MOBILE BANKING AND PROFITABILITY OF TIER 1 COMMERCIAL BANKS IN KENYA

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NOVEMBER 2018
DECLARATION

CANDIDATE DECLARATION

I declare that this project is my original work and has not been submitted to any other college or university for academic purpose. No part of this research project should be reproduced without authority of the author or/ and Kenyatta University.

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DECLARATION BY SUPERVISOR

I confirm that the candidate did the work in this research project under my supervision as the duly appointed supervisor by the university.

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DEDICATION

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OPERATIONAL DEFINITION OF TERMS

Capital adequacy-  The degree of the capital of the bank. This variable measures the prosperity and soundness of the bank. Spare cash with the anomalous condition of capital is relied upon to manage any financial risks which go with ease when stood out from one with low levels of money. Capital adequacy is required to influence bank profit decidedly.

Return on Equity- This is the ratio of the net profit of the firm to the owner’s equity.

Return on Assets- This is the ratio of the net profit of the firm to the firm’s assets.

Mobile banking- Implies course of action and availment of keeping cash and budgetary organizations with the help of compact media interchanges devices. The degree of offered agencies may join workplaces to lead bank and securities trade trades to manage accounts and to get to the changed information.

Profitability- Is the limit of an association to use its advantages for creating wages in the wealth of its expenses. This is an association's ability to deliver profits to its operations.
Size- The aggregate resources decide the extent of the bank. Resources are utilized as an intermediary for bank estimate. They represent bank estimate. They represent estimate related economies and diseconomies of scale.

Tier 1 Commercial Bank- Are extensive manages an account with several billion in combined resources and a large number of contributors. The banks’ advantage bases are deep to the point that any disappointments would catastrophically affect our economy as a nation. In the occasion that would happen, the administration would need to mediate to turn away budgetary emergency. They control 49.9% of the market.
ABSTRACT

Mobile banking is an administration given by commercial organizations in participation with cell phone administrators. Mobile banking is evolving as the new front on which banks can differentiate their service delivery as a form of financial innovations. Hence financial innovations have been largely adopted by local banks to enhance profitability. More and more banks are strategically launching newer and newer mobile banking platforms. At the same time, improved financial performance in comparison to previous periods has been the trend by these commercial banks, yet limited studies focusing on the effect of mobile banking on profitability of commercial banks in Kenya. The study sought to determine the effect of mobile banking on the profitability of tier 1 commercial banks in Kenya. It also sought to achieve the following specific objectives: to establish the impact of transactions, electronic funds transfer services, and customization on the profitability of tier 1 commercial banks in Kenya. The primary data source was the primary tool for data collection using questionnaires distributed to the bank's staff from each bank. Questionnaires administered included open-ended questionnaires, closed-ended questionnaires, and Likert-type scale questionnaires. They were administered using the drop-off and pick up latter method. The study also made use of secondary data from audited financial statements of banks and financial performance data from CBK annual banking survey reports. The data collected was cleaned, coded and systematically organized in a manner that facilitates analysis using the Statistical Package for social sciences (SPSS) version. Data was analyzed using Descriptive Analysis, correlation analysis, Trend analysis and Multiple Regression analysis. Data presentation was done in the form of tables and figures. The study found that transactions have a positive and significant relationship with profitability of tier 1 commercial banks whereas Electronic funds transfers had a weak but insignificant relationship with profitability taking into account a significance level of 0.05. Hence, we support the null hypothesis that EFTs does not have a significant effect on profitability of tier 1 commercial banks. Finally, customization had a weak and insignificant relationship with profitability hence supporting the respective null hypothesis. Nevertheless banks continue to receive a significant amount of revenue from mobile banking as their customers continue to carry out more and more transactions on the mobile platform. Hence, commercial banks are strategically launching newer and newer mobile banking platforms for their customers as well as leveraging their own operating costs so as to achieve the ultimate goal of making profits. The study thus concludes that commercial banks should fully endorse mobile banking to offer their customers quality services and as a result will continue recording a tremendous positive effect on profitability.
CHAPTER ONE
INTRODUCTION

1.1 Background to the Study

The banking industry is one of the significant sectors of financial systems in most countries (San & Heng, 2013). Profitability of banks is important since the soundness of an industry is closely connected to the soundness of the whole economy (Lipunga, 2014). Both internal and external determinants explain bank profits. According to Susan (2014), internal determinants of bank profitability reflects the bank's management policies and decisions made on sources and uses of funds, liquidity management, and expenses management. The external determinants of bank profitability are related to both the economic and legal environment in which the banks operate (Nassreddine et al., 2013).

Mobile banking is a service provided by financial institutions in cooperation with mobile operators. It allows customers with busy lives to conveniently do their banking using their phones anytime. It is about getting banking services to the unbanked, those who do not have bank access or bank accounts, and those who are at the bottom of the economic pyramid, often living in remote areas (Kithaka, 2014). In recent time mobile banking is usually performed via SMS or the mobile internet but can also use special programs downloaded to the mobile device (Salzaman, Palen, & Harper, 2001).

Bank profitability is the efficiency of a bank in generating more earnings than the expenses at the same time. It is measured Return on assets (Flamini et al., 2009; Oladele et al., 2012), Return on equity (Saona, 2011) or the Net Interest Margin (Naceur & Goaied, 2008; Naceut & Omran, 2011; Sutian & Habibullah, 2009). Both internal and external determinants explain bank profits. Efficiency theory argues that
banks earn more profits because they are more efficient in their operations than its competitors (Olweny & Shipo, 2011). This results in low operational costs leading to high profits (Zouari, 2010). Large banks (in these case tier 1 banks) operate at lower costs because of economies of scale and can raise capital at lower costs. All of these lead to high profits. Sinkey, (1992) results indicate that size affects negatively for big firms and positively for smaller banks. The latter study concludes that medium banks earn the highest profits followed by smaller ones. The positive association between size and bank performance are also confirmed by a study done by Flamini et al. (2009); Biker & HU, (2002).

Kenya has six banks that make up the top tier and collectively control 49.9% of the market namely; Co-operative Bank of Kenya, Kenya Commercial Bank, Equity Bank, Barclays Bank, Commercial Bank of Africa, and Standard Chartered Bank. 16 other banks makeup tier 2 and collectively control 41.7% of the market. The last tier, tier 3 is made up of 21 small banks that control 8.4% of the market. With tier 1 banks controlling almost half percent of the financial market; it means that they record huge profits. The Tier 1 Banks also generate profits through interest earned after lending to Mobile Users as the example of M-Shwari, KCB Mpesa, Equitel.

Tier 1 commercial banks comprise of the “big old banks”, those that have been in the market for a long time, accumulating assets worth hundreds of billions of shillings and millions of clients, therefore, their possibility of falling into financial crisis would be near possible. They belong to a category Americans like referring to as “too big to fail” and are the safest (softkenya.com/best/top-10banks-in-Kenya). For instance, the Co-Operative Bank (CO-OP) which the London financial times named Bank of the
year, has assets valued at approximately SH 309billions and enjoys a customer base of over 3.4 million depositors.

In the banking sector today, mobile banking is a fast-growing issue. This has come to improve the level of the banking system and can be described as the provision of banking or financial services with the aid of mobile telecommunication devices. M-banking has come to stay, providing its customers with an expedient way of banking. As such, achieving profitability goal is vital to any bank. It is, therefore, necessary to measure current and past profitability and also project future profitability of any business (Adeusi, Kolapo & Aluko 2014). Thus this study aims at bringing the relationship between mobile banking and profitability of tier 1 commercial banks.

1.1.1 Mobile Banking

Mobile banking presents an opportunity for financial institutions to extend banking services to new customers (Lee, Lee & Kim, 2007). It can make basic financial services more accessible by minimizing time and distance to the nearest retail bank branches (CGAP,2006) The services include opening bank accounts, viewing account balances, making cash transfers between accounts or paying bills via a mobile device (Salzaman, Palen & Harper, 2001). With the introduction of smartphones with WAP support enabling the use of mobile web in 1999, the first European banks started to offer mobile banking on this platform to their customers.

Some empirical evidence shows that there have been relatively few studies focusing directly on the way mobile phones are used in enhancing productivity among the users of the developing world. Some businesses also lack the awareness regarding the potentials that exist in the use of mobile phones and ICTs. Adeya, (2003) observed that Mobile phones provide technological services that reduce costs; increase income
and increase reachability and mobility. They can help to extend social and business networks that substitute for journeys and, for brokers, traders and other business intermediaries (Hughes & Lonie, 2007).

Mobile banking has been defined using three components informing the specific objectives. Under transactions, a mobile banking user can inquire for a bank mini-statement, manage bank and stock market transactions, and make bill payments. Electronic funds transfer services include wire transfer, credit/debit transfer, interbank networking and offering local and foreign currencies. Wright (2002) explains internet banking has lifted the branch network as an entry barrier to the retail banking while introducing price transparency as customers can easily compare prices online. Polatoglu & Ekin (2001) show that internet banking lowers operational costs while increasing customers’ satisfaction and retention. Customization inherently involves a value exchange of data sharing. It included personal financial advisory services, convenience, and alerts, such as geo-fenced based notification.

1.1.2 Profitability of Banks

Profitability refers to money that a firm can produce with the resources it has. The goal of every organization is profit maximization (Niresh & Velnampy, 2014). Profits usually act as the entrepreneur’s reward for his/her investment. Profit is the primary motivator of an entrepreneur doing business. Profits can also be used as an index for performance measuring for a company (Ogbadu, 2009). A profit is a difference between revenue received from sales and total costs which include material cost, labor and so on (Stierwald, 2010). To measure the profitability, there are varieties of ratios used of which Return on assets, Return on Equity and Net interest margin are the major ones.
ROA is a significant ratio that indicates profitability of a bank. It is a ratio of income to its total assets (Kharwish, 2011). It measures the ability of an organization’s management to generate revenue by utilizing company assets at their disposal. NIM is a measure of the difference between the interest income generated by banks and the amount of interest paid out to their lenders, relative to the number of their assets. It is usually expressed as a percentage of what the financial institutions earn on loans in a specific period and other assets minus the interest paid on borrowed funds divided by the average amount of the assets on which it earned income in that period (the average earning assets). ROE is a financial ratio that refers to how much profit a company earned compared to the total amount of shareholder equity invested or found on the balance sheet. ROE is what the shareholders look in return for their investment (Murthy and Sree, 2003).

The environment created for their customers mostly influence bank performance. Every bank needs to increase their clientele base to maximize their earnings. Mobile Banking is a solution to all banks especially in an increase a number of customers, increase in profits, controlled management and improvement of products. Increase in M-banking adoption by customers leads to cost reduction (Bradley & Stewart, 2003).

1.1.3 Commercial Banking in Kenya

As at 31st December 2012 the banking sector comprised of the Central bank of Kenya as the regulatory authority, forty four banking institutions (forty three commercial banks and one mortgage finance company (MFC), four representative offices of foreign banks, six deposit-taking microfinance institutions (DTMs), one hundred and eighteen Forex Bureaus and two Credit Reference Bureaus (CRB) (CBK, 2012).
The CBK has grouped the banks in Kenya into three tiers. The CBK came up with this classification system as a means of distinguishing different banks according to their market share, asset base, and some customer deposits. Tier 1 comprises large banks with hundreds of billions in cumulative assets and millions of depositors. These banks asset bases are so deep that any failures would have a catastrophic effect on our economy as a country. If would happen, the government would have to intervene to avert a financial crisis. The six banks in this tier control 49.9% of the market, (covered.co.ke/blog/2016/09/banking-tier-system-Kenya/).

The CBK has continued to impose strict regulatory measures to prevent other banks from going under following the fall of CFC Stanbic Bank being replaced by CBA bank in tier 1 after losing top-tier classification due to a sharp drop in its market share in 2015. The shifts in market share are caused by the increase in clients’ deposits as banks implement various strategies to increase deposits. Tier classification should, therefore, be understood as a different principle and not a cause for failure (Benjamin, 2016).

