

**THE EFFECT OF INNOVATION ON FINANCIAL PERFORMANCE OF
LISTED BANKS IN KENYA**

NAFISA AMINA MOHAMED

MASTER OF BUSINESS ADMINISTRATION

(Finance)

**JOMO KENYATTA UNIVERSITY OF
AGRICULTURE AND TECHNOLOGY**

2019

**The effect of innovation on financial performance of listed banks in
Kenya**

Nafisa Amina Mohamed

**A Research project submitted in partial fulfillment of award of
Master of Business Administration in the Jomo Kenyatta University
of Agriculture and Technology**

2019

DECLARATION

This research project is my original work and has not been presented for a degree in any other University.

Signature..... Date

Nafisa Amina Mohamed

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

Signature..... Date

Dr. Tobias Olweny, PhD

JKUAT, Kenya

DEDICATION

I dedicate this work to the Almighty Allah for His perpetual blessings without which it is impossible to accomplish anything in this world and to my family for their moral support, encouragement and understanding.

ACKNOWLEDGEMENT

I acknowledge my supervisor, Dr. Tobias Olweny for his guidance, constructive criticism and his passion for quality work. I further appreciate the entire JKUAT SODEl fraternity for their diligence and also for providing conducive learning environment. Lastly, I take this opportunity to express my deep gratitude to my husband Hussein, for his never-ending support and my colleagues Mr. Khalif and Ms. Asiya for their encouragement during this research project.

TABLE OF CONTENTS

DECLARATION	II
DEDICATION	III
ACKNOWLEDGEMENT	IV
TABLE OF CONTENTS.....	V
LIST OF TABLES	X
LIST OF FIGURES	XII
LIST OF APPENDICES.....	XIII
ABBREVIATION AND ACRONYMNS	XIV
DEFINITION OF TERMS	XV
ABSTRACT	XVII
CHAPTER ONE	1
INTRODUCTION	1
1.1 Background of the study.....	1
1.1.1 Commercial banks in Kenya	4
1.1.2 Innovation and Financial Performance	4
1.2 Statement of the Problem	5
1.3 Objectives of the Study	6
1.3.1 General Objectives	6

1.3.2 Specific Objectives	6
1.4 Research Questions	7
1.5 Justification of the Study	7
1.6 Scope of the Study	8
1.7 Limitation of the Study.....	8
CHAPTER TWO	9
LITERATURE REVIEW	9
2.1 Introduction.....	9
2.2 Theoretical Review	9
2.2.1 Diffusion Theory of Innovation	9
2.2.2 Technology Acceptance Model (TAM).....	10
2.2.3 Constraint-Induced Financial Innovation Theory	11
2.2.4 Financial Intermediation Theory	12
2.3 Conceptual Framework	13
2.4 Empirical Framework.....	14
2.4.1 Product innovation and financial performance	14
2.4.2 Process Innovation and financial performance	15
2.4.3 Service Innovation and financial performance	16
2.4.4 Institutional Innovation and financial performance	19

2.4.5 Financial Performance	19
2.5 Critique of Literature Review	20
2.6 Research Gap	21
2.7 Summary of the study.....	22
CHAPTER THREE	24
METHODOLOGY	24
3.1 Introduction.....	24
3.2 Research design.....	24
3.3 Population	25
3.4 Sampling Frame	26
3.5 Sampling techniques and illustrations	28
3.6 Data Collection instruments	29
3.7 Pilot Test.....	29
3.7.1 Validity Test.....	30
3.7.2 Reliability Test	30
3.8 Data collection procedures	30
3.9 Data processing and analysis	31

CHAPTER FOUR.....	33
DATA ANALYSIS AND PRESENTATION	33
4.1 Introduction.....	33
4.1.1 Kenya’s banking Sector Performance	33
4.2 General and Demographic Information.....	33
4.2.1 Response Rate	34
4.2.2 Gender of the Respondents	34
4.2.3 Level of Education	35
4.2.4 Duration of Experience.....	36
4.2.5 Banking institutions.....	37
4.3 Descriptive Statistics	37
4.3.1 The Effect of Product Innovation on Financial Performance	38
4.3.2 The Effect of Process Innovation on Financial Performance	39
4.3.3 The Effect of Service Innovation on Financial Performance.....	42
4.3.4 The Effect of Institutional Innovation on Financial Performance.....	43
4.3.5 Financial Performance	46
4.4 Inferential Statistics.....	48
4.4.1 Bivariate Linear Correlation Analysis.....	48
4.4.2 Regression Coefficient Analysis	50

