THE EFFECT OF MOBILE BANKING ON THE FINANCIAL SERVICES DIVERSIFICATION OF COMMERCIAL BANKS IN KENYA

BY

JOSEPH MUCHIRI

A RESEARCH PROJECT SUBMITTED IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE AWARD OF THE DEGREE OF MASTER OF BUSINESS ADMINISTRATION, SCHOOL OF BUSINESS, UNIVERSITY OF NAIROBI

2018

DECLARATION

I, the undersigned, declare that this is my original work and has not been presented to any institution or university other than the University of Nairobi for examination.

Signed: ……..... Date: ……

Joseph Muchiri - D61/86058/2016

This research project has been submitted for examination with my approval as the University Supervisor.

Signed: ……. Date: ……

Dr. Kennedy Okiro

Lecturer, Department of Finance and Accounting,

School of Business,

University of Nairobi.

DEDICATION

I dedicate this research project to my parents, my siblings and my wife for their continuous support and encouragement during the entire research. May this project be a source of pride and inspiration to you.

ACKNOWLEDGEMENT

I would like to tender my most unreserved gratitude to the Almighty God. He makes all things possible and it's by His grace that I have come to the completion of this project.

Special gratitude to my supervisor Dr. Kennedy Okiro of the University of Nairobi. He gave me valuable guidance and direction. He was always available for consultation and gave me inspiration that was unsurpassed. I truly feel indebted to him.

This study would not have been possible without the express support of my loving wife, Lucy, who believed in me, encouraged me and made it possible for me to undertake this programme. I am very grateful to my parents for their love and support, my brothers, sisters and friends for their concern and encouragement, you walked with me the entire journey. You gave me emotional and spiritual support that enabled me to bring my studies to a successful completion and for this, I am deeply grateful.

Many thanks to all the lecturers at the University of Nairobi, School of Business for all the invaluable knowledge and support you offered me.

To all those who assisted one way or another, **"I could not have done it without you."**

God bless you all.

ABSTRACT

The objectives of the study were to determine the effect of M-banking on the financial services diversification of banks in Kenya. Due to increased competition in the banking industry and consumer preference for convenience, banks have embraced mobile banking to stay competitive. However, it has not been empirically proven how it affects financial services diversification in commercial banks. Therefore, the study's objective was to determine the effect of mobile banking on the financial services diversification of commercial banks in Kenya. The study was a descriptive research targeting a population of 40 commercial banks that had been in operation between the periods 1 January 2013 to 31 December 2017. The study collected secondary data from financial reports filed with the Central Bank of Kenya. Data collected was analysed using descriptive statistics such as mean, standard deviation, skewness, kurtosis and quartile values. Inferential analysis using correlation and multiple linear regression models were used. Test of assumptions such as multicollinearity tests were also run. The findings revealed that top tier banks have embraced mobile banking more than other tiers and their incomes were more diversified. Mobile banking was found to positively influence diversification of financial services as measured by Herfindahl Hirschman Diversification or Concentration Index (HHI). Total assets had a positive relationship with diversification while efficiency ratio had a negative relationship. The study recommends that commercial banks should integrate technological innovations such as mobile banking to drive diversification which will in turn lead to better performance. It is suggested that future studies can be extended to other financial institutions such as deposit taking SACCOs and microfinance banks.

TABLE OF CONTENTS

DECLARATION ..... **ii**

DEDICATION ..... **iii**

ACKNOWLEDGEMENT ..... **iv**

ABSTRACT ..... **v**

LIST OF TABLES ..... **x**

LIST OF ABBREVIATIONS ..... **xi**

CHAPTER ONE **1**

INTRODUCTION **1**

1.1 Background to the Study 1

1.1.1 Mobile Banking 3

1.1.2 Financial Services Diversification 3

1.1.3 Mobile banking and Service Diversification 4

1.1.4 Commercial Banks in Kenya 6

1.2 Research Problem 7

1.3 Research Objective 9

1.4 Value of the Study 9

CHAPTER TWO **11**

LITERATURE REVIEW **11**

2.1 Introduction 11

2.2 Theoretical Review 11

2.2.1 Resource Based View 11

2.2.2. Transaction Cost Economics 13

2.2.3 Market Based Theory 14

2.3 Determinant of Growth and Sustainability of Financial Institutions 15

2.4 Determinants of Financial Services Diversification 18

2.4.1 Product Diversification 18

2.4.2 Mobile and Non-Mobile Income 19

2.4.3 Size of Commercial Bank 19

2.4.4 Efficiency Ratio 19

2.5 Empirical Review 20

2.5.1 International Evidence 20

2.5.2 Local Evidence 22

2.6 Summary of Literature Review 23

2.7 Conceptual Framework 25

2.8 Research Gap 26

CHAPTER THREE 27

RESEARCH METHODOLOGY 27

3.1 Introduction 27

3.2 Research Design 27

3.3 Population and Sample 27

3.4 Data Collection 28

3.5 Data Analysis 28

3.5.1 Analytical Model 28

3.5.2 Test of Significance 30

CHAPTER FOUR 31

DATA FINDINGS, ANALYSIS AND DISCUSSIONS 31

4.1 Introduction 31

4.2: Descriptive Statistics 31

4.3 Correlation Analysis 33

4.4 Regression Analysis 34

4.5 Discussion of Research Findings 37

CHAPTER FIVE 39

SUMMARY, CONCLUSION AND RECOMMENDATIONS 39

5.1 Introduction 39

5.2 Summary of Findings 39

5.3 Conclusion 40

5.4 Recommendations 40

5.5 Limitations of the Study 41

REFERENCES **43**

APPENDICES **47**

APPENDIX I: SECONDARY DATA COLLECTION FORM **47**

APPENDIX II: DESCRIPTIVE DATA **48**

LIST OF TABLES

Table 4.1: Descriptive Statistics 31

Table 4.2: Correlation Matrix 34

Table 4.3: Model Summary 35

LIST OF ABBREVIATIONS

ANOVA	Analysis of Variance
E-BANKING	Electronic Banking
M-PESA	Mobile Money
M-BANKING	Mobile Banking
EFT	Electronic Funds Transfer
ICT	Information and Communication Technology
IT	Information Technology
KBA	Kenya Bankers Association
MIS	Management Information System
OLS	Ordinary Least Squares
PC	Personal Computer
PIN	Personal Identification Number
SMS	Short Message Service
SWIFT	Society for Worldwide Interbank Financial Telecommunication
TAM	Technology Acceptance Model
RBT	Resource Based Theory
TRA	Theory of Reasoned Action

CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

M-banking allows banks' customers to transact remotely through use of mobile devices which include cell phones and tablets. The services offered may differ from one institution to another. The common services offered across all banks in Kenya include: transfer of credit, inquiry of account balances, payment of bills according to instructions requested by the mobile phone. In the recent past, saving and access to credit has also been included by some of the banks as part of the M-banking services. With mobile technology came mobile money (Arora & Kaur, 2009). Locally, M-pesa, changed the way people transact; especially transfer of money from one point to another. This was predominantly done formally through financial institutions and informally through sending of friends and relatives to deliver the money (Ndegwa, 2014)

The study is premised on three key theories, resource based view theory, transaction cost economics and market based view. Resource Based theory's basic reasoning is that the nature, type, and expanse of the organization's resources ought to be well-thought-out first in selecting and establishing approaches that could lead to viable competition in order to achieve competitive advantage. Transaction Cost Economics suggests that firms should organize their internal activities into new ones and also share resources across different businesses within the firm's boundaries in order to achieve diversification. According to market based theory, firms are motivated to diversify in order to attain cost efficiency, overcome the complexities of competition and build financial strength.

Over the years there has been increased usage of mobile phones which has prompted the service providers to improve the network to almost the entire country. Globally, mobile technology has increasingly become popular and has been incorporated in most of the organizations to facilitate both communication as well as transactions. Banks across the globe have adopted the innovation in a bid to benefit from the convenience it offers to the customers as well as the cost minimization benefit on the part of bank. In the last twelve years, mobile technology has thrived throughout the emerging world quicker than any other technology (Aker & Mbiti 2010).

From customers' perception, implementing M-banking administrations helps them as far as accommodation in performing banking exchanges anyplace. The mobile insurgency has changed the lives of numerous Africans, giving correspondence as well as fundamental budgetary access as telephone based cash exchange and capacity (Jonathan and Camilo, 2008; Demombynes and Theresa, 2012).

M-banking is developing as a critical electronic channel for the worldwide banking and budgetary part. It is normal that the basic idea of mobile gadgets and administrations and the capacity of M-banking administrations to diminish by and large operational expenses, improve tasks and grow the client base will expand the business' prospects. The developing reception of mobile telephones among more youthful ages (somewhere in the range of 18 and 34 years old) and the quick increment in the interest for mobile instalments is relied upon to expand the interest for M-banking administrations. Industry is additionally anticipated that would profit by government specifics and great controls, which expect to give banking administrations to incompetent clients to advance monetary improvement. Banks that offer mobile access bolster a few or the greater part of the administrations: adjust demands, status demands, check demands, support exchanges, credit/charge cautions, least adjust alarms, instalment cautions, later history requests transactions

and requests for information such as interest rates / exchange rates (Porteous, 2006). It is the ability of mobile money to facilitate the inclusion of the financial sector which gives it a huge potential for impact on development (Muthiora, 2015).

1.1.1 Mobile Banking

Mobile refers to devices or appliances, which are designed for users on the move (Muthiora, 2015). Mobile phone, also frequently known as cell phone, is a portable telephone commonly used for communication through use of radio signal. The use of cell phones has kept on growing from this exclusive use as more innovations and applications come up. The use of mobile phones is defined as “a form of banking transaction carried out via a mobile phone”. Furthermore, it is defined as a "type of financial services execution during which, in an electronic procedure, the customer uses mobile communication techniques in collaboration with the mobile phone.

According to Nasikye (2009), M-banking includes the use of a mobile phone or another portable gadget to undertake monetary transactions connected to a client account. Agreeing to Owen (2008), m-banking alludes to arrangement and profiting of banking and monetary administrations with the assistance of portable media transmission gadgets. Services incorporate performing instalments, balance checks, credit applications, account transactions and other banking exchanges.