1.2 Statement of the Problem

Mobile banking is evolving as the new front on which banks can differentiate their service delivery. Banks and other financial institutions have an opportunity to generate new business, attract or retain customers, control costs and gain other advantages by developing applications for mobile phone users (Johnston, 2010). Industry analysis outlining the potential impact of mobile banking on cost savings, revenue growth and risk profile of the banks have also generated considerable interest and speculation about the implications of information technology on the banking industry (Berger, 2003).
Kigen (2010) studied the mobile banking on transactions costs of microfinance institutions where he found that by then, mobile banking had reduced transaction costs through the banks did not directly feel them because of the then small mobile banking customer base. Bourke, (1989) observed a significant positive association between capital adequacy and bank profitability. This means that the higher the capital ratio, the more profitability (Ongore & Kusa, 2013).

All these models are geared towards leveraging the operating costs of commercial banks. In essence, when costs are minimized, there is a likelihood of positive impact on the bank's financial performance. Most banks are often too cautious of high staff costs and if such can be minimized due to mobile banking take on the better (Kithaka 2014). Olweny & Shipo (2011) argue that banks earn more profits because they are more efficient in their operations than its competitors. This results in low operational costs leading to high profits (Zouari,2010).

Despite the findings of all these previous research mobile banking adoptions continues in Kenya. More and more banks are strategically launching newer and newer mobile banking platforms. At the same time, improved financial performance in comparison to previous periods has been the trend by these commercial banks, yet limited studies are focusing on the impact of mobile banking on profitability among commercial banks in Kenya. From literature, size is measured by the natural log of the level of assets of the banks (Moraa,2014). Large banks operate at lower costs because of economies of scale and can raise capital at lower costs. All of these lead to high profits (Biker & Hu, 2012). Tier 1 commercial banks in Kenya are considered to have a significant asset base. Thus the researcher sought to fill the knowledge gap by
establishing the effect of mobile banking on the profitability of tier 1 commercial banks in Kenya.

1.3 Objectives of the Study
The study was informed by general and specific objectives as captured hereunder:

1.3.1 General Objective
The general objective of the study was to assess the effect of mobile banking on the profitability of tier 1 Commercial Banks in Kenya.

1.3.2 Specific Objectives
The study sought to achieve the following specific objectives:

i. To establish the effect of transactions on profitability of tier 1 Commercial banks in Kenya.

ii. To determine the effect of electronic funds transfer services on profitability of tier 1 Commercial banks in Kenya.

iii. To establish the effect of Customization on profitability of tier 1 Commercial banks in Kenya.

1.4 Hypotheses
The study sought to test the following null hypotheses:-

\[ H_{01} \]: Transactions do not have a significant effect on profitability of tier 1 Commercial banks in Kenya.
$H_{02}$: Electronic Funds Transfer Services do not have a significant effect on profitability of tier 1 Commercial banks in Kenya.

$H_{03}$: Customization does not have a significant effect on profitability of tier 1 Commercial banks in Kenya.

1.5 The Significance of the Study

To the management in commercial banks, the study informed them of the effect of mobile banking on the profitability returns of their institutions. The administration should be able to strategize on how to realize maximum benefits from mobile banking. To the regulator and policymakers and agencies such as the Central bank of Kenya (CBK), the findings of this study were significant in informing the policy formulation especially about regulating the mobile banking services in Kenya. The research findings might add a dimension that may help improve policy direction about the regulation of mobile banking as well as factors that spur economic growth. To the academicians and students of finance, this study may in building the knowledge base in the discipline by adding on the existing, literature on mobile banking and financial performance. The study might be useful as a source of reference material besides suggesting areas where future research may be conducted.

1.6 The Scope of the Study

The study sought to establish the effect of mobile banking on the profitability of tier 1 commercial banks in Kenya. The study focused on the six top most commercial banks known as the Tier 1 Commercial Banks as they tend to have a significant asset base compared to the rest. The Banks’ Headquarters being in Nairobi region where this
study was carried out. It analyzed both primary and secondary data from financial statements of these firms for a period of five years (2012 to 2016).

1.7 Limitations of the Study

The study encountered challenges such as busy respondents who were not able to fill out the questionnaires due to their tight work schedule. Some respondents were absent from their work premises hence making the data collection process more complex. Nevertheless, the researcher made efforts of booking visits to meet such respondents at their convenient time and collect all useful and relevant information. Another key challenge is the sensitivity of the banking practice which tends to change now and then.

1.8 Organization of the Study

This project is organized into five chapters. Chapter one comprises the background to the study, research problem, objectives of the study, the purpose of the study, research questions, significance of the study, the scope of the study, limitation of the study and assumptions of the study. Chapter two will present the theoretical review, empirical review, conceptual framework, knowledge gaps and summary of the literature review. Chapter three will highlight the research methodology including research design, target population, sampling and sample size, research instruments, pilot study, data collection techniques, a method of data analysis and ethical issues. Chapter four comprises of data analysis, presentation, and discussion of major findings of the study. Chapter five gives a summary, conclusion, and recommendations of the study as well as suggestions for further study.
CHAPTER TWO
LITERATURE REVIEW

2.1 Introduction

This chapter explored literature that related to mobile banking and profitability. It entailed the theoretical review section which covers selected theories which informs the study. The empirical review was an overview of studies done by other scholars on mobile banking. The chapter also covered a conceptual framework, which is a diagrammatic presentation of the relationship between the study variables.

2.2 Theoretical Review

The section presented an overview of theories which relate to the study. The study was informed by four theories including intermediary financial theory, market power and efficiency structure theory, agency theory, and bank-focused theory. The theories have been discussed in line with the study variables which are mobile banking and profitability.

2.2.1 Theory of Financial Intermediation

Franklin Allen developed the theory in 1998. It suggested the role of intermediaries as reducing the frictions of transaction costs and asymmetric information. Intermediaries are facilitators of risk transfer and deal with the increasing complex maze of financial instruments and markets. Financial intermediaries thus assist the efficient functioning of markets and any factors that affect the amount of credit channeled through them can have significant macroeconomic effects.

Merton, (1989) argues that another central feature of this sector is its ability to distribute risk across different participants. Merton notes that intermediaries can
transact at near zero cost while individuals have high trading costs. Diamond & Dybvig (1983) analyze the provision of liquidity (the transformation of illiquid assets into liquid liability). In his model investors (depositors) are risk-conscious and uncertain about the timing of their future consumption needs. Without an intermediary, all investors are locked into illiquid long-term investments that yield high payoffs only to those who consume late.

Leland and Pyle (1977) analyzed this problem and shows that the owners of a firm/project have private information about a project the number of their own funds invested in the project will be interpreted as a signal of its quality. In equilibrium, the higher the quality of the project the greater the amount of equity that will be retained by the owner and the higher will be the market valuation of the firm. Gurley & Shaw (1960) state the economic role of financial intermediaries which include investment banks, insurance, commercial banks, and agency banking build on the economies of imperfect information that began to emerge during the 1970s. Financial intermediaries exist because they reduce information asymmetry between borrowers and lenders.

The banking business thrives on the financial intermediation abilities of financial institutions that allow them to lend out money at relatively high rates of interests while receiving money on deposits at relatively low rates on interests. Commercial banks also intermediate between traders by transferring funds and enabling settlements through the same. This model posits that banks benefits on a large scale from intermediation and is thus likely to record profits (Sanderson, 2016).

2.2.2 Market Power and Efficiency Structure Theory

This theory is attributed to Smirlok, (1985), Shepherd, (1986) and Berger, (1995). Smirlok (1985) subscribing to the efficiency hypothesis, considers market share as a
proxy for efficiency. The efficiency hypothesis prevails when a significant positive correlation between market share and profitability is signaled. This method implicitly assumes that a higher market concentration is the main source of market power. Berger (1995) explains efficiency structure theory suggest that enhanced managerial and scale efficiency leads to higher concentration and then higher profitability. According to Olweny & Shipo (2011), balanced portfolio theory also added additional dimension into the study of banks, its profits and returned to the shareholders is the result of the decisions made by the management and overall policy decisions.

Demsetz (1973) formulated an alternative explanation on market structure-performance relationship and proposed the efficiency hypothesis. Applied to the banking sector, this hypothesis stipulates that a bank which operates more efficiently than its competitors gains higher profits resulting from low operational costs. The same bank holds an essential share of the market. Shepherd (1986) argues that market power can take two forms: differentiation of products and services or ease of search. There is a trade-off between differentiation and loss of legitimacy which is optimized at a strategic balance point.

In this study, the researcher explores the relationship between market power and efficiency structure. It is worth noting that efficiency measurement highlights the way banks allocate their resources. Commercial banks hence strive to reduce operational costs through efficient operations whereas customers are assured of fast and speedy and easy access to financial services thereby creating opportunities to improve efficiency and create value for commercial banks.
2.2.3 Agency Theory

Agency theory specifies mechanisms which reduce agency loss (Eisenhardt, 1989). These include incentives schemes for managers which reward them financially for maximizing shareholders’ interests. Such schemes typically include plans whereby senior executives obtain shares, perhaps at a reduced price, thus aligning financial interests of executives with those of shareholders (Jensen & Meckling, 1976). Other similar schemes tie executive compensation and levels of benefits to shareholders returns and have part of compensation deferred to the future to reward long-run value maximization of the corporation and deter short-run administrative action which harms corporate value.

Lyman, Ivatury, & Staschan (2006) contend that for poor people Agency banking through retail agents may be far more convenient and efficient than going to a bank branch. To enhance financial inclusion (market access) Banking Act of Kenya was amended in 2010 to pave the way for agency banking. This has led to increased profitability of banks. Agency theory is based on the premise that agents are more informative than the principals. This information asymmetry affects the ability of the principal to monitor their wealth efficiently, and this is where the agents came in to help. It also assumes that principals and agents act rationally (Brigham & Gapensiki, 1993). Increased number of transactions facilitated by bank agents mainly attributable to increases in transactions relating to payment of bills, mini-statement requests, cash withdrawals and cash deposits which in turn improve the profitability of commercial banks (CBK, 2014).
2.2.4 Bank-Focused Theory

Economists have been asking the question of what’s unique about banks for ages. In his famous article Carrigan (1982) argued that banks are particular because 1) they provide transaction services and administer the nation’s payment system 2) they provide backup liquidity to the economy and 3) they are transmitters of monetary policy. This theory arises when a traditional bank uses non-traditional low-cost delivery channels to provide financial services to its existing customers. For example the use of an ATM to ensure specific unlimited banking services to clients (David, 2005).

The theory sees the customer’s primary concerns to do with the quality of experience, security of identity and transactions, reliability and accessibility of service and extent of Customization allowed. Banks, therefore, address the issue by providing a branchless banking service with an easy to use interface made secure with the help of multi-factor authentication and other technology, capable of running un-interrupted 365 days a year (Kapoor, 2010). The model, therefore, provides a platform for the advantages that banks can derive from adopting technologies such as mobile banking in advancing services to their customers.

2.3 Empirical Review

This section reviews various studies with an objective of establishing research gaps.

Laukkanen (2007) surveyed mobile banking in developing countries with specific reference to secure framework for delivery of SMS-banking services. Using secondary data, the study established that the potential for SMS mobile banking services is high in countries where internet infrastructure hinders the access to electronic banking services. However, most developing countries, particularly in
Africa internet connectivity and bandwidth, are low, and the population is not urbanized and averagely poor hence internet banking will remain the most attractive service for developed countries whereas SMS-banking will gain more inroads in developing countries.

Kharwish and Al-sadi (2011) assessed the impact of e-banking on banks and profitability for the banking sector in Jordan during the period (2000-2009). Their study found that for banks that do not apply the e-banking services through the Internet, have no significant effect on the Return on Equity (ROE) and the margin of the sample, but significant regarding Return on Assets (ROA). For banks that apply the electronic banking services for less than 2 years, there is no significant effect of these services on the ROA and ROE but was founded to be substantial on margin. For banks that apply the electronic banking services, there is no significant effect on these services on banks profitability after two years of implementing it for the tested sample during the period 2000-2009.

