

**FACTORS OF MOBILE BANKING AFFECTING PERFORMANCE
OF TIER ONE BANKS IN KENYA**

BY

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DECLARATION

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

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ABSTRACT

The study sought to determine the factors of mobile banking that affect the performance of tier one commercial banks in Kenya. The study's specific objectives were; to establish how mobile banking transaction volume affect financial performance of tier one banking institutions in Kenya; to establish how mobile banking transaction costs affect financial performance of tier one banking institutions in Kenya; to establish how mobile banking products financial performance of tier one banking institutions in Kenya; and to establish how mobile banking accessibility affect financial performance of tier one banking institutions in Kenya. The study was underpinned by various theories which include Schumpeterian theory of innovation, the market power theory, task technology fit theory, and technology acceptance theory respectively. The research used a descriptive research design, in which quantitative data was collected from 8 tier one commercial banks in Kenya, covering the years 2015 to 2019. Data was collected from bank repositories as well as CBK's publications. Data was analyzed using descriptive statistics and results are displayed using tables and figures. In relation to objective one, it has been found that mobile banking increases transaction volume and this significantly and positively enhances financial performance. The findings related to objective two have confirmed that mobile banking reduces transaction costs for banks to maximize on their profits. The outcomes related to objective three indicate that mobile banking has introduced variety of services and products and this contributes to the overall performance of the banks. As concerns objective four, mobile banking has been found to enhance accessibility and this increases transaction volumes that are impeccable in promoting financial performance. The results of the study revealed that mobile banking is an important and necessary strategy in the modern banking environment for purposes of improved financial performance and increased of competition. This is backed up from the obtained statistics in which case there was a positive correlation between mobile banking and financial performance. Further, the findings support the fact that ensuring easy accessibility of the banks' services through mobile banking promotes convenience and give customers opportunities to transact frequently than when it is through the counter. Moreover, the research outcomes support the fact that mobile banking accessibility for 24 hours, irrespective of geographic locations, is a very important strategy that banks are depending on to ensure financial performance is promoted. The results also indicate that, increasing the number of products or services that can be accessed through mobile banking means multiple sources of revenues for the banks. This was supported by obtained statistics in which a positive correlation was noted. The study has provided a number of recommendations for policy action and future scholarly work on this area.

Key Words: Mobile Banking, Transaction Costs, Transaction Volume, Mobile Banking Accessibility, and Mobile Banking Products

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DEDICATION

This proposal is dedicated to my family, my friends and my spiritual father.

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ACRONYMS AND ABBREVIATIONS

CBA:	Commercial Bank of Africa
CBK:	Central Bank of Kenya
DTB:	Diamond Trust Bank
ICT:	Information Communication Technology
KCB:	Kenya Commercial Bank
NSE:	Nairobi Securities Exchange
ROA:	Return on Assets
ROE:	Return on Equity
SMEs:	Small and Medium Enterprises
SMS:	Short Message Services
UK:	United Kingdom
US:	United States

CHAPTER ONE

INTRODUCTION

1.1 Background to Study

The study focused on the factors affecting the performance mobile banking of tier one banks in Kenya. With technological advancements, many industries are experiencing a paradigm shift in day-to-day operations, and the banking sector is not an exception. Moreover, with an increased level of competitiveness in the global market, financial institutions must also keep up with the emerging trends for purposes of business continuity and sustainability. More importantly, financial performance has become a major concern of all sectors, precisely the stakeholders, as this is the main platform that interests of various stakeholders can be measured whether they are being met or not. According to Otieno (2018), mobile banking is one of the most revolutionary inventions in the banking sector, which has improved efficiency, not only to the banks in terms of operations, but also to a large extent on the part of customers who can now perform their banking transactions conveniently and remotely.

In view of Milos and Marina (2016), the changes being experienced all over the world in terms of technological disruptions and transformations has sparked new dimensions in strategic management of commercial banks. Precisely, banks have been given platforms and are now able to embrace numerous and new platforms in distributing their banking services to their existing and potential customer base. In addition to this, the author argues that the appearance of smart phones has changed the dynamics greatly, indicating that a greater integration opportunity has been provided to the banking sector, connecting the clients with the banks globally irrespective of the geographical locations of the customers. More importantly, mobile banking has continued to gain increased acceptance and relevance in the modern market as the world is rapidly becoming digitally transformed.

Similarly, Bharti (2016) argues that mobile banking is becoming common in the present banking environment, not just because of its perceived dimensions and relevance, but largely because of the fact that there are many mobile or smart phones in the society than there are computers. Nonetheless, the author further agrees that the dimensions of mobile banking emerge as the second most important reason for its increased adoption, citing dimension such as convenience, enhanced security, improved efficacy, and customer satisfaction among others. Contrary to the assertion that mobile banking is gaining dominance in the market, Bharti (2016) further notes that it has not been adopted in all banks especially in the developing countries. As such, the current research seeks to examine the extent to which mobile banking has been adopted in the Kenyan commercial banks under tier one, and how this has impacted their operations and precisely financial performance. The background section will in this case be further split into subsections, namely; the concept of mobile banking, the concept of tier one in banking sector, financial performance in the banking sector, and tier one banking institutions in Kenya respectively.

1.1.1 Factors that Trigger Use of Mobile Banking

Mobile banking has continued to become of the most sought techniques in the banking sector due to its ability to enhance competitiveness. It is a service that banks provide to their customers to enable them to carry out financial transactions using their mobile devices such as smart phones or tablet (Coderias, 2017). Ndirangu (2014) on the other hand defines mobile banking as the procedure of starting and finishing banking transactions through the use of mobile devices that allows customers to regulate the use of diverse services. Ndirangu (2014) further argues that mobile banking also entails the use of electronic devices to facilitate accessibility as well as delivery of various financial services.

The distinction that exists amid mobile banking and other modes of banking that are paper based is that customers do not require making actual visits to banking institutions. Mwangi (2013)

however indicates that there is need to distinguish amid mobile banking and electronic banking since they share various similarities. According to Mwange (2013), mobile banking is a distinct product and technological innovation in the banking sector that is different from the electronic banking where the internet is used to enhance diverse financial transactions. Otieno (2018) however notes that despite the concept of mobile banking being adopted by a large proportion of commercial banks to enhance their profit margins and competitiveness, there is minimal scientific exploration that has looked in to the concept especially in the developing world.

Kenya has continued to embrace mobile banking as a strategy of enhancing the development of various economic activities. A research by Njoroge and Mugambi (2018) identified that diverse commercial banks have embraced diverse mobile banking to enhance customers' accessibility to banking services, minimize costs associated with diverse transactions as well as provide opportunities for the institutions to provide services to existing as well as potential clients. In an attempt to find out why Equity customers preferred mobile banking applications, Njoroge and Mugambi (2018) identified that the application was recognized to be not only cheap and easily accessible, but also convenient to customers irrespective of their geographical location.

Kiprop, Ayuma and Kemboi (2016), indicated that mobile banking in Kenya had contributed in enhancing the financial performance of banks in Kenya especially due to its ability to track loan borrowers as well as allow customers to access as well as transfer funds to with ease. The authors concluded that mobile banking increased the volume of financial transactions, which consequently improve the financial attainment of commercial banks. Mohammed (2019) in a research that focused on 43 registered banks in Kenya also identified that mobile banking was constructively linked to the financial attainment of commercial banks due to its ability to improve the delivery of financial services and enhance management of consumer information. Mohammed (2019) however indicated that whilst mobile banking was beneficial to commercial banks, there was

need to research on the extent the technological development had been enhanced to enhance accessibility in remote areas.

1.1.2 Tier-One in Banking

Tier 1 banks refer to the banks that are large in size and whose assets are in billions thus reducing the probability of financial failure they are considered to be the top ranking institutions since they have millions of customers and that they have conducted their operations in the country for many years (Gupta, 2017). They are considered to be the safest banks for customers to keep their money since the risk of collapse is minimal due to the high profits that are made each year (Gupta, 2017). Tier 1 banks constitute almost half to Kenyan market, which is 49.9%. Founded on the reports provided by the Central Bank of Kenya, Tier one banks have indices of above 5% (Gupta, 2017). In overall, Tier 1 banks are classified as the top most banks than others in terms of the market share they hold, proportion of deposits made by customers and asset base. Any failure in the asset foundations of Tier 1 banks would have a significant detrimental impact on the Kenyan economy, requiring the government to establish measures of averting the rise of a financial crisis (Hodgkinson, Chadha, Todi, Kumar, Davidsen, Hayward & Fletcher, 2015). The eight major banks that are classified in the Tier 1 system include; Kenya Commercial Bank (KCB), Equity Bank, Cooperative Bank, Barclays Bank, Commercial Bank of Africa (CBA), Standard Chartered Bank, Stanbic Bank, Diamond Trust Bank (Hodgkinson et al., 2015). The research will therefore focus on the impact of mobile banking in each of the banks. The research will however focus on the head office banks rather than branches to increase the accuracy of the research findings.

Tier 1 capital is the key measure of the financial strength of banks from the viewpoint of the regulator. It is mainly comprises of the common stock, retained earnings and the non-redeemable preferred stock (Gupta, 2017). On the other hand, Tier I capital ratio is the quotient of the equity capital of a bank to its total risk-weighted assets (Hodgkinson, Chadha, Todi, Kumar, Davidsen,

Hayward & Fletcher, 2015). Risk-weighted assets entail all the total assets that are held by banks as evaluated by the central bank of Kenya. Some assets such as cash and currency are recognized to have risk weight of zero while some loans are have a risk weight of 100% (Hodgkinson et al., 2015). In overall, tier one capital shows the amount of money that a bank has to cater for all risks that emanate from its activities like lending and trading (Gupta, 2017). Being the main source of funding for financial institutions, Tier 1 capital assists banks to absorb losses without stopping their operations. The recommended minimum tier 1 capital for banks is 10.5%.

The policies that have been created by the Central Bank of Kenya to control the operations of commercial banks are constantly reviewed to ensure that there is adequate supervision of bank operations (Hodgkinson et al., 2015). Moreover, the banking act of Kenya has also be re-evaluated so as to ensure that the tasks of banks are not only increased but also streamlined according to the set regulations (Gupta, 2017). Tier I banking institutions are members of the Bankers Association of Kenya (BAK) that allows for negotiations on matters that affect the efficient delivery of banking services. The categorization of banks in different tiers is fundamental for the progress of different sectors like trade and infrastructure as each category of banks has specific targets for diverse sectors in Kenya (Hodgkinson et al., 2015). Whilst Tier 1 banks are playing a significant role in enhancing the monetary expansion in Kenya, there are concerns that the rate of capital creation in Kenya is low despite the fact that financial institutions are encouraging individuals to save (Gupta, 2017).

1.1.3 Financial Performance

Financial performance entails the financial soundness where the funds of depositors are considered to be safe and in a steady system of banking. The financial performance of commercial banks can be considered to be strong or unsatisfactorily at a given time (Mbama, 2018). There are diverse external aspects that influence the financial soundness of commercial banks such as having inadequate data of customers, homogeneity of the services that are offered by banks and

deregulation (Kwon and Lee, 2017). The actions that are conducted in mobile banking have a significant impact on the financial attainment of commercial banks. The key aspects that determine the financial performance of banks include; adequacy of capital, quality of assets, asset management, liquidity, earning and sensitivity assessment (Kwon and Lee, 2017).

The financial attainment of banking institutions is evaluated by external parties who determine the abilities of the institutions. High financial attainment is only realized when institutions meet both internal and external goals of organizations. Some of the alternative words that are used in place of financial performance include success, growth, financial, competitiveness and sustainability (Vedran & Danijela, 2018). The main elements of financial performance include; customer-based performance, financial and market attainment, human resource attainment and firm effectiveness. Customer based evaluation looks in to such aspect as the level of customer satisfaction while financial attainment evaluates diverse factors like revenue, profit margins, earnings per share, the market position of banks (Vedran & Danijela, 2018). Human resource attainment looks in to the level of workers' satisfaction while firm effectiveness entails such aspects as the level of innovation of new products and flexibility of the supply chain (Vedran & Danijela, 2018).

The performance of organizations can be measure using financial and non-financial indicators; most commercial banks however prefer to evaluate their performance based on financial aspects (Akwesi, Migiro & Mutambara, 2018). The common financial indicators that are used to measure the financial performance of banks include; Return on Assets (ROA), Net profits and Return on Investments (ROI). Other indicators that are used include; market share, level of stakeholder satisfaction, productivity and competitive position (Akwesi et al., 2018). Whilst using financial indicators is important, using both financial and non-financial elements is considered to be

fundamental to help commercial banks to adapt to changes in the internal and external environment (Agwu and Adele, 2014).

The financial performance of commercial banks is influenced by diverse factors, which are either internal (specific to a bank) or internal (macroeconomic). Both internal and external determinants of bank performance affect the overall output of organizations (Kwon and Lee, 2017). Internal factors entail the individual characteristics of financial institutions that influence bank attainment. Some of the internal factors that affect bank performance include; bank size, cost of operations, liquidity and adequacy of capital, credit risk and company ownership (Akvesi, Migiro & Mutambara, 2018). The decisions made by the management and board of commercial banks determine the extent in which internal factors affect organizational performance. External factors on the other hand entail the country-wide aspects that banks are not able to control but which affect their profitability margins (Vedran & Danijela, 2018). The main external aspects that have a direct or indirect impact on bank performance include; interest rates, competition, innovation, inflation rates and the gross domestic product of a nation (Agwu and Adele, 2014). Whilst external factors cannot be controlled, effective management of internal factors increases the success rate of banks (Kwon and Lee, 2017).

1.1.4 Banking Institutions in Kenya

According to the Central Bank of Kenya, there are 43 public and private commercial banks and mortgage financial institutions in Kenya (CBK, 2015). Public commercial banks have the highest proportion of shareholders being the government and state corporations while private financial institutions are owned by private owners (Shaikh and Heikki, 2015). The privately owned financial institutions are owned by both Kenyan and foreign nationals. The banking sector in sector in Kenya has undergone diverse changes in the recent past such as the establishment of new regulatory requirements, mergers and acquisitions and enhanced competitiveness. It has thus become

important for banks to use technology to increase sales, manage their operations as well as fulfill the changing needs of customers (Mohamed, 2019).

With the rise of globalization, technological advancement has become important for the realization of growth in the banking sector. Financial performance entails a comparison of actual firm results or outcomes in comparison to set goals (Shaikh and Heikki, 2015). As a result, financial institutions in Kenya continue to strive to use their resources to for the exploitation of new opportunities and minimization of threats such as increased competition due to the development of new innovations by other financial players in Kenya (Mohamed, 2019). It thus becomes fundamental to adopt technological change in order to remain competitive in the sector and to differentiate themselves from other service providers (Akvesi et al., 2018). To simplify banking procedures, banks have come up with new approaches of simplifying banking transactions such as the use of mobile banking that allow customers to conduct their transactions with ease. Some of the common mobile banking products that are available in Kenya include; Equity Bank Mkesho, KCB mobi bank, Family bank Pesa pap and Mshwari of Commercial bank of Africa (Akvesi et al., 2018).

The adoption of mobile banking has brought about a significant revolution in the functioning of commercial banks in Kenya (Mohamed, 2019). Some of the operations of commercial banks that have been revolutionized include; opening of new bank accounts, processing and recording of transactions and account management (Shaikh and Heikki, 2015). Further, mobile banking has been recognized to minimize operational costs, streamline banking operations, improve the customer base and create a platform for global banking (Akvesi *et al.*, 2018). In addition to boosting the prospect of the banking sector, the introduction of mobile banking has increased the adoption of mobile phones in the Kenyan population as well as resulted to a rapid rise in mobile

payments (Mohamed, 2019). The use of new technology like mobile banking by commercial banks is inevitable as it is an approach of increasing their competitive advantage.

1.2 Statement of the Problem

Mobile banking is a distinguishable innovation in the financial sector with various merits that increase the competitiveness of commercial banks in Kenya (Akvesi et al., 2018). Empirical findings have shown that developing countries like Kenya have not been able to fully reap the benefits of technological developments especially in mobile banking due to diverse factors. On the one hand, there are concerns that mobile banking is likely to result to the disclosure of customers' sensitive data through such means as cybercrimes as indicated by Agwu and Adele (2014). A report by Central Bank of Kenya in 2017 supports this outcome by indicating that whilst mobile banking is advantageous, commercial banks should be ready to deal with the increasing cases of cyber security that are resulting from the use of digital modes of banking. According to CBK's Annual Report, there have been diverse improvements in the banking sector such as the usage of the Internet for banking as well as mobile banking. The report however warns that the developments including use of mobile and online banking have increased financial risks in the sector.

In regard to the performance indicators of Kenyan Commercial Banks, Onsarigo and Murugesan (2014) indicated that the development of new technology has resulted to the decline in the profitability of banks as well as their competitiveness. In support of the outcomes, Oganda, Mogwambo and Otieno (2019) highlighted that the banking sector was experiencing liquidity challenges such as market risks and funding. Further, the research showed that mobile banking had increased the proportion of non-performing loans in commercial banks like Equity Bank and National Bank of Kenya which reduced the financial attainment of the institutions. The finding confirmed the outcome attained by Mohamed (2019) that an increase in the proportion of non-performing loans was one of the risk associated with mobile banking. Although empirical evidence

reveal that mobile banking improves accessibility of bank services by customers and has a positive correlation with performance of 67.70% increase at 95% confidence interval as revealed by Hani (2019), the scope of Hani (2019) focused on commercial banks in general while the current research sought to examine tier one commercial banks only.