1.1.2 Financial Services Diversification

Diversification can be defined as a strategy by a corporate to create a new product or service for a new market or an industry that it does not currently operate in. Diversification can also be purely geographical or risk based. Derek (2015) defines diversification as a way of managing a portfolio whereby an investor diminishes instability and risks of her/his set of portfolio through holding a range of unlike investments which are lowly correlated with one another. Cernas (2011) defines

diversification as a strategy of managing portfolio through bringing together diverse assets to so as to lower the general risk associated with investment portfolio.

Diversification is a concept of reducing risk in finance. It is a fundamental concept of portfolio theory. It can simply be defined as a way of not putting all eggs in the same basket, derived from Markowitz Portfolio Theory (Marling & Emanuelson, 2012). The risk taken care of here is the unsystematic risk. The application of the theory depends on the risk component of every stock's systematic and unsystematic risk. Its purpose is to dilute the unsystematic risk of the portfolio by selecting products with low correlation to each other (Chen, Mao, Pan & Hu, 2012).

According to Teece (2007), attempts at diversification are aimed at bequeathing organizations with economies of scope and/or scale through diffusing capacity, sharing revenue or distributing/spreading costs. Owing to the limitations of external capital market, diversification seeks to enable commercial banks maximize on the use of 4 resources including: management skills, entrepreneurship, knowledge, production capacity and markets (Guillen, 2009). Beside the risk reduction, there are other benefits of diversification. According to Orina (2011), diversification promotes company growth and provides base market share increase. Diversification also enables continued existence of firms by growing firm's customer base. Hence, the firm can depend on more than one product to increase and maintain their customer base. Diversification also, in cyclical businesses, helps in regulation of cash flows throughout the year.

1.1.3 Mobile banking and Service Diversification

There has been a rapid development in the adoption of m-banking by the commercial banks in recent years, evidenced by the numerous advertisements in the media on the various services being offered by these banks. For instance, the major advertisements by banks seen in the media include Barclays Bank of Kenya's Hello Money, Kenya Commercial Bank's Mobi-bank, Co-operative

Bank of Kenya‘s M- Banking, Equity Bank‘s M-Kesho and Eazzy 24/7, Family Bank‘s Pesa Pap, National Bank‘s SIM-ple banking, Commercial Bank of Africa‘s M-Shwari just but to mention a few. Some of the services offered include the transfer of funds from the bank account to the mobile phone account such as M-Pesa, transmission surcharge, M-banking PIN, banking services such as the consultation of the account including the balance request and the mini consultation of declaration, transfer of funds between own and other accounts, request for checks, payment of invoices and display of linked accounts, just to name a few.

These administrations are offered in organization with the telecom organizations; the telecoms giving the M-banking stage and their administrations installed in the bank's M-banking administrations also. For example, the majority of the administrations said above like M-Kesho and Hello Money are connected to M-Pesa, along these lines enabling clients to exchange stores from their financial balances to M-Pesa. Mobile exchanges are substantially less expensive to process than exchanges at an ATM or a branch, banks can make a benefit by overseeing even little cash exchanges and installments (BAI, 2004 and Allen, 2003). As indicated by Simpson (2002), electronic banking is generally determined by the possibilities of limiting working expenses and amplifying working wage.

Mobile banking offers millions of people a potential solution in emerging markets that have access to a cell phone, yet remain excluded from the financial mainstream. It can make basic financial services more accessible by minimizing time and distance to the nearest retail bank branches (CGAP, 2006) as well as reducing the bank’s own overheads and transaction- related costs. Mobile banking presents an opportunity for financial institutions to extend banking services to new customers thereby increasing their market (Lee, Lee and Kim, 2007). Simpson (2002) suggests

that e-banking is driven largely by the prospects of operating costs minimization and operating revenues maximization.

Mobile technology has significantly entered rural areas in Kenya and is expected to be on an increasing trend in the coming years. Banks and other financial institutions which have conventionally depended on physically setting up branches to offer banking services, are now moving towards the taking up of mobile banking services as a structure of branchless banking. This has the effect of reducing banking costs, and thus improving the profitability ratios. Technology has thus offered huge openings to service providers to provide the clients with immense flexibility. Ultimately, banks have adopted branchless banking like internet banking, mobile banking and ATMs; among others (Ndungu & Njeru, 2014).

1.1.4 Commercial Banks in Kenya

The CBK is solely responsible for regulating the operations of banks in Kenya, and as at December 2017 the composition was as follows: 43 banks (42 commercial banks and 1 mortgage finance company), 13 microfinance banks, 8 foreign banks representation offices, 17 cash remittance providers, 77 foreign exchange bureaus and 3 credit reference bureaus (CBK Annual Report, 2017). The banks formed an umbrella body for lobbying referred to as the Kenya Bankers Association (KBA). Bank branches have since risen to 1,541 branches as at 2016 from the previous 1,523 in 2015 indicating a substantial upsurge in access to banks' products and services. However, due to the interest rate cap and use of technology some banks have announced their intent to close some of their branches in 2017. In 2017 the number of ATMs reduced from 2,718 in 2016 to 2,656 in 2017 this was attributable to use of other cost effective means like M-banking platforms. During the year several banks under KBA applied for pesalink which gives customers more options as far as M-banking is concerned (CBK Bank Supervision Annual Report, 2017).

In the recent wave of globalization, increased technological growth and competition there has been a lot of emphasis on performance in the Kenyan banking sector. Many scholars and researchers have used performance synonymously with productivity, efficiency, effectiveness and competitiveness. According to Bohlander and Snell (2007) organizational performance comprises the actual output or results of an organization measured against its intended outputs (organizational goals and objectives). According to Barney (2000) firms that use resources and capabilities to exploit opportunities and neutralize threats will see an increase in their net revenue or a decrease in their net costs or both and vice versa. Players in this sector have experienced increased competition over the last few years resulting from increased innovations among the players and new entrants into the market.

The banking sector has had to adopt technological change to remain competitive. In search of competitive advantages in the technological financial service industry, banks have acknowledged value of differentiate themselves from others financial institution through new service distribution channels (Daniel 1999). Banks bureaucratic process of account opening cut out many rural poor as they could not qualify to own accounts. With competition banks had to simplify the process and had to come up with innovative ways of doing so.

1.2 Research Problem

The advent of mobile money transfer has revolutionized the way in which the financial services industry conducts business, enabling organizations with new business models and a new way of offering these customers access 24 hours a day. The ability to offer financial transactions via the mobile phone has created new players in the financial services industry, such as mobile phone providers offering personalized services. This is evident with the frequent use of money from Mpesa, Airtel and Orange. Real-time money transfer through mobile phones allows people in areas

without demand to acquire demand within seconds. Most banks have adopted M-banking applications allowing customers to conveniently do their banking using their mobile devices anytime and anywhere.

The results of research on the developed markets (USA and Europe) on the impact of product diversification on the financial performance of banks are very different. Worsening of risk-return compensation in the United States. While the risk-return ratio increases in European banks. Stiroh (2008), De Young and Rice (2008), Stiroh and Rumble (2009) indicate a worse risk-return ratio for commercial banks in the United States. They venture into the diversification of the product. Amit and Livnat (2008) show that product diversification increases risk-return compensation for European banks. According to Stiroh (2008), diversification increases bank income and reduces the volatility of bank benefits. Moon (2009) suggests that diversification improves cost efficiency through lower diversification risk, if it occurs, and reduces the risk premiums required for unsecured debt and other potential credits, such as derivative contracts. Financial institutions may also have higher average incomes if institutions use some of the diversification gains to make investments at higher risk (Hughes and Mester, 2008).

Product diversification can also gain a competitive advantage for banks through economies of scale and other synergies, using the resources and capabilities of banks across different product lines (Geringer et al., 2007). These synergies of product diversification are more likely to materialize when companies expand into business lines or related sectors (Qian, 2007, Luo, 2007).

In the Kenyan banking sector, the policies of financial liberalization, deregulation and new technologies have eroded the comparative advantages of banks and have made it easier for non-bank competitors to enter these markets, forcing banks to change their sales mix and diversify to sources of credit and income without interest. Banks have therefore been involved in product

diversification which has seen them evolve from the traditional intermediation business model, which depends on the difference between interest earned from loans and other investments and interest paid on deposits, into new non interest banking activities (Munene, 2012).

Locally, studies that have been done on product diversification include: Mohamed (2009) did a study on loan portfolio diversification: an empirical investigation of commercial banks in Kenya. Moreover, existing research on management typically focuses on the product diversification strategies of companies in developed countries (Bartlett and Ghoshal, 2009; Taggart, 2007); few studies have examined the product diversification behaviours of banks in developing countries. This study, therefore, seeks to fill the knowledge gap by examining the relationship between M-banking and product diversification in commercial banks in Kenya. The study sought to answer the following question: What is the relationship between M-banking and product diversification of banks in Kenya?

1.3 Research Objective

The objectives of the study were to determine the effect of M-banking on the financial services diversification of banks in Kenya.

1.4 Value of the Study

The importance of the study is to enable commercial banks gain competitive advantage if they employ M-banking through innovation of new products and services. This will help strategy makers of the commercial banks to make concrete decisions on how to improve security of the e channels in the banking industry so as to maximise the profits generated through M-banking and other electronic channels. Commercial banks will be informed on the effect of mobile transfer services on the financial performance hence assist in decision making in regard to the products being offered by the institution.

The study will provide useful information to the policy makers and agencies like CBK in policy formulation especially in regard to regulating mobile money transfer services. The general public will also be informed of the benefits of mobile money transfer hence empowers the users and the providers on the information.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

In this chapter, the researcher reviewed literature on M-banking and financial services diversification. The empirical evidence focused on M-banking in line with the objective.

2.2 Theoretical Review

The theoretical frameworks that have contributed to financial services diversification include resource based view theory, transaction cost economics and market based view.

2.2.1 Resource Based View

Penrose (1959) argued that it is heterogeneity, not the homogeneity, of the valuable organizations open from its benefits that give each firm its exceptional character. The thought of association's assets heterogeneity is the premise of the RBV. Penrose (1959) contended that a firm comprises of a gathering of gainful assets and these assets may just add to a company's focused position to the degree that they are abused in such a way, to the point that their conceivably significant administrations are made accessible to the firm. Associations in this manner must know about their qualities and shortcomings, as they need to create methodologies on the best way to beat contenders with the given assets packs and abilities (Wernefelt, 1984).

