estat hettest  
  
Breusch-Pagan / Cook-Weisberg test for heteroskedasticity  
Ho: Constant variance  
Variables: fitted values of Financialperformance  
  
chi2(1)      =      0.84  
Prob > chi2  =      0.3589
```

As illustrated in the above table the p value of 0.3589 is more than 0.05, there for we fail to reject the null hypothesis.

4.5.6 Test for normality of residuals

This study applied regression analysis in analyzing data with an assumption that the residual are normally distributed. The researcher used histogram to ensure that normality test

was acquired and ensure the data is accurate and reliable. Based on the Field (2013), findings should be declared inaccurate and unreliable depending on the anomaly under scrutiny if normality of residuals is not achieved. Thode (2002), carried out research on the same and he found that Shapiro Wilk test applies less power to measure and detect values in the test of normality. Since this research had more than 30 samples, a single Shapiro –Wilk test for normality was enough since non-normality will have no significant effect on the parametric test (winter, 2013).

TABLE 14

```

. swilk Financialperformance Mobilebanking Internetbanking Mobilewallet Agencyba
> nking

```

Shapiro-Wilk W test for normal data

Variable	Obs	W	V	z	Prob>z
Financialp~e	63	0.97416	1.460	0.819	0.20650
Mobilebank~g	63	0.98100	1.074	0.155	0.43852
Internetba~g	63	0.98484	0.857	-0.334	0.63091
Mobilewallet	63	0.99359	0.362	-2.195	0.98590
Agencybank~g	63	0.98415	0.896	-0.237	0.59381

According to the table above it is shown that all the variables have the p value which is above 0.05 hence the researcher concluded that the variables used for the study followed normal distribution, hence the ordinary least square method was useful for further analysis.

4.6 Model Fitting

The research used multiple regression model to analyze data to evaluate the relationship between predictor variable and financial performance of commercial banks in Kenya during

covid 19 pandemic. During this period for the study the researcher used excel spreadsheet in coding of the data collected and the Stata was used to analyze the data to come up with the outcome for the study. Stata was used to test for the outliers, linearity, multicollinearity, and heteroscedasticity during the study. The coefficient of determination acquired from the robust regression model was used to measure the relationship between the dependent variables and independent variables. The dependent variable in this research was financial performance while independent variable was mobile banking, mobile wallets, internet banking and agency banking.

The result of the relationship between financial performance of commercial banks in Kenya during covid 19 pandemic and predictor variables were as shown on the below table.

TABLE 15

```
. reg Financialperformance Mobilebanking Internetbanking Mobilewallet Agencybanking
```

Source	SS	df	MS	Number of obs	=	63
Model	20.6054327	4	5.15135817	F(4, 58)	=	24.86
Residual	12.0205991	58	.207251708	Prob > F	=	0.0000
Total	32.6260317	62	.526226318	R-squared	=	0.6316
				Adj R-squared	=	0.6062
				Root MSE	=	.45525

Financialpeve	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
Mobilebanking	.4982659	.1186545	4.20	0.000	.2607531	.7357787
Internetban~g	.5999821	.115899	5.18	0.000	.367985	.8319791
Mobilewallet	-.1004531	.1238797	-0.81	0.421	-.3484252	.147519
Agencybanking	.2625391	.1289238	2.04	0.046	.0044701	.5206082
_cons	-.8932564	.4003711	-2.23	0.030	-1.694686	-.0918266

H0: The model is not fit in predicting financial performance of commercial banks in Kenya during covid 19 pandemic

H1: The model is fit in predicting financial performance of commercial banks in Kenya during covid 19 pandemic.

The above table shows the strength of relationship between the financial performance of commercial banks in Kenya during covid 19 pandemic and the independent variables. As indicated by the coefficient of the determination there is strong relationship between dependent variable and independent variables given by R squared of 0.6319 and an adjusted R squared of 0.6062. This result shows that independent variables; mobile banking, internet banking and agency banking explains for 63.19% of the variations of the dependent variable (financial performance) while 36.81% of the variation is explained by other variables. The analysis of variance (ANOVA) in this study was used to evaluate whether there was significance relationship between dependent variable and independent variables. Based on the findings as shown in the above table if internet banking and agency banking is kept constant an increase in one unit of mobile banking increases financial performance of commercial banks by 0.4982659, if internet banking and mobile banking are kept constant an increase in one unit of agency banking increases financial performance of commercial banks by 0.2625391 and if mobile banking and agency banking is kept constant an increase in one unit of internet banking increases financial performance of commercial banks by 0.5999821. Based on the findings above mobile banking, internet banking and agency banking are statistically significant to the financial performance of commercial banks in Kenya during covid 19 pandemic while mobile banking is not statistically significant to the financial performance of commercial banks in Kenya during covid 19 pandemic.