Upon comparison of diverse affirmations of different scholars, it is evident that there exists a gap in literature that requires to be addressed. In particular, whilst some scholars are of the view point that mobile banking boosts the financial attainment of commercial banks, others mention that adoption of mobile banking in commercial banks has led to the increment of diverse financial and security risks. Moreover, an evaluation of financial results of commercial banks with the continued adoption of mobile technology has shown that the financial performance of the institutions has not reflected the positive influence of the concept as initially anticipated. It was thus important to conduct the present investigation to address the gap as highlighted by Akwesi *et al.* (2018) who indicate that researchers had failed to focus on pertinent aspects relating to mobile banking such as evaluating the needs of mobile banking, factors that affect the continued usage of mobile banking and the impact of the mobile banking on the attainment of commercial banks' performance goals. As a result, the present investigation focused on the latter concept on the factors of mobile banking that affect the financial performance of commercial banks, as the main research problem to be addressed.

1.3 Research Objectives

The general objective of the study is to establish the factors of mobile banking affect the financial performance of tier one banks in Kenya. The following are the specific objectives;

- (i) To establish the effect of transaction volumes on financial performance of tier one banking institutions in Kenya.

- (ii) To establish the effect of transaction costs on financial performance of tier one banking institutions in Kenya.
- (iii) To establish the effect of product variety on financial performance of tier one banking institutions in Kenya.
- (iv) To establish the effect of accessibility level on financial performance of tier one banking institutions in Kenya.

1.4 Research Questions

- (i) How can mobile banking transaction volumes on financial performance of tier one banking institutions in Kenya?
- (ii) How can mobile banking transaction costs on financial performance of tier one banking institutions in Kenya?
- (iii) How can mobile banking product variety on financial performance of tier one banking institutions in Kenya?
- (iv) How can mobile banking accessibility level on financial performance of tier one banking institutions in Kenya?

1.5 Significance of the Study

The study will be of paramount significance to the banking sector in Kenya, particularly the tier one commercial banks. Research outcomes will be informative to policy makers in the banking sector in recognizing the strategic plans that require to be implemented to facilitate financial attainment. The Central Bank of Kenya will also gain insight on its role in regulating and overseeing the operations of commercial banks in Kenya in terms of developing policies that favor technological innovation and realization of enhanced profits for banks. The research outcomes will also improve on existing literature on impact of mobile banking on financial attainment by addressing the knowledge gaps identified in the problem statement. Lastly, the researcher will gain insight on mobile banking in the modern financial environment in developing countries like Kenya.

1.6 Scope of the Study

The study's scope is limited to tier one commercial banks in Kenya, which are eight in number and they include; Kenya Commercial Bank (KCB), Equity Bank, Cooperative Bank, Barclays Bank, Commercial Bank of Africa (CBA), Standard Chartered Bank, Stanbic Bank, Diamond Trust Bank (DTB). The research will only focus on the head office banks of each of the selected institutions to increase accuracy of the research outcomes. The study will be carried out between February 2020 and March 2021.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

The section reviews scholarly findings on the concept of mobile banking to aid in the identification of knowledge gaps in the area. Moreover, the section also evaluates various theoretical foundations related to mobile banking. The last segment of the chapter presents the conceptual framework that shows the connection amid the independent and dependent variables of the exploration.

2.2 Theoretical Review

The specific focus of the chapter is to debunk existing theoretical affirmations on mobile banking in the financial environment. The specific theories to be evaluated include; Schumpeterian Theory of Innovation, Technology Acceptance Theory, Task Technology Fit Theory and the Market Power Theory.

2.2.1 Schumpeterian Theory of Innovation

Schumpeterian Theory of Innovation was developed by Schumpeter as the main proponent of the theory in 1934 (Schumpeter, 2016). Schumpeter highlighted that innovation was the basis for realization of competitiveness and profitability since it aided in the fulfillment of customers' needs (Ahlstrom, 2010). Founded on the theory, entrepreneurs with the focus to bring about changes in the environment were the central innovators in the innovation model (Fornahl, Broekel & Boschma, 2011). Further, the theory recognizes that societal growth is realized only when individuals hold antagonistic perceptions concerning ideologies. Availability of distinctions among individuals results to the development of innovations that seek to provide solutions to the various gaps in society (Westland, 2016). Schumpeter indicated that the desire to establish new innovations made entrepreneurs to combine diverse resources for the development of new products (Ziemnowicz,

2020). According to Schumpeter, there was an inverse relationship amid innovation and opposition to change which made it possible for individuals to use existing resources to attain growth and enhance performance in different sectors (Schumpeter, 2016).

Schumpeter's affirmation was however contradictory to that attained by Keynes concerning the forces of economic growth (Hoque, 2013). According to Schumpeter, innovations are not in a continuous association with time due to the human skills and capabilities required in establishing new innovations (Swedberg, 2013). The theory highlights that changes occur through mutual attraction in those successful entrepreneurs attract other innovative business people in a given geographical area or sector (Humphrey, 2019). The limitation of the theory is its inability to expound on the foundations of innovation despite being able to explain about its importance as well as its role in economic cycles (Peilei, 2011). Other scholars like Porter (1992) supported Schumpeter's ideologies that innovation coupled with upgrading of production systems is significant for the realization of improved economic growth and development.

Despite Schumpeter's numerous contributions to the importance of innovation in commercial and industrial developments, his theory has been criticized for a number of weaknesses. Firstly, it is not possible to undertake an objective evaluation of the cyclical nature of developments argues about, as this concept is rather sociological in nature as opposed to being economical, which is the main focus of business performance and development (Westland, 2016). Secondly, Schumpeter does not explain in detail the causes of economic variations especially when the economy is equilibrium and stable conditions, a fact that has been the case in many instances on a global economy. Finally, the theory does not provide a detailed focus on all factors that are responsible for causing fluctuations in the market, as it puts emphasis on innovation as the sole factor behind these fluctuations (Ziemnowicz, 2020). Nonetheless, if focus is put on innovation, then it implies that Schumpeter's theory can be used together with other theories and frameworks to

explain the causes of economic fluctuation and the specific strategies that can be taken into perspective to ensure that business success is achieved. Moreover, given that introduction of mobile banking is an innovative idea in the modern business environment, it implies that this theory is imperative in explaining the extent to which banking industry has faced numerous fluctuations from the basis of technological innovations (Schumpeter, 2016). Particularly, understanding the commercial benefits of innovation in the world especially in finance sector is important with the changing trends and demands from business models to consumer perspectives.

Founded on the tenets of the theory, it is interpreted that development of innovations in the banking sector like online and mobile banking is based on the needs assessment by various business persons in the banking industry in line with the changing customer demands. Further, innovations help the banking sector to be not only competitive but also sustainable. Schumpeterian theory however faces the limitation of not been able to explain the sources of mobile banking in the modern financial surrounding. Based on the fact that the theory recognizes the function of continuous innovations in diverse sectors such as banking, it is fundamental for this research. Precisely, the theory supports the objective of mobile banking product varieties that are evident in the modern market and how this improves financial performance of banks.

2.2.2 The Market Power Theory

The second theory under this study is the market power theory that was developed by Muller in the year 1983 (Davis, 2008). In reference to the theory, financial institutions such as banks have the capability of expanding their products as well as market share based on the superiority they establish on their goods and services. The theory indicates that it is fundamental for banking institutions to enhance their profitability through such means as offering diverse products and demanding higher prices for their products provided they are convenient to customers (Diaz, 2012). The focus of the theory is on two aspects namely; empowering business entities and empowering

customers while making sure that customer are attracted to products and that they have increased loyalty. The theory appreciates that innovations help banking institutions to not only streamline their actions but also improve overall operations that are conducted in banks. Market power theory argues that changes in the financial sector can only be realized when modifications are made to the financial regulatory framework. Improving the financial regulatory framework allows firms to develop strategies for creating sustainable competitive advantage (Roth, 2012).

The foundation and bottom line of market power is interpreted to mean that an organization has the ability and advantage of raising the prices of goods or services provided in the market without losing out in its customer base as well as competitiveness (Davis, 2008). This implies that players in any industry must be able to undertake in-depth research and development to establish the potential strategies they can put in place, so as to enable them raise prices. As a matter of fact, it is important to note from the theory that if these strategies are not examined and identified, it implies that when prices are raised, consumers will opt for the alternative services or goods in the market, thus, losing customers to competitors (Vatiero, 2010).

Further, the theory provides that the players in the market with this advantage are usually the price determinants or decision makers, and although they are not a monopoly, they do enjoy the benefits which can be considered to be of those in a monopolistic market. Moreover, this should not be affected by the government interventions through legislations where prices are determined and fixed, but should be the case in a free market (Vatiero, 2010). Contextualizing the theoretical assumptions in this model to the banking industry, it implies that commercial banks must embrace change and technological developments, such that they are able to offer their services with superiority in the market, and hence retaining their customers irrespective of the costs of operations. Additionally, the theory explains that to some extent market power gives firms the ability to engage in unilateral anti-competitive behavior. Some of the behaviors that firms with market power are

accused of engaging in include predatory pricing, product tying, and creation of overcapacity or other barriers to entry; specifically in a free market where prices are determined by the forces of demand and supply as opined by Roth, (2012). Nonetheless, it is also argued that market power does not only emerge as a result of controlling the pricing of services or products in the market, but also by controlling a large share of the market. In this case, it means that if a firm has innovatively been able to make its products or services to be appreciated and adopted by many consumers hence controlling a large portion of the market, then by default it acquires market power irrespective of the industry in which it belongs to.

Concerning performance paradigm, the theory affirms that performance of banking institutions is enhanced in two ways namely; increasing market power and the creation of numerous innovations that make products distinct as well as exceptional (Diaz, 2012). The theory however does not provide a criterion of evaluating competitiveness based on the ideology that industry players in diverse sectors pursue to apply the technologies that are used by their competitors in order to keep up-to-date with the changing technological trends. Additionally, market power theory fails to give a basis that can be used to examine the extent in which innovations in diverse banking institutions are distinct due to the fact that such innovations as mobile banking are common in most all banking institutions in the economy (Vatiero, 2010). Despite the limitations, the theory is significant in the research in that it shows that the improvements that are realized in banking institutions are due to favorable regulatory structures as well as drifting of the needs and preferences of customers. The model therefore supports mobile banking as one of the important innovations in the modern financial surrounding, thus, supporting the objective that sought to establish the effect of mobile banking accessibility level on financial performance of tier one banking institutions in Kenya.

2.2.3 Task Technology Fit (TTF) Theory

Founded on the theory, there is a high likelihood for financial institutions to attain high business performance when the information communication and technology abilities of the institutions do not match with the precise tasks that are to be performed (Cane McCarthy & Halawi, 2010). The theory emphasized the importance of conceptualization of technological factors and developments by recognizing the activities that are to be carried out by users. Some of the key stakeholders in the banking sector include administrators, workers and consumers. Technology therefore increases efficiency of interactions and communication in the banking sector (Kankanhalli, Tan & Wei, 2015). Based on the theory, it is important to have technological discoveries that are in line with the needs and demands of consumers in a given sector. For example, since the main goal of financial institutions is to facilitate financial transactions, technological developments in the sector help to enhance efficiency and convenience not only among customers but also in various operations that are conducted in monetary institutions.

The supporters of this theory argue that it is not just enough to have technological development suitable to an industry, but rather having a specific focus on the features which are needed in order to enhance efficiency in operations. In this regard, task technology suitability measure should be combined with utilization in understanding how significantly can performance and effectiveness be measured, especially with attributes drawn from the job characteristics depending on the industry being focused (Kankanhalli et al., 2015). In this view, an important relationship emerges which puts two dimensional aspects as independent, namely; task characteristics and technology characteristics respectively. Further, these two constructs are moderated by task technology fit to produce two dependent outputs, namely; performance impacts and utilization (Cane et al., 2010).

Ideally, this is an indication that the process of applying the theory in the actual decision making process must be founded on an inquiry to understand the evolving needs in a given market. For instance, in the recent past, there is a growing trend in which case consumers are buying and selling products online, hence creating a need to be able to access their funds online and make or receive payments (Kankanhalli et al., 2015). Additionally, online accessibility has also undergone tremendous changes and improvements, in which case mobile phones can be used to access different sites and accounts, making it even more necessary to come with platforms that are adaptable to the emerging trends (Cane et al., 2010).

As a matter of fact, this is the foundation of differentiating industry needs from other sectors, such that the developments to be achieved are industry specific tailored, in order to enhance efficiency and specificity (Cane et al., 2010). For instance, in the banking and finance sector, technology has got numerous demerits and challenges that are presented to it due to the adoption of online systems. A major example of such challenges is the security risks associated to technology use in which case hackers can easily access customer accounts and make drawings as well as bank transfers. In this case, it is important that when any remote advancement are made to provide ability to transact without physically visiting bank branches, it is important that mechanisms of authorizing such transactions are strategically devised to eliminate the likelihood of fraud and theft cases to increase. Further, this authorization system must clearly elaborate measures of locating such transaction and take an audit trail of such initiations and completion of the transactions. Additionally, it should be easy to ascertain the quality of services and transactions offered without delay and interference of other factors such as network connectivity, hence creating a need for mobile banking that does not entirely depend on availability of network from other providers. Moreover, such platforms should be compatible with most devices manufactured in the market by different players in order to capture a large pool of customers (Kankanhalli *et al.*, 2015).

Adoption of the tenets of the theory leads to the realization of higher sensitivity due to the fact that technological advancement can only be applied to a minimal range of services and sectors. The theory is thus applicable in the research in that advancement of mobile banking is only applicable in the banking sector. Mobile banking enhances such transactions like withdrawals, funds transfer, payment of bills and borrowing. The main factors that determine the suitability of a given technology in a given sector include; ease of usage and training, quality, compatibility, timeliness of production, reliability of systems and connection with users (Kankanhalli *et al.*, 2015). Grounded on the theory, innovations have to meet diverse criteria that make them to be not only relevant but also with the capability of increasing customers' satisfaction in comparison to preceding techniques. The theory relates to the present research in that it supports the ideology that mobile banking has various characteristics and benefits that enhance the efficiency of banks and customers' satisfaction. Specifically, this supports the objective that sought to establish the effect of mobile banking transaction volumes on financial performance of tier one banking institutions in Kenya.

2.2.4 Technology Acceptance Theory

The theory highlights that once an innovation had been made in the society, it is important for different stakeholders to accept the innovations based on their relevance (Fathema & Sutton, 2013). Technology acceptance theory highlights that there are diverse factors that determine the extent in which users make decisions on how to use new technologies such as perceived worth, Perceived usage of the new technologies, perceptions towards its usage and the behavioral intent of using the technology (Fathema, Shannon & Ross, 2015). Perceived usefulness entails evaluation of how a technology is likely to enhance the delivery of services and convenience and reduce operational costs. Contextualizing the concept in the banking sector implies that mobile banking needed to be

evaluated to determine the degree in which it would benefit both banks and customers (Muhammad, Ali, Tariq & Shah, 2015).

The second aspect on the perceived ease of use entailed the extent in which users were able to use the new technologies. It implied that innovations needed to be assessed based on the extent in which they could be used by employees as well as consumers (Nadri, Rahimi, Lotf, Samadbeik & Garavand, 2018). Financial institutions thus needed to ensure that new technologies could be used by literate and illiterate employees. Moreover, the theory recognizes the need for developers to consider the attitude of anticipated consumers. It thus implies that technological advancements in banking institutions need to look in to the attitude of customers towards mobile banking since they are the target persons. Precisely, they should evaluate customers' attitude towards accessibility of mobile applications as well as diverse product features such as financial security as well as incidences of online fraud which have a significant impact on the decision making process of individuals on whether they will use the new technologies or not (Rahimi, Nadri, Hadi & Timpka, 2018).

Despite this, it is important also to appreciate the fact that even if a good innovation has been made, it can only be used widely in the market if the players get to know about. These assertions are founded on the model of diffusion of innovations, in which case it is assumed that once an innovative idea is made, it has to find its way to be transported from one location to the other (Nadri et al., 2018). Fundamentally, the basis of internet and mobile banking or online banking to be developed can be interpreted to be as a result of the need to solve certain pertinent issues and also be in line with emerging trends. This can be linked to the need to remain competitive in the market, by certain players in the industry (Rahimi *et al.*, 2018). However, due to the model of diffusion of innovations, this trend ended up being embraced by all the players (banks), on a global basis (Fathema *et al.*, 2015). As such, it is important that the banks adopting the innovation must

focus on compatibility, based on the demographic characteristics of their customers, to establish the specific areas that must be improved in order to contextualize its application.