Each firm can be viewed as a remarkable heap of substantial and impalpable assets and capacities (Wernerfelt, 1984). An association's assets at a given time could be characterized as those (substantial and impalpable) resources which are settling semi forever to the firm (Wernefelt, 1984).It consolidates money related, physical, human, business, mechanical, and various levelled assets used by firms to make, make, and pass on things and organizations to its customers (Barney,

1991).Valuable resources and their crucial use help to seize openings or murder risks in an affiliation's space.

RBV underscores the affiliation's benefits as the significant determinants of high ground and execution. RBV stipulates that in key organization, the key sources and drivers of firms' high ground and prevalent execution are generally associated with the properties of their advantages and capacities, which are both productive and extreme to-copy (Barney, 1986). As demonstrated by Sheehan and Foss, (2007), the advantage based view gives a street to relationship to design and execute their definitive framework by dissecting the circumstance of their inside resources and limits towards achieving high ground. Wernerfelt, (1984), contends that while an association's execution is driven specifically by its items, it is in a roundabout way determined by the assets that go into their generation. Subsequently firms may procure above typical returns by recognizing and getting assets that are basic to the improvement of requested items. As indicated by Barney (1991), a firm resource must, likewise, be huge, extraordinary, and not completely imitable and substitutable remembering the true objective to be wellspring of a bolstered high ground.

RVB grasps two assumptions in researching wellsprings of high ground. At first, this model acknowledge that associations inside an industry (or inside an indispensable social occasion) may be heterogeneous with respect to the load of benefits that they control. Second, it expect that benefit heterogeneity may proceed after some time because the advantages used to execute firms' frameworks are not sublimely mobile transversely finished firms (i.e., a segment of the benefits can't be traded factor publicizes and are difficult to total and copy (Barney, 1991).

Resource heterogeneity (or uniqueness) is seen as an imperative condition for an advantage bundle to add to a high ground (Barney, 2003). Additionally, a firm is said to have a kept up high ground when it is executing a regard making system not at the same time being completed by any present

or potential contenders and when these distinctive firms can't duplicate the benefits of this method (Barney, 1991). Financial services diversification is therefore achieved when commercial banks leverage their M-banking platforms in order to provide faster, more convenient and more reliable services to their customers. In order for the commercial banks to achieve efficiency and effectiveness, they should have control of the resources including implementation of the strategies.

2.2.2. Transaction Cost Economics

Also known as Social Cost Theory, the theory was initiated by Ronald Coase, a British Economist, in 1937 (Coase, 1937). It is a contractual concept that addresses the value of companies and business entities in market economy. Thus, its discourse answers questions as to why business entities exist (decrease transaction cost), how they define their boundaries, and how their operations need to be governed. That is, hierarchical organizations such as firms in a market economy allocate their resources with a lot of efficacy than limited or imperfect bargaining system (Klaes, 2008). Costs to a transaction are determined by cost of bargaining and decision, cost of search and information, and, policing and regulation costs (Pessali, 2006).

This theory suggests that firms should organize their internal activities into new ones and also share resources across different businesses within the firm’s boundaries in order to achieve diversification. Transaction cost in variably dependent on the organization of the transaction. The theory suggests that diversified companies are able to lower prices, which then elevates or effects barriers to entry or eliminating existing competition from the market (Modigliani & Miller, 1958). Therefore, from a transaction cost perspective, commercial banks using M-banking platforms marginally decrease the cost of their services thereby achieving diversification. Diversification increases market power and can help the firm organize additional activities more efficiently than its competitors.

Transaction Cost Economics suggests that firms should organize their internal activities into new ones and also share resources across different businesses within the firm's boundaries in order to achieve diversification. Therefore, from a transaction cost perspective, commercial banks using M-banking platforms marginally decrease the cost of their services thereby achieving diversification. Diversification increases market power and can help the firm organize additional activities more efficiently than its competitors.

2.2.3 Market Based Theory

The theory is also known as market positioning view. It markets at the center stage in explaining the nature, growth, and strategies of firms (Falkenreck, 2010). That is, it condition of a market in central to developing firms strategies which contracts with resource base-view that centralizes firms capabilities and resources in explaining their strategies and competitive advantage. From the theory, strategies are developed based on the nature of the firms industry and trends. On the other hand, resources based view looks at the capability of a firm's internal factor and resources for maximum utilization and competitiveness. While resource based view is grounded on internal factors, market based theory is built on external factors (Baier, 2008).

Porter (1980) put forward an argument that firms diversify in order to enhance their corporate strategic competitiveness, ultimately increasing the firm's value. He noted that competition was vital for survival in a corporate environment. Barney (2002) explains that diversification is one of the strategies used to overcome competition. Firms are motivated to diversify in order to attain cost efficiency, overcome the complexities of competition and build financial strength. In the context of our study, M-banking by commercial banks has been used as a strategy to diversify financial services by effectively managing costs of transactions.

2.3 Determinant of Growth and Sustainability of Financial Institutions

2.3.1 Technological Development

The idea of developing a mobile money product in Kenya dates to 2003. Nick Hughes, who was then Head of Social Enterprises at Vodafone, which own 40% of Safaricom (the government owns 35% and private shareholders 20%), were aware of a promising approach to sustainable development of access to communications facilitates entrepreneurial activity, so does access to finance, which has the potential to create wealth through bottom-up economic, job creation and trade.

The supply of cash in the financial market is higher than its demand and thus lots of surplus funds exist. The challenge is normally the mode of transferring money from the sender to the receiver. Money creation and the ability to move it from point A to B has been critical pillar of economic activity. Ever since the beginning of M-Pesa, a torrent of money has flowed electronically, which is equivalent to more than 20% of Kenya's GDP on an annualized basis.

2.3.2 Financial Inclusion and Deepening

The British government's esteemed development agency DFID had formed a Financial Deepening Challenge Fund tatting East Africa. In 2005 it was to fund FSD Kenya, which wrote the 2007 FinAccess report. It indicated existence of a large gap in the provision of financial services to the poor and its theory was that microfinance and informal finance had addressed some of the gap, a substantial expansion of products beyond microcredit was needed to tackle financial inclusion on an adequate scale.

DFID envisioned new products for savings money transfers, leasing and insurance-and the need for a new delivery system beyond bank branches in affluent urban centers. DFID awarded 1 million

pounds to Hughes 2003 proposal to use mobile phones to deliver financial services especially microfinance loans. Hughes organized a series of open workshops in Nairobi, Kenya and Dar es Salaam (Tanzania) where he invited banks, technology service suppliers, and microfinance organizations, NGOs with an interest in micro-credit, and telecom and banking regulators. The array of stakeholders helped in tackling the need of the unbanked.

2.3.3 Home Economic Situation

The initial plan of developing Mpesa system was to permit undertaking of microfinance loan repayments through mobile phones to reduce the transaction costs of handling cash lowering the interest rates on loans. Pilot testing results cited mobile banking as a universal money transfer scheme.

2.3.4 Fee Structure and Costs

These are the charges incurred when sending money (Omwasa, T. 2009). The Innovations case discussions revealed that the use of mobile payment technologies to send money attracted lower transaction costs when compared with those of money transfer companies and banks. Mallat N. (2007), the cost of a payment transaction has a direct effect on consumer adoption if the cost is passed on to consumers. Mobile network operators should therefore ensure that transaction costs are low so as to increase the competitiveness the total transaction costs.

In marketing research, the price or monetary cost is directly associated with the quality of products to ascertain the products or services' perceived value (Zeithaml 1998). In China, there is evidence of popularity of SMS as a result of lower prices compared forms of mobile internet applications (Chan, 2008). A positive price value is obtained when the use of technology attracts more benefits when compared with the cost of acquisition.

2.3.5 Brand and Company Technology Image.

Safaricom Report (2012) indicates that when M-Pesa was introduced, the early adopters were better educated, higher income persons living in the capital city of Nairobi. They used M-Pesa to send money to relatives in rural villages, which was better than taking a trip or virtually any other money transfer method. This natural urban-rural remittance pattern gave M-Pesa a ready- made market and the slogan-"send money by phone"- which was popularized as "send money home". Having identified a market niche, Safaricom was already filling the desired need in a faster, safe and convenient way.

2.3.6 Consumer Attitude and Opinions

Szmigin & Bourne (1999), noted that consumer decision to adopt a new payment mode is strongly influenced the number and extent to which it's being used by other traders.

Most previous payment systems have failed due to little adoption by market subscribers. According to Pori, M (2004), personal experiences show that current technology is user friendly and earlier studies on mobile payments identify that it is the usefulness, usability, convenience and speed of the service that matters. The theory of planned behaviour is depicted here since would-be consumers will study the behaviour of the existing consumers and decide to either reject or adopt the idea, technology or motion in question.

2.3.7 Corporate Social Responsibility

According to WBCSD (2004), CSR is described as the level of business commitment to make contributions to sustainable economic development, good working relationships with the employees, their families and the society at large so as to improve their living standards. Over the

last one decade, CSR has become an integral business practice with most corporations dedicating a seer of annual reports to CSR activities and illustrating how such activities are of importance.

2.4 Determinants of Financial Services Diversification

2.4.1 Product Diversification

With increased competition, companies venture into product markets far from their core business. Commercial banks have sought to expand their product offering to spread market risks and costs. Commercial banks have for instance ventured into agency banking and bancassurance. They have also introduced mobile based loan products where loan requests and disbursement are done without ever visiting banks' branches. However, diversification doesn't come without costs associated with worsened firm complexities such as management of operations increasingly getting harder owing to geographical and products scope. Mobile banking, however, lessens complexity due to reduced geographical scope as it deviates from traditional brick and mortar model. Ng'ang'a (2015) pointed out that banks that diversify into non-interest income are exposed to more risks than those that have more of interest income. Ng'ang'a further states that increased income from other sources is associated with reduced lending. Boyd and Graham (2003) noted that increased diversification of banks into non-banking activities is associated with failure, especially, during periods of less stringent policies enforcement. Tunbridge (2008) noted that without diversification or re-invention, banks offerings can become stale and unattractive. Ng'ang'a (2015) noted that banks can diversify through: horizontal and vertical integration, related and un-related diversification, conglomerate, and concentric diversification.