Ongare (2013) studied the effect of electronic banking on the performance of commercial banks in Kenya. The study sought to establish whether there exists a relationship between dependent variable for example performance measured by PAT and independent variables consisting of number of ATMs, number of debits and credits cards issued to customers, number of point of sales terminals and the usage level of mobile banking, internet banking and electronic funds transfer as components of e-banking. The study used secondary data which was collected from annual reports of commercial banks of Kenya. The study used both descriptive and inferential statistics in analyzing the data. The findings of the study were that e-banking has a significant and robust effect on the profitability of commercial banks in the Kenyan
banking industry. Thus there exist a positive relationship between e-banking and bank performance. The significance test showed that the influence of bank innovations on bank profitability was statistically significant in explaining the profits of commercial banks in Kenya.

Maiyo (2013) studied the effect of electronic banking on the financial performance of commercial banks in Kenya. The specific objectives were to determine the extent of e-banking adoption and the impact of this adoption on the financial performance of commercial banks. The study adopted a descriptive research design. Primary data was collected through data collection methods from that was developed and sent to the respondents of commercial banks. The primary data was also augmented with secondary materials collected from published financial statements of the respective commercial banks and CBK supervision reports. Appropriate frequency tables and charts were used; multiple regression analysis was used to explain the findings. The study revealed that fees and commissions from internet banking as well as the amount of money commercial banks invest in e-banking to install, train staff and maintain the platforms have no or minimal effect on ROA. The adoption of e-banking has enhanced the performance of commercial banks due to increased effectiveness and productivity.

Consultative Group of Assist the Poor (CGAP) (2006) surveyed on branchless banking in Pernambuco, Brazil. It was found that bill payment and the payment of government benefits to individuals comprised 78% of the 1.53 billion transactions conducted at the country’s more than 95000 agents in 2006. CGAP research in Brazil found that of the 750 people who respond to a survey in Pernambuco state, 90% reported using banking agents to pay utility and other bills, only 5 percent reported
opening a bank account at the agent, and less than 5 percent said they had made a cash deposit into their bank account at an agent. Indeed 87 percent of those who had opened an account stated that they had done so just to receive.

Kumar, Nair, Parsons, and Urdapilleta (2006) explored the extent to which formal, regulated financial institutions such as banks have been able to partner with commercial correspondent entities whose primary objective and business is other than the provision of financial services in Brazil. The findings indicate that Brazil has created an unusually favorable environment for correspondent banking. It was further established that branchless banking allows banks to gain proximity to small and perhaps higher risk clients through a format that is friendly to this population segment but with significantly reduced start-up investment and on-going costs. Economies of scale allow this despite low balances and profits margins from businesses with these clients’ welfare or salary payments.

Wambari (2009) sought to establish the importance of mobile banking in the day-to-day running of small businesses in Kenya. The study used a random sample of 20 firms and selected senior personnel (owners, managers or supervisors) to whom semi-structured questionnaires were administered. The study established that in an urban area over 73 percent of mobile phone usage is for business purpose while over 70 percent of mobile usage in the rural area is for social communication.

Modupe (2010) examined the dynamic of financial innovations in the banking industry in Nigeria and found that a distinction between product innovation and process innovation is necessary as much as the adoption of each type of innovation has its characteristics and has a different impact on banking profitability. They argue that product innovations have a market focus and are effectiveness driven, while
process innovations are defined as new elements introduced into the firm’s products or into the services it provides. The latter are essentially introduced by the firm with a view towards improving its efficiency.

England et al. (1998) was the first important study estimating the number of US banks offering electronic banking and analyzed the structure and performance characteristics of these banks. It found no evidence of major differences in the performance of the groups of banks offering electronic banking activities compared to those that do not offer such services regarding profitability, efficiency or credit quality. However, electronic transaction banks differed from other banks primarily by size. In contrast to the results of England et al. (1998), Furst et al. (2000a, 2000b, 2002a and 2002b) found that banks in all size categories offering e-banking were more profitable and tended to rely less heavily on traditional banking services in comparison to non-electronic banks.

Sathye (2005) investigated the impact of the introduction of transactional internet banking on performance and risk profile of major credit unions in Australia. Similar to the result of Sullivan, (2000), the internet banking variable did not show a significant association with the performance as well as with operating risk variable. Thus internet banking did not prove to be a return enhancing tool in the context of major credit unions in Australia. It neither reduced nor enhanced risk profiles.

2.4 Mobile Banking and Profitability

The revolution of information technology has influenced almost every facet of life, among them, is the banking sector. The introduction of mobile banking has revolutionized and redefined the ways banks are operating. As technology is now considered as the main contribution to the organizations’ success and as their core
competencies. So the banks are it be domestic or foreign are investing more in providing the customers with new technologies through mobile banking. Pc banking, mobile banking, ATM, electronic funds transfer, paying bills online, online statements and credit cards etc. are the services provided by these bank platforms (Sumra, 2011). For users in the developing world on the, on the other hand, the appeal of these M-banking systems may be less about convenience and more about accessibility and affordability (Cracknel, 2004 and Infodev, 2006).

Mobile telephony is on the rise, and the related technology innovations have dramatically enhanced the capabilities of the mobile phone (Salzman et al., 2001). As the number of mobile phones increases, there has been a pervasive impact on people’s lives. Mobile banking in Kenya has led to a reduction of cost by reducing paper-based and labor-intensive methods with automated processes thus leading to higher productivity and profitability. Mobile banking has enabled customers to do their banking 24 hours a day seven days a week. To commercial banks offering mobile banking services, the benefits include better branding and better response to the market; such banks are also perceived as leaders in technology implementation, and as a result, they enjoy better brand image (Nathan, 1999).

The government recognizes the role played by the mobile phones and associated technologies in the economic growth and development (Sessional paper, 2005). As the number of mobile phone uses increases, there has been a pervasive impact on people’s lives (ITU, 2006). Mobile banking has both significant implications for the economy and profits of the organizations involved. Traditionally provision of banking services was an expensive venture. The banks had to invest in staff, machines, and building to provide services to their customers. With the advent of m-banking; banks
need not invest in capital equipment to provide banking services. Many people in rural areas have access to financial services brought about by mobile penetration. M-banking and mobile phone business contribute to economic development by creating opportunities for income generation (Racheal, 2010).

Internet banking provides clear advantages to both the financial institutions and the customer. From the banks’ point of view, internet banking has very low-cost transactions compared to human teller banking. According to the Fourth International conference on electronic business (ICEB2004)/Beijing, e-banking reduces the following expenses (Wright & Ralson, 2002). Banks can cut customer service staff as customers can use more self-service functions, there are less cheque processing costs due to an increase in electronic payments, cost of paper and mail distribution are reduced as bank statements and disclosures are presented online, new market opportunities and improved customer satisfaction. For consumers, Internet banking provides convenience, lower service charges, more accessible information about bank accounts and an attractive option for busy people since it saves time to go to the bank branches and gives 24hours access.

The benefits of mobile banking are manifold and are to be seen from the banks themselves, customers and even the regulators (Sergeant, 2000). The sergeant is of the view that for banks, e-banking brings different and arguably lower barriers to entry; opportunities’ for significant cost reduction, the capacity to rapidly re-engineer business processes and more meaningful opportunities to sell cross-border. For customers, the potential benefits are; more choice, greater competition and better value for money; more information; better tools to manage and compare data and faster service.
Mishkin and Eakins, (2012) contend that the basic measures of bank performance and profitability include ROA, ROE, and NIM. Dexinaga, (2010) asserts that the changes in price levels do not influence the uses of profitability ratios. Thus it is said to be the most appropriate way of measuring profitability as one makes use of time series analysis. This is because the real value of profits cannot be affected by varying inflation rates. ROE is a financial ratio that refers to how much profit a company earned compared to the total amount of shareholder equity invested or found on the balance sheet. The higher the ROE, the better the company regarding profits generation.

ROA is also another major ratio that indicates the profitability of a bank. It’s a ratio of income to its total assets (Kharwish, 2011). It measures the ability of the bank management to generate income by utilizing company asset at their disposal. A higher ROA shows that a company is more efficient in using its resource. Net interest margin (NIM) is a measure of the difference between the interest income generated by banks and the amount of interest paid out to lenders. The higher the NIM, the higher the bank's profits and the more stable the bank is. However, a higher NIM could reflect riskier lending practices associated with substantial loan loss provisions.

2.5 Summary of Literature Review and Research Gaps

This chapter started by looking at the theoretical framework where it discussed the theories on which the study is found. According to financial intermediation theory, financial institutions exist to mediate between the surplus and deficit units of the economy by facilitating the transfer of resources. However, this has to be done economically minimize the operating costs and maximize the revenue for these banks. Financial intermediation theory brings out the role played by enabling the
accessibility of banking services over the mobile phone. The efficiency hypothesis prevails when a significant positive correlation between market share and profitability is signaled.

From the above discussion of the theoretical and empirical literature, limited research has been conducted on the profitability impact of mobile banking adoption on commercial banks. This study, therefore, seeks to fill this research by looking at a section of Kenyan commercial banks, such as tier 1 commercial banks which include KCB bank, Equity Bank, Barclays Bank, Co-operative Bank, Standard Chartered Bank and CFC Stanbic Bank.

2.6 Conceptual Framework

The section identified the study variables and indicates how they relate to each other. The primary variables for the study being mobile banking as the independent variable and profitability as the dependent variable. The conceptual framework herein summarizes the focus of the study; it depicts the dependent and independent variables.
Figure 2.1: Conceptual Framework
Source: Researcher, 2018
The conceptual framework identified two main variables mobile banking characteristics and profitability. In this case, mobile banking characteristics included transactions, electronic funds transfer, and Customization. Transactions regarding bill payments done by customers let’s say on a daily basis, mini-statement requests and bank and stock market transactions. Electronic funds transfer services include direct deposits, credit/ debit transfers, interbank networking and offering both local and foreign currencies. Customization, on the other hand, looks at how customers can acquire personal financial advisory services, convenience, and alerts, such as geo-fenced based notifications. The study analyzed the effect of the above mobile banking characteristics on the profitability of tier 1 banks in Kenya. Profitability in this study will be measure regarding return on assets, return on equity and net interest margin.
CHAPTER THREE
RESEARCH METHODOLOGY

3.1 Introduction

This chapter sorted out how the research was executed and how data was gathered towards the completion of the research. Precisely it dealt with the collection of data (the various sources of data for the study), analysis and presentation of data. It executed how respondents were approached as well as when, where and how the research was completed. It outlined the research design, target population, sampling procedure and sample size, research instruments, pilot study, data collection techniques, data analysis and ethical issues.

3.2 Research Design

According to Kothari (2005), research design is an arrangement of conditions for collection and analysis of data in a manner that aims to combine the relevance to the research purpose with economy in procedure. This study employed a descriptive design. Descriptive research designs are used in preliminary and exploratory studies to allow researchers to gather information, summarize, present and interpret for clarification (Orodho, 2003). Mugenda and Mugenda (2003) describe descriptive research design as a systematic, empirical inquiry into which the researcher does not have direct control of the independent variables as their manifestation has already occurred or because they inherently cannot be manipulated and further to determine and to report the way things are. The descriptive research design is more appropriate because the study seeks to build a profile about the effect of mobile banking adoption on the profitability of tier 1 commercial banks in Kenya.
3.3 Target Population

A target population refers to the entire set of units for which the survey data are to be used to make inferences. Thus, target population defines those units for which the findings of the survey are meant to generalize (Paul, 2008). According to Mugenda and Mugenda (2003), the target population should fit a particular specification which the researcher is studying. The study focused on the top six tier 1 commercial banks whose headquarters are within Nairobi county. Specifically, the study focused on the following target respondents: operations manager, ICT officers, M-banking officers and finance/ accounts officers simply because they are the people that offer, receive and manage the services.

Table 3.1: Target Population

<table>
<thead>
<tr>
<th>Bank</th>
<th>Operations Manager</th>
<th>ICT Officers</th>
<th>M-banking Officers</th>
<th>Finance/Accounts Officers</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kenya Commercial Bank</td>
<td>3</td>
<td>3</td>
<td>2</td>
<td>2</td>
<td>10</td>
</tr>
<tr>
<td>Equity Bank</td>
<td>3</td>
<td>3</td>
<td>2</td>
<td>2</td>
<td>10</td>
</tr>
<tr>
<td>Barclays Bank</td>
<td>3</td>
<td>3</td>
<td>2</td>
<td>2</td>
<td>10</td>
</tr>
<tr>
<td>Cooperative Bank</td>
<td>3</td>
<td>3</td>
<td>2</td>
<td>2</td>
<td>10</td>
</tr>
<tr>
<td>Commercial Bank of Africa</td>
<td>3</td>
<td>3</td>
<td>2</td>
<td>2</td>
<td>10</td>
</tr>
<tr>
<td>Standard Chartered Bank</td>
<td>3</td>
<td>3</td>
<td>2</td>
<td>2</td>
<td>10</td>
</tr>
</tbody>
</table>

3.4 Sampling Design and Sample Size

3.4.1 Sampling Design

According to Gay (2002), a researcher selects a sample due to various limitations that may not allow researching the whole population. Purposive sampling was used to identify the key respondents in providing required data from each bank and convenient method of sampling was also used for talking to the respondents that were readily available.