Lastly, the theory highlights the importance of evaluating the change in conduct that is likely to be evident among users due to technological advancement. The major users of mobile banking applications are mainly bank employees and consumers. On one hand, if customers consider mobile banking to be convenient and user friendly, they are likely to be adopting the technologies. On the other hand, they may be concerns among bank employees that they are likely to lose their jobs since most banking transactions are conducted by customers using their applications (Okafor, Nico & Azman, 2016). Additionally, other workers would perceive mobile applications as opportunities of not only making work easier but also making work more manageable. It is thus important for leaders in banking institutions to evaluate if development of mobile banking is likely to result to resistance from users or acceptability of change since it determines the amount of revenues that banks are able to generate. In overall, the theory highlights that for mobile banking to be developed and gain acceptance among users, it must be able to elicit positive behavioral change, positive attitude and should be used with ease. This supports the objective that sought to examine the effect of mobile banking transaction costs on financial performance of tier one banking institutions in Kenya.

2.3 Empirical Review

The segment entails a critical analysis of literature on various aspects related to mobile banking such as mobile banking transaction volume, mobile banking transaction costs, mobile banking products, and mobile banking accessibility. Each of the aspects is discussed in the sections that follow.

2.3.1 Banking Transaction Volumes and Bank Performance

Wadada (2019) highlighted that mobile banking was beneficial to commercial banks in that it increased the volume of customer transactions that were conducted in the institutions. Moreover, Wadada (2019) recognized that transaction volume was positively correlated to bank revenue since increase in the proportion of customers that were accessing banking services through mobile applications resulted to an overall increment of bank revenue. In particular, enhancement of such transactions as deposits, bank transfers and withdrawals increased bank revenue since a certain proportion of money was charged in each of the transactions that were carried out using M-banking. Wadada (2019) shows that there is a constructive association amid the transaction volumes conducted in mobile banking and the financial performance of banking institutions. These arguments are supported by Hani (2019) who reveals that mobile banking gives customers an opportunity to access their funds anytime from anywhere, thus, being able to complete transactions as many times as possible and this leads to increased transaction volumes which is advantageous to banks.

A different study conducted by Wadhwa (2017) looked into the profit margins that were made by banks as a result of mobile banking. Founded on the research, the profit margins of banks depended on the transactions that were conducted in the institutions, the nature of transactions as well as the quantity of money that was involved. The research identified that mobile banking was a major source of enhanced profitability in commercial banks since customers were able to conveniently access their accounts and carry out diverse transactions, a fact that increased the proportion of banking activities that were conducted in general. According to the research findings, the ability of customers to conveniently access their banks enhanced incidences of impulses thus increasing the quantity of banking transactions. Wadhwa (2017) noted that digital banking worked negatively for customers as there was increased likelihood for spending money in avenues that were

unplanned while commercial banks on the other hand enhanced their financial attainment. Wadhwa (2017) concluded that financial institutions have experienced diverse technological developments from e-banking to mobile banking which have resulted to the realization of increased profits. The same argument is in support of the views presented by Hani (2019) who argued that from a business point of view, impulse transactions is a great benefit for profitability purposes particularly for commercial banks.

Kathuo (2016) upon conducting an exploration on the impact of mobile banking on the performance of banking institutions attained contrary outcomes from the preceding ones. Kathuo (2016) identified that despite the fact that mobile banking increased the number of transactions that were conducted in commercial banks, there was no positive association amid the volume of transactions and profitability of the institutions. Kathuo (2016) however noted that whilst the association amid mobile transaction volume and bank attainment was indirect, mobile banking impacted the banking sector in a number of positive ways. Firstly, mobile banking increased the competitiveness of banks since they were able to provide diverse services to customers which increased customers' loyalty. Further, mobile banking contributed to the increment of banks' market share in the global market which enhanced their financial ranking. A gap is however identified in the research by Kathuo (2016) since on one hand it is indicated that there is no direct linkage between the volume of transactions and bank performance while on the other hand, the study indicates that mobile banking resulted to the expansion of the market for banks as well as increased financial ranking. The former is in disagreement with other scholars such as Wadhwa (2017) and Hani (2019) among others.

Coderais (2017) in a distinct investigation notes that mobile banking worked in favor of customers rather than commercial banks in Kenya. The author argued that there was a minimal distinction in the costs incurred in mobile banking and those charged over the counter and therefore

the use of mobile banking had minimal impact on the financial attainment of commercial banks. Moreover, Coderais (2017) indicated that there are concerns by customers that mobile banking was likely to result to incidences of fraud and loss of information privacy since data was readily available. The author concludes that since the costs that were incurred in conducting diverse transactions over the counter like depositing and funds transfer are replicated in mobile banking, there was minimal likelihood for banks to attain additional revenues due to usage of mobile banking. The findings by Coderais (2017) are however contradictory due to the fact that customers are not likely to benefit if the costs incurred over the counter and those charged in mobile banking are the same. A critical evaluation of the findings shows that one can allude that it is the financial institutions that are likely to benefit since customers are able to conveniently conduct diverse transactions without visiting banking institutions thus increasing the overall proportion of transactions that are conducted leading to the realization of increased revenues. The revelation by this author are in contrary to those by other authors that have already been reviewed such as Wadhwa (2017), Hani (2019) and Kathuo (2016) who shows a positive correlation between mobile banking and financial performance of banks, thus, further presenting a research gap to bridge this opposing views. Therefore, this leads to the formulation of the first research hypothesis which; (H1) mobile banking transaction volumes enhances financial performance of tier one banks.

2.3.2 Banking Transaction Costs and Bank Performance

The second variable of the exploration sought to determine the effect of mobile banking on transaction costs and its overall influence on the financial attainment of tier one commercial banks. Mohamed and Omar (2018) in an investigation on mobile transaction costs in Small and Medium scale enterprises (SMEs) identified that conducting banking transactions using mobile banking was costly for the enterprises. When transaction costs were high, there was a high likelihood for financial performance to be affected negatively. Mohamed and Omar (2018) identified that

businesses incurred high costs in mobile transactions than accessing the services over the counter. The implication was that banks attained high revenue when digital banking was applied as opposed to providing the services over the counter. The findings were contrary to those attained by Coderias (2017) which showed that customers were the main beneficiaries of mobile banking, where customers entail individuals as well as businesses like SMEs.

Distinct from the affirmation made by Mohamed and Omar (2018), a study by Rahayu and Rahadian (2018) showed that mobile banking was a facility that was provided by banks to customers to ease delivery of diverse transactions. According to the authors, mobile banking was efficient in terms of cost and time but there were also concerns by customers that increased accessibility of funds resulted to an increase in spending. Rahayu and Rahadian (2018) indicated that the costs that are incurred by individuals and SMEs needed to be evaluated from a multi-levels perspective rather than just focusing on a limited number of costs that are incurred when depositing, withdrawing and transferring funds. In particular, the authors indicate that there is need to also look in to such aspects as costs that are incurred by customers when visiting bank branches as well as the amount of time that is taken when making physical visits to the bank in comparison to the use of mobile banking. It thus meant that if similar costs were incurred by customers for over the counter services as well as through digital banking, banks did not therefore acquire additional revenue thus supporting the claims indicated by Coderias (2017).

A different exploration by Ndirangu (2014) on mobile banking and its influence on Commercial Banks in Kenya identified that technological investments were more beneficial than detrimental to the institutions. According to Ndirangu (2014), technological advancement had made it possible for banks to establish negligible costs to consumers for such as services as receiving notifications via Short Messages Services (SMS) as well as withdrawing and transferring funds or receiving bank statements. Ndirangu (2014) indicated that whilst the different costs that were

charged for various digital banking services aided in the increment of overall bank revenues as well as enhanced financial performance of commercial banks.

Further, Otieno (2018) in an investigation on the influence of mobile banking on commercial banks in Kenya indicated that mobile banking was a new technology that was transforming the business and the banking sector greatly. According to Otieno (2018), mobile banking enhanced the financial attainment of commercial banks in diverse ways such as increasing the proportion of money that was banked digitally on an annual basis, enhancing the proportion of customers that used digital banking as well as the capital adequacy of banks. Additionally, mobile banking aided in improving bank liquidity as well as the management of different banking operations. Otieno (2018) concluded that when evaluating the impact of mobile banking on financial performance, it was important to evaluate the impact of the technological innovation on other aspects such as return on assets, return on investment as well as return on equity from the transaction cost perspective leading to the formulation of the second research hypothesis which is; (H2) mobile banking transaction costs enhances financial performance of tier one banks.

2.3.3 Banking Product Variety and Bank Performance

Mobile banking has been very useful in the banking sector. Chepkemai (2015) highlighted that mobile banking provided banks with the opportunity to offer diverse products to customers. As a result, customers were able to conduct their businesses with ease and that banking institutions executed their business with ease. According to Chepkemai (2015) some of the products that were available to customers as a result of mobile banking included; Pesa-pap, M-kesho, Eazy-loan, KCB-Mpesa and bill payment. The author argued that high levels of customer loyalty were likely to be attained when consumers were selected a wide array of products to select from. When customer loyalty was enhanced, the financial performance of commercial banks also improved since there was increased revenue as customers were able to transact freely. Chepkemai (2015) however

warned that whilst mobile banking was advantageous, it also had diverse limitations such as the concern by customers over the safety of their personal data.

Most financial institutions in the recent past have embraced mobile banking practices. Tam and Tiago (2015) distinctly indicate that usage of mobile banking by financial institutions due to advancement in technology is fundamental for banking institutions in order to be in line with the emerging trends. According to Tam and Tiago (2015), commercial banks needed to adopt mobile banking whether it has the ability to enhance financial performance or not. According to the authors, features of mobile banking are the major determinants of the extent in which banks are able to attain high returns from the applications. In particular, mobile banking is able to lead to the realization of high returns if it is perceived to be easy to use and usefulness to customers. According to Tam and Tiago (2015) banks should consider using mobile banking not as a means of enhancing profitability but a strategy of enhancing their competitiveness since a large proportion of commercial banks are beginning to adopt it. Tam and Tiago (2015) however warn that banks should adopt mobile banking with distinct features to enhance financial performance.

Mobile banking generally influences performance improvement in organisations. Kiprop *et al.* (2016) in an exploration on the extent in which mobile banking influenced the performance of commercial banks noted that there was strong linkage amid mobile banking and the attainment of financial institutions. The ability of mobile banking to enhance instant transfer of funds to various receivers allowed customers to make numerous transactions, thus enhancing profitability. Further, Kiprop *et al.* (2016) noted that mobile banking did not only enhance transfer of funds among accounts in the same banks but also to other commercial institutions leading to the realization of positive financial attainment. Despite the fact that the research was focused on Kapsabet town, it showed that customers preferred mobile banking over the use of over the counter services since it was associated with such benefits as incurrence of lower costs, saving of time, and high levels of

convenience, which consequently enhance the financial ranking of commercial banks in the global market.

With increased competition among banks on a global basis, banks are forced to come up with adequate measures that can improve their competitiveness in the market. Iravonga and Miroga (2018) highlighted that with the stiff competition that has resulted from the frequent technological advancements in the banking sector, it is inevitable for banks to establish new strategies of enhancing their sustainability and performance. Iravonga and Miroga (2018) indicate that innovations are having a significant impact on the success of the banking sector since customers want to conduct banking transactions at their convenience irrespective of their geographical location. Iravonga and Miroga (2018) further recognize that mobile banking is gaining prominence since customers are trying as much as possible to avoid the use of cash and that it offers diverse mobile banking services to customers. Iravonga and Miroga (2018) conclude that the ability of mobile banking to offer diverse features to customers increases its preference among customers and results to the attainment of improved performance in banks.

On accessibility, Njoroge and Mugambi (2018) established in their study that mobile banking make basic financial services more accessible, reduces the bank's own overheads and transaction- related costs and presents an opportunity for financial institutions to extend banking services to new customers thereby increasing their market share. Moreover, Njoroge and Mugambi (2018) noted that Equity Bank's customers were the leading subscribers to mobile banking due to its convenience, cheap charges on mobile transaction and its lack of geographical limitation to customers. Further, these arguments by Njoroge and Mugambi (2018) are supported by Mohamed (2019) who also argued in his study that mobile banking access and financial performance of commercial banks have a strong positive correlation. Mohamed (2019) maintained that some of the

reasons why commercial banks are experiencing positive performance resulting from mobile banking are because of its accessibility.

More importantly, Mabwai (2016) also claimed that customers are now able to access their bank accounts for various transactions 24/7, which implies that they conveniently do transactions without any limitation. As a matter of fact, over the counter transactions are seen to deny customers accessibility to bank financial services because individuals are allowed to access such services during working hours only, which also do not include public holidays and weekends. However, mobile banking access does not have limitations on holidays and weekends, including when it is not working hours, a fact that has led to its dominance not only in Kenya but globally. Fundamentally, customers have different financial needs, and sometimes the needs might come up when it is not time for business hours, but one does need to worry because with mobile banking, funds can be transferred, withdrawn or sent easily as opined by Mabwai (2016), who insists that this is a tremendous revolution in the banking sector.

While focusing on mobile banking and performance of SMEs, Kirui (2016) noted that it leads to an increase in the sales of small business organizations especially in Nakuru town. Nonetheless, the researcher connected these sales increase to increase in bank deposits, hence demonstrating that although mobile banking might not have a direct impact on banks' performance, its impact on SMEs has a huge benefit for banks' financial performance. Kirui (2016) indicated that this positive impact is due to individuals being able to use smart phone applications, in accessing, withdrawing, transferring, or making payments for goods and services. Ideally, the author implied that the bank benefits in several ways, ranging from increase in deposits to the transaction costs which are viewed as revenue to the commercial banks, if there numerous product varieties. Thus, this leads to the third research hypothesis which is; (H3) mobile banking product variety enhances financial performance of tier one banks.

2.3.4 Banking Accessibility Levels and Bank Performance

Mobile banking practices have tremendously increased levels of accessibility to banking services. Regarding accessibility, Njoroge and Mugambi (2018) identified that the introduction of mobile banking had not only increasing accessibility of basic financial services but also minimized bank overheads and transaction cost. According to Njoroge and Mugambi (2018), mobile banking has provided banking institutions with an opportunity to increase the accessibility of their banking services to new customers, thus improving their overall market share. Njoroge and Mugambi (2018) indicated that Equity Bank had the largest proportion of mobile banking subscribers since its mobile banking services was not only cheap and convenient but also did not have any geographical limitations. The findings supported the outcomes attained by Mohamed (2019) that there is a constructive correlation amid access to mobile banking and the financial performance of commercial banks. According to Mohamed (2019), increased accessibility to mobile banking has been the reason for the increased positive attainment of commercial banks in Kenya.

Customers have been given adequate opportunities to access their funds remotely. Mabwai (2016) also indicates that mobile banking has given customers the opportunity to access their accounts and conduct various transactions at any time without limitations. Mabwai (2016) indicates that over the counter transactions only allow customers to conduct their transactions during the working hours only and does not include public holidays and weekends. Mobile banking on the other hand has gained prominence in Kenya and across the globe since do not have limitations on the days they are able to access funds thus making it possible for customers address their diverse financial needs as they arise. Mabwai (2016) concludes that mobile banking has been a revolution in the banking sector since customers are able to transfer, withdraw and send funds at ease.

Kirui (2016) noted that mobile banking had enhanced the sales of SMEs. Kirui (2016) indicated mobile banking allowed SMEs to deposit funds in a frequent manner which consequently

increased bank performance due to the diverse transactions that were conducted. Kirui (2016) summarizes that mobile banking positively affects the attainment of banks in diverse ways such as increment of bank deposits and transaction costs, which in overall increase bank revenue. Abongo (2016) asserted that banks like CBA had developed the M-shwari platform that allows customers to access funds in any geographical region. Muiruri, Richu and Karanja (2015) however indicated that customers were only satisfied with mobile banking if they were certain that their information was safe and could not be disclosed, Gichuki and Jagongo (2018) concluded that the accessibility and reliability of mobile banking has not only enhanced the experience of customers in mobile banking but also created a vibrant and competitive banking sector.

Moreover, Abong'o (2016) who examined mobile banking and commercial banks' financial performance by sampling 10 commercial banks in Kenya demonstrated that failure to use mobile banking for commercial banks will mean being driven out of the market. As a matter of fact, Abong'o (2016) established that banks such as CBA used M-shwari platform which enable people to borrow from any place, including for those travelling and are far away from their bank branches. Moreover, the study established that CBA, KCB, and Equity Bank were the leading banks in terms of mobile banking, which enabled customers to receive travel services, 24-hours accessibility to the banks, and secured transaction that increased customers' trust and loyalty to the banks. In support of this, a study by Muiruri, Richu and Karanja (2015) noted that customers were happy with mobile banking if they thought it was reliable, alluding to security concerns. Similarly, Gichuki and Jagongo (2018) state that accessibility and reliability of mobile banking has not only improved customer experience in banking, but also created a vibrant and globally competitive sector. Thus, this leads to the formulation of the fourth research hypothesis which is; (H4) mobile banking accessibility levels enhance financial performance of tier one banks.