4.4.3 Banks innovation and financial performance (secondary data)	52
4.4.4 Model Estimation	53
4.4.5 Analysis of Variance	54
CHAPTER FIVE	55
SUMMARY, CONCLUSIONS AND RECOMMENDATIONS	55
5.1 Introduction.....	55
5.2 Summary of Findings	55
5.2.1 Product innovation on financial performance of listed banks in Kenya....	55
5.2.2 Process innovation on financial performance of listed banks in Kenya	56
5.2.3 Service innovation affect financial performance of listed banks in Kenya	56
5.2.4 Institutional innovation affects financial performance of listed banks in Kenya.....	56
5.3 Conclusion	57
5.4 Recommendation	58
5.5 Suggestions for Further Studies	59
REFERENCES	60
APPENDICES.....	78

LIST OF TABLES

Table 3.1: Target population	26
Table 3.2: Sampling Frame	28
Table 4.1: Gender of the Respondents	35
Table 4.2: Level of Education	35
Table 4.3: Duration of Experience.....	36
Table 4.4: Banking institutions.....	37
Table 4.5: The Effect of Product Innovation on Financial Performance	38
Table 4.6: The Effect of Process Innovation on Financial Performance	40
Table 4.7: The Effect of Service Innovation on Financial Performance.....	42
Table 4.8: The Effect of Institutional Innovation on Financial Performance	44
Table 4.9: Financial Performance	46
Table 4.10: Bivariate Linear Correlation Analysis: Effect of innovation on financial performance of listed banks in Kenya	49
Table 4.11: Coefficient results of the Model.....	50
Table 4.12: Effects of Innovation on ROE of banks listed in Kenya	52
Table 4.13: Effects of Innovation on ROA of banks listed in Kenya	53
Table 4.14: Effect of innovation on financial performance of listed banks in Kenya Model Summary	53
Table 4.15: Effect of innovation on financial performance of listed banks in Kenya: ANOVA	54

LIST OF FIGURES

Figure 2.1: Conceptual Framework	13
Figure 4.1: Response Rate.....	34

LIST OF APPENDICES

Appendix I: Introduction Letter	78
Appendix II: Questionnaire	79
Appendix III: Secondary Data Collection Sheet.....	83
Appendix IV: Listed Banks in NSE	84

ABBREVIATION AND ACRONYMNS

ATMs	Automated Teller Machines
CBK	Central Bank of Kenya
EFT	Electronic Record Keeping
EIU	Economist Intelligence Unit
ICT	Information Communication Technology
MFI	Micro Finance Institutions
NACOSTI	National Commission for Science Technology and Innovation
NGOs	Non-Governmental Organization
NSE	Nairobi Securities Exchange
RTGS	Real Time Gross Settlement
SACCOs	Savings and Credit Co-Operative Societies
SMEs	Small and Medium Enterprises
UNDP	United Nations Development Programme
US	United States
USAID	United States Agency for International Development
WEF	World Economic Forum

DEFINITION OF TERMS

- Innovation-** According to Mytelka (2000) innovation is the process by which, firms master and implement design, and the creation services and goods that are novel to them regardless of whether they are new to their competitors, country or the world.
- Financial Innovation-** This refers to ways that provides an improved product or service or financial instrument that better satisfies participants' demands within a financial system (Dary&Issahaku, 2013).
- Financial Performance-** It is the measure of how well a firm can employ assets from its primary mode of business and create revenues and profits (Imali 2003). It's the use of financial indicators to measure the extent to which a firm achieves its objectives (Heremans, 2007)
- Product Innovation-** It is the invention of new or improved financial services such as the inception of new deposit accounts, debit and credit card, insurance leasing and hire purchase (Onduko, 2015)
- Process Innovation-** This is the combination of facilities, skills and technologies that are used to produce products or provide services (Ongwen, 2015).
- Service Innovation-** This innovation primarily relates to improved mechanism put in place by financial institution to enhance service delivery to its customers (Heremans, 2007).
- Institutional Innovation-** These are innovation of financial system as whole for the structure of the financial sector that relates to changes in

business structures, to the establishment of new types of financial intermediaries, or to changes in the legal and supervisory framework. Important examples include the use of the group mechanism to retail financial services, formalizing informal finance systems, reducing the access barriers for women, or setting up a completely new service structure (Onduko, 2013).