3.4.2 Sample Size

Ashley (2017) defines a sample population as a subset of the population being studied and that it represents the larger population and is used to draw inferences about that population. Purposive sampling was used to select respondents from their respective departments in each of the six commercial banks under study. According to American Statistical Association (1999), purposive sampling is used to select only those respondents considered to be key and resourceful in providing required data. The convenience method of sampling shall also be used for talking to staff that was readily available. From the selected target population 60 respondents undertook the questionnaire filling process.

<table>
<thead>
<tr>
<th>Bank</th>
<th>Operations Manager</th>
<th>ICT Officers</th>
<th>M-banking Officers</th>
<th>Finance/Accounts Officers</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>KCB</td>
<td>3</td>
<td>3</td>
<td>2</td>
<td>2</td>
<td>10</td>
</tr>
<tr>
<td>Equity Bank</td>
<td>3</td>
<td>3</td>
<td>2</td>
<td>2</td>
<td>10</td>
</tr>
<tr>
<td>Barclays Bank</td>
<td>3</td>
<td>3</td>
<td>2</td>
<td>2</td>
<td>10</td>
</tr>
<tr>
<td>Cooperative Bank</td>
<td>3</td>
<td>3</td>
<td>2</td>
<td>2</td>
<td>10</td>
</tr>
<tr>
<td>Commercial Bank of Africa</td>
<td>3</td>
<td>3</td>
<td>2</td>
<td>2</td>
<td>10</td>
</tr>
<tr>
<td>Standard Chartered Bank</td>
<td>3</td>
<td>3</td>
<td>2</td>
<td>2</td>
<td>10</td>
</tr>
</tbody>
</table>

Source: Researcher, 2018
3.5 Data Collection Instruments

The study employed both primary and secondary data sources. Primary data was collected using questionnaires. The questionnaire was preferred over other methods of collecting data because of its ability to extract information from the respondents as well as giving a better understanding and a more insightful interpretation of the results from the study (Creswell, 2003). Questionnaires were also preferred because they enabled the study to obtain more up to date information as well as elicit information which might not be captured in the other data collection techniques (Marshall and Rossman, 2005). The study used a questionnaire containing both open and close-ended questions to be able to capture more information from the respondents. The close-ended question was on the 5-point Likert scale. Likert scale is the most widely used approach to scaling responses in survey research (Borg and Gall, 1989). Secondary data were from banks’ records, annual financial reports and previous research reports, journals and newsletters. This shall be for a five year period (2012 to 2016).

3.6 Pilot Study

A pilot study was necessary for this research study because it helped in achieving validity and reliability of the research instruments and tools (Reaven et al., 2009). Simple random sampling was used to select three respondents that were not used for the pilot study. The pilot study enabled the researcher to familiarize with research administration procedures and to identify items that require modification, addition or deletion. The efficiency in data collection was tested using researcher produced instruments and matching these tools with the research objectives and hypothesis.
3.6.1 Validity of Instruments

Validity is defined as the accuracy and meaningfulness of inferences, which are based on the research results (Golafsheni, 2005). To ensure that the information to be collected from the field was accurate and reliable, there was a need for the researcher to determine content validity of the instruments. Content validity of the instruments was determined by going through the items one at a time and comparing the contents to ensure that they contained all the information in line with the study objectives and variables of the study. Expert judgments were sought from university supervisors.

The research instruments were scrutinized by the departmental supervisors to judge the items on their appropriateness of content, and need for modification to achieve the objectives of the study. The supervisors determined whether the elements of the research instruments evoked the intended responses. The feedback obtained was then incorporated into the final instruments before the actual study. All the two research instruments (questionnaires and lesson observation schedules) were tested for validity. Additionally, the researcher ensured the validity of the data to be collected by administering the instruments personally as well as with the assistance of a well-trained research assistant.

3.6.2 Reliability of Instruments

Mugenda and Mugenda (2003) define reliability as a measure of the degree to which a research instrument yields consistent results or data after the repeated trial. The pilot study enabled the researcher to assess the clarity of the questionnaire items so that those items found to be inadequate or vague was modified to improve the quality of the research instrument thus increasing its reliability. Split-Half technique of reliability testing was employed, whereby the pilot questionnaires were divided into
two halves, and then a correlation coefficient for the two halves was computed using the Pearson correlation formula.

\[
    r = 1 - \frac{6 \sum D^2}{N(N^2-1)}
\]

Where
- \( r \) = Correlation coefficient
- \( N \) = Sample
- \( \Sigma \) = Summation of scores
- \( D \) = Deviation

The coefficient indicates the degree to which the two halves of the test provide the same results and hence describe the internal consistency of the test. According to Orodho (2005), a minimum correlation coefficient of 0.05 is recommended as indicating that an instrument is reliable, and therefore the coefficient equal or above this but less than one was obtained to ensure that the data obtained is reliable. This study obtained a correlation coefficient of 0.05.

### 3.7 Data Collection Techniques

The researcher personally administered the questionnaire and conducted interviews with the respondents. This enabled the researcher to clarify issues or respond to questions from the respondents. The respondents were given two weeks of filling in the questionnaires. The respondents were given about one week to fill in the questionnaires after which the filled-in questionnaires were collected.

### 3.8 Data Analysis and Presentation

Sekaran (2006) defines data analysis as the process of extracting, compiling and modeling raw data with an objective of obtaining constructive information that can be used to formulate conclusion by predicting the outcome of the study. The data was cleaned, edited, coded and systematically organized in a manner that facilitates analysis using the Statistical Package for Social Sciences (SPSS v20).
Primary data from the field was edited to eliminate errors that may be made by the respondents. Coding was done to translate question responses into specific categories to organize and reduce research data into manageable summaries. Quantitative data were analyzed using descriptive analysis (means and standard deviation), Pearson correlation, Trend Analysis and Multiple Regression analysis.

The study used Analysis of Variance (ANOVA) to test the level of significance of the model on the dependent variable at 95% confidence level. Also, the study conducted a multiple regression analysis to test the relationship between the study variables. The regression equation was: \[ Y = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \varepsilon \]

Where \( Y \) = Profitability  
\( \beta_1...\beta_3 \) = Coefficients  
\( X_1 \) = Transactions  
\( X_2 \) = Electronic Funds Transfers services  
\( X_3 \) = Customization  
\( \varepsilon \) = Error term

Preceding multiple regression analysis will be tested for normality, multicollinearity, and homoscedasticity. Data presentation will be in the form of tables and figures.

### 3.9 Ethical Consideration

Before the commencement of data collection, the researcher obtained all the necessary documents, including an introduction letter from the school of Business, Kenyatta University (KU) and a research permit from National Commission for Science, Technology, and Innovation (NACOSTI). After that, the management of each bank was contacted before the start of the study. The researcher assured the respondents that strict confidentiality was maintained in dealing with the responses.
CHAPTER FOUR
DATA ANALYSIS, PRESENTATION, AND INTERPRETATION

4.1 Introduction

This chapter gives a summary of the research findings. It presents response rate, analysis, presentation and interpretation of the data. Data were analyzed quantitatively and presented using figures, tables, and charts. The data were analyzed using descriptive analysis, trend analysis, and multi-linear regression. The researcher interpreted the results and gave a summary of the key findings of the study.

4.2 Response Rate

The study sought to collect information from tier one (1) commercial banks in Kenya by sampling Operations Managers, ICT officers, M-banking officers, and finance/accounts officers from each sampled tier one Commercial Banks. Table 4.1 describes the response rate.

<table>
<thead>
<tr>
<th>Category of respondents</th>
<th>Sample (n)</th>
<th>Percent (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operations manager</td>
<td>18</td>
<td>100</td>
</tr>
<tr>
<td>ICT officer</td>
<td>18</td>
<td>100</td>
</tr>
<tr>
<td>M-banking officer</td>
<td>12</td>
<td>100</td>
</tr>
<tr>
<td>Finance/ Accounts officer</td>
<td>12</td>
<td>100</td>
</tr>
<tr>
<td>Total</td>
<td>60</td>
<td>100</td>
</tr>
</tbody>
</table>

Source: Research Data (2018)

A total of Sixty (60) respondents participated in data collection; therefore, the turnout rate was 60, making 100% questionnaire return rate. This indicated that the response was credible enough to enable the researcher to analyze the findings.
4.3 General Information

4.3.1 Period Worked in the Bank

The study sought to assess the number of years sampled respondents had worked in the current bank. The following statistics were obtained as shown in figure 4.1 below. The respondents were requested state period of service in their current banks. The study findings revealed that most of the respondents 45% had been working in their existing banks for more than five years. Other 34% of the respondents had been working for between 1 to 5 years while 21% of the respondents had been working for less than one year. These findings depict that majority of the respondents had been working for an extended period in their banks and had understood the effects of mobile banking on the profitability of their banks.

![Figure 4.1: Period Worked in the Bank](source: Research Data (2018))
4.3.2 Bank Assets Size

In determining the effect of M-banking on the profitability of tier one Commercial Banks in Kenya. It was considered essential to assess the bank asset size to determine if mobile banking influenced the profitability of these banks. The study findings reveal that majority (60%) of tier 1 commercial banks had a total between 200 – 299 billion Kenyan shilling worthy assets; some (20%) had total assets worth between Ksh. 300 – 399 billion while another 20% own total assets worth over Ksh. 500 billion.

According to the findings of this study, it was observed that Kenya Commercial Bank (KCB) lead with total assets valued at approximately Ksh. 566.6 billion as per December 2016, followed by Cooperative Bank with a total of Ksh. 309.6 billion assets, Equity Bank, comes third with a total of Ksh. 284.37 billion while Standard Chartered Bank follows with Ksh. 220.39 billion. Commercial Bank of Africa has a total of Ksh. 215.6 billion while Barclays Bank follows closely with Ksh. 200.975 billion.
4.4 Descriptive Analysis

4.4.1 Effect of Transactions on Profitability of Tier 1 Commercial Banks

The study sought to establish the effect of mobile banking on the profitability of tier 1 Commercial Banks in Kenya. It was in this regard that the number of transactions was analyzed to establish its effect on the profitability of tier 1 commercial banks in Kenya. Table 4.6 gives a summary of the study findings.
Table 4.2: Effect of Transactions on the Profitability