2.4 Conceptual Framework

Independent Variables

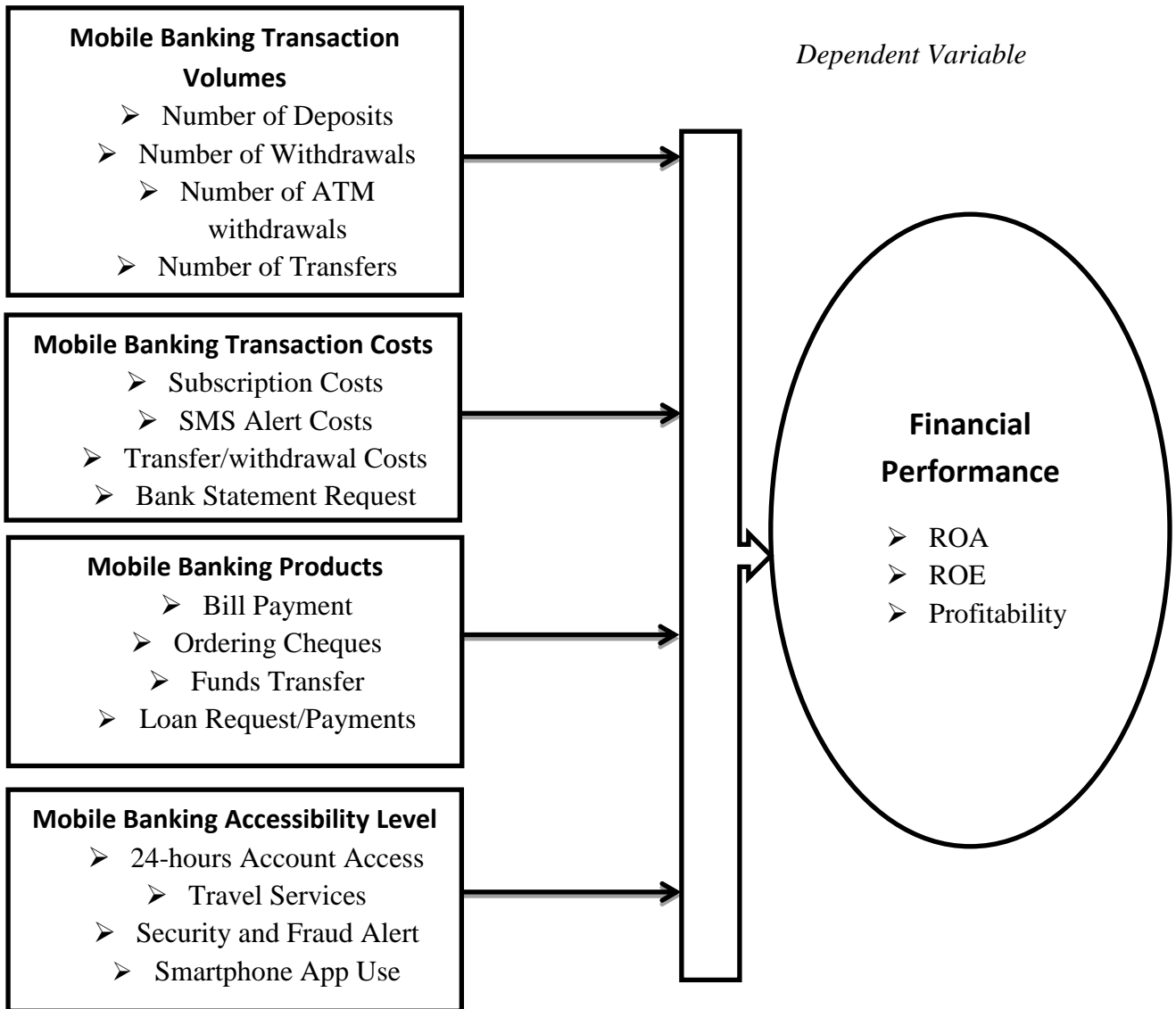


FIGURE 2.1

A Conceptual Framework

2.5 Operationalization of Variables

TABLE 2.1

Operationalization of Variables

Category	Variable	Operationalization	Measurement	Hypothesized direction
Dependent	Financial performance	Profitability Index	Net profit/Total Revenue	Positive/Negative
Independent	Mobile Banking Transactions Volumes	Transactions Volume	Number of mobile banking transactions	Positive/Negative
Independent	Mobile Banking Cost	Cost Ratio	Cost/Revenue	Positive/Negative
Independent	Mobile Banking Products	Number of products	Mobile banking products/period	Positive/Negative
Independent	Mobile Banking Accessibility	Account accessibility rate	Number of customers/period	Positive/Negative

Source: (Author, 2020)

2.6 Research Hypotheses

The following are the study's hypotheses in the alternate forms.

H1: Mobile banking transaction volumes enhances financial performance of tier one banks.

H2: Mobile banking transaction costs enhances financial performance of tier one banks.

H3: Mobile banking product variety enhances financial performance of tier one banks.

H4: Mobile banking accessibility levels enhances financial performance of tier one banks.

CHAPTER THREE

METHODOLOGY

3.1 Introduction

The chapter highlights the techniques that will be applied to carry out the investigation. Precisely the areas to be discussed include research design, target population, sampling and sampling procedure, research instrument, data collection procedure, and data processing and analysis respectively.

3.2 Research Design

To attain the research objectives, the investigation will adopt descriptive research design. Descriptive research design is suitable since the exploration is quantitative in nature and will thus enable the researcher to attain answers to the research questions. Descriptive research design seeks to provide answers to queries with such starts as what, how and when. It thus implies that the researcher will be able to explore how mobile banking influences the attainment of tier one banks by answering such questions as what is the impact of mobile banking on the performance of tier 1 banks in Kenya. Further, descriptive design are ideal especially in seeking to provide a description of the state of the issues at hand while exploring the potential future impact (Kock & Lynn, 2012); like in the current case, focus on how banks are benefiting from mobile banking factors and what the future will look like.

3.3 Target Population

The research will specifically focus on tier 1 banks in Kenya which are eight in number. They include; Kenya Commercial Bank (KCB), Equity Bank, Cooperative Bank, Barclays Bank, Commercial Bank of Africa (CBA), Standard Chartered Bank, Stanbic Bank, and Diamond Trust Bank (DTB). For each of the banks, the research will seek to identify how mobile banking has

affected the financial results of the institutions. Since the investigation has focused on Tier 1 banks which are only 8, the researcher will not need to conduct any sampling, thus, a census selection of the banks justified. The list of the banks that were used for gathering data for analysis is also presented as Appendix B.

3.4 Instrumentation and Data Collection Procedure

Data used in this study was purely secondary and the audited financial statements were obtainable on the website of the banks, Kenya Bankers Association as well as the Nairobi Stock Exchange (NSE) for banks that are listed. The reason for using three different sources for published financial statements of the banks was for comparison to ensure consistency reporting and disclosure by banks, thus, enhancing authenticity of the data used for the study. All the information that was collected was indicated in the data collection sheet that is provided as Appendix A in the research. Moreover, information on the financial performance of the selected banks was collected for a period of 5 years, that is, from 2015-2019 to evaluate how mobile banking has influenced financial attainment. The 5-year period was justified based on the fact that this enabled the researcher to assess the changes in performance over time in order to make a comparison and inferences respectively.

3.5 Data Processing and Analysis

Upon collection of data, it will be cleaned and sorted to help the research to only extract the data that will be required for the procedure of data analysis. In particular, the researcher sought to identify the assets of the various banks, profit margins for the periods under exploration, Return on Assets (ROA) and Return on Equity (ROE), in addition to inferential analytical techniques where ANOVA and coefficients were also analysed. Microsoft Excel will be used to clean, sort and analyze the collected information. Analyzed data will be presented in the form of tables and figures

to visually illustrate how the data relates to the objectives of the investigation. The data will be analyzed using panel data analysis technique guided by the following regression model.

$$Y_{it} = \beta_0 + \beta_1 X_{1it} + \beta_2 X_{2it} + \beta_3 X_{3it} + \beta_4 X_{4it} + \varepsilon_{it}$$

Where;

Y = Dependent variable (financial performance), β_0 = A constant coefficient of the model, β_1 to β_4 = Coefficients for each independent variable, X_1 = Mobile Banking Transaction Volumes, X_2 = Mobile Banking Transaction Costs, X_3 = Mobile Banking Products, X_4 = Mobile Banking Accessibility Level, ε = is the error term, and t = time element respectively.

3.6 Diagnostic Tests

These tests include normality tests, multi-collinearity test, and heteroscedasticity test as discussed in the sub-sections below.

3.6.1 Normality Tests

Conducting a normality test aided in the evaluation of the collected data whether it follows a normal distribution. Skewness and kurtosis tests were the specific normality tests that were applied in the exploration (Razali & Yap, 2011). Generally, normality tests in descriptive analysis which is the case of the current study focused on goodness of fitness of the outcomes, in which case the acceptable levels for kurtosis is when the results are not more than +1 or less than -1, while for skewness outcomes should not be more than 0.05 at 95% confidence level. Kurtosis normality test and skewness normality tests were coined by Karl Pearson in the year 1895 (Razali & Yap, 2011).

3.6.2 Multi-collinearity Test

Multi-collinearity test uses Variance Inflation Factor to identify the correlation that exists amid the independent variables and the strength of the correlation (Kock & Lynn, 2012). Thus, a regression

model must be conducted among two or more independent variables in order to detect inter-correlations that exist. A VIF of more than 10 indicates high correlation while tolerance value for correlation should be less than 0.2 respectively. Multi-collinearity is founded on regression which was coined by Francis Galton in the 19th century.

3.6.3 Heteroscedasticity Test

Heteroscedasticity was tested using a Breusch Pagan Test to recognize if the distinction of the errors from the regression is reliant on the amounts of the independent variables (Enders, 2010). Breusch Pagan Test was introduced in the year 1979 by Trevor Breusch and Adrian Pagan. The acceptance level is based on how its results relates with the significance level in accepting or refuting proposed hypotheses.

CHAPTER FOUR

DATA ANALYSIS, FINDINGS AND DISCUSSION

4.1 Introduction

The current chapter will present analyzed data based on the proposed methods of collection and analysis. Further, findings will be interpreted on the context of the reviewed literature by comparing and contrasting with the aim of pointing out similarities and differences.

4.2 Financial Performance in 2015 to 2019

The dependent variable for the study was the establishment of the banks' financial performance between the years 2015 to the year 2019. The measured performance indicators which include ROA, ROE, and profitability have been presented in the subsections that follow.

4.2.1 Return on Assets

The researcher focused on the rate of return achieved with respect to the assets employed in the 5 banks based on published financial reports that were obtained from online sources.

TABLE 4.1

Return on Assets

Financial Performance - Return on Assets	Results in percentage of assets per Year				
	2015	2016	2017	2018	2019
Kenya Commercial Bank (KCB)	2.10%	2.60%	3.60%	3.80%	3.70%
Equity Bank	2.90%	3.30%	3.80%	3.60%	3.70%
Cooperative Bank	3.70%	3.70%	3.10%	3.20%	3.29%
Barclays Bank	2.40%	2.20%	2.00%	2.20%	2.30%
Commercial Bank of Africa (CBA)	1.91%	1.96%	2.44%	2.61%	2.69%
Standard Chartered Bank	1.55%	1.61%	1.78%	1.22%	1.81%
Stanbic Bank	1.40%	1.60%	1.90%	2.30%	2.10%
Diamond Trust Bank (DTB)	2.70%	2.60%	2.00%	1.91%	1.90%

ROA was based on the profitability of the banks which was the main parameter to measure performance. Findings have been presented in Table 4.1 above. The results demonstrate that most of the banks had positive trends across the five year period under investigation with slight fluctuations. However, cooperative bank, Barclays bank, and diamond trust bank demonstrated a reducing performance trend within the period, with a small margin. Comparing the 5 banks out of the 8 banks that had an increasing positive trend in the period, it can be argued that there was a 62.50% performance improvement among tier one commercial banks in Kenya, an indication that the period generally experienced a positive trend. In order to have a clear pictorial representation of performance trend in terms of return on assets. From the results, the performance across the five years was cumulatively presented in each bank and a mean calculated for each bank. The findings have shown that for the entire period, the bank that performed best was Equity Bank at 3.46%, followed by Cooperative Bank at 3.40%, Kenya Commercial Bank (KCB) at 3.16%, Commercial Bank of Africa (CBA) at 3.32%, Barclays Bank and Diamond Trust Bank (DTB) both at 2.22%, Stanbic Bank at 1.86%, and finally Standard Chartered Bank (SCB) at 1.59% respectively.

Comparing results on Table 4.1 it is demonstrated that all banks performed relatively well because those that had a reducing trend have on average been found to have performed better especially the Cooperative Bank and Barclays Bank among others. As such, the banking sector experienced a significant improvement in performance for the period as far as return on assets is concerned. Comparing these outcomes with the reviewed literature, there is a consensus with majority of the researchers such as Wadhwa (2017) who argued that profitability of an institution determines the level of returns attained for assets that are employed. As such, it is important through further analysis of the results of the study to identify if this performance can be associated to the implementation and use of mobile banking technology in the modern banking environment.

4.2.2 Return on Equity

The second performance measurement investigated that can be linked to profitability is the level of return attained with regard to the employed equity or capital. The researcher extracted this information from the published financial performance reports and its analysis has been summarized as shown in Table 4.2 below.

TABLE 4.2

Return on Equity

Financial Performance - Return on Equity	results in % of equity per Year				
	2015	2016	2017	2018	2019
Kenya Commercial Bank (KCB)	19.61%	20.48%	22.60%	24.00%	24.90%
Equity Bank	20.80%	21.60%	21.20%	22.10%	24.90%
Cooperative Bank	25.00%	22.70%	17.40%	18.30%	19.20%
Barclays Bank	21.20%	17.50%	15.70%	18.40%	19.40%
Commercial Bank of Africa (CBA)	12.98%	13.61%	14.12%	15.00%	15.49%
Standard Chartered Bank	11.69%	12.11%	13.44%	12.09%	13.49%
Stanbic Bank	9.60%	10.20%	10.40%	14.30%	13.60%
Diamond Trust Bank (DTB)	10.41%	11.26%	12.49%	13.11%	12.06%

The findings in Table 4.2 above have shown that just like ROA, there was a positive trend on ROE across the years investigated in majority of the banks with slight fluctuations. For instance, KCB bank had an increasing trend across all the years with 2015 being the least at 19.61% and 2019 being the highest at 24.90%. Similar trend is observed for Equity bank in which case 2015 was the least (20.80%) while the year 2019 had the best results at 24.90% respectively. The other banks that posted similar results include Commercial Bank of Africa (CBA), Standard Chartered Bank, Stanbic Bank, and Diamond Trust Bank (DTB) respectively with minimal fluctuations.

Despite this, a negative trend was witnessed in some banks such as Cooperative Bank where the best performance in terms of ROE was in the year 2015 with 25% and the least was in the year 2019 at 19.20%.

Additionally, Barclays bank reported a reducing performance trend with 2015 demonstrating best results at 21.20% and 2016 indicating worst performance results at 17.50% although a slight improvement was noted in subsequent years to 19.40% in the year 2019. Precisely, it has been revealed that Kenya Commercial Bank performed relatively better than the rest of the banks in terms of ROE in which case the average mean for the 5 years was 22.32%, followed by Equity Bank at 22.12%, and then Cooperative Bank as the third best performing bank during this period at 20.52%. Barclays Bank followed fourth at 18.44% followed by Commercial Bank of Africa at 14.24%, Standard Chartered Bank at 12.56%, and Diamond Trust Bank at 11.86%, and finally Stanbic Bank at 11.62% respectively. Comparing the outcomes on ROA and ROE, there is a similar trend observed in which case the top three banks for both indicators are the same, namely; Equity Bank, KCB, and Cooperative Bank respectively. A further analysis also reveals that the last three banks in each case are the same which in this case include Standard Chartered Bank, Stanbic Bank, and Diamond Trust Bank as well. In this case, the researcher can deduce from this observation that performance for the tier one commercial banks was steady, a fact that should be affirmed in the next section while focusing on profitability in General. Nonetheless, the outcomes of the study have supported assertions made in the reviewed literature such as that of Otieno (2018) who argued that financial attainment and performance is an important parameter when it comes to a financial institution's overall performance.

4.2.3 Financial Performance – Profitability

The main indicator focused in this study to measure the financial performance levels of the identified banks was profitability, which has been analyzed and presented in Table 4.3 below.