ABSTRACT

Advancements in technology have facilitated ways of in which banks and financial institutions do their operations. It remains largely unclear whether banks are adequately innovative in running their businesses given that they are faced with the challenges of stiff competition and rapid technological changes among others. Performance and innovation are related in that banks cannot sustain themselves if they fail to embrace innovation. The study general objective was to determine the effect of Innovation on financial performance of listed banks in Kenya. Theories used in the study included Diffusion Theory of Innovation, Technology Acceptance Model, Constraint Induced Financial Innovation Theory and Financial Intermediation Theory. The target population included 5 conveniently selected banks out of the 11 listed banks. The study sample size was selected from the population using stratified random sampling technique and engaged descriptive research design. The study sample respondents covered the branch managers where 94 respondents were administered questionnaires with a response rate 86.2% filled and returned the questionnaires while 13.8% did not respond. The study used questionnaire as the tool for primary data collection and data collection sheet for secondary data. A pilot study was carried to establish effectiveness of the instruments used in the research. Processing of data integrated both descriptive statistics and inferential statistics with the aid of SPSS. Descriptive statistics involved the use of means and standard deviations and inferential statistics used included Pearson's correlation coefficient, and multiple regression analysis. Study results showed that product, process, service and institutional innovation had an influence on the financial performance and therefore recommended there is need for banks to enhance financial innovation so that they are able to achieve high levels of financial performance. There is also need for improved process through innovation if the listed banks in Kenya are going to improve their financial performance. The process needs not only to be effective but also efficient in order for the organizations to achieve the set out goals and objectives in terms of performance. Finally, yet importantly, the banks should have a clear business structure that can enhance performance, the banks have adopted enhanced technologies for growth, competition, increased productivity and profits and that the

banks act in accordance to its supervisory framework that ensures that all innovation in use are allowed and operationalized.

CHAPTER ONE

INTRODUCTION

1.1 Background of the study

Innovation is a long process depending critically on recognition of new, external information, assimilating it, and applying it to commercial ends (Cohen & Levinthal, 1990). Over the past decades the structure of the commercial banking sector has undergone dramatic changes, despite the functions performed by the commercial banks remaining relatively constant. Financial innovations in banks have strategic variables to surpass any form of competition thus becoming an effective means by which banks can improve their performance while simultaneously being able to maintain their effectiveness in the market (Lazo & Woldeesenbet, 2006).

History shows that Innovation has been a critical and persistent part of the economic landscape over the past few centuries in the years since Miller 's 1986 piece, financial markets have continued to produce a multitude of new products, including many new forms of derivatives, alternative risk transfer products, exchange traded funds, and variants of tax deductible equity (Mwangi 2013). According to Desai and Low (2007), Innovation has been for a particular period remained the main key to economic growth whether in any developing or developed country. For instance, there are a number of times of accelerated financial innovation in United States financial history, regularly following or all through periods of political disturbance and great social like the immense depression and Civil War. It seems clear in the year 1970s and 1980s have been years of moderately rapid innovation due to higher inflation and its effects on rapid technological progress and interest rates that has drastically reduced the real costs of carrying out financial transactions.

Globalization has brought about changes in the financial industry thereby with improved technological processes make things happen. Organizations that do not innovate risks

being overtaken by competitors. Advances in technology and globalization process have had externalities on the financial sector. The financial sector is leveraging on these developments to enhance service delivery to its clients, as well as secure returns arising from these advances. These innovations have in turn enhanced at least the interconnectedness within the financial sector, and to the real economy. Yin and Zhengzheng (2010) demonstrated the evidence that Chinese commercial banks have moved from the traditional business operation mode; the wholesale credit operations to the retail mode as a result of technological innovations. In India, Pooja and Singh (2010) conclude that internet banks were larger, more profitable, had higher asset quality, lower administrative expenses and were more efficient compared to the non-internet bank. Siam (2006) in the study carried in Jordan, e-banking brought about to more customers who were satisfied with better long-term cost saving strategies.

The African banking industry has undergone dramatic changes over the past 20 years. While dominated by government-owned banks in the 1980s and subject to restrictive regulation—including interest rate ceilings and credit quotas financial liberalization, institutional and regulatory upgrades and globalization have changed the face of financial systems across the region. The last two decades witnessed the emergence of private African banking groups (Derreumaux, 2013) and the entry of emerging market banks in the African market, which have invigorated competition, and thus helped to foster innovation within the African banking sector, enabling improved access to financial services by consumers. Today, most countries have deeper and more stable financial systems, although challenges of concentration and limited competition, high costs, short maturities and limited inclusion persist.

According to Mabrouk and Mamoghli (2010) the return on assets is positively and significantly associated with the first mover and imitation of product innovations in the banks in Tunisia. Technology has increased in importance in Ghanaian banks and has transformed the way banks would serve their clients more conveniently and in the process increased profits and competitiveness while the most revolutionary electronic innovation in Ghana and the world over has been the ATM (Joshua, 2010). Gardachew

(2010) documented that banks in Ethiopia have not been able to obtain effectiveness as a result of low pace in the adaptation of technological innovations. The study by (Porteus, 2006) the adoption of electronic and mobile banking has increased access to banking services in Uganda.