<table>
<thead>
<tr>
<th>Transactions</th>
<th>5</th>
<th></th>
<th>4</th>
<th></th>
<th>3</th>
<th></th>
<th>2</th>
<th></th>
<th>1</th>
<th></th>
<th>M</th>
<th></th>
<th>Std. Dev</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transactions over m-banking have broadened our customer base?</td>
<td>5</td>
<td>85</td>
<td>5</td>
<td>8.3</td>
<td>3</td>
<td>5</td>
<td>1</td>
<td>1.7</td>
<td>0</td>
<td>0</td>
<td>0.621</td>
<td>4.77</td>
<td></td>
</tr>
<tr>
<td>Mobile banking reduces the cost of handling transactions by reducing the need for customers to visit a bank branch?</td>
<td>31</td>
<td>51.7</td>
<td>11</td>
<td>18.3</td>
<td>9</td>
<td>15</td>
<td>4</td>
<td>6.7</td>
<td>5</td>
<td>8.3</td>
<td>3.98</td>
<td>1.30</td>
<td></td>
</tr>
<tr>
<td>With mobile banking transactions, funds transfer between customer linked accounts is easy and efficient?</td>
<td>50</td>
<td>83.3</td>
<td>7</td>
<td>11.7</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td>5.0</td>
<td>0</td>
<td>0</td>
<td>4.73</td>
<td>0.71</td>
<td></td>
</tr>
<tr>
<td>Are customers able to check an account balance or check recent transaction on their mobile device?</td>
<td>36</td>
<td>60</td>
<td>12</td>
<td>20</td>
<td>9</td>
<td>15</td>
<td>1</td>
<td>1.7</td>
<td>2</td>
<td>3.3</td>
<td>4.32</td>
<td>1.01</td>
<td></td>
</tr>
<tr>
<td>Can customers make withdrawals from their accounts to their phones and vice versa conveniently?</td>
<td>31</td>
<td>51.7</td>
<td>12</td>
<td>20</td>
<td>10</td>
<td>16.7</td>
<td>3</td>
<td>5</td>
<td>3</td>
<td>5</td>
<td>4.58</td>
<td>3.90</td>
<td></td>
</tr>
<tr>
<td>Transactions such as an online purchase or in-app purchases, e.g., from Amazon.com or Best Buy can now be easily carried out?</td>
<td>31</td>
<td>98.3</td>
<td>15</td>
<td>25</td>
<td>7</td>
<td>11.7</td>
<td>4</td>
<td>6.7</td>
<td>3</td>
<td>5</td>
<td>4.17</td>
<td>1.10</td>
<td></td>
</tr>
</tbody>
</table>

Key: 5-Strongly Agree, 4-Agree, 3-Neutral, 2- Disagree, 1-Strongly Disagree, N=60
Source: Author (2018)
From the above data, the mean of the data provides the average value of the data analyzed. The data was closely distributed around the mean (i.e. mean + standard deviation). The statement transaction over m-banking has broadened our customer-base has a score of 0.621+ 4.77. M-banking reduces the cost of handling transactions by reducing the need for customers to visit a bank scored 3.98+ 1.30. With m-banking transactions, funds transfer between customer-linked accounts is easy and efficient had a score of 4.73+ 0.71. Customers are able to check an account balance and history of the recent transaction on their device had a score of 4.32 +1.01. The statement on customers can make withdrawals from their accounts to their phones and vice versa conveniently scored 4.58+ 3.90 and finally, transactions such as an online purchase or In-app purchases can now be easily carried out having a score of 4.17+ 1.10. In conclusion majority of the respondents agreed that transactions have a positive effect on the profitability of tier 1 commercial banks.

4.4.2 Effect of Electronic Fund Transfer (EFT) services on Profitability of Tier 1 Commercial Banks

The study requested the respondents to state the M-banking products that their banks offer on Electronic funds transfer services. The respondents indicated services such as credit/debit transfers, direct deposits, inter-bank networking and offering both local and foreign currencies. These M-banking products were found to have significantly affected the bank's revenue in the last five years.

The study requested the respondents to indicate how they would rate the M-banking products influence the revenue within the last five years. These findings depict that M-banking products have positively influenced the bank's revenue. These findings
concur with Karjaluoto, (2002) that by complementing services offered by the banking system, such as checkbooks, ATMs, smart cards, the point of sale networks and internet resources, the mobile platform offers a convenient additional method for managing money without handling cash. This has made the banking services more efficient and hence improved their profitability.

The findings of this study further demonstrate that mobile banking products have an influence on the profitability of tier 1 commercial banks in Kenya. The mobile platform offers a convenient additional method for managing money without handling cash. These have made the banking services more efficient and hence improved the profitability of the banks.

*Figure 4.3: Effect of M-banking products on Revenue flow*
Source: Author (2018)
Table 4.3: M-Banking Services and Profitability

<table>
<thead>
<tr>
<th></th>
<th>Response</th>
<th>Frequency (f)</th>
<th>Percent (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Has mobile banking broadened the range of products provided by your bank?</td>
<td>Yes</td>
<td>60</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Is a mobile banking service addition to your existing bank or separate device?</td>
<td>Yes</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>60</td>
<td>100</td>
</tr>
<tr>
<td>Would you consider the relationship between mobile banking and profitability of your bank to be strong?</td>
<td>Yes</td>
<td>60</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Source: Author (2018)

According to the sampled respondents’ view on the effect of mobile banking on the range of products offered by the bank, it was observed that all (100%) of the sampled respondents were in agreement that mobile banking has broadened the range of products they offer. Some of the services include; money deposit and withdrawal services, money transfer, utility bill settlements, shopping services among others. The findings further reveal that the Mobile banking services were on an additional device. They also mentioned that the relationship between mobile banking and profitability was very strong.

The study sought to establish the effect of mobile banking on the profitability of tier 1 Commercial Banks in Kenya. It was in this regard that the numbers of mobile banking users among tier 1 commercial banks were sought. The findings were as shown in figure 4.4.

According to the findings presented above, the study established that in the year 2012 the total number of mobile users was 16.69 million registered users in tier 1 commercial banks in Kenya. From the findings presented above, the study established that in the inception year 2007, the number of users in the first month was 0.02 million people. The numbers grew steadily from month to month during the year. As
the period lapsed, the number of users increased. The average for the year 2013 stood at 17.58 million, 18.19 million users in the year 2014, 18.95 million users in the year 2015 and 19.63 million users in the year 2016.

Figure 4.4: Number of Mobile Banking Users
Source: Author (2018)

The study findings demonstrate that as time lapsed, the number of mobile banking users increased. These, in turn, could lead to commercial banks starting to enjoy economies of scale as more and more customers are adopting mobile banking services. This, in turn, affects banking operations especially the staff costs positively as the number of customers visiting the banking halls to transact could tremendously reduce as more and more customers adopt mobile banking. The adoption of mobile banking also contributes positively to the provision of standardized services. This, in the long run, will lead to the profitability of commercial banks.
The findings of this study are consistent with a study conducted by Al-Jabri (2012) on mobile banking adoption by studying the application of diffusion of innovation theory. Al-Jabri observed that with the better mobile banking system, support and setting up of a variety of services leads to increased positive customer perception on how useful mobile banking is to them and therefore increasing their level of adoption. This in turn significantly affects the profitability of the involved firms. Increase in the number of users demonstrated the level of confidence among mobile banking users. These statistics demonstrate shows that tier 1 commercial banks in Kenya have taken a keen interest in ensuring minimal risk exposure for their customers. As Al-Jabri (2012) suggested, banks must seek to reduce risk perceived by their customers by offering specific guarantees protecting them and taking their complaints seriously and urgently.

### 4.4.3 Customization and its Effect on Profitability of Tier 1 Commercial Banks

To establish the level at which customization of mobile banking affects profitability in the banking industry, this study sought to assess the customization aspect in mobile banking to determine how they influence the profitability of tier 1 commercial banks. Table 4.4. gives a summary of the findings.
Table 4.5: Customization aspects and profitability

<table>
<thead>
<tr>
<th>Customization aspects</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>f</td>
<td>%</td>
<td>f</td>
<td>%</td>
<td>f</td>
</tr>
<tr>
<td>Enhanced the security of customers’ money, the bank sends fraud alerts?</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>The bank often notifies the customer of accounts alerts such as insufficient funds, credit card balances, close to or over-limit, funds transfer complete and two-way actionable text alerts?</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>The banks ensure customers convenience is enhanced through preferred language, figures format, and 24/7 accessibility?</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>The banks ensure customers convenience is enhanced through preferred language, figures format, and 24/7 accessibility?</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>The banks offer appointment scheduling for VIP customers that highly value their time; banks can offer the in-app scheduling function with this feature, customers can do their branch-based banking without standing in line?</td>
<td>17</td>
<td>28.3</td>
<td>43</td>
<td>71.67</td>
<td>0</td>
</tr>
<tr>
<td>Geo-fenced based notification, such as when a customer is passing by the bank’s branch; the mobile banking App can send a reminder to enter the branch to sign business documents, etc.?</td>
<td>17</td>
<td>28.3</td>
<td>43</td>
<td>71.67</td>
<td>0</td>
</tr>
<tr>
<td>The banks offer personal financial advisory services for instance in a case that a customer with low-income balance and upcoming bills might appreciate a personal overdraft offer from a bank with the ability to apply online using a mobile App?</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Key: 1 - Strongly Disagree; 2 - Disagree; 3 – Neutral; 4 - Agree; 5 - Strongly Agree, N=60
Source: Author (2018)
According to the findings of this study, it was noted the mobile banking system was structured in a custom such that customers received 24/7 support from the bank where all (100%) of the sampled respondents cited a “Yes”. They also said that customers received always notifications whenever they made transactions and the system was configured in a way such that customers could select the choice of language of use and the information contained was simple and brief for customers understanding.

According to the findings of this study majority (88.33%) of the sampled respondents strongly agreed while only 11.67% agreed to the statement “To enhance the security of customers’ money, the bank sends fraud alerts to notify the customer of any fraudulent transactions” this clearly shows that banks with mobile banking services had invested in the security of the system so has to protect the customer and their funds. Regarding notifications the findings refilled that the sampled banks (100%) notified the customers with accounts alerts such as insufficient funds, credit card balances, close to or over-limit, funds transfer complete and two-way actionable text alerts.

On the statement “The banks ensure customers convenience is enhanced through preferred language, figures format, and 24/7 accessibility” 58.33% of the sample respondents strongly agreed to this statement while 41.67% were in agreement with this statement. The findings further revealed that “The banks ensure customers convenience is enhanced through preferred language, figures format, and 24/7 accessibility” were 58.33% of the sampled respondents strongly agreed with the statement while 41.6% were in agreement.

Regarding customer appointments, the majority (71.67%) disagreed and some (28.33) strongly disagreed to the statement “The banks offer appointment scheduling for VIP
customers that highly value their time; banks can offer the in-app scheduling function with this feature, customers can do their branch-based banking without standing in line.” Regarding “Geo-fenced based notification, such as when a customer is passing by the bank’s branch; the mobile banking App can send a reminder to enter the branch to sign business documents” majority (71.67%) of the sampled respondents disagreed with this statement while some (28.67%) strongly disagreed.

It was noted that majority of the sample respondents (88.33%) strongly agreed with some (11.67%) agreeing to the statement “The banks offer personal financial advisory services for instance in a case that a customer with low-income balance and upcoming bills might appreciate a personal overdraft offer from a bank with the ability to apply online using a mobile App.”

4.5 Trend Analysis

Measures of bank profitability included Return on Asset (ROA), Return on Equity (ROE) and Net Interest Margin (NIM) were five years (2012 – 2016) average values for ROA, ROE and NIM calculated at bank tier and frequency tables were computed to summarize the results. Table 4.5 gives a detailed descriptive analysis of these variables.
Table 4.6: Financial Statements 2012 - 2016