TABLE 4.3**Profitability**

Financial Performance - Profitability	Results in Million Kshs. per Year				
	2015	2016	2017	2018	2019
Kenya Commercial Bank (KCB)	19,623	19,723	19,704	23,995	25,165
Equity Bank	16,428	21,647	25,340	28,462	31,477
Cooperative Bank	11,701	12,700	11,400	12,732	14,311
Barclays Bank	8,401	7,399	6,926	7,416	8,516
Commercial Bank of Africa (CBA)	3,069	4,423	4,861	5,003	7,841
Standard Chartered Bank	3,921	4,011	4,321	6,340	6,437
Stanbic Bank	4,022	4,210	4,362	6,321	6,453
Diamond Trust Bank (DTB)	5,912	7,173	6,449	6,680	6,785

Observations from Table 4.3 above have also demonstrated that majority of the banks had a positive trend in which case profitability grew significantly although there were incidences of slight fluctuations. For instance, Kenya Commercial Bank grew from 19,623 million shillings in the year 2015 to 25,165 million shillings in the year 2019. The highest performance results for the period were in the year 2019 demonstrating a steady and upward trend across all the years within the period under study. Similar and impressive trend is observed for the case of equity bank in which case profitability grew from 16,428 million shillings in the year 2015 to 31,477 million shillings in the year 2019, and indication of 91.61% growth in terms of profitability for the 5 years period. Banks with a similar positive trend for probability included Cooperative Bank, Commercial Bank of Africa (CBA), Standard Chartered Bank, and Stanbic Bank respectively with small variations. However, a negative trend was observed for Diamond Trust Bank and Barclays Bank although the latter recovered at the 5th year again bouncing back to higher profitability levels as were obtained in the year 2015. On average performance for the 5 years period under scrutiny, the best performing bank was found to be Equity Bank with mean profit of 24,671 million shillings, followed by Kenya Commercial Bank at 21,642 million shillings mean profit in five years, and the Cooperative Bank as

the third best performing bank with mean profit of 12,569 million shillings within the period. Barclays Bank was the fourth best performing bank in the period with a mean profit of 7,732 million shillings, followed by Diamond Trust Bank (6,600 million shillings), Stanbic Bank (5,074 million shillings), Commercial Bank of Africa (5,039), and Standard Chartered Bank (5,006 million shillings) respectively.

The findings on profitability are in agreement with those obtained for ROA and ROE since the best three banks in each case are Equity Bank, Kenya Commercial Bank, and Cooperative Bank. Similarly, the bottom three banks in the list are constant across the three indicators and they include Standard Chartered Bank, Stanbic Bank, and Diamond Trust Bank although the latter was best ranked as the fourth bottom in the overall profitability rating. Essentially, from the obtained findings on financial performance, the outcomes have agreed with reviewed literature especially that of Wadhwa (2017) in the assertion that it is profitability that determines the level of returns in an institution, as well as the argument by Otieno (2018) in asserting that financial attainment is important in the overall performance of a financial institution. Accordingly, outcomes of the study can be used in further analysis of the independent variables in which case the researcher will seek to establish the association between the findings and the reviewed literature, so as to be able to make conclusions with regard to the overall relationship between different variables that guided the study. The outcomes to be obtained as presented in the subsections below will be in line with the research objectives formulated and the research questions respectively so that at the end of the presentation, the envisaged aim will be obtained. Moreover, this will inform the nature of inferences or conclusions that will be made from the overall presentation of the study outcomes and suggestions or commendations.

4.3 Mobile Banking Products and Bank Performance

One of the objectives that guided the study was to establish the effect of mobile banking product variety on financial performance of tier one banking institutions in Kenya; focusing on the task Technology Fit (TTF) Theory. The researcher focused on mobile banking products used in banks which include bill payment, ordering cheques books and bank statements, transferring funds, and loan requests and repayments respectively. Each of these products used through mobile banking have been presented in the sub-sections that follow.

4.3.1 Bill Payment

One of the commonly used features of mobile banking is to enable customers to conveniently make payments for their outstanding bills to different suppliers.

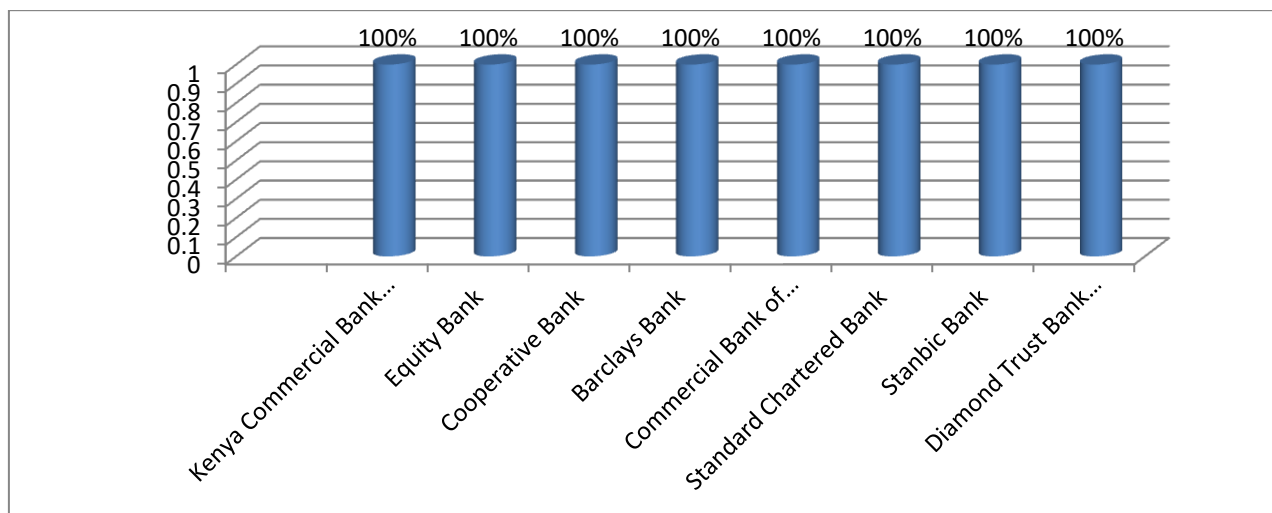


FIGURE 4.1

Mobile Banking Use in Bill Payment

From the obtained results, all banks represented by 100% were found to be using mobile banking in enabling their customers to settle bills to different vendors without necessarily having to visit bank branches. The study as thus revealed that convenience is enabled by the banks through

technological innovations, a fact that saves time among customers. The outcomes of the current research have supported empirical evidence obtained which according to Chepkemoi (2015) some of the products that are available to customers as a result of mobile banking included; Pesa-pap, M-kesho, Eazy-loan, and KCB-Mpesa which ultimately support bill payment across many banks.

4.3.2 Ordering Cheques and Bank Statements

The study also focused on the features of requesting bank statements or placing orders for cheques by customers through mobile banking. The outcomes obtained have been analyzed and presented in Figure 4.2 below.

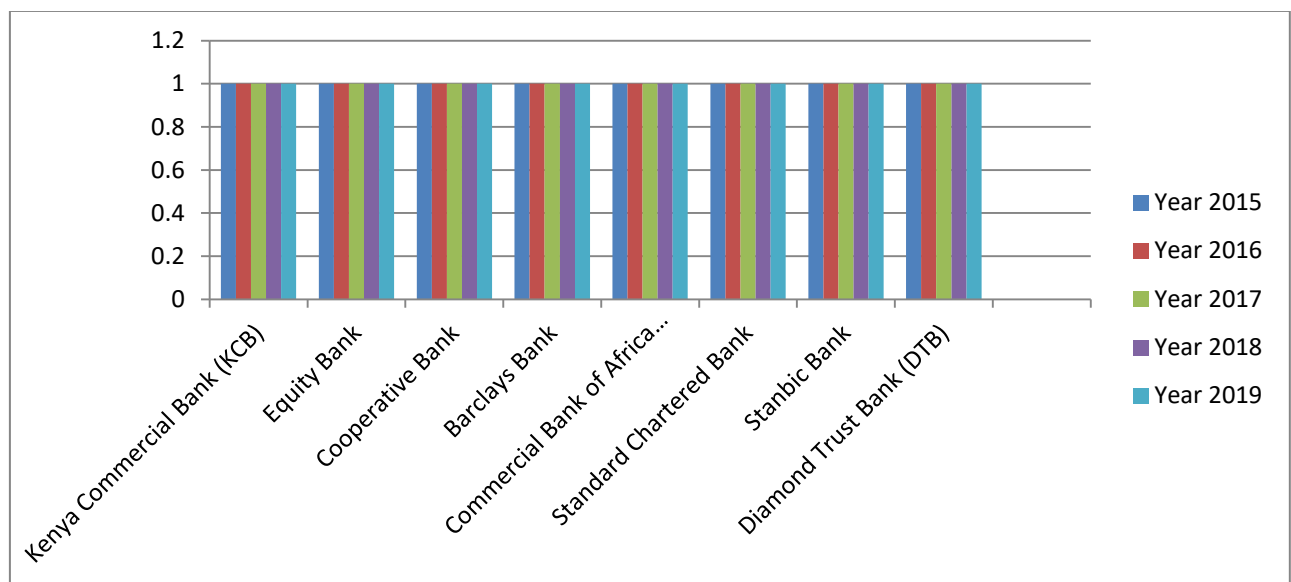


FIGURE 4.2

Ordering Cheques and Statements through Mobile Banking

Focus was to establish if banks had this feature right from the year 2015 to 2019, and the obtained results have been presented in Figure 4.2 above. From the findings, it can be asserted that all banks had this feature in which case 1 represents yes and 0 represents no, thus, showing a confirmation that all banks enabled their customers to sue mobile banks in getting their accounts’

statements across the years. The results from this analysis are a confirmation that mobile banking products is a major way of introducing diversity to customers, supporting the assertion in reviewed literature according to Chepkemoi (2015) who highlighted that mobile banking provided banks with the opportunity to offer diverse products to customers. As such, this is an important strategy for banks to attract and retain customers, a fact that is imperative in the overall financial performance.

4.3.3 Funds Transfer and Bank Performance

Another focus was to find out if the banks allowed customers to transfer funds from one account to another and even to other banks. The obtained feedback from data gathered online has been analyzed and presented in Figure 4.3 below.

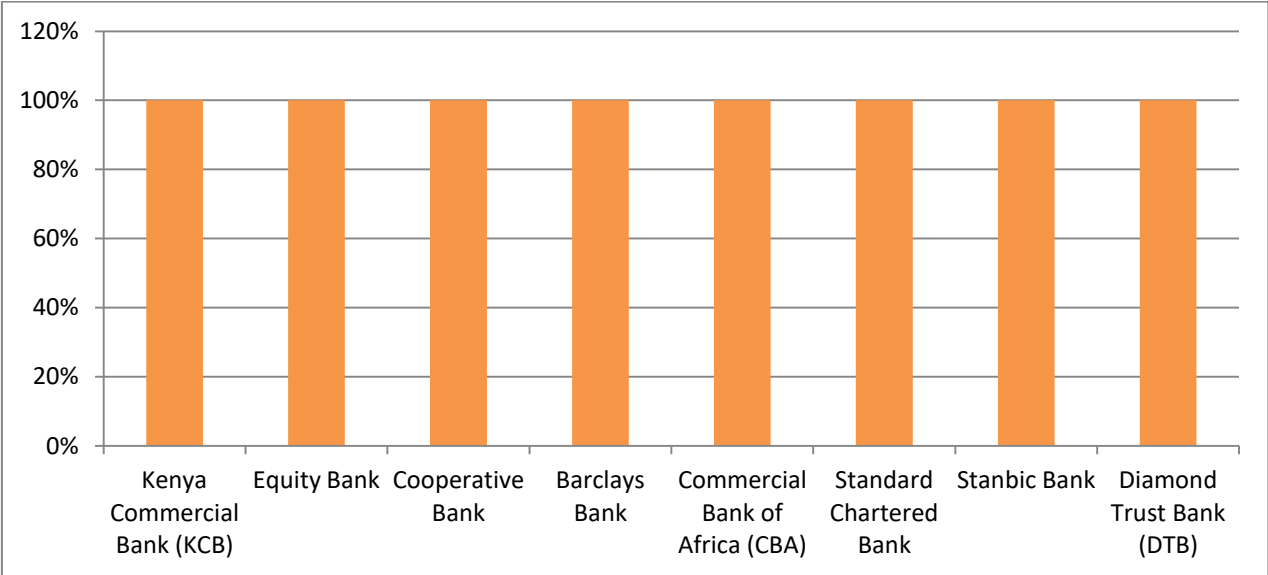


FIGURE 4.3

Funds Transfer

Results presented in Figure 4.3 have shown that all banks allowed funds transfer as a feature and product of mobile banking, asserting the assertions in the literature especially that of Tam and Tiago (2015) who distinctly indicated that usage of mobile banking by financial institutions due to

advancement in technology is fundamental for banking institutions in order to be in line with the emerging trends. As such, this a demonstration that the overall market demand and preferences by consumers is significantly changing and banks should be able to support numerous features such as funds transfer in order to remain competitive in the market which is fundamental for performance results to be better.

4.3.4 Loan Repayment and Requests

Also, the researcher focused on establishing the ability for customers to request and pay for loans which has been traditionally a matter of ensuring physical visits to the banks for verification. The obtained results are presented in Figure 4.4 below.

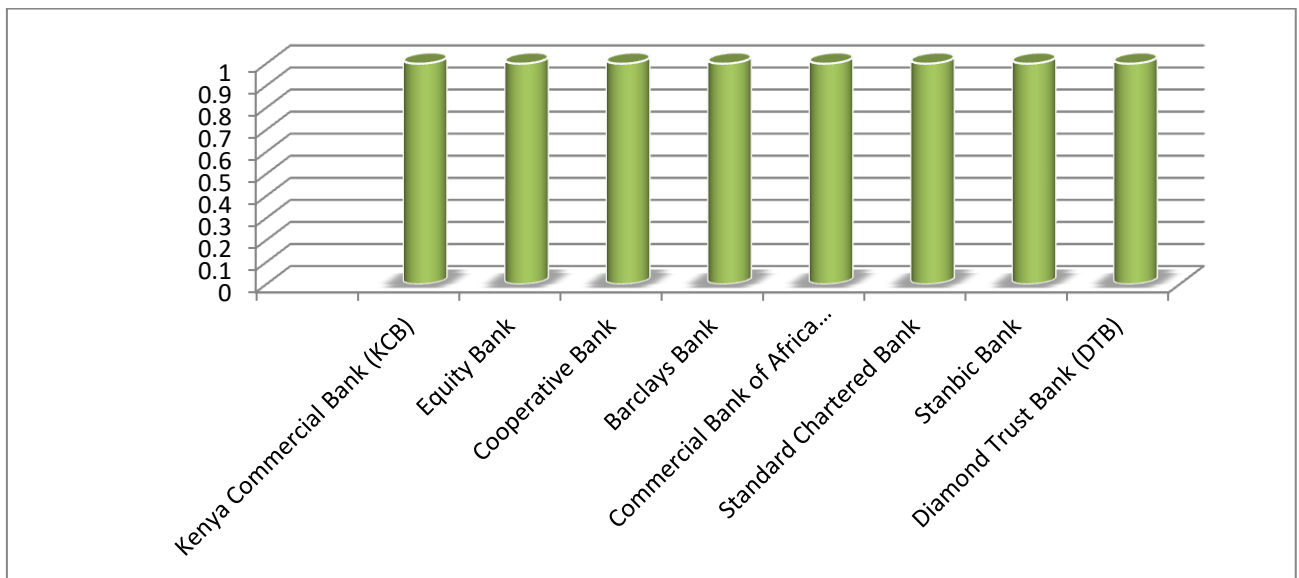


FIGURE 4.4

Loan Repayment and Requests

As shown in Figure 4.4, all the banks were found to be using mobile banking in enabling their customers to apply and repay loans or overdrafts, a fact that has been associated to the developments in technology through innovation such as mobile banking. The findings further build

on the fact that mobile banking products use enhances better financial performance of banks. Moreover, this argument is in support of the literature that was reviewed particularly that of Kiprof *et al.* (2016) in an exploration on the extent to which mobile banking influenced the performance of commercial banks and noted that there was strong linkage amid mobile banking and the attainment of financial institutions. From the observations made, it has been established that the features or products which were the major concern of the researcher have been supported. In this case, the researcher was able to run descriptive statistics for mobile banking products use in general and the results are presented in Table 4.4 below.

TABLE 4.4

Descriptive Results for Mobile Banking Products

<i>Descriptives</i>	<i>Bill Payment</i>	<i>Ordering Statements</i>	<i>Funds Transfer</i>	<i>Loans</i>
Mean	5	5	5	5
Standard Error	0	0	0	0
Median	5	5	5	5
Mode	5	5	5	5
Standard Deviation	0	0	0	0
Sample Variance	0	0	0	0
Range	0	0	0	0
Minimum	5	5	5	5
Maximum	5	5	5	5
Sum	40	40	40	40
Count	8	8	8	8
Confidence Level (95.0%)	0	0	0	0

From the summarized outcomes as presented in Table 4.4 above, it is clear that in all banks, the mean results for bill payment, ordering statements, funds transfer, and loans repayment or request were 5 indicating a strong support for the fact that it is used, with a standard deviation of 0 an indication that there was no variance from the mean. Essentially, this confirms that there was no

single bank that did not support any of the mobile banking products for the 5 years. Additionally, the maximum score in each case was 5 while the minimum score was also 5, a further confirmation that there was no variation at all. Results are in agreement with the reviewed literature that having mobile banking products that are numerous in number enhances convenience and flexibility among customers. For instance, Chepkemoi (2015) maintained that mobile banking is instrumental for the overall performance of banks as this provides an opportunity in offering diverse products to customers. Moreover, the view has been maintained in this study as it demonstrates that all banks embraced the products that were in the market so as to maintain high level of competition.

According to literature and current research findings, the main advantage of mobile banking is promotion of ease of banking for both customers and the banks. Additionally, this aspect enhances customers' loyalty levels as they are able to execute all their banking needs remotely and with reduced costs such as transportation and so forth. This argument is in support of Chepkemoi (2015) who argued that when loyalty is enhanced, banks are likely to experience a growth in terms of performance, since revenues increase as well.