Kenya's financial system has evolved rapidly over the years. Ombok (2016) concurred with (Mwania & Muganda, 2011) findings that witnessed the development of mobile money transfers (including M-PESA and AIRTEL Money services), the growth of branch banking or agent banking, investment in long term government bonds for development finance, and more so, were moving closer and closer to a cashless economy, as seen in preference for visa cards for payment of bills, and so on. The effective use of Information Technology has led to better utilization of personnel and organizations assets, increased revenues and increased access to financial services by the general population. Muchiri (2016) depicted in the study by Ndung'u (2011), in the five years (2007-2011) of the existence of mobile phone money transfer services in Kenya; four mobile phone operators are in place with 15.4 million customers and over 39,449 agents. Total transactions in 2010-averaged Ksh.2.45 billion a day and Ksh.76 billion a month resulting to lower transaction costs and increased access to financial services. This depicts a very productive market for electronic money transfers.

Financial Sector specifically the banks has seen rapid developments and the progress being made with an increasing interaction the between the sector and economy at large either knowingly or unknowingly.. There have been fostered changes in the legal and regulatory framework to promote financial inclusion and electronic payment systems as the basis for financial transactions and settlements these processes have been aided by the National Payment Systems Act of 2011 and the issuance of guidelines for the provision of electronic retail transfers and e-money in 2012; the issuance of the agency banking guidelines in 2010 and licensing of deposit taking micro-finance institutions are a reflection of these efforts by the Central Bank as an Institution (CBK), (Nyamongo & Ndirangu, 2013).

1.1.1 Commercial banks in Kenya

The Central Bank is mandated by the law to regulate, license and guide the banking sector in Kenya under Banking Act (Cap 488). CBK formulates and implements monetary policy and fosters the liquidity, solvency and proper functioning of the financial system. The 25 locally owned institutions comprised 24 commercial banks and 1 mortgage financial institution. All the 15 foreign-owned institutions are commercial banks, 11 have local subsidiaries of foreign banks while 4 are branches of foreign banks. Majority of the licensed microfinance banks, credit reference bureaus, forex bureaus and money remittance providers are privately owned (CBK, 2016).

Bank branch network has grown from 1,523 in 2015 to 1,541 in 2016, which translated to an increase of 18 branches. Most counties have had a reduction in the bank branches. The decrease in physical bank branches expansion is partly attributed to the adoption of alternative ways of providing their customers with services such as agency, mobile and internet banking (Muiruri, 2014)

1.1.2 Innovation and Financial Performance

The Kenyan financial sector has experienced remarkable changes where advanced technology has totally reformed the banking philosophy. Challenges experienced within the banking system have created more innovation in the fields of product, process and market. Rapid changes in technological and economical setup have resulted in the incentive for the changes that have been taking place. New innovations that have influenced banks financial performance includes; mobile banking, internet banking, RTGS, ATM withdrawals and deposits, online account opening, unsecured lending, stock brokerage and insurance services; with commercial banks moving to acquire stock brokerage firms, Islamic banking guided by the Islamic (Sharia) law among many others CBK (2014).

Banks financial performance is measured by a mix of ratios which helps in the measuring of performance against a financial blueprint or a mix of methodologies (Barley, 2000). Banking sector has registered improved performance in 2016 with profit before tax increasing by 10.0 percent to Kshs 147.4 billion in December 2016 from Kshs 134.0 billion in December 2015. The increase in profitability is attributed to a higher increase in income compared to the rise in expenses. (The Kenya banking sector report, 2016) Innovations have been introduced into the market as a result of raising competition. The banks remained well capitalized where gross deposits stood at Kshs 348.7 billion compared to Kshs 347.8 billion in 2015 in addition total assets of subsidiaries stood at Kshs 445 billion compared to Kshs 413.2 billion (CBK, 2016).

1.2 Statement of the Problem

The banking sector environment is ever changing due to the accelerated changes in the technological innovation taking place in the world and therefore affecting the financial sector and this has created research interest in financial innovation. The Central Bank of Kenya has continued to approve new banking innovation products for the financial services industry that has been impacted by the ever changing consumer needs, innovative financial products, technological advancement and the use of multiple delivery channels. Banks are able to continue being competitive in the unique scenarios and are able to endure with the environment by introducing new products, expand the existing ones, and add new distribution channels. Reports from CBK (2016) indicate that, the number of automated teller machines grew from 617 in 2006 to 2656 in 2016, where there was a decrease of 62 or 4% in 2016 as compared to 2015 of ATMs from 2718 in 2015. Reduction in the number of ATMs by banks has been driven mainly by adoption of cost effective channels of offering financial services.