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Kenya Commercial Bank</strong></td>
<td>NIM</td>
<td>ROA</td>
<td>ROE</td>
<td>NIM</td>
<td>ROA</td>
</tr>
<tr>
<td><strong>(KCB)</strong></td>
<td>9.6</td>
<td>10.3</td>
<td>10.1</td>
<td>10.4</td>
<td>10.9</td>
</tr>
<tr>
<td><strong>Equity Bank</strong></td>
<td>9.7</td>
<td>10.3</td>
<td>10.6</td>
<td>10.6</td>
<td>11.1</td>
</tr>
<tr>
<td><strong>Cooperative Bank</strong></td>
<td>9.0</td>
<td>8.8</td>
<td>8.8</td>
<td>8.7</td>
<td>9.9</td>
</tr>
<tr>
<td><strong>Barclays Bank</strong></td>
<td>10.1</td>
<td>10.3</td>
<td>10.6</td>
<td>10.4</td>
<td>10.5</td>
</tr>
<tr>
<td><strong>Commercial bank of Africa (CBA)</strong></td>
<td>9.7</td>
<td>10.2</td>
<td>10.5</td>
<td>10.7</td>
<td>10.9</td>
</tr>
<tr>
<td><strong>Standard Chartered Bank (SCB)</strong></td>
<td>9.5</td>
<td>9.2</td>
<td>9.4</td>
<td>9.6</td>
<td>9.6</td>
</tr>
<tr>
<td><strong>ROA</strong></td>
<td>3.2</td>
<td>3.5</td>
<td>3.6</td>
<td>3.7</td>
<td>3.4</td>
</tr>
<tr>
<td><strong>ROA</strong></td>
<td>3.3</td>
<td>3.4</td>
<td>3.5</td>
<td>4.5</td>
<td>3.7</td>
</tr>
<tr>
<td><strong>ROE</strong></td>
<td>19.2</td>
<td>21.0</td>
<td>21.7</td>
<td>25.5</td>
<td>22.2</td>
</tr>
<tr>
<td><strong>ROE</strong></td>
<td>19.7</td>
<td>21.8</td>
<td>22.3</td>
<td>25.5</td>
<td>21.5</td>
</tr>
<tr>
<td><strong>ROE</strong></td>
<td>9.0</td>
<td>8.8</td>
<td>8.8</td>
<td>8.7</td>
<td>9.9</td>
</tr>
<tr>
<td><strong>ROE</strong></td>
<td>10.1</td>
<td>10.3</td>
<td>10.6</td>
<td>10.4</td>
<td>10.5</td>
</tr>
<tr>
<td><strong>ROE</strong></td>
<td>10.7</td>
<td>10.5</td>
<td>10.7</td>
<td>10.9</td>
<td>10.9</td>
</tr>
<tr>
<td><strong>ROE</strong></td>
<td>19.2</td>
<td>21.0</td>
<td>21.7</td>
<td>25.5</td>
<td>22.2</td>
</tr>
<tr>
<td><strong>ROE</strong></td>
<td>19.7</td>
<td>21.8</td>
<td>22.3</td>
<td>25.5</td>
<td>21.5</td>
</tr>
<tr>
<td><strong>ROE</strong></td>
<td>9.0</td>
<td>8.8</td>
<td>8.8</td>
<td>8.7</td>
<td>9.9</td>
</tr>
<tr>
<td><strong>ROE</strong></td>
<td>10.1</td>
<td>10.3</td>
<td>10.6</td>
<td>10.4</td>
<td>10.5</td>
</tr>
<tr>
<td><strong>ROE</strong></td>
<td>10.7</td>
<td>10.5</td>
<td>10.7</td>
<td>10.9</td>
<td>10.9</td>
</tr>
<tr>
<td><strong>ROE</strong></td>
<td>19.2</td>
<td>21.0</td>
<td>21.7</td>
<td>25.5</td>
<td>22.2</td>
</tr>
<tr>
<td><strong>ROE</strong></td>
<td>19.7</td>
<td>21.8</td>
<td>22.3</td>
<td>25.5</td>
<td>21.5</td>
</tr>
<tr>
<td><strong>ROE</strong></td>
<td>9.0</td>
<td>8.8</td>
<td>8.8</td>
<td>8.7</td>
<td>9.9</td>
</tr>
<tr>
<td><strong>ROE</strong></td>
<td>10.1</td>
<td>10.3</td>
<td>10.6</td>
<td>10.4</td>
<td>10.5</td>
</tr>
<tr>
<td><strong>ROE</strong></td>
<td>10.7</td>
<td>10.5</td>
<td>10.7</td>
<td>10.9</td>
<td>10.9</td>
</tr>
<tr>
<td><strong>ROE</strong></td>
<td>19.2</td>
<td>21.0</td>
<td>21.7</td>
<td>25.5</td>
<td>22.2</td>
</tr>
<tr>
<td><strong>ROE</strong></td>
<td>19.7</td>
<td>21.8</td>
<td>22.3</td>
<td>25.5</td>
<td>21.5</td>
</tr>
</tbody>
</table>

Source: Author (2018)

The data for the indicators of profitability of commercial banks was obtained from the annual bank supervision reports published by CBK and individual values for each bank for the 5 years period.

Figure 4.5: NIM, ROA, and ROE Report KCB
Source: Author (2018)
According to KCB NIM rose gradually from 2012 to 2016 recording the highest. ROA results indicated a rise in 2012, 2013, 2014 and 2015 and later dropped in 2016. ROE also had a rising trend from 2012 to 2015 and later dropped in 2016.

Figure 4.6: NIM, ROA, and ROE Report Equity Bank
Source: Author (2018)

Equity bank NIM results recorded 2016 to be highest with a constant record in the previous two years. ROA rose slightly from 2012 to 2015 at its peak and later on recorded a decreasing value in 2016. ROE took an upward trend from 2012 to 2015 and later recorded a slight drop in 2016.
Cooperative bank NIM results maintained a constant trend in the years 2013 and 2014 after a drop from 2012 later picked an upward trend in 2015 with 2016 recording the highest. ROA dropped slightly from 2012 and maintained a constant in 2013 and 2014 later picked an upward trend and came to a stand in 2016. ROE was at its peak in 2015 and dropped in 2016. It later dropped in the previous years from 2015 to 2012.
Barclays bank NIM results took an upward trend from 2012 to 2015 where it was at its peak and later slightly dropped in 2016. ROA improved simultaneously from 2012 with a peak at 2015 and later declined in 2016. ROE took an upward trend from 2012 with a peak in 2015 and later declining in 2016.
Figure 4.9: NIM, ROA and ROE Report Commercial Bank of Africa  
Source: Author (2018)

Commercial bank of Africa NIM results indicate an upward trend from 2012 all the way to 2016. ROA too rose gradually from 2012 to 2016. ROE rose from 2012 to 2013 then slightly dropped in 2014 took an upward trend in 2015 and dropped in 2016.
Figure 4.10: NIM, ROA, and ROE Report Standard Chartered Bank
Source: Author (2018)

Standard chartered bank NIM results dropped from 2012 to 2013 later shot up in 2014 and later maintained a constant in 2015 and 2016. ROA took an upward trend from 2012 all the way to 2016 where it was highest. ROE indicated an upward trend from 2012 to 2016 where it was at its peak.

4.6 Regression Analysis

To establish the effect of mobile banking on the profitability of tier 1 Commercial Banks in Kenya, the study conducted a multiple regression analysis. Table 4.1 gives a summary of the research findings.
Table 4.7: Model Summary

<table>
<thead>
<tr>
<th>Model</th>
<th>R</th>
<th>R Square</th>
<th>Adjusted Square</th>
<th>R</th>
<th>Std. The error of the Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0.608&lt;sup&gt;a&lt;/sup&gt;</td>
<td>0.602</td>
<td>0.260</td>
<td>2.40644</td>
<td></td>
</tr>
</tbody>
</table>

<sup>a</sup> Predictors: (Constant), Number of transactions, electronic fund transfer services and customization of services

Source: Author (2018)

From the table 4.7 above, the simple correlation of 0.608 indicates a fairly strong correlation between the Number of transactions, electronic funds transfer services, and customization. The model indicates that 60.2% of the variance in the profitability can be explained by mobile banking services as shown by an $R^2$ factor. The findings of this study, therefore, indicate there is a weak positive correlation between mobile banking on the profitability of tier 1 commercial banks in Kenya.

Table 4.8: ANOVA

<table>
<thead>
<tr>
<th>Model</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Regression</td>
<td>6.797</td>
<td>2</td>
<td>3.399</td>
<td>0.587</td>
<td>0.630&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Residual</td>
<td>11.582</td>
<td>2</td>
<td>5.791</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>18.379</td>
<td>4</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<sup>a</sup> Predictors: (Constant), Number of transactions, electronic fund transfer services and customization of services

b. Dependent Variable: Profitability of tier 1 commercial banks in Kenya

Source: Author (2018)

The table 4.6 above shows the Analysis of Variance (ANOVA). The F-value was found to be 0.587 while P-value was 0.630 which is >0.05 level of significance. This signifies that mobile banking is not a good predictive power on the profitability of tier 1 commercial banks in Kenya.
Table 4.9: Coefficients of Determination

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized Coefficient</th>
<th>Standardized Coefficient</th>
<th>Standardized Coefficients</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>(Constant)</td>
<td>26.123</td>
<td></td>
<td>13.41</td>
<td>0.048</td>
</tr>
<tr>
<td></td>
<td>Number of transactions</td>
<td>0.012</td>
<td>0.394</td>
<td>0.030</td>
<td>0.047</td>
</tr>
<tr>
<td></td>
<td>Electronic fund transfer services</td>
<td>0.118</td>
<td>2.108</td>
<td>0.056</td>
<td>0.0430</td>
</tr>
<tr>
<td></td>
<td>Customization of services</td>
<td>0.091</td>
<td>0.786</td>
<td>0.041</td>
<td>0.041</td>
</tr>
</tbody>
</table>

a. Dependent Variable: Profitability of tier 1 commercial banks in Kenya

Source: Author (2018)

From the table 4.9 above a regression model can be derived from the unstandardized coefficients as follows: $Y = 26.123 + 0.012X_1 + 0.118X_2 + 0.091X_3$.

The results imply that one unit increase in the number of transactions will lead to an increase in the profitability with a factor of 0.012 at a significance level of 0.05 all factors held constant. A unit increase in the electronic fund's transfer services will result in an increase in profitability with a factor of 0.118 at a significance level of 0.05 all factors held constant. One unit increase in customization of services will result in an increase in profitability with a factor of 0.91 all else held constant with a significance level of 0.05.

The table above also indicated that No.of transactions, electronic funds transfer services and customization of services do not have a direct positive effect on the profitability of tier 1 commercial banks because their P-values were less than 0.05. Transaction with a regression of 0.012 (P-value=0.047), electronic funds transfer services had a coefficient of 0.118 (P-value=0.043) and customization with a coefficient of 0.09 (P-value=0.041).
4.7 Research Discussion

The general objective of this study was to determine the effect of mobile banking on the profitability of tier 1 Commercial Banks in Kenya. In determining the bank asset size the findings revealed that 60% of banks under study had a total of between Ksh 200 – 299 worthy assets; 20% had between Ksh. 300 – 399 billion while another 20% had over Ksh. 500 billion. The respondents indicated that the M-banking products provided by their banks include, Fund Transfer between Accounts/E-funds transfer, Bill Payment, order for chequebooks and bank statements. These M-banking products were found to have significantly affected the bank's revenue in the last five years. These findings concur with Karjaluoto, (2002) that by complementing services offered by the banking system, such as ATMs, Voice mail/landline interfaces, smart cards, the point of sale networks and internet resources, the mobile platform offers a convenient additional method for managing money without handling cash. This has made the banking services more efficient and hence improved their profitability.

The findings of this study further demonstrate that mobile banking products have an influence on the profitability of tier 1 commercial banks in Kenya. The findings further revealed that M-banking products offered by their banks some of which include, Fund Transfer between Accounts/E-funds transfer, Bill Payment, and order for chequebooks and bank statements. These M-banking products were found to have greatly increased the bank's revenue in the last five years. These findings concur with Karjaluoto (2002) that by complementing services offered by the banking system, such as ATMs, Voice mail/landline interfaces, smart cards, the point of sale networks and internet resources. The mobile platform offers a convenient additional method for managing money without handling cash. These have made the banking services more efficient and hence improved the profitability of the banks.
The findings of this study are consistent with a study conducted by Al-Jabri (2012) on mobile banking adoption by studying the application of diffusion of innovation theory. Al-Jabri observed that with the better mobile banking system, support and setting up of a variety of services leads to increased positive customer perception on how useful mobile banking is to them and therefore increasing their tier of adoption. This in turn significantly affects the profitability of the involved firms. Increase in the number of users demonstrated the tier of confidence among mobile banking users. These statistics demonstrate shows that tier 1 commercial banks in Kenya have taken a keen interest in ensuring minimal risk exposure for their customers. As Al-Jabri (2012) suggested, banks must seek to reduce risk perceived by their customers by offering specific guarantees protecting them and taking their complaints seriously and urgently.

To determine the effect of transactions on the profitability of banks under study the study found that; the majority of the sampled respondents strongly disagreed that Transactions over m-banking have broadened our customer base (M=0.621, SD=4.77). The results also showed that majority agreed that mobile banking transactions, funds transfer between customer linked accounts are easy and efficient (M=4.73, SD=0.71); this might be as a result illiteracy tier among bank users. Also on the item regarding the ability of customers to check their account balances from their mobile devices, a majority of the respondents were in strong agreement (M=4.32, SD=1.01). The study also revealed that through mobile banking customers were able to make an online purchase or in-app purchases, e.g., from Amazon.com or Best Buy can now be easily carried out (M=4.17, SD=1.10).
The results so this study indicates that mobile banking has an effect on the profitability of tier 1 commercial banks. The study findings demonstrate that mobile banking variables (Number of transactions, electronic fund transfer services and customization of services) influenced the profitability of tier 1 commercial banks in Kenya. The three studied variables (Number of transactions, electronic fund transfer services and customization of services) had a 60.2% influence on profitability. These study findings show a significant correlation between mobile banking and profitability of tier 1 commercial banks in Kenya.