In view of Tam and Tiago (2015), mobile banking adoption for commercial banks is not an option owing to the emerging trends. As a matter of fact, this argument is supported in the current study as it has been revealed that all the 8 banks adopted mobile banking in funds transfer, bill payment, loan requests and repayments, as well as in ordering cheques and bank statements among other transactions. According to the authors and the current research outcomes, features of mobile banking are the major determinants of the extent in which banks are able to attain high returns from the applications. In particular, mobile banking is able to lead to the realization of high returns if it is perceived to be easy to use and usefulness to customers. According to Tam and Tiago (2015) banks should consider using mobile banking not as a means of enhancing profitability but a strategy

of enhancing their competitiveness since a large proportion of commercial banks are beginning to adopt it.

Findings of the current research have also supported the assertions made by Iravonga and Miroga (2018) that highlighted that with the stiff competition that has resulted from the frequent technological advancements in the banking sector, it is inevitable for banks to establish new strategies of enhancing their sustainability and performance. The observations are upheld in the current research owing to the fact that all the banks that were examined were found to have embraced mobile banking in various services and products without an exception. Iravonga and Miroga (2018) further indicate that innovations are having a significant impact on the success of the banking sector since customers want to conduct banking transactions at their convenience irrespective of their geographical location. Thus, literature reviewed by Iravonga and Miroga (2018) further recognize that mobile banking is gaining prominence since customers are trying as much as possible to avoid the use of cash and that it offers diverse mobile banking services to customers. Iravonga and Miroga (2018) conclude that the ability of mobile banking to offer diverse features to customers increases its preference among customers and results to the attainment of improved performance in banks. As a matter of fact, this was the observation in the current research although there is divergence in the sense that some banks such as Barclays and Diamond Trust Bank were found to have had a drop in profitability in some years. However, by virtue that majority of the banks had a positive trend for the period, the arguments by Iravonga and Miroga (2018) can be said to be supported by the outcomes of the current research. Essentially, the observations made in the current research have been found to have supported many authors in the reviewed literature particularly on the context of mobile banking products and features such as bill payment, ordering of cheques and bank statements, fund transfer between accounts and banks, and loan repayment and requests respectively.

4.4 Mobile Banking Accessibility and Bank Performance

One of the study's objectives was to establish the effect of mobile banking accessibility level on financial performance of tier one banking institutions in Kenya; focusing on Technology Acceptance Theory. Precisely, the study focused on four indicators for mobile banking accessibility which are; 24 hours accessibility, ability to use during travel, security and fraud alert services, and ability to use smart phones in undertaking transactions and the obtained results are presented below.

4.4.1 24-Hours Accessibility

The research sought to establish of the mobile banking applications and technology enabled the customers to carry pout transactions throughout the day even outside banking hours. The obtained results have been presented as Figure 4.5 below.

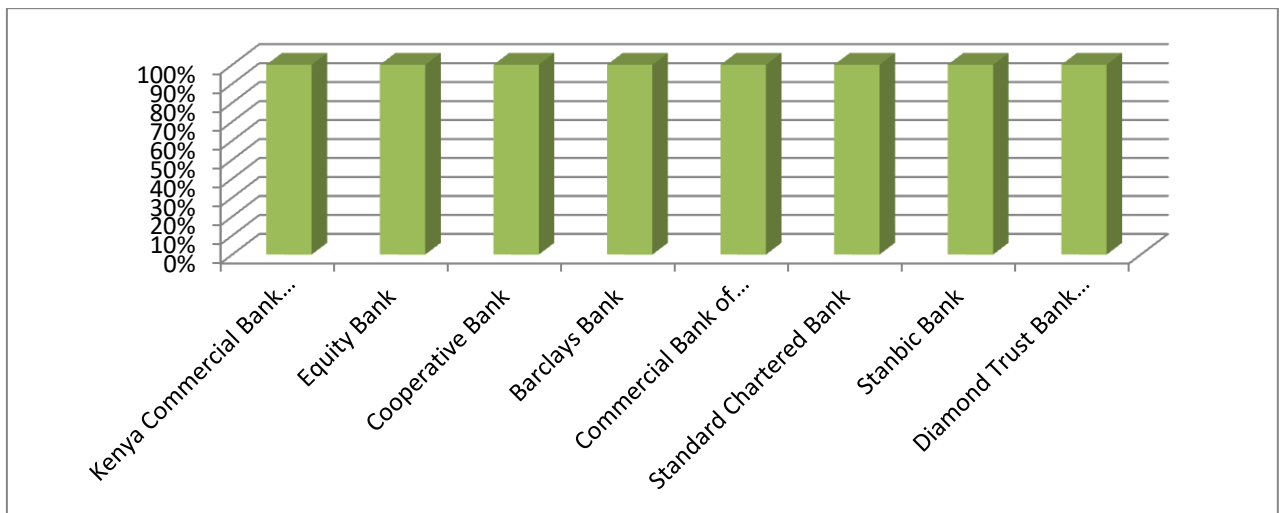


FIGURE 4.5

24 Hours Accessibility

From the obtained results as shown in Figure 4.5 above, individuals were able to access their funds and perform their different transactions throughout the day whether within working hours or not for all the banks. Fundamentally, this implies that technological developments especially mobile

banking have to a greater extent improved efficiency and convenience, also increasing the number of hours that customers undertake banking transactions, implying that the revenue is likely to increase and this promotes financial performance. The observation in this study has supported the arguments put forward by Njoroge and Mugambi (2018) in the reviewed literature who noted that mobile banking has provided banking institutions with an opportunity to increase the accessibility of their banking services to their customers, thus improving their overall market share. Accordingly, the outcomes are in line with the arguments of Mohamed (2019) that there is a constructive correlation amid access to mobile banking and the financial performance of commercial banks.

According to Mohamed (2019), increased accessibility to mobile banking has been the reason for the increased positive attainment of commercial banks in Kenya. Additionally, from literature reviewed, Njoroge and Mugambi (2018) opined that when people have access to their funds for long duration, they are likely to have multiple transactions on a daily basis as opposed to when they have to physically visit banks, thus, this aspect enables the bank to reduce overhead costs such as security and counter managers to enhance physical issuance of currency. As a matter of fact, this is a demonstration that financial performance of banks can significantly increase because of reduction of operational costs. Also, Njoroge and Mugambi (2018) had noted that the case of Equity bank's performance is founded on the fact that it has more subscribers, a fact that has been confirmed in this study especially on the fact that it was the best rated in terms of financial performance in overall for the period covering 2015 to 2019. As a matter of fact, an inference can be made in this study which supports the fact that having in place mechanisms and systems that are able to allow customers to access their funds respective of the time of the day is a strategic technique that will in the long run increase revenue for an organization on one hand. On the other hand, this will mean a significant reduction of operational costs meaning increased level of profitability which is the main goal of commercial banks.

4.4.2 Travel Services

The main aim in investigating travel services was to find out if individuals were able to access their funds anytime and anywhere, especially when they travel out of the country. The obtained results have been presented in Figure 4.6 below.

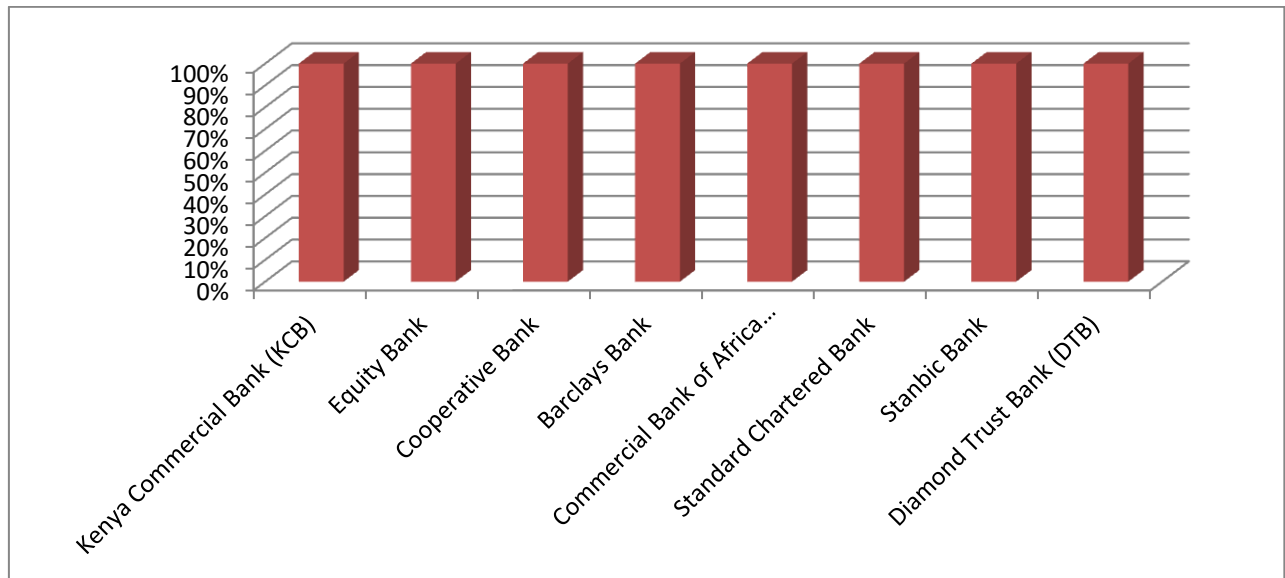


FIGURE 4.6

Travel Services

The outcomes presented as Figure 4.6 above have demonstrated that all the 8 banks also enabled their customers to have access to their banks accounts even when they have travelled. Thus, travelling services implies that individuals should not worry as to whether they will be able to meet their bills and expenses associated to travelling, a fact that further implies more transactions and more revenue for the banks. The findings are in line with the reviewed literature especially based on the assertions made by Mabwai (2016). Precisely, Mabwai (2016) argued that mobile banking has given customers the opportunity to access their accounts and conduct various transactions at any time without limitations. Mabwai (2016) indicates that over the counter transactions only allow customers to conduct their transactions during the working hours only and does not include public

holidays and weekends. Mobile banking on the other hand has gained prominence in Kenya and across the globe since do not have limitations on the days they are able to access funds thus making it possible for customers to address their diverse financial needs as they arise. Mabwai (2016) concludes that mobile banking has been a revolution in the banking sector since customers are able to transfer, withdraw and send funds at ease. As a matter of fact, the arguments by Mabwai (2016) and the results of the current research demonstrate that place (geographic location) and time are not limiting factors for customers using mobile banking, and this is an important strategy towards the overall financial performance of banks. Essentially, Mabwai (2016) arguments are further supported by the reviewed literature according to Njoroge and Mugambi (2018) who indicated that Equity Bank had the largest proportion of mobile banking subscribers since its mobile banking services was not only cheap and convenient but also did not have any geographical limitations. Thus, this is an indication that the performance results noted in the preceding sections as far as financial performance was concerned were justified on this assumption that Equity Bank performed relatively well than other banks because of its advancements as far as mobile banking is concerned. Nonetheless, with other banks also adopting mobile banking especially on travel accessibility, the overall performance improvement is expected other factors remaining constant.

4.4.3 Security and Fraud Alert

Another important parameter as far as mobile banking accessibility is concerned in this study was the ability to receive notifications as far as account security and fraudulent activities are concerned. Thus, the researcher sought to find out if the banks had this feature integrated in their mobile banking to promote authorized accessibility to the funds. The obtained results are presented as Figure 4.7 below.

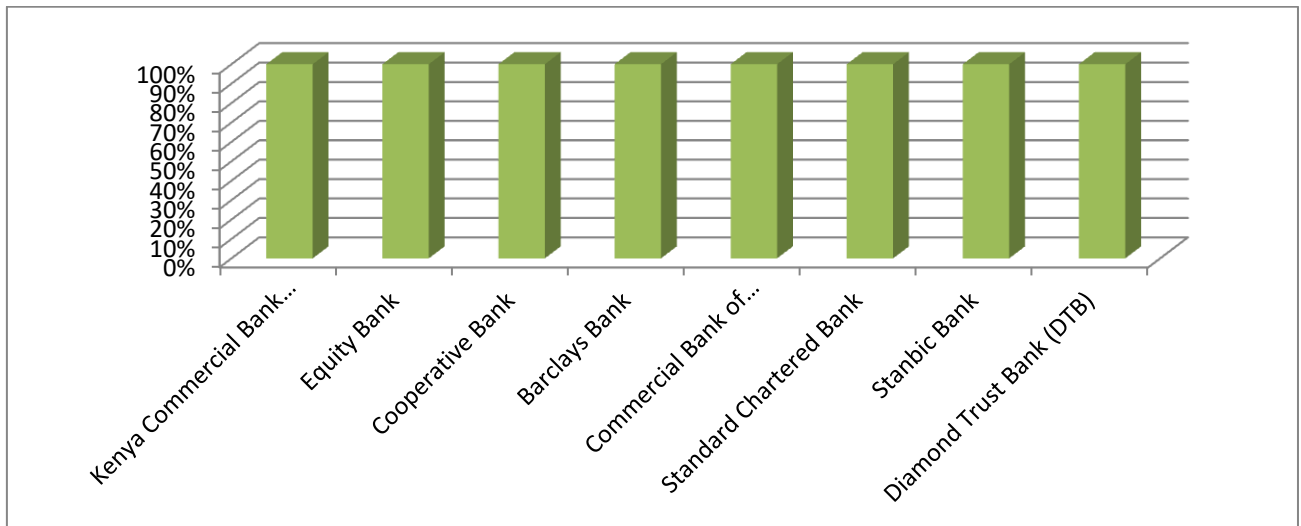


FIGURE 4.7

Security and Fraud Alert

According to the outcomes in Figure 4.10 above, all banks (the 8 banks), had security features and fraudulent transactions alert, which implies that customers were informed through their registered mobile phones whenever any attempt to access their accounts was made. From this results, the main advantage associated with this trend is based on the fact that customers gain confidence of the banks and particularly on using mobile banking platforms, a fact implying that subscriptions to this service and technology continues to grow. Once new subscribers continue to increase, it implies bank transaction costs reduce significantly and the revenues also increase significantly. Therefore, banks are able to register better financial performance results like for the case of Equity Bank, Cooperative Bank, and Kenya Commercial Bank which have shown tremendously impressive results for the 5 years being investigated in this study.

4.4.4 Smartphone Use

Finally on accessibility, the researcher sought to find out if the services were accessible through smart phones since this is the main gadget used in the modern business environment and the findings have been presented in Figure 4.8 below.

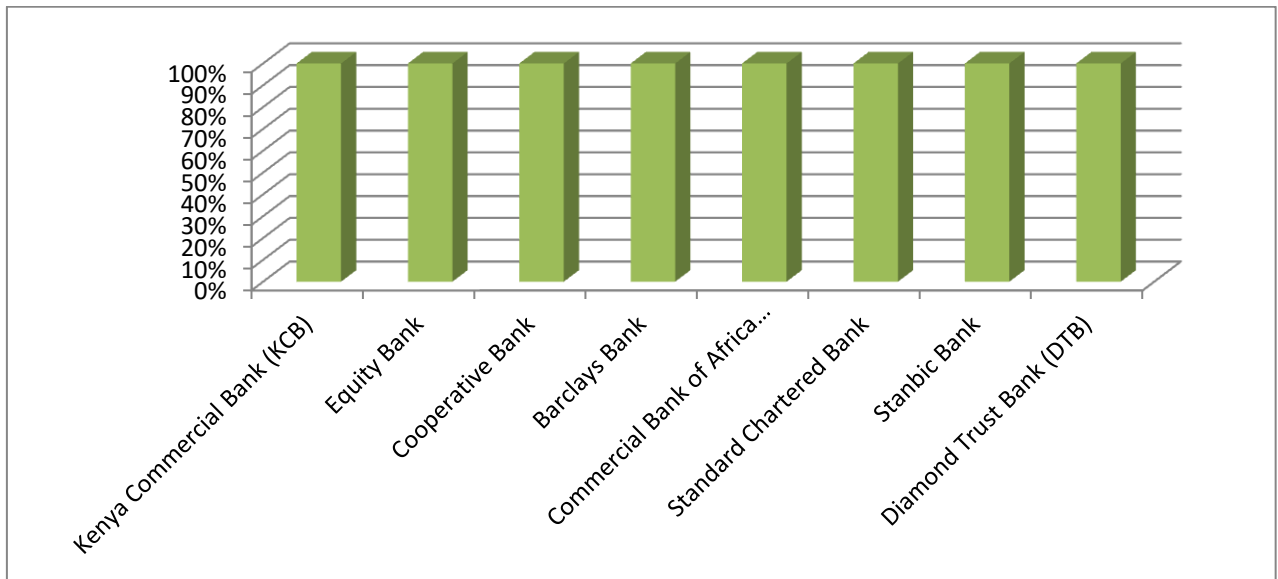


FIGURE 4.8

Smartphone Use

The results on Figure 4.8 above shown that all tier one banking institutions in Kenya allow customers to access their funds from any other telephone gadgets including smart phones. This outcome is in support of the reviewed literature especially on the context of accessibility without any limitation as maintained by Mabwai (2016).