Pennathur *et al.* (2012) established that types of diversification by commercial banks can be in terms of; source of income, product/services, economic sectors and geographical.

2.4.2 Mobile and Non-Mobile Income

Commercial banks have experienced volatility in revenue growth in both scales and scope since 2000 owing to changes in technology and innovation. However, volatility has been less in interest income growth compared to diversification profits from non-interest income (Wambua, 2014). According to Abubakar (2014), use of mobile banking has enhanced banks into new, innovative and non-traditional financial services for competitiveness.

2.4.3 Size of Commercial Bank

Organization size is a cogent, contingent and quintessential microeconomic factor when looking at organization characteristic. Organization size is directly related to diversification propensity. Bhayani (2010) states that diversification leads to growth in sales which in turn increases organization size. Merchant (2011) provides that bank size can be determined by total assets, number of employees, gross sales etc. Adner and Zemsky (2016) posit that banks can expand operations by adding services, products and markets to existing business. Basu (2010) avers that larger firms have an advantage over smaller firms in taking advantage of opportunities in the market with limited resources. Large organizations can take advantage of economies of scale resulting in synergies leading to lower operation costs. Larger firms can also take advantage of geographical differences. Besides, large firms can take advantage of knowledge gained in other product lines to diversify into new products. Firms strategic scope and firm's size is related with managerial compensation, though it may not lead to higher performance (Kiweu, 2012).

2.4.4 Efficiency Ratio

Efficiency ratio determines how efficiently a firm raises revenues at minimal costs or firm's ability to generate revenues from its assets. It is also used to gauge a company's current or short-term performance. Efficiency ratios can look at time taken by companies to collect revenue owed to it.

Ratios that can be used as efficiency ratio are sales to inventory, accounts receivable turnover, stock turnover ratio etc. In banks efficiency ratio is measured as the ratio of operating expenses to income. A low efficiency ratio depicts better performance. Hays, De Lurgio and Gilbert (2009) recommended calculation of efficiency as the ratio of overhead expenses to sum of non-interest or fee income and net interest income.

2.5 Empirical Review

2.5.1 International Evidence

Tchouassi (2012) sought to find out whether mobile phones really work to extend banking services to the unbanked using empirical Lessons from Selected Sub-Saharan Africa Countries. This study sought to discuss how mobile phones could be used to extend banking services to the unbanked, poor and vulnerable population. The study noted that poor, vulnerable and low-income households in Sub- Saharan Africa countries often lacked access to bank accounts and faced high costs for conducting basic financial transactions. The mobile phone presented a great opportunity for the provision of financial services to the unbanked. In addition to technological and economic innovation, policy and regulatory innovation was needed to make these services a reality.

Nader (2011) in his investigation on the benefit effectiveness of the Saudi Arabian Commercial banks, examined 6 out of the 11 Saudi business banks and secured the period 1998 to 2007 for each bank. The examination showed that the accessibility of M-banking positively affected the benefit productivity of Saudi banks. Accessibility of telephone banking and number of ATMs were resolved to be the most vital determinants of benefit effectiveness.

Uppal (2010) contemplated the degree of M-banking in the Indian banking industry amid the years 2000 to 2007. The examination inferred that among all the e-directs accessible in the banking

segment, ATMs were observed to be the best while M-banking was found to hold a powerless position openly and old private segment. Be that as it may, in the new private area and outside banks, M-banking was observed to be adequate, with about 50 percent normal branches giving m-banking administrations. M-banking clients were likewise the most noteworthy in the e-banks which positively affected the net benefits and business per worker of these banks. Among every one of the banks, remote banks were on the best position taken after by new private part banks in giving m-banking administrations and their productivity was additionally considerably higher when contrasted with alternate gatherings.

Donner and Tellez (2008) did a study on mobile banking and economic development where they sought to link adoption, impact, and use. The study established that through offering a way to lower the costs of moving money from place to place and offering a way to bring more users into contact with formal financial systems, mobile banking and mobile payments systems could prove to be an important innovation for the developing world. However, the true measure of that importance required multiple studies using multiple methodologies and multiple theoretical perspectives before answering the questions about adoption and impact.

Agboola (2006) in his study on Information and Communication Technology (ICT) in banking operations in Nigeria found out that technology was the main driving force of competition in the banking industry. During his study he witnessed increase in the adoption of ATMs, EFT, smart cards, electronic home and office banking and telephone banking. He indicates that adoption of ICT improves the banks‟ image and leads to a wider, faster and more efficient market. He asserts that it is imperative for bank management to intensify investment in ICT products to facilitate speed, convenience, and accurate services, or otherwise lose out to their competitors

2.5.2 Local Evidence

Kathuo, Rotich and Anyango (2015) also evaluated the effect of mobile banking on the financial institutions of banking institutions in Kenya. The study established that the number of mobile banking transactions has tremendously increased in the last five years since the introduction of mobile banking. The study thus concludes that, banks that have adopted M-banking services have to a large extent increased their customer outreach, and hence have improved their financial performance. The findings revealed that many mobile banking products are being offered by banks such as fund transfer between Accounts/ E-funds transfer, Bill Payment, order for cheque books and bank statements and therefore concluded that the financial performance of the banks that provide these mobile banking products has improved because they ensure efficiency of the banking services.

Korir (2014) reviewed the effect of financial innovations on financial performance of commercial banks in Kenya. The objective populace incorporated all the 44 commercial banks in Kenya. It embraced a registration study where all the 44 banks were utilized. Regression and correlation was utilized to relationships. The investigation discovered that there is a solid connection between financial innovation and financial performance. The investigation surveyed financial performance of all commercial banks in Kenya however the present examination is constrained to financial services diversification of commercial banks in Kenya.

Kithaka (2014) also evaluated the effects of mobile banking on the financial performance of commercial banks in Kenya. Cross sectional descriptive survey was employed in this case. This informed who, how and what about the mobile banking in commercial banks in Kenya and as a one-time event. The study adopted a census method where all the commercial banks practicing

mobile banking in Kenya were studied. The study found out that there were mobile banking variables influencing the financial performance of commercial banks in Kenya, which are annual amount of money moved through mobile banking, number of users of mobile banking, capital adequacy, asset quality, bank liquidity and management efficiency.

Gakure (2013) fronted that developments in the banking sector in Kenya affected their performance. M-banking, web banking and organization banking are a portion of the bank advancements that have empowered Kenyan banks to control their expenses and lift their income for over 10 years. Because of the low upkeep expenses of M-banking, wage from M-banking has a high edge, adding to the productivity of business banks.

Maina (2012) considered the impact of M-banking on money related execution of business banks in Kenya. The examination additionally looked to discover the monetary methodologies that the business banks had embraced to enhance their M-banking's development and proficiency. The examination discovered that 70% of the business banks in Kenya had received M-banking, keeping in mind the end goal to serve more clients inside a shorter time. This upgraded the operational proficiency of the business banks and at last enhancing their profit and money related ampleness.

2.6 Summary of Literature Review

Mobile money transfer services have resulted to evolution of the global financial institutions and payment sector by providing the developed markets customers' with more convenient bank services and while introducing new services to the unbanked at the same time. This is likely to open up new unexploited markets and thus ranging from start-ups to multinational from adjacent industries are constantly trying its own business model so as to unlock this untapped market using new technologies.

The winners of mobile money transfer and payment must possess wider understanding of the local markets and its customers not excluding the existing regulations. New market players must be willing to commit a good amount of resources to the new projects and not afraid to partner with other players. Technology adoption is reduced when it's more complex since its implementation entails more costs. Less complex yet highly innovative technological innovations are profitable in mobile banking adoption and increase the customers' trust on the service provider thus higher customer satisfaction.

With technology innovation, less staff are required at the branch and thus the salaries paid are lower. It also allows the firm to save on space and other utilities thus more resources are diverted to investments such as establishment of automatic computer infrastructures that require skilled IT professionals' supervision thus saving money and time. In the banking industry, the functional aspect seeks to attract new customers and increase the welfare of the existing ones. However, for customers to be retained, timely and reliable functionality must be offered. In this error of technological innovation, firms cannot ignore customer relationship management as this is key in determining how a product will be accepted in the market.

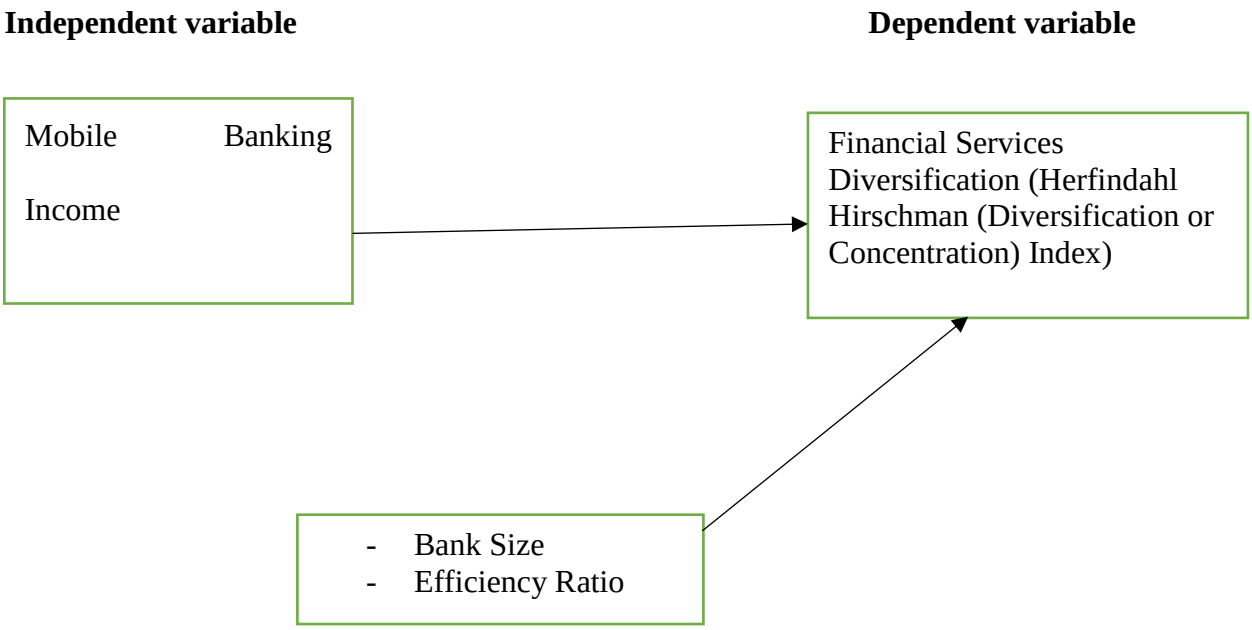
Among the issues reviewed include the effects of mobile banking which include market expansion/partnership, efficiency in service delivery, access to information and customer satisfaction. From the above discussion of the theoretical and empirical literature, most of the studies have looked into the wider electronic banking as opposed to specifically mobile banking whereas the ones on mobile banking have limited research conducted on the effect of mobile banking on financial performance of commercial banks in Kenya. This study will therefore seek to fill this gap.