The impact of innovation on financial performance, is still misunderstood due to inadequate knowledge about the drivers of innovation and the impact of innovation on bank's performance remaining unverified (Mabrouk & Mamoghli, 2010). Kenyan commercial banks have invested a lot in new based technologies in the banks and

training of staff so as to run the new systems installed in the banks. Towards the end of 2016, 15 banks applied to introduce PESALINK, a new product spearheaded by Kenya Bankers Association that enables bank customers to move funds from one bank to another using either mobile phones, internet, ATM, bank agents and branches (CBK, 2016).

Locally, Kamotho (2008) on his study on the mobile phone banking usage experience observed that competition triggers innovation and creativity. Continuous innovation not only yield new products but rather promotes efficiently in the performance of activities. Mwangi (2007) carried out a study on Factors Influencing Innovation of Companies listed at Nairobi Stock Exchange he argued that global financial competition and integration had an influence on Innovation with increased financial competition amongst financial institutions influencing Innovation the most.

1.3 Objectives of the Study

The study sought to address both the general and specific objectives

1.3.1 General Objectives

The general objective of the study was to determine the effect of Innovation on Financial performance of listed banks in Kenya.

1.3.2 Specific Objectives

1. To establish the effect of product innovation on financial performance of listed banks in Kenya.
2. To determine the effect of process innovation on financial performance of listed banks in Kenya.
3. To assess the effect of service innovation on financial performance of listed banks in Kenya.

4. To determine the effect of institutional innovation on financial performance of listed banks in Kenya.

1.4 Research Questions

This study sought to address the following pertinent research questions;

1. What is the effect of product innovation on financial performance of listed banks in Kenya?
2. What is the effect of process innovation on financial performance of listed banks in Kenya?
3. How does service innovation affect financial performance of listed banks in Kenya?
4. How does institutional innovation on financial performance of listed banks in Kenya?

1.5 Justification of the Study

The study indicated how Innovation contributes to banks' financial performance. Therefore, bank managers would clearly understand and strive to promote or discourage practices based on innovation.

This study can be of importance to the Kenyan consumers and investors who should rethink their investments in line with the emerging innovations in products, processes, services and institutions. Such innovations as Mpesa might bring about a positive number in the people connected to mobile banking and reduce the number of those not having accounts with the banks.

The study helps the government and industry regulators to understand kinds of innovations available in the financial sector so that the existing regulations covers for all the innovations being introduced and that there are no gaps existing. As a main player in

registering and regulating the banking industry this study helps them to gain an understanding on the future of the industry and guide their decision making.

To the scholars the study forms a good literature base upon which further studies and references would be made. Academicians would, therefore take advantage of the results of this research as it would add up-to-date knowledge in the field of finance. These would comprise of the Kenyan current and future scholars and researchers since it would broaden their knowledge on the how innovation contributes to the financial sector.

1.6 Scope of the Study

The research was carried out in Kenya with a focus on the listed banks. The research target population was senior managers working with the listed banks. There were four independent variables that included product, process, service and institutional innovations. Further the study was limited to one dependent variable, which is financial performance. The study period ranged from January 2012 to September 2016 with a focus of five years' duration from 2012-2016.

1.7 Limitation of the Study

Time and resource limitation restricted the research. Also the research was only limited to innovations in the banks that are listed and therefore did not include all other commercial banks and financial institutions in the financial sector.

Financial Performance is a sensitive issue to banks hence some respondents were not at ease giving out information touching on their institutions. Assurance was given and ethical consideration was put in place including ensuring that the identity of the participants was never to be disclosed to third parties and the information gathered exclusively for academic purposes. The research instrument was limited to close ended questions; this limited the respondents from giving their open views regarding the topic.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This section reviews literature on bank innovations and financial performance also it discusses the significant theories prime to bank innovations. The conceptual framework is developed and the research gaps on bank innovations and financial performance.

2.2 Theoretical Review

A theory is an organized rationalization of the relationship among various phenomena and provides a widespread explanation to an occurrence (Dawson, 2009). Various scholars have developed a wide range of literature for Financial Innovation. The study was majorly guided by various theories including; Diffusion Theory of innovation, Technology Acceptance Model, Constraint-Induced Financial Innovation Theory and Financial Intermediation theory.