TABLE 4.5**Mobile Banking Accessibility**

<i>Descriptives</i>	<i>24-Hours Accessibility</i>	<i>Travel Services Accessibility</i>	<i>Security and Fraud Alert</i>	<i>Smartphone Use</i>
Mean	5	5	5	5
Standard Error	0	0	0	0
Median	5	5	5	5
Mode	5	5	5	5
Standard Deviation	0	0	0	0
Sample Variance	0	0	0	0
Range	0	0	0	0
Minimum	5	5	5	5
Maximum	5	5	5	5
Sum	40	40	40	40
Count	8	8	8	8
Confidence Level (95.0%)	0	0	0	0

The results were further analyzed based on the descriptive analyses and the outcomes have been presented as Table 4.5, in which case focus has been put on the 24 hours accessibility, travel services accessibility, security and fraud alert services, and smart phone use in conducting banking transactions. The obtained outcomes presented in Table 4.5 above demonstrate that at 95% confidence level, the mean for the specific parameters in all the banks for a period of 5 years was the same at 5 while there were no variations from the mean as demonstrated by the standard deviation of 0. Moreover, the maximum and minimum results in all cases was the same, an indication that no variance from the mean. Thus, this is in support of the fact that accessibility of banking services was an important strategy towards the overall financial support of commercial banks. The results have also demonstrated a strong backing for the observations made under literature review. For instance, the arguments agree with Kirui (2016) noted that mobile banking had enhanced the sales of SMEs. Kirui (2016) indicated mobile banking allowed SMEs to deposit funds in a frequent manner which consequently increased bank performance due to the diverse

transactions that were conducted. Kirui (2016) who noted that mobile banking accessibility positively affects the attainment of banks in diverse ways such as increment of bank deposits and reduction transaction costs, which in overall increase bank revenue.

Additionally, Abong'o (2016) indicated that commercial banks in Kenya may be faced out in the market if they fail to adopt mobile banking. In view of Abongo (2016), banks like CBA had developed the M-shwari platform that allows customers to access funds in any geographical region. Also, Muiruri, Richu and Karanja (2015) indicated that customers were only satisfied with mobile banking if they were certain that their information was safe and could not be disclosed. Essentially, these assumptions from the reviewed literature are upheld by the current research results especially on security features such as notification of any transactions which are undertaken by suspicious parties given the dangers of cybercrime and so forth. In addition, Gichuki and Jagongo (2018) concluded that the accessibility and reliability of mobile banking has not only enhanced the experience of customers in mobile banking but also created a vibrant and competitive banking sector. In this regard, the overall performance of banks depends largely on the accessibility level of the banking services through mobile gadgets in order to promote ease means of effecting transactions.

4.5 Mobile Banking Transaction Costs and Bank Performance

The study was also guided by an objective which sought to establish the effect of mobile banking transaction costs on financial performance of tier one banking institutions in Kenya; focusing on the Market Power Theory. The specific indicators focused on this objective included subscription costs, notification of SMS alert costs, transfer or withdrawal of funds costs, and charges on bank statement requests. The findings are discussed under of the transaction costs that were considered as being relevant for this research.

4.5.1 Subscription Costs

One of the cost elements for mobile banking is subscription, in which customers are required to incur certain charges for registering into a platform in order to use it for transacting in banks. The results obtained for subscription costs have been presented in Figure 4.9 below. From these results, all the banks did not require its customers to incur subscription costs in order to be able to use mobile applications for banking. This implies that customers were likely to find mobile banking not only convenient but also less costly compared to offer the counter banking. As a matter of fact, these arguments are contrary to the views presented by Mohamed and Omar (2018) who stated that conducting banking transactions using mobile banking was costly for the enterprises.

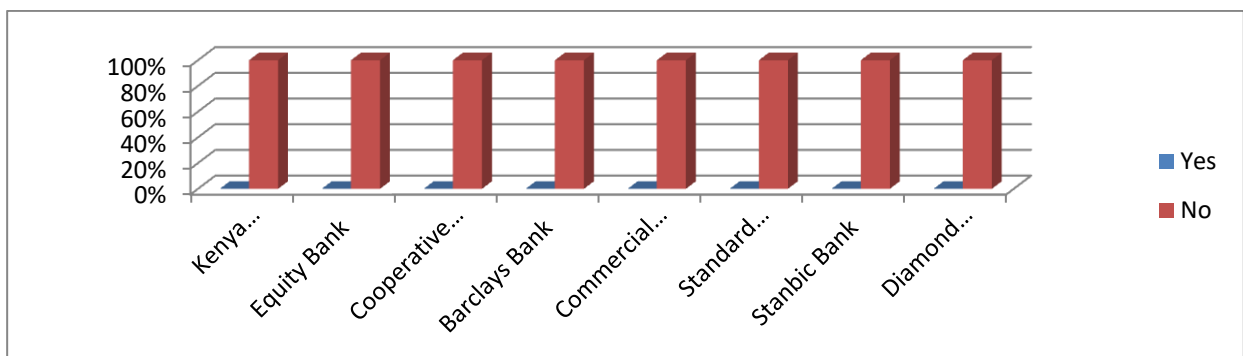


FIGURE 4.9

Subscription Costs

When transaction costs were high, there was a high likelihood for financial performance to be affected negatively. Mohamed and Omar (2018) identified that businesses incurred high costs in mobile transactions than accessing the services over the counter. The implication was that banks attained high revenue when digital banking was applied as opposed to providing the services over the counter. As a matter of fact, these observations are not supported in the current research as it has not been found that banks do charge subscription costs, unless Mohamed and Omar (2018) were referring to other transaction costs which they did not specify. Nonetheless, the current research

findings so support the views made by Coderias (2017) which showed that customers were the main beneficiaries of mobile banking as subscription costs were not charged.

4.5.2 Notification Costs

Notification services through short messaging systems (SMS) or any other platforms can also be a cost element as far as mobile banking transaction costs. Further, given the results have affirmed the fact that all banks provide customers with notification when accounts are being accessed or transactions carried out, it is important to examine the extent to which the costs thereon can be considered in the overall performance of the banks. Figure 4.10 below gives a summary of the results obtained.

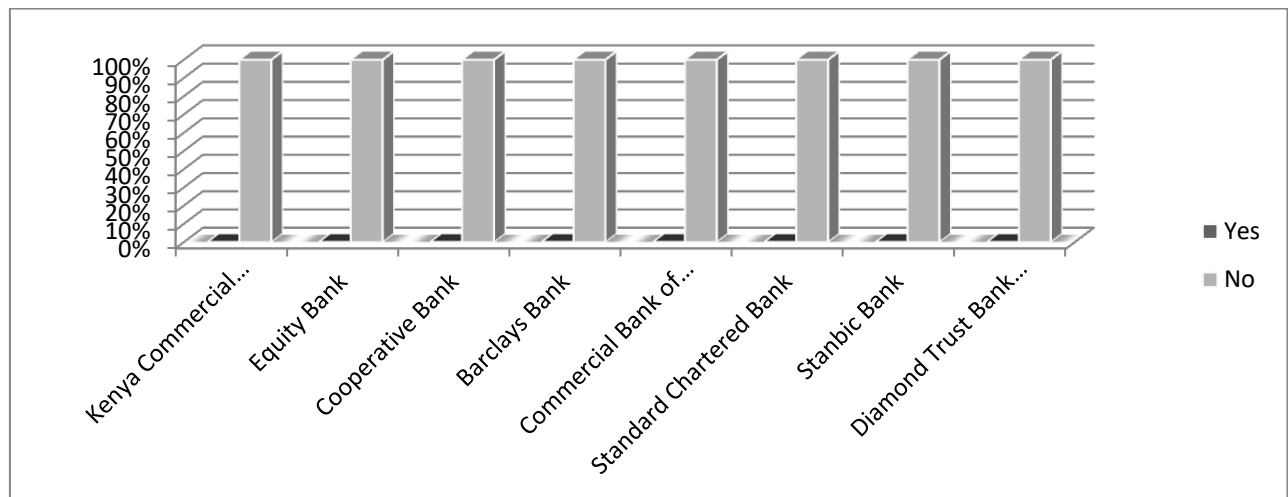


FIGURE 4.10

Notification Costs

From the obtained results above, it is clear that in all banks, notification costs are not charged. This can be interpreted to mean that banks are able to compete in the market by providing their customers with notification services without actually charging them. Moreover, such a strategy attracts customers and contributes significantly towards the overall financial performance of the banks. Comparing the outcomes with the reviewed literature, there is a consensus especially with

Rahayu and Rahadian (2018) who indicated that the costs that are incurred by individuals and SMEs needed to be evaluated from a multi-levels perspective rather than just focusing on a limited number of costs that are incurred when depositing, withdrawing and transferring funds. In particular, the authors indicate that there is need to also look into such aspects as costs that are incurred by customers when visiting bank branches as well as the amount of time that is taken when making physical visits to the bank in comparison to the use of mobile banking. It thus meant that if similar costs were incurred by customers for over the counter services as well as through digital banking, banks did not therefore acquire additional revenue thus supporting the claims indicated by Coderias (2017). The arguments in this context imply that charging notification costs will make the accessibility of mobile banking unattractive to the customers, despite it being a source of revenue to the banks.

4.5.3 Funds Transfer or Withdrawal Costs

Another concern was on the cost incurred in transferring or withdrawing funds through mobile applications. As such, the researcher was determined in finding out whether such costs are charged or not and the obtained results are presented in Figure 4.11 below.

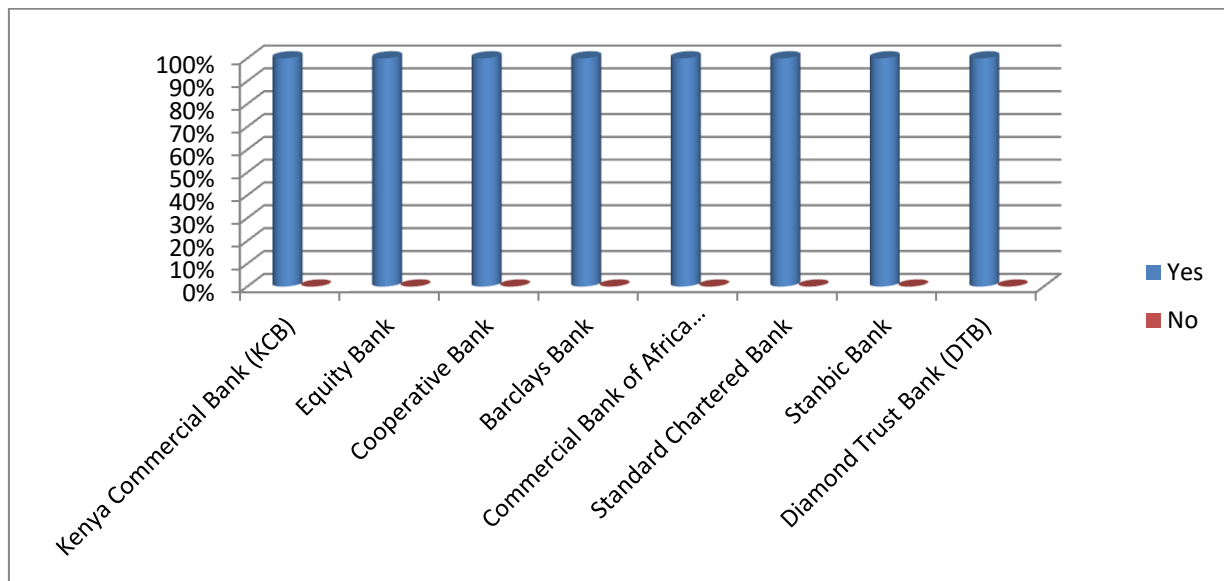


FIGURE 4.11

Funds Transfer or Withdrawal Costs

From the obtained findings, it is observed that all banks were actually charging withdrawal and transfer of funds although the actual costs were not obtained. As a matter of fact, this implies that banks are able to generate funds from mobile transactions as profits, a fact that has contributed towards the positive trend in financial performance over the years owing to the fact that the number of subscribers has also continued to increase over time. The finding is in support of the assertions made in the reviewed literature especially on the issue of it being beneficial to banks. For instance, an exploration by Ndirangu (2014) on mobile banking and its influence on Commercial Banks in Kenya identified that technological investments were more beneficial than detrimental to the institutions. According to Ndirangu (2014), technological advancement had made it possible for banks to establish negligible costs to consumers for such as services as withdrawing and transferring funds or receiving bank statements. Ndirangu (2014) indicated that whilst the different costs that were charged for various digital banking services aided in the increment of overall bank revenues as well as enhanced financial performance of commercial banks.

4.5.4 Bank Statement Request Costs

The study also focused on requesting bank statements through mobile application and whether this was free or charged transaction. The obtained results have been presented as figure 4.12 below.

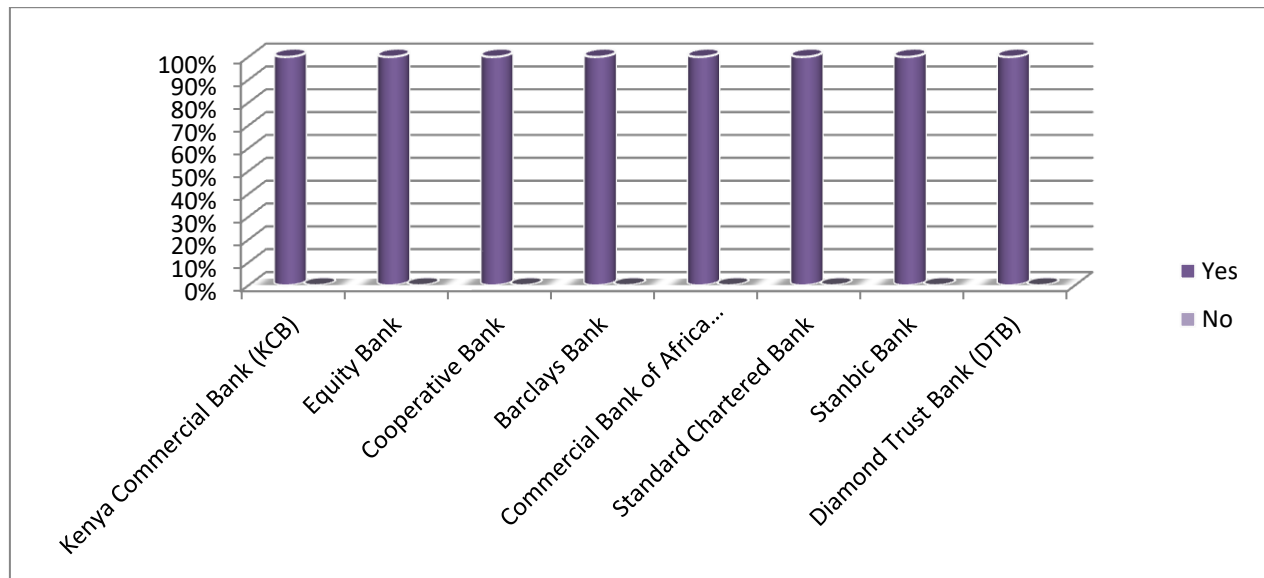


FIGURE 4.12

Bank Statement Request Costs

The observations have also revealed that banks charge their customers when they make requests for bank balances and statements of their accounts. This outcome is similar to the previous one based on the fact that online platforms are identified as sources of revenues. Further, the results are in agreement with the reviewed literature on how banks should maximize revenue generation by offering services that are charged. For instance, Otieno (2018) in an investigation on the influence of mobile banking on commercial banks in Kenya indicated that mobile banking was a new technology that was transforming the business and the banking sector greatly. According to Otieno (2018), mobile banking enhanced the financial attainment of commercial banks in diverse ways such as increasing the proportion of money that was banked digitally on an annual basis, enhancing the proportion of customers that used digital banking as well as the capital adequacy of banks.

Additionally, mobile banking aided in improving bank liquidity as well as the management of different banking operations. Otieno (2018) concluded that when evaluating the impact of mobile banking on financial performance, it was important to evaluate the impact of the technological innovation on other aspects such as return on assets, return on investment as well as return on equity, a fact that can be asserted in the current research.

4.6 Mobile Transaction Volume

The study also focused on the impact of transaction volume on financial performance putting emphasis on deposits, withdrawals, ATM withdrawals and transfers respectively. Findings are provided on Table 4.6 below.