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4$$

$$Y = -0.8932564 + 0.5999821X_1 + 0.4982659X_2 + 0.2625391X_3 - 0.1004531X_4$$

CHAPTER FIVE

SUMMARY, CONCLUSION, AND RECOMMENDATION

5.1 Introduction

This chapter presented summary of findings, conclusion and recommendations for the study on the effect of digital finance on financial performance of commercial banks in Kenya during covid 19 pandemic, areas that require further study and limitation of the study. The research aimed to evaluate the effect of digital finance on financial performance of commercial banks in Kenya during covid 19 pandemic.

5.2 Summary of the study

This area presented summary of outcome of the research. The research desired to evaluate the different digital finance platform that affects financial performance of commercial banks in Kenya during covid 19 pandemic. The research established that mobile banking, agency banking and internet banking were statistically significant to the financial performance of commercial banks in Kenya while mobile wallet was not statistically significant in finding the financial performance of commercial banks in Kenya during covid 19 pandemic.

5.2.1 Findings on mobile banking

Based on findings of this research, mobile banking was found to be statistically significant in analyzing the variance of financial performance of commercial banks in Kenya during covid 19 pandemic. One unit increase in mobile banking holding agency banking and internet banking constant will lead to an increase in financial performance of commercial banks in Kenya during covid 19 pandemic by 0.4982659. The respondent agreed that mobile wallet

provide customers with easy access to real time banking services (mean 4) followed by customers have positive attitude towards use of mobile banking (mean of 3.6) followed by Mobile banking provide customers with easy access to value-added mobile banking services (mean of 3), followed by Access of customer account using mobile phones is secure and risk free. Customer's information is safe through use of mobile phone (mean of 3) and finally customers finds it easy to carry out transactions using their mobile phone without any difficulties (mean of 2.7).

5.2.2 Findings on mobile wallet

Based on output of analysis of the data collected, mobile wallets was found not to be statistically significant in explaining the variance of financial performance of commercial banks in Kenya during covid 19 pandemic

5.2.3 Findings on internet banking

Based on findings of this research, online banking was found to be statistically significant in evaluating the variance of financial performance of commercial banks in Kenya during covid 19 pandemic. One unit increase in internet banking holding agency banking and mobile banking constant will lead to increase in financial performance of commercial banks in Kenya during covid 19 pandemic by 0.5999821. The respondent agreed that banks have the capacity to serve all its customers and acquire more customers (mean of 3.57) followed by Internet connectivity cost (affordability of internet services) have improved since the outbreak of covid 19 in the year 2020 (mean 3.1) followed by the internet banking services have improved (efficiency) since the outbreak of covid 19 pandemic in the year (2020 mean 3.09) followed by banks have effectively improved cyber-security related safety structure since the

outbreak of covid 19 pandemic in the year 2020 (mean of 3.06) and finally security is the key factor that influences the use of internet banking since the outbreak of covid 19 in the year 2020 (mean of 1.98)

5.2.4 Findings on agency banking

Based on findings of this research, agency banking was found to be statistically significant in measuring the variation of financial performance of commercial banks in Kenya during covid 19 pandemic, if internet banking and mobile banking are kept constant an increase in one unit of agency banking increases financial performance of commercial banks by 0.2625391. The respondent agreed that the use of agency banking services have improved on efficiency and reduced the need of ATM since the outbreak of covid 19 pandemic in the year 2020 (mean of 3.1) followed by agency banking have reduced the total banking cost since the outbreak of covid 19 pandemic in the year 2020 (mean of 3) followed by total number of customers have increased due to the wide spread of the number of agents spread across the country since the outbreak of covid 19 pandemic in the year 2020 (mean of 2) followed by Customer service agent have reduced total customer service cost and more convenient since the outbreak of covid 19 pandemic in the year 2020 (mean of 2) and finally agency transaction cost t (affordability of agency banking services) have improved since the outbreak of covid 19 in the year 2020 (mean of 1.5).