2.7 Conceptual Framework

The conceptual framework illustrates the hypothesized relationship between the independent variable (M-banking) and the dependent variable (Service diversification) In other words; it is presumed the M-banking has influenced the diversification of financial serves of commercial banks in Kenya.

The relationship between the two variables is expected to be influenced by the macroeconomic factors such as government and regulatory specifications, which are beyond the control of commercial banks.

Figure 1: Conceptual Framework



Source: (Author, 2018)

2.8 Research Gap

The synopsis of the literature review stresses that commercial banks have adopted M-banking technology. Empirical review of studies conducted both locally and internationally, focus on the effect that M-banking has on financial performance of commercial banks. There is therefore a gap left in understanding how financial services have been diversified so that ultimately this impacts the overall financial performance of the commercial banks. This study therefore strives to depict how financial services in commercial banks in Kenya have been diversified as a result of adopting M-banking technology.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter provides information on the research design, the population and sample that was selected for the study. In this section, we will also discuss the data collection methods, data analysis and presentation techniques that were used in this study.

3.2 Research Design

As indicated by Mugenda and Mugenda (2003), a research design is an edge of strategies and methodology for securing of data that is required. It is the general system of the undertaking that stipulates the data that will be gathered, from which source and by what techniques. The investigation utilized descriptive research design. A descriptive research decides and reports the manner in which things are and endeavours to depict such things as conceivable conduct, dispositions, qualities and attributes, (Mugenda and Mugenda, 2003). In this research a causal approach was utilized to distinguish the causal linkages amongst variables and to decide the circumstances and end results relationship and to comprehend which variable is dependent and which is independent. This research investigated the connection between the level of appropriation of M-banking and its effect on administrations expansion of business banks in Kenya.

3.3 Population and Sample

The selected population target for this study were all the commercial banks that were operational in Kenya for the period between 1 January 2013 and 31 December 2017. From the Central Bank of Kenya reports, 40 commercial banks operated within that period. This target population provided data that was used to answer the research questions raised by the researcher.

3.4 Data Collection

The study used secondary data which encompassed a mixture of published material pertinent to the research. The secondary data is significant as it includes the logical framework of the research (Sekaran, 2003). For the purpose of the study, the collected secondary data included Central Bank of Kenya periodic reports and financial reports of the commercial banks for the period 1 January 2013 to 31 December 2017.

3.5 Data Analysis

Data Analysis is the undertaking of methodically applying measurable or potentially coherent procedures to depict and outline, gather and recap, and assess data. Data analysis is created to manage control of the data that has been assembled in order to show the confirmation (Singleton et al., 2003).

Data analysis was finished utilizing SPSS v23 where inferential insights were connected and multiple regressions utilized to test the connection between m-banking selection and the administrations enhancement of business banks in Kenya.

3.5.1 Analytical Model

Mobile banking has resulted into financial services diversification through an increase in the number of services that can be offered via mobile devices. As a result the mobile banking income component in the financial services has continued to grow overtime. To measure the extent of financial services diversification the researcher measured the increase in the ratio of mobile banking income to total income each year. This was computed using the Herfindahl Hirschman Diversification or Concentration Index (HHI) (Stiroh and Rumble, 2006). The study used the index to establish the diversification of its income streams. The index measures the shift to M-banking income in the banks.

An increase in the index indicates less diversification while a decrease in the index indicates increased diversification. In financial statements, the income is usually separated.

The index is calculated as follows.

$$\mathbf{HHI} = \left[\frac{\textbf{Mobile banking income}}{\textbf{Gross income}} \right]^2$$

The study then employed the use of multiple linear regression model to establish the relationship between M-banking and service diversification. Since the index has a maximum value of one and the higher the value the less diversified the services, the study's dependent variable was measured as the inverse of HHI index.

The same approach was adopted by Kiweu (2012) in his study of income diversification in the banking sector.

The regression model was of the form:

$$Y = ß0 + ß1X1+ + ß2X2 + ß3X3 + \varepsilon$$

Y is the financial service diversification measured as 1/HHI (Herfindahl Hirschman Diversification or Concentration Index)

X1 is the log of mobile banking income

X2 is the size of the commercial bank measured by the log of its total assets

X3 is the efficiency ratio of the commercial bank measured as the ratio of its operating expense to income

ß0 is the regression constant or y-intercept

ß1 – ß3 are the regression coefficient

ε is the error term.

3.5.2 Test of Significance

Reliability is defined as the degree to which values are free of error, hence worth giving consistent outcomes after repeated trials Mugenda and Mugenda (2003). This study tested the statistical significance level at 95% confidential level. The significance of the model was measured by applying the F-test at 5% level of significance.

CHAPTER FOUR

DATA FINDINGS, ANALYSIS AND DISCUSSIONS

4.1 Introduction

This chapter looks at the research findings, analysis and discussion of findings. The study targeted all commercial banks in Kenya that traded consistently between 1 January 2013 and 31 December 2017 period. As such, data was obtained from 40 commercial banks. Data was then analysed using descriptive statistics to summarize and explain the data. Correlation analysis was conducted to portray the linearity of the data as a regression assumption. Linear regression analysis was run to illustrate the relationship between independent and dependent variables.

4.2: Descriptive Statistics

The study conducted a descriptive analysis to summarize and show the characteristics of the data obtained. This was in essence a preliminary examination of the data gathered and a pointer to its suitability for conducting inferential analysis. The descriptive statistics were: mean, standard deviation, skewness and kurtosis, minimum, maximum and quartile value to illustrate data distribution.

Table 4.1: Descriptive Statistics

Statistics	HHI	Mobile Banking	Total Assets	Efficiency
Mean	0.414715	298,331,675	49,332,503,438	0.65816937
Std. Deviation	0.104612	504,149,180	65,642,246,988	0.39843645
Skewness	0.422	0.045	0.171	3.441

Std. Error of Skewness	0.172	0.172	0.172	0.172
Kurtosis	-0.111	-0.327	-0.754	16.99
Std. Error of Kurtosis	0.342	0.342	0.342	0.342
Minimum	0.2126	1,003,000	490,890,000	0.20289549
Maximum	0.7336	3,152,000,000	323,311,996,933	3.48164949
First Quartile	0.336475	34,441,250	7,818,905,000	0.4462077
Second Quartile	0.40635	91,302,000	16,416,249,925	0.5912815
Third Quartile	0.486975	305,326,750	67,035,870,034	0.71953241

Herfindahl Hirschman Index had a mean of 0.4147 with standard deviation of 0.1046. While the maximum value was 0.734, the minimum value was 0.213 and second quartile value was 0.406. This depicts that commercial banking industry in Kenya is somehow concentrated and not diversified as the first half of commercial banks control banking market more than the banking average.

The mobile banking income data gave a mean of KShs 298,331,675 at KShs 504,149,180. The minimum value was KShs 1,003,000 and maximum was KShs 3,152,000,000. This illustrates great dispersion of mobile banking income from one bank to the next inferring to differentiated innovation across banks with very few like KCB and Commercial Bank of Africa embracing mobile banking than the rest. This is better illustrated by the third and fourth quartile values which were KShs 305,326,750 and KShs 3,152,000,001, respectively. That is, the upper 25% of the commercial banks control mobile banking income more than ¾ of the banks.

On total asset values, the study established a mean of KShs 49,332,503,438 at KShs 65,642,246,988 standard deviation. While the third quartile value was KShs 67,035,870,034, the fourth quartile or maximum value was KShs 323,311,996,933. This has the

same illustration as mobile banking data. Less than a quarter of the commercial banks' asset value is more than the remaining ¾ of the banks.

Efficiency ratio produced a mean of 0.6582 and a standard deviation of 0.3984. This depicts that on average KShs 1 of income incurs a cost of 65 Kenyan cents. With a minimum value of 0.2029 and maximum of 3.482 shows that some banks incurred huge losses as cost to income was ratio of KShs 3.48 to KShs 1. This discrepancy is illustrated by a third quartile value of 0.7195.

Skewness assesses data symmetry or lack thereof while kurtosis looks at the peakedness of data distribution. On Skewness, the study established values of 0.422 for HHI, 0.171 for gross asset value, and -0.327 mobile banking income. This is an acceptable range for normal distribution as it falls within the range of -2 and +2 (George & Mallery, 2010). However, efficiency ratio had a higher value of 3.441 and outliers were removed before running statistics. The kurtosis values revealed values of -0.111 for HHI, -0.327 for gross asset value, and 0.045 mobile banking income. This depicts a light-tailed distribution or low peakedness.

4.3 Correlation Analysis

Correlation analysis was used to determine the linearity of the data obtained. That is to show whether there was linear relationship and the direction of the relationship. Pearson Correlation coefficient was adopted whose value range between 0 and 1 with a higher magnitude depicting a better linear relationship. The coefficient sign illustrates either a positive or a negative relationship.