2.2.1 Diffusion Theory of Innovation

The Theory was developed by Rogers (2003). There are four proponents of diffusion that include innovation, time, channels of communication and social systems. There are consequences that occur to an individual or to a social system as a result of the adoption or rejection of an innovation. Although of obvious importance, the consequences of innovations have received little attention by change agents or by diffusion researchers, who have concentrated primarily on investigating the correlates of innovativeness. Rogers (2003) furthers elaborates that an individual's technology adoption behavior is determined by his or her perceptions regarding the relative advantage, compatibility, complexity, trainability and observability of the innovation as well as their social norms. The direct consequences are modifications that happen to an individual or a social system as an instant response towards an innovation. Anticipated consequences are

changes due to an innovation that are recognized and envisioned by members belonging to a social system.

The primary intention of the theory explains the manner in which technological innovation changes from its original phase of its conception to the final extensive use. The theory also provides for a conceptual framework for discussing technological innovation acceptance at a global level.

The theory was relevant to the study in that for the banking sector new innovations are more advantageous than the operational ones. Banks are obliged to adopt to the new innovation processes that quickly diffuse and integrate in a social system. The degree of relative advantage is often expressed by a pot of sub dimensions (economic profitability, low initial costs, decreases in discomfort, social prestige, saving time and effort, immediacy of rewards). (Francesco, 2012).

2.2.2 Technology Acceptance Model (TAM)

The theory was developed by Davis 1989, Bagozzi, Davis & Warshaw 1992. This theory was originally adapted from the Theory of Reasoned Action (TRA) by Ajzen& Fishbin (1980). The theory model suggests that when users are offered with a new technology there are a number of factors that influence their decision making and these are Perceived Usefulness (PU) and Perceived Ease of Use (PEOU). Davis (1989) defined Perceived usefulness (PU) as “the degree to which a person believes that by using a particular system would enhance his or her job performance and Perceived ease of use (PEOU) defined as “the degree to which a person believes that using a particular system would be free from effort (Effortless)”. Bagozzi, Davis and Warshaw (1992) with the new technologies there are uncertainties in the minds of the decision makers with respect to the effective adoption and people form various attitudes trying to learn and the initial efforts directed towards learning the new processes as a result of technological changes.

A study conducted in Egypt on the intention of continuing usage of internet banking by customers employing the TAM model, showed that perceived ease of use is the main factor for continued use of internet banking. El-Kashir et al. (2009) and Izogo et.al, (2012) have cited a study conducted in Thailand on mobile banking adoption showing that customers may adopt the mobile banking technology only if they perceive the technology as being useful. Masinge (2010) in his study conducted in South Africa on the factors influencing the adoption of mobile banking services added perceived cost, trust and perceived risk as contrasts to TAM. The outcomes of the study revealed that perceived usefulness (PU), perceived ease of use (PEOU), perceived cost, and customer's trust had a significant effect on the adoption of M-banking. The relevance of this model to the study is to enable financial innovation effectiveness among banking institutions where banks must have all the required resources and the technical expertise to allow them roll out and adopt innovation also the organizational culture must be willing to embrace the innovations.

2.2.3 Constraint-Induced Financial Innovation Theory

Silber (1983) developed this theory and pointed out that the purpose of profit maximization of financial institution is the key reason of financial innovation. Further Silber (2004) in his studies cited that financial innovation occurs to remove or lessen the constraints imposed on firms. Firms that are facing imperfections (e.g. regulation, entry barriers) have the paramount motivation to innovate and enhance its profits because of the high shadow costs of such constraints. The theory highlights that most financial institutions mainly adopt financial innovation with a major goal of profit maximization. While pursuing profit maximization there are some restrictions these may include but not limited to organization internal policies and management. Constraint-induced innovation theory discusses the financial innovation from microeconomics, so it is originated and descriptive. It however emphasizes on "innovation in adversity excessively so it can't express the phenomenon of financial innovation increasing in the trend of liberal finance commendably. Financial constraints significantly reduce the probability that a firm undertakes innovative projects. Firms facing imperfections (e.g.

regulation, entry barriers) have the greatest incentive to innovate and boost profits because of the high shadow costs of such constraints. Mukur (2014) in his study used this theory and recognized the relevance as a measure to address weaknesses in organization leadership.

2.2.4 Financial Intermediation Theory

The theory regarding financial intermediation was developed starting point being the work of Gurley and Shaw (1960). The financial intermediation theory highlights the role of financial intermediaries in economy, most of the studies performed highlight their role in achieving a durable economic growth, and the impact of regulations on financial intermediation, accentuating the role of the central bank in the regulation, supervision and control of financial intermediaries. The financial intermediation theory is based on the theory of informational asymmetry and the agency theory. In principle, the existence of financial intermediaries is explained by the existence of the following categories of factors that is; high cost of transaction, lack of complete information in useful time assuming that there is perfect market where no one participant can influence the prices, the placement/borrowing conditions are identical for all participants; there are no discriminatory fees, the lack of competitive advantages at the level of participants, all financial securities are homogeneous, dividable and transactional, there are no transaction costs for obtaining information or of insolvency, all participants have immediate access to the complete information regarding the factors and elements that can influence the current or future value of the financial instruments.