5.2.5 Findings on financial performance

In regards to the financial performance, the respondents agreed that use of internet banking have positive impact on financial performance of commercial bank since the outbreak of covid

19 pandemic in the year 2020 (mean of 3.3) followed by increase in the spread of agents across the country increase the number of customers served since the outbreak of covid 19 pandemic (mean of 3.2) followed by the use of agency banking services have improved on efficiency and reduced the need of ATM since the outbreak of covid 19 pandemic in the year 2020 (mean of 3.1) followed by digital finance has a positive impact on financial performance of commercial banks if other factors are kept constant since the outbreak of covid 19 pandemic in the year 2020 (mean of 3.1) and finally the use of mobile banking improved financial performance of commercial banks in Kenya since the outbreak of covid 19 pandemic (mean of 2)

5.3 Conclusion of the study

According to the regression analysis carried out by the researcher, the study showed that at 5% significance level and 95% confidence level, mobile banking, agency banking and internet banking influence financial performance of commercial banks in Kenya during covid 19 pandemic. They all have positive impact on financial performance. An increase in mobile banking increase financial performance, similarly an increase in agency banking and internet banking increases financial performance of commercial banks in Kenya. At 5% significance level and 95% confidence level, mobile wallet was found to be statistically insignificant. This study concluded that mobile banking, agency banking and internet banking has positive contribution on financial performance of commercial banks in Kenya while mobile wallets have no positive influence on financial performance of commercial banks.

5.4 Recommendations to policy makers

This study concentrated on effects of digital finance on financial performance of commercial banks in Kenya. Mobile banking, agency banking and internet banking were found to have significant influence to financial performance, in practice this research will be of more importance to the different stakeholders in the country to ensure they embrace the use of digital banking even after covid 19 pandemic. This will improve on customer service delivery and customer satisfaction. However, this study could not make recommendations on the mobile wallets since it was found to be statistically insignificant. The findings of this research is important to customers in such a way that they will utilize in full the use of digital banking because they will be able to cut down the cost they incur in order to access banking services like travelling cost and many more cost. Very few research have been carried out on effect of digital finance on financial performance of commercial banks in Kenya since the outbreak of covid 19 pandemic therefore, this research will be helpful to future researchers. Bank managers can use this study to identify areas that require improvement to ensure maximum benefits from digital banking at affordable cost.

5.4.1 Recommendation of mobile banking

In this study, mobile banking was found to be statistically significant in explaining the variance of financial performance. Bank managers are required to reduce mobile banking transaction in order to encourage more customers to use mobile banking platforms while carrying out banking transactions in steady of physical visit to the bank during and after covid 19 pandemic which is cost effective compare to physical visit to the banking hall, in different cases

banks trains their customers through social media on how to carry out banking transaction using their mobile phone. Therefore customers are encouraged to utilize mobile banking platform instead of wasting time and resources travelling to the banks in order to transact.

5.4.2 Recommendation of agency banking

In this study, agency banking was found to be statistically significant in explaining the variance of financial performance. Bank managers are encouraged to distribute bank agencies in small towns as it makes it easy for the customers to access banking services and it is also cost effective to both bank and the customers at the same time. In most cases banks trains their customers through social media on the importance of agency banking during cash withdrawal, cash deposit and also access of their accounts. Therefore customers are encouraged to utilize agency banking platform instead of traveling to banks to carry out transactions like cash deposit and cash withdrawal because bank agents are available even in rural areas hence improvement on financial performance of commercial banks which has positive impact on the economic growth of the country.

5.4.3 Recommendation of internet banking

In this study, online banking was found to be statistically significant in explaining the variance of financial performance. The bank personnel are encouraged to partner with telecommunication companies in order to make internet more affordable hence encouraging customers to utilize internet banking platform which is more convenient compare to physical visit to the bank. In most cases banks trains their customers through social media on how to carry

out banking transaction online. Therefore customers are encouraged to utilize online banking platform instead of wasting time and resources travelling to the banks in order to transact.

5.4.4 Recommendation of mobile wallets

According to the finding of this research, mobile wallets was found to be statistically insignificant. This hindered the researcher from coming up with further recommendation on the same.

5.5 Limitation of the study

This study concentrated on commercial banks in Kenya and not all the firms in Kenya that uses digital finance during covid 19 pandemic therefore the result for the study is likely to benefit only banking sector but not the entire industries in Kenya.