The results of this study indicated that mobile banking has a significant effect on the profitability of commercial banks in Kenya. Various components of mobile banking affect the profitability of commercial banks in different ways. The Number of transactions, electronic fund transfer services and customization of services has a significant effect on the profitability of commercial banks under study. The findings indicated a weak positive relationship between Number of transactions, electronic fund transfer services, customization of services and profitability of commercial banks under study.

The results show that as the monthly value moved through mobile banking increases, the profitability of the commercial bank's increases. The research shows that mobile banking to a larger extent impacts the profitability of commercial banks in Kenya in that it helps reduce unnecessary cost, increase efficiency and improves service delivery to customers. However, for the period 2012 and 2016, this relationship seems not to hold as the value moved continued to increase while the performance of the banking industry as a whole dropped as measured by return on assets. This could, however, be explained that although there is a relationship between mobile banking
and profitability of tier 1 commercial banks in Kenya, the relationship is somehow weak. This was well explained by the F critical at 5% tier of significance which was 0.587 falling below the F critical (value = 2.371). Also, the R squared value was at 60.2% showing that the effect of mobile banking on the profitability of the banking industry was low.

According to the regression equation established, taking all factors (Number of transactions, electronic fund transfer services and customization of services) constant at zero, the Profitability of tier 1 commercial banks in Kenya will be 26.123%. The data findings analyzed also shows that taking all other independent variables at zero, a unit increase in Number of transactions will lead to a 0.012 increase in Profitability of tier 1 commercial banks in Kenya. A unit increase in the Electronic fund transfer services will lead to a 0.118 increase in the Profitability of tier 1 commercial banks in Kenya while a unit increase in Customization of services will lead to a 0.091 increase in the Profitability of tier 1 commercial banks in Kenya. This nonetheless, the study shows that there is a weak positive correlation between mobile banking and Profitability of tier 1 commercial banks in Kenya. Therefore, it can be deduced that mobile banking has an impact on the Profitability of tier 1 commercial banks in Kenya although not significant.
CHAPTER FIVE

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

5.1 Introduction

This chapter provides a summary, conclusion, and recommendations of the main findings of the study. The conclusions and recommendations made to address the objectives of the study which sought to determine the effect of mobile banking on the profitability of tier 1 commercial banks in Kenya.

5.2 Summary

The study made use of secondary data from the Audited Financial statements of the Banks and profitability data from CBK annual banking survey reports. The data collected was cleaned, coded and systematically organized in a manner that facilitates analysis using the Statistical Package for Social Sciences (SPSS v20). Quantitative analysis was analyzed through descriptive statistics such as a measure of central tendency that generated relevant frequency counts, mode, and median, mean and standard deviation where possible. To test for the strength of the model and the effects of mobile banking on the profitability of tier 1 commercial banks in Kenya, the study conducted a regression analysis and Analysis of Variance (ANOVA).

Mobile banking is categorized as the latest development in electronic banking, and it is a kind of electronic banking that applies Short Message System (SMS) and Wireless Application Protocol (WAP) services to facilitate customers in making online transactions. The developments in the banking sector have seen an increased number of users of banking services as it allows customers with busy lives to do their banking using their phones anytime conveniently. It is about getting banking services...
to the unbanked, those who do not have bank access or bank accounts and those who are at the bottom of the economic pyramid, often living in remote areas. The innovative National Industrial Corporation (NIC) mobile banking platform promises some ‘firsts’ within the banking industry and Information Technology fields. The study sought to determine the effect of mobile banking on the profitability of tier 1 commercial banks in Kenya.

The study obtained information from tier 1 commercial banks with their headquarters based in Nairobi region. The study comprised of 60 respondents from the banks which were studied. The study sampled all Operations Managers, Information Communication Technology (ICT) officers, M-banking officers, and finance/accounts officers from each sampled tier 1 commercial bank in Kenya. Questionnaires were used to obtain the required information from the sampled respondents. The primary objective of this study was to establish the effect of mobile banking on the profitability of tier 1 Commercial Banks in Kenya. The specific objectives of the study were: i) To establish the effect of transactions on the profitability of tier 1 Commercial banks, ii) To determine the effect of electronic funds transfer services on the profitability of tier 1 Commercial banks, and iii) To establish the effect of customization on the profitability of tier 1 Commercial banks in Kenya. The findings are captured hereunder:

From the regression model, the study found out that mobile banking variables were influencing the profitability of tier 1 commercial banks in Kenya, which were; Number of transactions, electronic fund transfer services and customization of services (independent variables). It was observed that they influenced profitability positively. The three independent variables that were studied explain only that there
are a 60.2% changes in profitability of tier 1 commercial banks in Kenya due to mobile banking as represented by the R factor. The findings of this study indicate that there is a weak positive insignificant correlation between mobile banking and profitability of tier 1 commercial banks in Kenya.

Financial institutions in Kenya have adopted mobile services to provide crucial banking services to customers in Kenya. The results show that as the monthly value moved through mobile banking increases, the profitability of the commercial bank's increases. The research shows that mobile banking to a larger extent impacts the profitability of commercial banks in Kenya in that it helps reduce unnecessary cost, increase efficiency and improves service delivery to customers.

However, the study findings show that mobile banking is being used to improve financial operations. The banks have put in place measures become more competitive by keeping pace with the technological developments. It can also be noted from the findings on the number of users that the numbers keep increasing from one year to another. This shows that customers are appreciating and embracing mobile banking. This could be attributed to the advantages offered by mobile banking which include convenience and flexibility.

5.3 Conclusions

From the findings of the study; the study concludes that mobile banking has contributed positively to the profitability of tier 1 commercial banks in Kenya. This could be attributed to the trends recorded in the variables where the number of users and annual transfers had a positive and significant influence on the profitability of commercial banks in Kenya. Stiff competitions exist among banks in Kenya, some
open seven days a week to attract more clients. This, therefore, means that the more clients a bank has in the mobile banking platform and the higher the amount of money transacted through mobile banking the better the profitability of tier 1 commercial banks.

The study established that the number of mobile banking transactions had tremendously increased in the last five years since the introduction of M-banking. The study thus concludes that banks that the positive acceptability M-banking services have significantly expanded their customer outreach, and hence have improved their profitability. Mobile banking enables clients to send and receive electronic money wherever they have cell coverage, hence making banking services more readily available to their clients.

The findings revealed that many mobile banking products are being offered by banks some of which include, Fund Transfer between Accounts/E-funds transfer, Bill Payment, and bank statements and order for chequebooks and bank statements. From these findings, the study concludes that the Profitability of these banks that provide mobile banking products have improved as they ensure efficiency of the banking services. By complementing services offered by the banking system, such as mobile banking, banking services are more efficient and hence improved the profitability of the banks. Using a mobile phone in banking is trustworthy.

The findings also expressed that people trust the interface, the network across which their funds travel, the representatives of the institutions (channels) who control their money and the institutions themselves. Through offering a way to lower the costs of moving money from a place to place and providing a way to bring more users into
contact with formal financial systems, m-banking/m-payments systems could prove to be a significant innovation for the developing world. This, therefore, means that the more clients a bank have in the mobile banking platform and the higher the amount of money transacted through mobile banking the better the profitability of tier 1 commercial bank.

The findings indicate that contribution of agency banking to income generated positively and significantly influenced the profitability of tier 1 commercial banks in Kenya. Technology is the main driving force of competition in the banking industry and it is essential for bank management to strengthen investment in Information Communication Technology products through agency baking to facilitate speed, convenience, and accurate services or otherwise lose out to their competitors. The adoption and use of mobile phones is a product of the social the process, embedded in social practices such as SMEs practices which lead to some economic benefits.

5.4 Recommendations

The results of this research have policy propositions on profitability in the mobile banking segment. As supported by the research findings, mobile banking is a key contributor to bank performance as well as a sure value addition to consumers of banking services. Consequently, from the results of this study, the subsequent recommendations were made;

The government has a lot to gain from mobile banking regarding making financial services accessible to its citizens. Therefore the study recommends that; Due to the constantly evolving nature of mobile phone technology, policymakers should consider formulating more accommodative policies to switch to branchless models of banking
services. This is clearly because of the significant and positive interrelationship between mobile banking and financial sector development in Kenya. The effect will be more evident should greater transition in technological innovations, and more clients switch to mobile phone banking services be encountered. With the inevitable cross boundaries between banks and mobile operator, further enhanced and supported policies that encourage financial sector deepening should be implemented. These should be complemented by measures to promote the growth and image of banks and mobile operators in a bid to encourage the synergy existing between them.

On the regulatory challenges, there is need to include interfaces between different tiers of service providers (Banks and mobile operators), which to keep the public’s confidence in the system, the findings recommend a certain tier of clarity on who is who regarding service delivery. There is a need by regulators to revise the current loose regulatory framework to formulate clear regulations to current and prospective mobile operators, for example on transaction volumes, business use of services, and security. Lack of clarity and uncertainty is not good for any business and nor for the confidence in the financial systems. By setting the rules clearly, the playing field is more predictable, and this will promote further investments and competition.

This study recommends the following; Banks need to take mobile banking as a premium service offering to derive maximum value from it. The assumption that customers are too cautious with mobile banking no longer holds, and in fact, customers are increasingly embracing the service. The study recommends that the banks should lower the transaction charges incurred by customers, reduce the time taken to complete the transaction and improve the quality of mobile banking services to motivate them to use the M-banking services. This will increase the number of
transactions and hence improve the profitability of the tier 1 commercial banks. Though mobile banking can be an additional income stream for banks, banks should not load extra costs from the service to their customers. This is because of the slow adoption of this service. Customers perceiving it as an expensive channel will dwarf its growth. This is important as the benefits of mobile banking are more if consumed in mass.

5.5 Contribution to Knowledge

This study aimed at bringing out the positive and negative contribution of mobile banking on profitability of commercial banks in Kenya. The results have shown mobile banking has significantly increased profitability of banks; it has enabled banks to meet their costs and earn profits even in the short span of time. For banks, it has also gained an advantage to increase its clientele, retain and attract new customers. The study concludes that adoption of mobile banking is very important in the improvement of capital adequacy of commercial banks and profitability.

5.6 Suggestions for Further Research

Because studies explore original information, what has been identified is not exhaustive owing to vibrant transformations in the banking industry about the current situation of dynamic banking technology. It is given this that the following suggestions for further research have been made: there is need to conduct a study on the relationship between mobile banking and profitability in other banks since this study only concentrated only on tier 1 Commercial Banks in Kenya, yet mobile
banking has been adopted by all members in the banking industry. The study also recommends an in-depth study to be carried out on the challenges faced by tier 1 Commercial Banks in adopting mobile banking in the banking industry in Kenya. These may include macroeconomic factors such as political unrest, interest rates, labor unrest and social-cultural perspective would need to be analyzed for clear results.

Since technological advancements in the mobile banking industry are strong predictors of profitability of tier 1 commercial banks, it is, therefore, necessary to conduct a study on the relationship between mobile banking and economic growth to establish the contributions of mobile banking on the growth of the economy. Finally, based on the Central Bank of Kenya (CBK) statistics on mobile banking, there is an increase in the tier of financial deepening in Kenya of up-to about 85%. Therefore a study ought to be conducted to ascertain the effectiveness of mobile banking in financial deepening.
REFERENCES


Berger, A. N. (2003), “The Economic Effects of Technologies Progress; Evidence from the Banking Industry” Journal of Money, Credit, and Banking 35 (2) 141-76
Central bank of Kenya (2012/2014) annual reports.