Table 4.2: Correlation Matrix

			Mobile Banking	Total Assets	Efficiency Ratio
Hirschman Index (HHI)	Pearson Correlation	1			
	Sig. (2-tailed)				
Mobile Banking Income (Log)	Pearson Correlation	-.412*	1		
	Sig. (2-tailed)	.000			
Total Assets (Log)	Pearson Correlation	.721**	-.139*	1	
	Sig. (2-tailed)	.000	.034		
Cost Income Ratio (Efficiency Ratio)	Pearson Correlation	-.439	-.266	.034	1
	Sig. (2-tailed)	.000	.107	.458	
	N	200	200	200	200

**. Correlation is significant at the 0.01 level (2-tailed). *. Correlation is significant at the 0.05 level (2-tailed).

From Table 4.2, there was good, negative and significant linear relationship between mobile banking income and income diversification as measured by HHI ($R = -0.412$; $p < 0.001$). Total assets had a good, positive and significant linear relationship with HHI ($R = 0.721$; $p < 0.001$). There was good, negative and significant linear relationship between cost-income or efficiency ratio and income diversification as measured by HHI ($R = -0.439$; $p < 0.001$).

4.4 Regression Analysis

The study conducted a multiple linear regression analysis to establish a linear relationship between mobile banking and income diversification

Table 4.3: Model Summary

R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
.799[a]	.638	.631	.0960051	2.095

a. Predictors: (Constant), Efficiency Ratio, Mobile Banking Income, Total Assets

b. Dependent Variable: Herfindahl Hirschman Diversification or Concentration Index (HHI)

Model summary table summarizes the regression assumptions of linearity and absence of autocorrelation or independence of the model residual. Table 4.3 gives a correlation (R) coefficient of 0.799 and coefficient of determination (R^2) of 0.638 which is adjusted to 0.631 to account for difference owing to errors in predictors' measurement. This portray that the independent variables account for 63.1% of the changes in income diversification of the commercial banks.

Durbin Watson was used to test if there was presence of autocorrelation in the model residuals. This is an important linear regression analysis which eliminates spurious results. Its values range between 0 and 4 with values close to 2 depicting lack of autocorrelation. In this study, we obtained a value of 2.095 signifying lack of autocorrelation.

Table 4.4: Analysis of Variance (ANOVA)

	Sum of Squares	Df	Mean Square	F	Sig.
Regression	.371	3	.124	13.426	.000[b]
Residual	1.807	196	.009		
Total	2.178	199			

a. Dependent Variable: Herfindahl Hirschman Diversification or Concentration Index (HHI)

b. Predictors: (Constant), Efficiency Ratio, Mobile Banking Income, Total Asset

The study used ANOVA to test the model significance as it is a test of mean differences. The study obtained an f-value of 13.426 at $p < 0.001$. This depicts that the model has a probability of less than 0.1% of giving falls predictions.

Table 4.5: Regression Coefficients

Variable	Unstandardized		Standardized	t	Sig.
	B	Std. Error	Beta		
(Constant)	.718	.683		1.049	.115
Mobile Banking Income	.082	.014	.519	5.854	.000
Total Assets	.035	.017	.191	2.065	.040
Efficiency Ratio	-.096	.037	-.064	2.592	.023

a. Dependent Variable: Herfindahl Hirschman Diversification or Concentration Index (HHI)

The study established the model:

$HHI = 0.718 + 0.082X_1 + 0.035X_2 - 0.096X_3$ Where $p < 0.001$

The results depicts that when the independent variables (efficiency ratio, mobile banking income, total assets) are zero, the income diversification of commercial banks, as measured by HHI, would be 0.718. This is, however, insignificant given $p = 0.115$.

Holding other factors (efficiency ratio and total assets) constant, a unit increase in mobile banking income would lead to a 0.082 ($p < 0.001$) increase in HHI. Holding other factors (efficiency ratio and mobile banking income) constant, a unit increase in total assets, as a moderating factor, would lead to a 0.035 ($p = 0.040$) increase in HHI. Holding mobile banking income and total assets constant, a unit increase in efficiency ratio would lead to a 0.096 ($p = 0.023$) decrease in income diversification as measured by HHI.

Table 4.6: Collinearity Statistics

Variable	**Tolerance**	**VIF**
Mobile Banking Income	.538	1.859
Total Assets	.495	2.020
Efficiency Ratio	.862	1.160

The study assessed multicollinearity in the model by using Variance Inflation Factor (VIF) and tolerance. Tolerance values range between 0 and 1. Values above 0.1 depict lack of multicollinearity. In this study, mobile banking income had 0.538 tolerance, total assets and efficiency ratio had values of 0.495 and 0.862, respectively. This depicts lack of multicollinearity. VIF, on the other hand, is inverse of tolerance. Values below 10 signify lack of multicollinearity. This study lacked multicollinearity as its values ranged between 1.160 and 2.020.

4.5 Discussion of Research Findings

The study established that mobile banking positively influences banks diversification of financial services. In support of the findings, Abubakar (2014) revealed that mobile banking has enabled

banks to turn into novel, innovative and non-traditional financial services which enhance their competitiveness. Pennathur *et al.* (2012) reveal that commercial banks diversification can be grouped in accordance to the: source of income, product/services, economic sectors and geographical area. On the contrary, Ng'ang'a (2015) avers that diversification into non-interest income which has been enabled by mobile banking bring about more risks than interest income. That is, increased income from other diversified sources is associated with reduced lending.

Total asset has a positive relationship with banks diversification of financial services. Basu (2010) posits that firm size enhances their ease of diversification as they can readily take advantage of opportunities in the market owing to human and financial resources at their disposal. Bhayani (2010) associates growth in assets with diversification that brings about improved financial performance. Bhayani (2010) found that banks grow their assets by expanding or diversifying into several services and products. Abubakar (2014) found a positive and significant relationship between mobile banking and growth in deposits and assets in Nigeria.

Cost income or efficiency has a negative relationship with banks diversification of financial services. Hays, De Lurgio and Gilbert (2009) state that efficiency enables firms raise revenue at lower cost. Lower efficiency ratio depicts better efficiency. Nader (2011) established that mobile banking of Saudi Arabian banks positively impacts profits and efficiency. On the other hand, Saleem and Rashid (2011) established that mobile banking adoption had no relationship with economic impacts. Siddik, Sun, Kabiraj *et al.* (2016) also established that mobile banking returned negative performance in the first year of adoption in Bangladesh.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter presents summary of the findings in the previous chapter, conclusions based on the findings and recommendations, thereof. It also presents the limitations of the study and areas for further studies that can benefit from the limitations so identified.

5.2 Summary of Findings

Based on the findings from previous chapter, the study observed that, the average value of HHI in commercial banks in Kenya was 0.414 with a standard deviation of 0.105. The average value of mobile banking income was KShs 298,331,675. Its maximum and minimum values were KShs 3,152,000,000 and KShs 1,003,000, respectively. The total asset value of the commercial banks had a mean of KShs 49,332,503,438. The maximum value was KShs 323,311,996,933. The average efficiency ratio was 0.6582 with maximum value of 3.48.

The study established a negative and average linear relationship but significant between income diversification as measured by HHI, and mobile banking income ($R = -0.388$; $p < 0.001$) and cost income or efficiency ratio ($R = -0.372$; $p < 0.001$) as revealed from the correlation analysis. There was a positive and significance linear relationship between total assets and income diversification ($R = 0.680$; $p < 0.001$). Regression model reveals a constant of 0.718. Both mobile banking income and total assets had positive regression coefficients of 0.082 and 0.035, respectively, significant at 95% confidence level ($p \leq .05$). Efficiency ratio had a negative coefficient of 0.096 but also significant at 95% confidence level. Further, the regression model lacked multicollinearity given tolerance values above 0.1 and VIF below 10.

5.3 Conclusion

The study concludes that commercial banks have diversified the financial services they offer. This owes to intense competition within the banking industry and consumer changing preference to convenience, opening bank account and transaction accessibility, speed and security. Mobile banking has proven to be a platform that ensures all these consumer preferences are met. Mobile banking has enabled payment and receipt of loans, bank deposit and withdrawal, account balance queries among others and commercial banks charge fee on these transactions. The apex of convenience is mobile-based loan products where loan requests and disbursement are done without ever visiting banks' branches. Banks can also advertise new product offerings from this platform.

Commercial banks have diversified through geographical coverage, product range and venturing into diverse economic sectors such as agency banking and bancassurance. All these have enabled commercial banks to spread market risks and costs. The study, further, concludes that asset size has enhanced financial services diversification. Large banks can use their economies of scale to develop proprietary assets that propel their diversification endeavour. Mobile banking can enhance their geographical coverage by offering products remotely in areas of disperse population that would make brick-and- mortar model improbable. Mobile banking has enhanced efficiency and effectiveness of banking services reducing costs and enhancing profitability.

5.4 Recommendations

The study recommends that commercial banks improve their diversification through horizontal and vertical integration, related and unrelated diversification, conglomerate, and concentric diversification. This will increase their profitability, enhance customer satisfaction and advance efficiency. The study established that while the big tier firms excelled in diversification, the

small tier ones lagged behind. The small tier banks can diversify in terms of: source of income, product/services, economic sectors and geographical coverage. The study further recommends that banks should embrace mobile banking fully and other innovative platforms to drive down costs and improve profitability.

5.5 Limitations of the Study

The study findings face a number of limitations despite its commendable findings. To begin with, the study was conducted on commercial banks. Nevertheless, there are other financial institutions such as microfinance banks and deposit-taking Savings and Credit Cooperative Societies (SACCOs) that the study findings cannot be generalized to even though they have mobile banking owing to sectoral and regulatory differences.

Mobile banking is a fairly new concept that has not existed for long. Besides, many banks were laggards in embracing it and its effects on diversification might change with time as more innovations are embraced just as other technological innovations. Thus, with time, a lengthier period can be assessed.

The study used secondary data obtained from financial reports filed with CBK to analyse the relationship. However, secondary data can be manipulated to achieve pecuniary an expedient interests that might lead to spurious regression results. However, reports filed with CBK are audited and scrutinized hence the study hopes that the data it obtained was not manipulated.

5.6 Suggestions for Further Research

The study suggests that future studies can be done on deposit-taking SACCOs and microfinance banks in Kenya. These financial institutions play important roles in augmenting commercial banks' role and achieving financial inclusion. However, as the study stands, its

findings cannot be generalized to them. Future studies can take longer periods than 5 years as mobile banking adoption in commercial banks matures. The future studies can make use of primary data sources such as interviews and questionnaires so as to capture undocumented issues (non-financial variables) in financial reports.