This study used primary methods of data collection, this method involved the use of questionnaires which were administered to the respondents, this method needs enough time to scrutinize them after returned from the respondents, time factor was a major limiting factor during this study period.

This study concentrated only on digital finance of commercial banks leaving other factors that are likely to affect the financial performance of commercial banks in Kenya during covid 19 pandemic and the study concentrated on banks leaving out other financial institutions and organizations that uses digital finance, therefore the result for the study may also be limited to benefit the banking sector and future researchers only and not the entire economy of the country. Due to limited time and resources needed during this study the researcher only covered banks within Nairobi region leaving out other parts of the country. This could be of benefit because it

would provide entire picture on the effect of digital finance on financial performance of commercial banks in Kenya, also it would be important to potential customers in other parts of the country.

Finally, the respondents had limited trust to the researcher, some of them thought that the researcher was investigating them on one way or the other, moreover the researcher had financial limitations during this study i.e., transport cost, printing, typing, stationary and other expenses that were required during the study.

5.6 Areas for further study.

Research should be carried out on the effect of digital finance on financial performance of commercial banks in Kenya in other parts of the country, also further research is required on other profit-making organizations that utilizes digital finance. Future study should apply different research instruments like use of secondary data as opposed to use of primary data (questionnaires) used in this study in order to come up with comprehensive report on the entire sector.

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APPENDICES

Appendix I: List of commercial banks in Kenya as at 31 December 2021

- 1) Standard Chartered Bank Kenya Ltd
- 2) Paramount Universal Bank Ltd
- 3) Family Bank Limited
- 4) Equity Bank Ltd
- 5) Eco bank Kenya Ltd
- 6) Diamond Trust Bank Kenya Ltd
- 7) Credit Bank Kenya Ltd
- 8) Chase Bank Kenya Ltd
- 9) CFC Stanbic Bank ltd
- 10) Bank of India
- 11) Dubai Bank Kenya Ltd
- 12) Development Bank of Kenya Ltd
- 13) Trans-National Bank Ltd
- 14) Prime Bank Ltd
- 15) NIC Bank Ltd
- 16) National Bank of Kenya Ltd
- 17) K-Rep Bank Ltd
- 18) Kenya Commercial Bank Ltd
- 19) Imperial Bank Ltd
- 20) I & M Bank Ltd
- 21) Gulf African Bank Ltd
- 22) Guardian Bank Ltd
- 23) Guarantee Trust Bank Ltd
- 24) First Community Bank Limited
- 25) Giro Commercial Bank Ltd
- 26) Fidelity Commercial Bank Ltd
- 27) Co-operative Bank of Kenya Ltd
- 28) Consolidated Bank of Kenya ltd
- 29) Commercial Bank of Africa Ltd
- 30) Citibank N. A Kenya
- 31) Barclays Bank of Kenya Ltd
- 32) Bank of Baroda Kenya Ltd
- 33) Bank of Africa Kenya Ltd
- 34) Africa Banking Corporation Ltd
- 35) Victoria Commercial Bank Ltd
- 36) Housing Finance Corporation
- 37) UBA Kenya Bank Limited
- 38) Oriental Commercial Bank Ltd
- 39) Jamii Bora Bora Bank Ltd

- 40) Equatorial Commercial Bank Ltd
- 41) Habib Bank Ltd
- 42) Kenya Women Finance Trust (KWFT) Bank

Source: Central Bank of Kenya (2021)

Appendix II: List of commercial banks in Kenya offering digital finance services as at 31 December 2021

- 1) Standard Chartered Bank Kenya Ltd
- 2) Paramount Universal Bank Ltd
- 3) Family Bank Limited
- 4) Equity Bank Ltd
- 5) Eco bank Kenya Ltd
- 6) Diamond Trust Bank Kenya Ltd
- 7) Credit Bank Kenya Ltd
- 8) Chase Bank Kenya Ltd
- 9) CFC Stanbic Bank Ltd
- 10) Bank of India
- 11) Dubai Bank Kenya Ltd
- 12) Development Bank of Kenya Ltd
- 13) Trans-National Bank Ltd
- 14) Prime Bank Ltd
- 15) NIC Bank Ltd
- 16) National Bank of Kenya Ltd
- 17) K-Rep Bank Ltd
- 18) Kenya Commercial Bank Ltd
- 19) Imperial Bank Ltd
- 20) I & M Bank Ltd

- 21) Gulf African Bank Ltd
- 22) Guardian Bank Ltd
- 23) Guarantee Trust Bank Ltd
- 24) First Community Bank Limited
- 25) Giro Commercial Bank Ltd
- 26) Fidelity Commercial Bank Ltd
- 27) Co-operative Bank of Kenya Ltd
- 28) Consolidated Bank of Kenya ltd
- 29) Commercial Bank of Africa Ltd
- 30) Citibank N. A Kenya
- 31) Barclays Bank of Kenya Ltd
- 32) Bank of Baroda Kenya Ltd
- 33) Bank of Africa Kenya Ltd
- 34) Africa Banking Corporation Ltd
- 35) Victoria Commercial Bank Ltd
- 36) Housing Finance Corporation
- 37) UBA Kenya Bank Limited
- 38) Oriental Commercial Bank Ltd
- 39) Jamii Bora Bora Bank Ltd
- 40) Equatorial Commercial Bank Ltd
- 41) Habib Bank Ltd
- 42) Kenya Women Finance Trust (KWFT) Bank

Source: Central Bank of Kenya (2021)

Customers have positive attitude towards use of mobile banking					
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Part C: Mobile wallet and financial performance of commercial banks during covid 19 pandemic.