According to Fama (1998), financial structure is irrelevant as in a world such as that described; households can construct portfolios which offset the actions of an intermediary and intermediation cannot add any value. Allen and Santomero (1998) the traditional theory of financial intermediation is focused on the real-world market features of transactions costs and asymmetric information. These are central to the activity of banks and insurance companies. This theory is very useful in improving productivity of the banking institution, if adopted as a corporate philosophy. Banks can

enhance their value only if they are able to achieve optimal productivity through innovation given the flexibility and efficiency of the financial intermediaries.

2.3 Conceptual Framework

A conceptual framework is an illustrative framework that shows the relationship between the study variables. It is intended to assist in academic research so as to develop awareness and understanding of the situation under scrutiny.

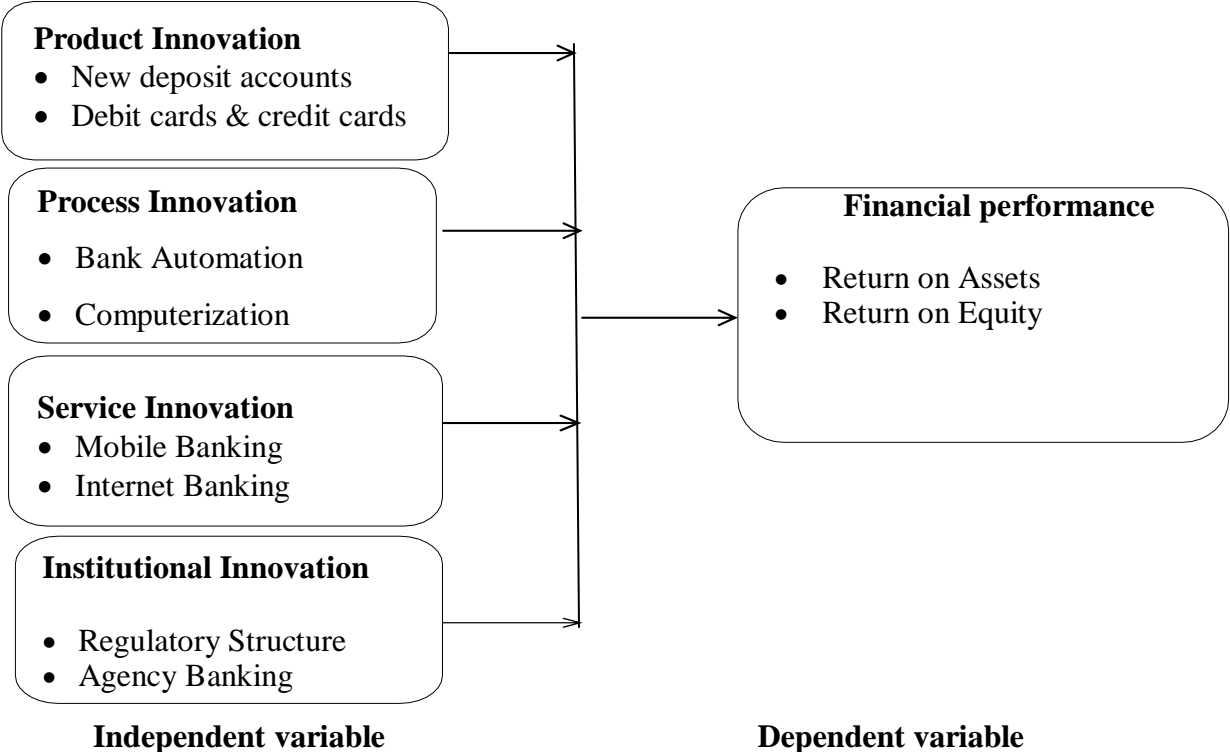


Figure 2.1: Conceptual Framework

2.4 Empirical Framework

Empirical literature review is published work obtained from periodicals and books, that deliberates on theories and offers empirical results that are pertinent to the topic of study (Zikmund et al., 2010). The study reviewed how product, process, service and institutional innovation affects financial performance of commercial banks.