REFERENCES

Agboola, A. (2006). Information and communication technology (ICT) in banking operations in Nigeria: An evaluation of recent experiences. Retrieved from http://unpan1.un.org/intradoc/groups/public/documents/AAPAM/UNPAN026533.pdf.

Ajzen, I., & Fishbein, M. (1980). Understanding attitudes and predicting social behavior. Englewood Cliffs, NJ: Prentice-Hall.

Al Hajri, S. (2008). The adoption of e-banking: The case of Omani banks. *International Review of Business Research Papers*, 4(5), 120-128.

Anjichi, D. A. (2014). *Effects of asset and liability management on the financial performance of commercial banks in Kenya.* Unpublished MBA project. Nairobi: University of Nairobi.

Arnaboldi, F. & Claeys, P. (2010). Innovation and performance of European banks adopting Internet. London: Centre for banking research. Business School, City University

Asikhia, O. & Sokefun, A. (2013). Capital adequacy and banks' profitability. Empirical evidence from Nigeria. *American International Journal of Contemporary Research*, 3(10), 91-92.

Auta, M. E. (2010). E-banking in developing economy. Empirical evidence from Nigeria. *Journal of Applied Quantitative Methods*, 5(2), 212-222.

Babbie, E. (2002). The basics of social research. Belmont, CA: Wadsworth Publishing.

Banz, R. (1981). The relationship between return and the market value for common stocks; *Journal of Financial Economics*, 9(1), 1-19.

Basel Committee on Banking Supervision (2003). Risk management principles for electronic banking. Switzerland: Bank of International Settlements.

Basle Committee on Banking Supervision (1998). Risk management for electronic banking and electronic money activities, bank for international settlements, Switzerland.

Berger, A. N. (2003). The economic effects of technological progress: Evidence from the banking industry. *Journal of Money, Credit and Banking, 35*(2), 141-76.

Brynjolfsson, E., & Hitt, L. (1996). Paradox lost? Firm-level evidence of high returns to information systems spending. *Management Science,* 42(4), 1996.

Centeno, C. (2004). Adoption of internet services in the acceding and candidate countries, lessons from the internet banking case. *Telematics and Informatics, 21,* 293-315.

Central Bank of Kenya. 2016 Bank supervision annual report. Retrieved from https://www.centralbank.go.ke/images/docs/Bank%20Supervision%20Reports/Annual%20Reports/2016 BSAnnualReport.pdf

Central Bank of Kenya. 2016 annual report. Retrieved from https://www.centralbank.go.ke/images/docs/CBKAnnualReports/Annual_Report_2016.pdf

Cheruiyot, S. K. (2010). *Impact of internet banking on financial performance of commercial banks in Kenya.* Unpublished MBA project. Nairobi: University of Nairobi.

Cooper, D. R. & Schindler, P. S. (2001). *Business Research Methods*, 7th Edition. New York: McGraw-Hill

Daniel, D. L., Longbrake, W. A., & Murphy, N. B. (1973). The effect of technology on bank economies of scale for demand deposits. *Journal of Finance, 28(1),* 131–146.

Davis, F.D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly,* 319-340.

Delgado, J., Hernando, I. & Nieto, M. J. (2007). Do European Primarily Internet banks show scale and experience efficiencies? *European Financial Management, 13*(4), 643-671.

DeYoung, R. (2005). The performance of internet-based business models: Evidence from the banking industry. *Journal of Business, 78*(3), 893-947.

DeYoung, R., Lang, W.W. & Nolle, D. L. (2007). How the internet affects output and performance at community banks. *Journal of Banking & Finance, 31,* 1033-1060

De Young, R., & Hunter, W. (2002). Deregulation, the internet and the competitive viability of large banks and community banks *(Working paper No. 2001– 11).Federal Reserve Bank of Chicago.*

Dul, J., & Hak, T. (2008). *Case Study Methodology in Business Research* (1st Ed.). Oxford: Butterworth-Heinemann.

Efebera, H. D., Hayes, C., Hunton, J. E. & O'Neil, C. (2004). Tax compliance intentions of low-income individual taxpayers. Adv. Accounting Behaviour. Res. 7: 1-25.

Fishbein, M., & Ajzen, I. (1975). Belief, attitudes, intention and behaviour: An introduction to theory and research. Reading MA: Addision-Wasely.

Furst, K., Lang, W. W. & Nolle, D. E. (2000a). Who offers internet banking? *Quarterly Journal, 19*(2), 27-46.

Furst, K., Lang, W. W. & Nolle, D. E. (2000b). Internet banking: Developments and prospects, economic and policy analysis. Working Paper No. 2000-9, Office of Comptroller of the Currency, September.

Furst, K., Lang, W.W. & Nolle, D. E. (2002). Internet banking. *Journal of Financial Services Research, 22*(1/2), 95-117.

Gefen, D., Karahanna, E. & Straub, D. W. (2003). Trust and TAM in online shopping: An integrated model. *MIS Quarterly, 27*(1), 51-90.

Gerrard, P., & Cunningham, J. B. (2003). The diffusion of internet banking among Singapore consumers. *International Journal of Bank Marketing, 21*(1), 16-28.

Giglio, V. (2002). Privacy in the world of cyber banking: emerging legal issues and how you are protected. *The Secured Lender,* March/April, 48-60.

Green, P. E., Tull, D. S. (1966). *Research for Marketing Decisions* .Prentice Hall

Casu, B., Girardone, C., & Molyneux, P. (2006). *Introduction to banking* (Vol. 10). Pearson Education.

APPENDICES

APPENDIX I: SECONDARY DATA COLLECTION FORM

Date:…… Name of Assistant:……

Bank:……

Data	**2013**	**2014**	**2015**	**2016**	**2017**
Interest Income from loan and advances					
Interest Income from Government					
Forex Earnings					
Commission and Fees					
Mobile Banking Income					
Non-Mobile Banking Income					
Total Income					
Total Assets					
Total Operating Expense					
Total Operating Income					

Signature:……

APPENDIX II: DESCRIPTIVE DATA

Name of Bank	Year	Hirschmann Diversification Index (HHI)	Mobile Banking Income (Log)	Total Assets (Log)	Efficiency Ratio
Kenya Commercial Bank	2017	0.408	9.383	11.510	0.516
Equity Bank	2017	0.443	8.677	11.377	0.451
Co-operative Bank of Kenya	2017	0.419	8.761	11.360	0.585
Standard Chartered Bank	2017	0.360	8.977	11.343	0.398
CFC Stanbic Bank	2017	0.250	9.313	11.232	0.502
Barclays Bank of Kenya	2017	0.317	8.661	11.316	0.529
NIC Bank	2017	0.471	8.668	11.053	0.377
Commercial Bank of Africa	2017	0.298	8.522	11.096	0.467
Diamond Trust	2017	0.529	7.727	11.057	0.374
I&M Bank	2017	0.489	8.330	11.043	0.311
Citibank	2017	0.230	8.553	10.853	0.203
Bank of Africa	2017	0.476	8.096	10.722	0.656
Bank of Baroda	2017	0.474	7.533	10.716	0.224
National Bank of Kenya	2017	0.301	8.974	10.966	0.755
Prime Bank	2017	0.391	8.359	10.694	0.406
Housing Finance	2017	0.734	7.977	10.670	0.477
Ecobank	2017	0.405	8.430	10.567	1.440
Family Bank	2017	0.487	7.880	10.638	0.667
Bank of India	2017	0.432	7.562	10.487	0.225
ABC Bank	2017	0.444	7.807	10.293	0.622
Consolidated Bank	2017	0.517	7.358	10.225	1.376
Spire Bank Ltd	2017	0.583	6.813	10.192	0.794
Gulf African Bank	2017	0.545	7.334	10.206	0.720
Development Bank of Kenya	2017	0.467	7.609	10.193	0.433
GT Bank Kenya	2017	0.412	7.957	10.409	0.704
Giro Commercial Bank	2017	0.494	6.778	10.134	0.540
Fidelity Commercial Bank	2017	0.520	8.311	10.106	0.602
Guardian Bank	2017	0.507	7.641	10.108	0.550
Victoria Commercial Bank	2017	0.430	7.610	10.135	0.395
First Community Bank	2017	0.542	7.471	10.053	0.775
Habib A.G. Zurich	2017	0.441	7.556	10.042	0.397
Sidian Bank	2017	0.531	7.481	10.121	0.634

Trans-National Bank	2017	0.456	7.380	9.985	0.657
Paramount Universal Bank	2017	0.488	7.342	9.905	0.668
Habib Bank Ltd	2017	0.398	7.562	9.907	0.311
Credit Bank	2017	0.653	7.248	9.864	0.991
Oriental Commercial Bank	2017	0.588	7.431	9.846	0.766
Middle East Bank	2017	0.543	7.566	9.761	0.707
Jamii Bora Bank	2017	0.460	7.196	9.846	0.794
UBA Kenya Ltd	2017	0.229	7.318	9.569	2.031
Kenya Commercial Bank	2016	0.421	9.332	11.485	0.505
Equity Bank	2016	0.495	8.619	11.334	0.453
Co-operative Bank of Kenya	2016	0.504	8.686	11.300	0.584
Standard Chartered Bank	2016	0.371	8.938	11.291	0.408
CFC Stanbic Bank	2016	0.334	9.314	11.125	0.608
Barclays Bank of Kenya	2016	0.318	8.424	11.267	0.520
NIC Bank	2016	0.511	8.682	11.008	0.382
Commercial Bank of Africa	2016	0.326	8.752	11.002	0.472
Diamond Trust	2016	0.534	7.957	10.975	0.355
I&M Bank	2016	0.467	8.523	10.962	0.346
Citibank	2016	0.214	8.783	10.842	0.239
Bank of Africa	2016	0.514	7.121	10.690	0.719
Bank of Baroda	2016	0.511	7.904	10.664	0.321
National Bank of Kenya	2016	0.319	9.102	10.827	0.754
Prime Bank	2016	0.381	8.220	10.638	0.491
Housing Finance	2016	0.662	7.842	10.609	0.504
Ecobank	2016	0.458	8.430	10.502	2.543
Family Bank	2016	0.512	7.957	10.491	0.705
Bank of India	2016	0.437	7.407	10.396	0.352
ABC Bank	2016	0.432	7.873	10.280	0.580
Consolidated Bank	2016	0.527	8.108	10.255	0.774
Spire Bank Ltd	2016	0.604	7.079	10.149	1.948
Gulf African Bank	2016	0.538	6.903	10.132	0.699
Development Bank of Kenya	2016	0.479	7.730	10.128	0.701
GT Bank Kenya	2016	0.394	8.338	10.234	0.680
Giro Commercial Bank	2016	0.540	7.928	10.089	0.701
Fidelity Commercial Bank	2016	0.545	8.176	10.071	0.697
Guardian Bank	2016	0.529	7.464	10.070	0.607
Victoria Commercial Bank	2016	0.412	7.408	10.014	0.403
First Community Bank	2016	0.339	8.129	9.998	0.695
Habib A.G. Zurich	2016	0.405	7.611	9.987	0.403
Sidian Bank	2016	0.633	7.423	9.980	0.650
Trans-National Bank	2016	0.358	8.049	9.945	0.615