TABLE 4.6

Mobile Transaction Volume

<u>Mobile Transaction Volume (Deposits + Withdrawals + ATM Withdrawals + Transfers)</u>					
	<u>Number of transactions in Millions</u>				
	<u>2015</u>	<u>2016</u>	<u>2017</u>	<u>2018</u>	<u>2019</u>
<u>Kenya Commercial Bank (KCB)</u>	<u>21.70</u>	<u>36.40</u>	<u>52.00</u>	<u>62.10</u>	<u>281.30</u>
<u>Equity Bank</u>	<u>291.60</u>	<u>410.11</u>	<u>539.01</u>	<u>646.29</u>	<u>705.57</u>
<u>Cooperative Bank</u>	<u>16.40</u>	<u>20.14</u>	<u>33.65</u>	<u>47.52</u>	<u>66.90</u>
<u>Barclays Bank</u>	<u>10.40</u>	<u>14.20</u>	<u>18.60</u>	<u>21.40</u>	<u>23.40</u>
<u>Commercial Bank of Africa (CBA)</u>	<u>8.70</u>	<u>8.99</u>	<u>9.78</u>	<u>10.21</u>	<u>12.36</u>
<u>Standard Chartered Bank</u>	<u>6.92</u>	<u>7.88</u>	<u>8.04</u>	<u>8.10</u>	<u>9.00</u>
<u>Stanbic Bank</u>	<u>5.40</u>	<u>5.59</u>	<u>5.98</u>	<u>6.40</u>	<u>6.90</u>
<u>Diamond Trust Bank (DTB)</u>	<u>7.10</u>	<u>7.41</u>	<u>7.45</u>	<u>8.10</u>	<u>8.80</u>

According to the results presented in Table 4.6 above, it is clear that all the banks achieved a positive trend and growth in terms of mobile transaction volume for the 5 years that were investigated. However, the growth rate from one year to the other or from one bank to the other varied across. According to the findings, Equity Bank was the best performing followed by KCB and Cooperative bank as the top 3 banks. These results are in support of the findings with regard to

profitability of banks in which case Equity bank was the leading. Thus, this can be linked that as volume of transactions increase, revenue also increases proportionately. Comparing the outcomes with the reviewed literature, it is established that there is a relationship between transaction volume and financial performance. For instance, Wadada (2019) highlighted that mobile banking was beneficial to commercial banks in that it increased the volume of customer transactions that were conducted in the institutions. Moreover, Wadada (2019) recognized that transaction volume was positively correlated to bank revenue since increase in the proportion of customers that were accessing banking services through mobile applications resulted to an overall increment of bank revenue. In particular, enhancement of such transactions as deposits, bank transfers and withdrawals increased bank revenue since a certain proportion of money was charged in each of the transactions that were carried out using M-banking. Wadada (2019) shows that there is a constructive association amid the transaction volumes conducted in mobile banking and the financial performance of banking institutions. Therefore, results in this study have supported majority of the assertions made by past scholars.

4.7 Inferential Statistics

In determining whether the results obtained can be relied upon, the researcher conducted multiple tests and the results are presented below.

4.7.1 Normality Test

In testing normality, the researcher relied on kurtosis and skewness and the results are presented in Table 4.7 below.

TABLE 4.7

Normality Test

<i>Column1</i>		<i>Column2</i>	
Mean	0.6125	Mean	0.25
Standard Error	0.223956	Standard Error	0
Median	0.625	Median	0.25
Mode	1	Mode	0.25
Standard Deviation	0.447912	Standard Deviation	0
Sample Variance	0.200625	Sample Variance	0
Kurtosis	0.9	Kurtosis	0.9
Skewness	0.01	Skewness	0.01
Range	0.8	Range	0

From Table 4.7 above, it can be concluded that data used for this study is normal as the outcomes for kurtosis were 0.9 indicating that it is not more than +1 or less than -1 which should have demonstrated that data set used was abnormal. Moreover, the skewness for the data was found to be 0.01 at 95% confidence level showing that data was normal.

4.7.2 Multi-collinearity Test

Tolerance value and the variance inflation factor (VIF) were the basic tests used in testing for multi-collinearity. When results have a small tolerance values, it can be interpreted to mean that there are collinearity problems and vice versa. The results obtained are presented in Table 4.8 below.

TABLE 4.8**Collinearity Results**

Independent Variables	Collinearity Results	
	Tolerance	VIF
Mobile banking products use	.925	1.050
Mobile banking accessibility	.976	1.043
Transaction costs	.520	4.040
Transaction volume	.422	4.361

The results presented above indicate that independent variables are not highly correlated since none of the values are more than 10 in terms of VIF and tolerance value which is less than 0.2 respectively.

4.7.3 Heteroscedasticity Test

The researcher performed another test in testing error terms in establishing if the significant value obtained was more than the alpha value or not and the results are presented in Table 4.9 below.

TABLE 4.9**ANOVA Table for Breusch-Pagan Test**

Model	Sum of squares	df	Mean Square	F	Sig.
Regression	0.76	4	0.18	1.045	.388 ^b
Residual	1.870	16	0.016		
Total	2.63	20			
Dependent Variable: Financial Performance					
Predictors: (Constant), mobile banking products, mobile banking accessibility, transaction costs, transaction volume					

The results obtained indicate that the significance value obtained was 0.388 which is more than 0.05 alpha values, thus affirming that in the error terms, homoscedasticity exist. Thus, the results are considered to be unbiased, accurate, and valid. From the obtained results, a summary of the hypotheses can be provided as below.

TABLE 4.10

Model Summary

Model	R	R square	Adjusted R Square	Std. error
	.842 ^a	.769	.676	.2241
Predictors: (Constant), mobile banking products, mobile banking accessibility, transaction costs, transaction volume				
Dependent Variable: Financial Performance				

The findings on the model summary provides the correlation coefficient of adjusted R as square of 0.676 an implication that mobile banking factors can be used to explain the various performance aspects of banks such as return on assets, profitability, and return on equity at 67.60%, while other factors not within the focus on this study accounting for the remaining 32.40% respectively.

TABLE 4.11

ANOVA Results

Model	Sum of squares	df	Mean Square	F	Sig.
Regression	24.148	4	0.18	1.045	.000 ^b
Residual	10.359	16	0.016		
Total	34.507	20			
Dependent Variable: Financial Performance					
Predictors: (Constant), mobile banking products, mobile banking accessibility, transaction costs, transaction volume					

Since the significance value obtained for the regression model is 0.000 which is way less than 0.05 at 95% confidence level, the model has been accepted as appropriate in making inferences and this led to the establishment of the regression coefficients for the data and outcomes are presented in Table 4.12 below.

TABLE 4.12

Regression Coefficients

Model	Unstandardized coefficients		Standardized coefficients	t	Sig.
	B	Std. error	Beta		
(Constant)	.739	.218		3.158	.000
Banking products	.025	.013	.021	.127	.000
Banking accessibility	.025	.014	.130	.187	.000
Transaction costs	.025	.014	.101	.106	.000
Transaction volume	.025	.018	.160	.146	.000

The outcomes from Table 4.12 can be used to make inferences for the study as far as the relationship among variables is concerned. The first approach was to determine from the obtained results the relevance of the dependent variables on the dependent variable and how this can be interpreted based on the study's data processing model. The following association can be provided based on the analysis of the results for the study.

$$\text{Financial performance} = 0.25 \text{ products use} + 0.25 \text{ accessibility} + 0.25 \text{ transaction cost} + 0.25 \text{ transaction volume} + 0.20 \text{ (error term)}$$

In this case, each of the variables for the study is found to be important and significant as they represent 25% in the overall performance of the banks. Nonetheless, there is a marginal error

of 20% in each of the variables as revealed above. The obtained outcomes are in support of the reviewed literature especially that of Wadhwa (2017) who strongly supported the fact those digital banking platforms such as the use of mobile banks is quite important in supporting performance of commercial banks. Additionally, Hani (2019) also revealed that commercial banks have greatly benefited from the introduction of mobile banking, a fact that has improved convenience among customers and this has a trickle-down effect to the commercial banks that are in turn recording tremendous improvements in financial performance.

TABLE 4.13

Summary of Research Hypotheses

	Hypotheses	Summary
H1	Mobile banking transaction volumes enhances financial performance of tier one banks	Accept the alternate hypothesis
H2	Mobile banking transaction costs enhances financial performance of tier one banks	Accept the alternate hypothesis
H3	Mobile banking product variety enhances financial performance of tier one banks	Accept the alternate hypothesis
H4	Mobile banking accessibility levels enhances financial performance of tier one banks	Accept the alternate hypothesis

From Table 4.13 above, all the alternate forms of the hypotheses have been accepted, meaning that the null forms were rejected. This inference is based on the results discussed in the preceding sections.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

In this chapter, a summary of the outcomes will be provided followed by whether research objectives have been met or not before recommendations are provided. As such, the chapter will be split into summary, conclusions, recommendations for policy action, and recommendations for future studies respectively.

5.2 Summary of Findings

This section presents a summary of the research findings based on the outcomes reported on each objective of the study as discussed in the subsequent sub-sections.

5.2.1 Mobile Transaction Volume and Financial Performance

The study was guided by a number of objectives in which case the first objective was to establish the effect of mobile banking transaction volumes on financial performance of tier one banking institutions in Kenya; focusing on Schumpeterian Theory of Innovation. Findings related to this objective have demonstrated that the higher the transaction volumes, the higher the rate of returns. Essentially, it was observed from the results that the bank that had higher volumes in terms of mobile banking use had a better performance and vice versa. In this regard, it can be concluded that banks can competitively market their products and encourage consumers to use mobile banking for a better performance result. This inference is in line with the theory by Schumpeter who highlighted that innovation was the basis for realization of competitiveness and profitability since it aided in the fulfillment of customers' needs. Accordingly, when customers are given an opportunity to undertake their financial transactions conveniently, they are satisfied on one hand but on the other hand, the more transactions they perform, the better the financial results for a banking institution.

5.2.2 Mobile Banking Transaction Costs and Financial Performance

The second objective of the study was to establish the effect of mobile banking transaction costs on financial performance of tier one banking institutions in Kenya; focusing on the Market Power Theory. As a matter of fact, it is established from the results that transactional costs are beneficial to banks as they form part of the revenues, while it is an expense on the side of the customers. Nonetheless, evidence has demonstrated that banks should introduce mobile banking transactional costs after a careful review of the trends in the market particularly with regard to the strategies employed by competitors. Accordingly, there was a similar trend among various banks as some transactional costs such as withdrawal and transfer of funds were being charged across the banks and other transactions such as notification and subscriptions were not charged. Therefore, the findings of the study have revealed that although costs charged are revenue generating activities in promoting performance of banks, not all costs should be charged as it forms the basis of retaining customers for purposes of competition which is also important for the overall performance. These assertions are in line with market power theory as the main strategy is achieving customer loyalty in increasing profitability levels by charging minimal costs on transactions.

5.2.3 Mobile Banking Product Variety and Financial Performance

The third objective was to establish the effect of mobile banking product variety on financial performance of tier one banking institutions in Kenya; focusing on the task Technology Fit (TTF) Theory. Whilst the fact that mobile banking products makes reference to the services available, the study has revealed that the more the services or products, the higher the chances of better financial performance. Mobile banking gives consumers the freedom to undertake various transactions such as transferring of funds, withdrawing if funds, bill payment, and 24-hours accessibility irrespective of the location. Customers can also transfer funds between accounts in same banks as well as in different banks. The observations are in support of task technology fit theory which is anchored on

the ability of identifying the specific needs of customers and providing technologies that provide such needed solutions.

5.2.4 Mobile Banking Accessibility Level and Financial Performance

The fourth objective of the study was to establish the effect of mobile banking accessibility level on financial performance of tier one banking institutions in Kenya; focusing on Technology Acceptance Theory. As a matter of fact, accessibility implies that customers are given more time to conduct several transactions even outside working hours. Therefore, this is a demonstration that higher levels of accessibility mean higher rates of turnover. In addition, when customers travel, they are able to comfortably meet their financial needs without necessarily being present in their banks. This is an indication that financial performance is dependent on the number of hours customers can access their funds for executing various transactions, a fact that is directly linked to number of transactions or volume. The outcomes are also supported by technology acceptance theory which provides that for mobile banking to be accepted by clients, it has to be demonstrated that it is easy to use and meet the expected usefulness respectively. Thus, accessibility becomes very important in promoting financial performance of a commercial bank.

5.3 Conclusions

From the summary above, it can be said that the research objectives were achieved, culminating to the establishment of answers to the research questions. The first research question was to find out how mobile banking transaction volumes can influence financial performance of tier one banking institutions in Kenya. From the results, transaction volume implies higher revenues coming from transaction costs that are charged on each transaction. Thus, this implies that a bank should strive towards having a high number of customers as this is the basis on which transaction volumes can be increased drastically. The second research question was to find out how mobile banking transaction costs can influence financial performance of tier one banking institutions in Kenya. Just like

transaction volume, transaction costs as the main sources of revenues that banks have. In this case, banks should only implement costs that are charged by other competitors so as not to lose their customers to other banks. More importantly, the costs should be bearable for customers to be encouraged to use mobile banking.

The third research question was to find out how mobile banking product variety influences financial performance of tier one banking institutions in Kenya. In view of this question, the obtained answer maintains that the more varieties of products or services accessed by customers through mobile banking, the better the financial performance and vice versa. Thus, enabling the customers to undertake numerous transactions without physical movements imply that more transactions can be done and this is directly linked to the organizations; financial performance. The fourth research question was to find out how mobile banking accessibility level influences financial performance of tier one banking institutions in Kenya. The findings have concluded that accessibility means that funds can be used whenever and whatever time they are needed. Results have demonstrated that indeed mobile banking is a timely innovation in the banking sector owing to the shifting trends in business especially banking sector. Moreover, the outcomes of the study demonstrate that important aspects of mobile banking include various products or services, accessibility remotely, transaction cost minimization and increase of transaction volume.

In conclusion, it is derived from the findings presented in the summary above that mobile banking is timely and important in the overall financial performance of commercial banks. Precisely, it is concluded that the more the number of transaction volume the better the results. In addition, the research concludes that although transaction costs are important sources of financial revenues for purposes of performance, care should be exercised when thinking what to implement as it has direct and huge impact in the overall performance of the banks. Also, the study concludes that accessibility of funds in the banks through mobile banking for 24 hours implies giving

customers more time and opportunities to do mobile banking. The study further concludes that having in place numerous products or services that can be undertaken using mobile banking is an added advantage for purposes of increasing revenue streams.

5.4 Recommendation for Policy Action

Based on the outcomes of the study, tier one commercial banks in Kenya can be provided with a number of recommendations to increase the level of their performance. Firstly, it is recommended that banks should make mobile banking transactional costs as minimum as possible to attract customers and be competitive. Secondly, the study recommends that commercial bank management teams should invest in technology and innovation in coming up with new services and products that can be offered using mobile banking. Thirdly, the study recommends that accessibility of mobile banking should be improved by banks so as to enable as many customers as possible to do transactions which are sources of financial gains.

5.5 Recommendations for Future Research

The study makes a number of suggestions to be considered by future scholars. Firstly, given that the study relied on secondary data only, future scholars are recommended to adopt primary sources of data such as interviews and surveys in collecting views and contributing to this area of knowledge. Secondly, the current research was limited by the fact that the scope was focused on tier one commercial banks. Future scholars are recommended to extend the same research into other commercial banks and financial institutions respectively. Finally, it is recommended that future researchers should also focus in exploring other innovations associated with mobile banking that should be implemented in banks so as to enhance performance and customer experience.

5.6 Research Limitation

Although the conduct of this research is deemed rather successful, a few limitations were experienced during the conduct of the research. The first limitation of this study was that it employed purely secondary data only as opposed to the use of mixed or primary data. Secondly, the study was limited by limitation of scope since emphasis was put on tier one commercial banks in Kenya as opposed to the overall commercial banks since mobile banking factors are implemented across the board. Thirdly, the study was limited on the methodological choices made in terms of data analysis since descriptive statistics and inferential statistics only were used. Finally, the study was limited on the scope of time and the researcher's experience in terms of data handling and processing respectively.

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APPENDICES

Appendix A: Data Collection Sheet

Part A: Background Information

Research Topic: Factors of Mobile Banking Affecting Performance of Tier One Banks in Kenya

Name of BANK:

1. Financial Performance for the Period of 2015 to 2019

Year	Financial Performance			
	ROA	ROE	Profitability	Rank
2015				
2016				
2017				
2018				
2019				

2. Mobile Banking Products Use

Year	Mobile Banking Products used			
	Bill Payment	Ordering for cheques books and bank statements	Fund transfer between accounts	Loan Payments or requests
2015				
2016				
2017				
2018				
2019				

3. Mobile Banking Accessibility

Year	Mobile Banking Accessibility				
	24-hours Account Access	Travel statements	Services	Security and Fraud Alert	Smartphone App Use
2015					
2016					
2017					
2018					
2019					

4. Mobile Banking Transaction Costs

Year	Mobile Banking Transaction Costs			
	Subscription Costs	Notification/SMS Alert Costs	Transfer/withdrawal Costs	Bank Statement Request Costs
2015				
2016				
2017				
2018				
2019				

5. Mobile Banking Transaction Volume

Year	Mobile Banking Transaction Volume			
	Deposits	Withdrawals	ATM Withdrawals	Transfers
2016				
2017				
2018				
2019				

Appendix B: List of Tier One Commercial Banks

Bank Name	Assets base	Headquarters
Kenya Commercial Bank (KCB)	714.31 billion shillings	Kenya
Equity Bank	524.5 billion shillings	Kenya
Cooperative Bank	404.15 billion shillings	Kenya
Barclays Bank	374.109 billion shillings	Kenya
Commercial Bank of Africa (CBA)	215.6 billion shillings	Kenya
Standard Chartered Bank	72039. 8 billion shillings	London
Stanbic Bank	180.51 billion shillings	Kenya
Diamond Trust Bank (DTB)	166.5 billion shillings	Kenya