In the below table please indicate your views in relation to the mobile wallet by ticking on 5=strongly agree, (SA) 4= agree (A), 3=neutral (N), 2= disagree (D) and 1=strongly disagree (SD).

Variables	SA	A	N	D	SD
Mobile wallet provide customers with easy access to real time banking services					
Mobile wallet provide customers with easy access to value-added mobile banking services					
Customers finds it easy to carry out transactions using mobile wallet while carrying out transactions like shopping in the supermarket without any difficulties.					
Access of customer account using mobile wallet while shopping is secure and risk free. Customers information is safe through use of mobile phone					
Customers have positive attitude towards use of mobile wallet during shopping					

Part D: Internet banking and financial performance of commercial banks during covid 19 pandemic.

In the below table please indicate your opinion in relation to the internet banking by ticking on 5=strongly agree, (SA) 4= agree (A), 3=neutral (N), 2= disagree (D) and 1=strongly disagree (SD).

Variables	SA	A	N	D	SD
Internet connectivity cost (affordability of internet services) have improved since the outbreak of covid 19 in the year 2020					

The internet banking services have improved (efficiency) since the outbreak of covid 19 pandemic in the year 2020					
Banks have the capacity to 11					
Banks have effectively improved cyber-security related safety structure since the outbreak of covid 19 pandemic in the year 2020					
Security is the key factor that influences the use of internet banking since the outbreak of covid 19 in the year 2020					

Part E: Agency banking and financial performance of commercial banks during covid 19 pandemic.

In the below table please indicate your opinion in relation to the agency banking by ticking on 5=strongly agree, (SA) 4= agree (A), 3=neutral (N), 2= disagree (D) and 1=strongly disagree (SD).

Variables	SA	A	N	D	SD
Agency transaction cost t (affordability of agency banking services) have improved since the outbreak of covid 19 in the year 2020					
The use of agency banking services have improved on efficiency and reduced the need of ATM since the outbreak of covid 19 pandemic in the year 2020					
Agency banking have reduced the total banking cost since the outbreak of covid 19 pandemic in the year 2020					
Total number of customers have increased due to the wide spread of the number of agents spread across the country since the outbreak of covid 19 pandemic in the year 2020					
Customer service agent have reduced total customer service cost and more convenient since the outbreak of covid 19 pandemic in the year 2020					

Part E: Financial performance of commercial banks during covid 19 pandemic.

In the below table please indicate your opinion in relation to the financial performance by ticking on 5=strongly agree, (SA) 4= agree (A), 3=neutral (N), 2= disagree (D) and 1=strongly disagree (SD).

Variables	SA	A	N	D	SD
Did the use of mobile banking improved financial performance of commercial banks in Kenya since the outbreak of covid 19 pandemic					
The use of agency banking services have improved on efficiency and reduced the need of ATM since the outbreak of covid 19 pandemic in the year 2020					
Use of internet banking have positive impact on financial performance of commercial bank since the outbreak of covid 19 pandemic in the year 2020					
Increase in the spread of agents across the country increase the number of customers served since the outbreak of covid 19 pandemic					
Digital finance has a positive impact on financial performance of commercial banks if other factors are kept constant since the outbreak of covid 19 pandemic in the year 2020					

THANK YOU FOR YOUR RESPONSE