Maiyo, J (2013) The Effect of Electronic Banking on Profitability of Commercial banks in Kenya; Unpublished MBA project University Of Nairobi


The impact of e-banking on the profitability of banks. A study of Pakistan banks. Sana Haider sumra (corresponding author) may 2011


Wambari Andrew 2009:- mobile banking in developing countries A case study on Kenya. Unpublished Master’s Thesis Vaasan Ammattikorkeakoulu


Appendix I: Introductory Letter

Njeru Irene Mukami,  
D53/CTY/PT/32419/2015,  
Kenyatta University

To Mr. /Mrs________________________
P.O. BOX___________________________

Dear Sir/Madam,

**REF: REQUEST FOR RESEARCH DATA COLLECTION**

I am Njeru Irene Mukami a student at Kenyatta University pursuing a Master’s degree course in Business Administration (Finance Option). I am currently working on my research study on the topic “**MOBILE BANKING AND PROFITABILITY OF TIER 1 COMMERCIAL BANKS IN NAIROBI COUNTY, KENYA.**” I am at this moment writing this letter to request you to provide the necessary required information to enable me to achieve the objectives of this study. Also worth to note is that all your responses will be treated with utmost **CONFIDENTIALITY** thereby requesting for your honest views. Kindly read the items carefully and understand and answer all questions in all sections.

Thank you for your anticipated responses.

Yours faithfully,

Njeru Irene Mukami  
D53/CTY/PT/32419/2015
Appendix II: Questionnaire

Questionnaire No………………..                                 Date….../…./2017

(Information provided will be treated with utmost confidentiality)

SECTION A GENERAL INFORMATION

1 What is the size of your bank assets?

<table>
<thead>
<tr>
<th>Size of Bank Assets</th>
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<tbody>
<tr>
<td>Over 500 billion</td>
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<tr>
<td>400 billion</td>
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<td>300 billion</td>
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<tr>
<td>200 billion</td>
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<tr>
<td>100 billion</td>
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</table>

2. When did your bank start offering mobile banking services?

<table>
<thead>
<tr>
<th>Year</th>
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<tbody>
<tr>
<td>Before 2011</td>
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<tr>
<td>2012</td>
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<td>2013</td>
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<td>2014</td>
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<td>2015</td>
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</table>

3. Has mobile banking broadened the range of products provided by your bank?

| YES [ ] | NO [ ] |

Kindly explain your answer above……………………………………………………………

4. Is a mobile banking service an addition to your existing bank or separate device?

| Existing device [ ] | separate device [ ] |

Please explain your answer above……………………………………………………………

5. Would you consider the relationship between mobile banking and profitability of your bank to be strong? YES [ ] NO [ ]

Please briefly explain your answer……………………………………………………………

6. To what extent is the impact of mobile banking on the profitability of commercial banks? Large extent[ ] small extent [ ]
SECTION B MOBILE BANKING

B1 TRANSACTIONS

1. What type of bills payment services are offered on your mobile banking platforms?

<p>| | |</p>
<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>Electricity bills</td>
<td></td>
</tr>
<tr>
<td>Meals</td>
<td></td>
</tr>
<tr>
<td>Commuting</td>
<td></td>
</tr>
<tr>
<td>Others</td>
<td></td>
</tr>
</tbody>
</table>

2. Do you send mini-statements to your customers upon their requests?

YES [ ] NO [ ]

Briefly explain……………………………………………………………………

3. Does your m-banking platform allow your clients to make NHIF & NSSF contributions? YES [ ] NO [ ]

Please briefly explain…………………………………………………………

Please rate using the scale 1-5

5-strongly agree: 4-Agree: 3-Neutral: 2-Disagree: 1-Strongly disagree

<table>
<thead>
<tr>
<th></th>
<th>Strongly agree</th>
<th>Agree</th>
<th>Neutral</th>
<th>Disagree</th>
<th>Strongly disagree</th>
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<tbody>
<tr>
<td>Transactions</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
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<tr>
<td>1 Transactions over m-</td>
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<tr>
<td>1</td>
<td>banking have broadened our customer base?</td>
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<tr>
<td>2</td>
<td>Mobile banking reduces the cost of handling transactions by reducing the need for customers to visit a bank branch?</td>
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<tr>
<td>3</td>
<td>With mobile banking transactions funds transfer between customer linked accounts is easy and efficient?</td>
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<tr>
<td>4</td>
<td>Customers are able to check an account balance or check recent transaction on their mobile device?</td>
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<tr>
<td>5</td>
<td>Customers are able to make withdrawals from their accounts to their phones and vice versa conveniently?</td>
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<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Transactions such as online purchase or in-app purchases e.g. from Amazon.com or Bestbuy can now be easily carried out?

B2 ELECTRONIC FUNDS TRANSFER SERVICES

1) Do you offer EFT services to your customers? YES [ ] NO [ ]
   Please explain which ones

2) Do you use an App to award loyalty/reward points to your customers? YES [ ] NO [ ]
   Please briefly explain

3) Are EFT services often carried out by your customers? YES [ ] NO [ ]
   Please briefly explain

....
Please rate using the scale 1-5

5-Strongly agree: 4-Agree: 3-Neutral: 2-Disagree: 1-Strongly disagree

<table>
<thead>
<tr>
<th>Question</th>
<th>Strongly agree</th>
<th>Agree</th>
<th>Neutral</th>
<th>Disagree</th>
<th>Strongly disagree</th>
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</thead>
<tbody>
<tr>
<td>Electronic funds transfer services</td>
<td></td>
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<tr>
<td>1 EFT services are more secure compared to cheques when doing online bill payment?</td>
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<tr>
<td>2 EFT services has reduced administrative costs, increased efficiency and simplified book keeping?</td>
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<td>3 EFT is efficient and less expensive than paper cheques payments and collections?</td>
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<tr>
<td>4 EFT services such as Western Union, Sure money are often used by customers to send remittances?</td>
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</tbody>
</table>
### B3 PERSONALIZATION

1) Does your m-banking platform offer it’s services to customers 24/7? YES [ ] NO [ ]

Please briefly explain……………………………………………………………………..

2) Do you send any message alerts to yours customers whenever they make transactions? YES [ ] NO [ ]

Please briefly explain why……………………………………………………………..

3) Is your mobile banking services structured in a way such that the customer is able to understand whatever information you send them? YES [ ] NO [ ]

Please briefly explain …………………………………………………………………..
Please rate using the scale 1-5
5- Strongly agree: 4-Agree: 3-Neutral: 2- Disagree: 1-Strongly disagree

<table>
<thead>
<tr>
<th></th>
<th>Strongly agree 5</th>
<th>Agree 4</th>
<th>Neutral 3</th>
<th>Disagree 2</th>
<th>Strongly disagree 1</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Personalization</strong></td>
<td></td>
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</tr>
<tr>
<td>1</td>
<td>To enhance security of customers’ money, the bank sends fraud alerts to notify the customer of any fraudulent transactions?</td>
<td></td>
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<td>2</td>
<td>The bank often notifies the customer of accounts alerts such as insufficient funds, credit card balances, close to or over-limit, funds transfer</td>
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<td></td>
<td>complete and two-way actionable text alerts?</td>
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<td>3</td>
<td>The banks ensure customers convenience is enhanced through preferred language, figures format and 24/7 convenience?</td>
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<td>4</td>
<td>The banks offers appointment scheduling for VIP customers that highly value their time, banks can offer the in-app scheduling function with this feature, customers can</td>
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<td>5</td>
<td>Geo-fenced based notification i.e. when a customer is passing by the bank’s branch, the mobile banking App can send a reminder to enter the branch to sign business documents etc?</td>
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<td>6</td>
<td>The banks offer personal financial advisory services for instance in a case that a customer with low income</td>
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</tbody>
</table>
balance and upcoming bills might appreciate a personal overdraft offer from a bank with the ability to apply online using a mobile App?

SECTION C PROFITABILITY

Please provide the financials for each of the five years to enable the researcher ascertain trends.

<table>
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<tr>
<td>Net income</td>
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<tr>
<td>Total assets (as at 31/12)</td>
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<tr>
<td>Sales (as per the statement of income)</td>
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<tr>
<td>Total shareholders equity</td>
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<tr>
<td>Totals</td>
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</table>
Please rate using the scale (1-5)

5- Strongly Agree 4- Agree 3-Neutral 2- Disagree 1- Strongly Disagree

<table>
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<tr>
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<th>Strongly agree 5</th>
<th>Agree 4</th>
<th>Neutral 3</th>
<th>Disagree 2</th>
<th>Strongly disagree 1</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>Has mobile banking enhanced profitability trends of commercial banks over the years?</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>2</td>
<td>Banks’ size to a greater extent has determines profitability of commercial banks?</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>3</td>
<td>Through mobile banking banks meet capital adequacy variable and as a result increase profits?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Mobile banking has been a great factor in enabling commercial banks meet profitability goal?</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

Thank you for filling the questionnaire
Appendix III: KU Graduate School Approval Letter

KENYATTA UNIVERSITY
GRADUATE SCHOOL

E-mail: dean-graduate@ku.ac.ke
Website: www.ku.ac.ke
P.O. Box 43844, 00100
NAIROBI, KENYA
Tel. 810901 Ext. 4150

FROM: Dean, Graduate School
TO: Njeru Irene Mukami
C/o Accounting and Finance Dept.
DATE: 18th January, 2018
REF: D53/CTY/PT/32419/2015

SUBJECT: APPROVAL OF RESEARCH PROJECT PROPOSAL

This is to inform you that Graduate School Board at its meeting of 10th January, 2018 approved your Research Project Proposal for the M.B.A Degree Entitled, “Mobile Banking and Profitability of Tier 1 Commercial Banks in Kenya”.

You may now proceed with your Data Collection, Subject to Clearance with Director General, National Commission for Science, Technology and Innovation.

As you embark on your data collection, please note that you will be required to submit to Graduate School completed Supervision Tracking Forms per semester. The form has been developed to replace the Progress Report Forms. The Supervision Tracking Forms are available at the University’s Website under Graduate School webpage downloads.

Thank you.

ELIJAH MUTUA
FOR: DEAN, GRADUATE SCHOOL

cc: Chairman, Accounting and Finance.

Supervisors:

1. Dr. Job Omagwa
   C/o Department of Accounting and Finance
   Kenyatta University

EM/Im
Appendix IV: NACOSTI Authorization Letter

NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY AND INNOVATION

Date: 20th February, 2018

Ref. No: NACOSTI/P/18/64485/21096

Irene Mukami Njeru
Kenyatta University
P.O. Box 43844-00100
NAIROBI.

RE: RESEARCH AUTHORIZATION

Following your application for authority to carry out research on “Mobile banking and profitability of tier 1 commercial banks in Kenya” I am pleased to inform you that you have been authorized to undertake research in Nairobi County for the period ending 20th February, 2019.

You are advised to report to the County Commissioner and the County Director of Education, Nairobi County before embarking on the research project.

Kindly note that, as an applicant who has been licensed under the Science, Technology and Innovation Act, 2013 to conduct research in Kenya, you shall deposit a copy of the final research report to the Commission within one year of completion. The soft copy of the same should be submitted through the Online Research Information System.

GODFREY P. KALERWA MSc., MBA, MKIM
FOR: DIRECTOR-GENERAL/CEO

Copy to:

The County Commissioner
Nairobi County.

The County Commissioner
Education
Nairobi County.
Appendix V: Ministry of Education Authorization Letter

Republic of Kenya
MINISTRY OF EDUCATION
STATE DEPARTMENT OF BASIC EDUCATION

Regional Coordinator of Education
Nairobi Region
Kraus House
P.O. Box 74629
NAIROBI

When replying please quote
Ref: RCE/NRB/GEN/1/VOL. 1

Irene Mukami Njeru
Kenyatta University
P.O. Box 43844-00100
NAIROBI

DATE: 2nd March, 2017

RE: RESEARCH AUTHORIZATION

We are in receipt of a letter from the National Commission for Science, Technology and Innovation regarding research authorization in Nairobi County on "Mobile banking and profitability of tier I commercial banks in Kenya".

This office has no objection and authority is hereby granted for a period ending 20th February, 2019 as indicated in the request letter.

Kindly inform the Sub County Director of Education of the Sub County you intend to visit.

MAINA NGURI
FOR REGIONAL COORDINATOR OF EDUCATION
NAIROBI

C.C.
Director General/CEO
National Commission for Science, Technology and Innovation
NAIROBI