Paramount Universal Bank	2016	0.364	8.174	9.861	0.693
Habib Bank Ltd	2016	0.381	7.344	9.846	0.287
Credit Bank	2016	0.678	7.468	9.807	1.038
Oriental Commercial Bank	2016	0.404	7.659	9.794	0.622
Middle East Bank	2016	0.512	7.624	9.769	0.793
Jamii Bora Bank	2016	0.239	7.654	9.542	0.756
UBA Kenya Ltd	2016	0.213	7.204	9.466	3.482
Kenya Commercial Bank	2015	0.363	9.499	11.451	0.527
Equity Bank	2015	0.383	8.926	11.248	0.467
Co-operative Bank of Kenya	2015	0.422	8.142	11.225	0.620
Standard Chartered Bank	2015	0.345	8.043	11.215	0.456
CFC Stanbic Bank	2015	0.362	9.005	11.146	0.646
Barclays Bank of Kenya	2015	0.330	8.627	11.224	0.516
NIC Bank	2015	0.476	8.388	10.867	0.391
Commercial Bank of Africa	2015	0.304	8.646	10.921	0.491
Diamond Trust	2015	0.544	8.187	10.889	0.420
I&M Bank	2015	0.414	8.599	10.886	0.291
Citibank	2015	0.236	6.337	10.873	0.294
Bank of Africa	2015	0.467	8.004	10.588	0.705
Bank of Baroda	2015	0.478	7.629	10.565	0.236
National Bank of Kenya	2015	0.283	8.974	10.837	0.598
Prime Bank	2015	0.372	8.207	10.546	0.444
Housing Finance	2015	0.624	7.892	10.505	0.470
Ecobank	2015	0.297	8.774	10.435	0.959
Family Bank	2015	0.408	8.050	10.415	0.772
Bank of India	2015	0.443	7.805	10.368	0.229
ABC Bank	2015	0.354	7.889	10.097	0.567
Consolidated Bank	2015	0.411	8.227	10.185	0.779
Spire Bank Ltd	2015	0.368	8.130	10.111	0.907
Gulf African Bank	2015	0.457	7.176	10.111	0.820
Development Bank of Kenya	2015	0.416	7.671	10.062	0.597
GT Bank Kenya	2015	0.326	8.272	10.165	0.612
Giro Commercial Bank	2015	0.495	7.530	10.074	0.558
Fidelity Commercial Bank	2015	0.381	8.018	10.033	0.578
Guardian Bank	2015	0.474	7.719	9.946	0.523
Victoria Commercial Bank	2015	0.468	7.509	9.883	0.442
First Community Bank	2015	0.322	7.874	9.942	0.823
Habib A.G. Zurich	2015	0.326	7.546	9.941	0.536
Sidian Bank	2015	0.538	7.587	9.969	0.662
Trans-National Bank	2015	0.283	7.816	9.863	0.575
Paramount Universal Bank	2015	0.397	7.829	9.675	0.594

Habib Bank Ltd	2015	0.357	7.396	9.768	0.414
Credit Bank	2015	0.499	7.929	9.732	0.959
Oriental Commercial Bank	2015	0.331	8.028	9.702	0.439
Middle East Bank	2015	0.367	7.553	9.666	0.697
Jamii Bora Bank	2015	0.458	7.566	9.316	1.387
UBA Kenya Ltd	2015	0.261	6.934	9.506	1.760
Kenya Commercial Bank	2014	0.340	9.162	11.400	0.611
Equity Bank	2014	0.325	9.413	11.155	0.510
Co-operative Bank of Kenya	2014	0.341	9.168	11.188	0.589
Standard Chartered Bank	2014	0.249	9.180	11.155	0.426
CFC Stanbic Bank	2014	0.283	9.186	11.030	0.689
Barclays Bank of Kenya	2014	0.336	8.799	11.237	0.540
NIC Bank	2014	0.445	8.805	10.771	0.445
Commercial Bank of Africa	2014	0.276	9.034	10.878	0.458
Diamond Trust	2014	0.401	9.039	10.922	0.477
I&M Bank	2014	0.351	8.867	10.796	0.328
Citibank	2014	0.227	7.127	10.793	0.389
Bank of Africa	2014	0.328	8.336	10.426	0.666
Bank of Baroda	2014	0.346	8.779	10.510	0.227
National Bank of Kenya	2014	0.271	9.033	10.778	0.569
Prime Bank	2014	0.297	8.486	10.511	0.499
Housing Finance	2014	0.674	7.933	10.467	0.482
Ecobank	2014	0.296	8.665	10.430	0.778
Family Bank	2014	0.353	8.465	10.305	0.715
Bank of India	2014	0.418	7.751	10.294	0.239
ABC Bank	2014	0.338	8.118	10.015	0.541
Consolidated Bank	2014	0.350	8.492	10.020	0.700
Spire Bank Ltd	2014	0.308	8.252	10.017	0.936
Gulf African Bank	2014	0.618	7.000	9.982	1.044
Development Bank of Kenya	2014	0.441	7.817	10.027	0.477
GT Bank Kenya	2014	0.302	8.659	10.321	0.638
Giro Commercial Bank	2014	0.325	8.734	10.010	0.365
Fidelity Commercial Bank	2014	0.318	8.553	9.914	0.204
Guardian Bank	2014	0.369	8.003	9.905	0.608
Victoria Commercial Bank	2014	0.422	7.863	9.793	0.398
First Community Bank	2014	0.527	7.147	9.805	1.305
Habib A.G. Zurich	2014	0.313	7.955	9.910	0.513
Sidian Bank	2014	0.553	7.556	9.885	0.867
Trans-National Bank	2014	0.268	8.155	9.678	0.662
Paramount Universal Bank	2014	0.329	8.481	9.645	0.332
Habib Bank Ltd	2014	0.389	7.263	9.734	0.436

Credit Bank	2014	0.294	8.116	9.656	0.522
Oriental Commercial Bank	2014	0.306	8.175	9.659	0.421
Middle East Bank	2014	0.306	8.346	9.604	0.525
Jamii Bora Bank	2014	0.672	7.803	9.237	1.246
UBA Kenya Ltd	2014	0.467	8.358	9.481	1.436
Kenya Commercial Bank	2013	0.350	9.253	11.290	0.669
Equity Bank	2013	0.428	8.365	11.004	0.602
Co-operative Bank of Kenya	2013	0.360	9.061	11.044	0.628
Standard Chartered Bank	2013	0.257	8.760	11.093	0.415
CFC Stanbic Bank	2013	0.373	8.419	10.988	0.697
Barclays Bank of Kenya	2013	0.353	8.252	11.217	0.593
NIC Bank	2013	0.487	8.426	10.677	0.486
Commercial Bank of Africa	2013	0.321	8.321	10.817	0.547
Diamond Trust	2013	0.468	7.964	10.824	0.545
I&M Bank	2013	0.446	8.059	10.644	0.421
Citibank	2013	0.223	7.277	10.711	0.319
Bank of Africa	2013	0.343	8.346	10.228	0.717
Bank of Baroda	2013	0.381	7.409	10.341	0.401
National Bank of Kenya	2013	0.275	8.877	10.711	0.599
Prime Bank	2013	0.380	7.990	10.375	0.515
Housing Finance	2013	0.607	7.762	10.261	0.581
Ecobank	2013	0.274	8.293	10.145	1.419
Family Bank	2013	0.414	7.848	10.124	0.811
Bank of India	2013	0.403	7.480	10.187	0.259
ABC Bank	2013	0.379	7.019	9.953	0.612
Consolidated Bank	2013	0.368	8.130	9.839	0.759
Spire Bank Ltd	2013	0.581	6.001	9.649	0.765
Gulf African Bank	2013	0.419	6.845	9.889	1.312
Development Bank of Kenya	2013	0.465	7.572	9.909	0.780
GT Bank Kenya	2013	0.451	7.545	10.263	0.781
Giro Commercial Bank	2013	0.395	7.825	9.840	0.619
Fidelity Commercial Bank	2013	0.516	7.964	9.740	0.796
Guardian Bank	2013	0.515	7.273	9.831	0.460
Victoria Commercial Bank	2013	0.501	7.434	9.710	0.439
First Community Bank	2013	0.449	7.035	9.649	1.451
Habib A.G. Zurich	2013	0.343	7.558	9.866	0.460
Sidian Bank	2013	0.594	7.535	9.853	1.017
Trans-National Bank	2013	0.363	7.068	9.527	0.709
Paramount Universal Bank	2013	0.456	7.305	9.491	0.759
Habib Bank Ltd	2013	0.399	7.275	9.668	0.456
Credit Bank	2013	0.545	7.360	9.564	0.756

Oriental Commercial Bank	2013	0.368	6.537	9.485	0.769
Middle East Bank	2013	0.366	7.544	9.497	0.770
Jamii Bora Bank	2013	0.317	7.390	8.691	0.802
UBA Kenya Ltd	2013	0.432	6.994	9.085	2.449