2.4.1 Product innovation and financial performance

Product innovation is essential to a firm as it safeguards a firm from markets threats and competitions that are witnessed by the various organizations each trying to grab the major market share. Firms while looking into new product being introduced to the market, Bayus, Erickson and Jacobson (2010) in their study established that innovation in firm's products have positive and significant impact on organizational performance. Alegre, Lapedra and Chiva (2006) affirmed that in their study on product innovation performance in firms. It was noted that product innovations dimensions which were in terms of new products, improved products, and quality products largely and positively influenced on the organization financial performance. Other researchers also contended that innovation enhances firm performance by deliberately placing a firm in the market. As a result, innovations lead to competitive advantage and superior performance (Walker, 2004). Rosli and Sidek (2013) observed that product innovation indeed significantly influences firm performance in their study investigating innovation and firm performance in Malaysian enterprises.

Automated Teller Machines (ATMs), were introduced in early 1970s and disseminated quickly through the 1980s, this considerably increased access and the provision of services to the customers offering a 24-hours access to cash. Through 1980s and 1990s the emergence of debit cards has incredibly replaced the ATM cards and this enhanced the capability of payments being made from points of sale without necessarily visiting the banks to access cash. Also remote access of bank accounts has moved from personal computers to mobile phones where online banking has enabled bank customers to

control their accounts and facilitate payments using the “electronic bill payment”, Rakesh (2006). According to Montiel (2003) the use of prepared cards with stored value have become have become universal.

Hauner and Peiris (2005) in their study on bank efficiency and competition in low income countries carried out in Uganda cited that Automated Teller Machines, internet banking, telephone banking, and e-money have significantly influenced the performance of banks in the region. Klomp and Van Leeuwen (2001) noted that a positive relationship existed between innovation output and sales growth with no relationship existing between the growth in employment and innovation output. Bonkole et al. (2011) in the study on ICT in banking operations in Nigeria showed that different countries have a diversity in their culture. The growth of mobile banking in a country is likely to be determined by some distinctive factors exclusive to that country. The study concluded that culture is the most important aspect in influencing the way users of mobile banking behave.

Prager (2001) found that the level of ATM surcharge is negatively related to deposits market share of small banks. McAndrews (2002) in the study on effect of ATMs on banks profitability, made a conclusion that ATMs surcharges enhances the increase in the market share and profits for banks that are large in nature and reduces market share and profitability for banks that are small. However, according to (Aghion et al, 2005) in their study between product market completion and innovation found that extraordinary profits that firms enjoyed declined as innovations factors are adopted by most firms in the market.

2.4.2 Process Innovation and financial performance

The study by Mabrouk and Mamoghli (2010) on the adoption of the financial innovations of products and of process within the Tunisian banking industry during the period from 1987 to 2008 found that if process innovation is continuously adopted with the new technologies being introduced then the innovative banks will carry to earning

more profit. The bank profitability will fall as new technologies are widely adopted and by the competitor banks. Sampong (2015) in a study carried out in Ghana on process innovation in mobile and internet banking the study results showed increased revenue, reduction of operating costs and improving profitability in commercial banks (Sampong, 2015).

Nader (2011) in the study carried out on Saudi Arabia banks phone banking availability influences profits efficiency positively. On the contrary mobile banking and personal computer banking availability did not improve profit efficiency. The results indicate that mobile banking as part of process innovation enables banks to improve in its profitability and therefore banks should focus more on more on innovation. Kagan, Acharya, Rao and Kodepaka (2005) noted that internet banking adoption positively influences banks performance. Bátiz-Lazo and Woldesenbet (2006) in their investigation carried out in the United Kingdom about process and product innovation trends a distinction between the two innovation factors and it was necessary that as much there is an adoption of each type of innovation it should be noted that each innovation factor has its own characteristics and has a varied impact on banking performance.

Malhotra and Singh (2010) in the study of the impact of internet banking on bank performance and risk carried out in India found that internet banks on average are large, more profitable and operationally efficient also the banks had higher quality of assets and there was better management which enables to lower the expenses for constructions and equipment that the internet banks which majorly relies on deposits. It was further noted that smaller banks that adopt internet banking have been negatively impacted on profitability due to high cost of setting up internet banks.

2.4.3 Service Innovation and financial performance

Results of most studies showed that process innovation adopted mostly were mobile, real time gross settlement and internet banking. Gitau (2011) in his study concluded that Innovations were key to enhancing performance. Koech and Makori (2014) results of the

study showed that innovation majorly enables banks to remain competitive and effective. Factors such as process and product after being implemented leads to cost savings in banks.

Mwangi (2007) in Kenya where less than a quarter of the population has bank accounts, banks have spurred into action in the consumer market by the success of the mobile money transfer services. Mobile money transfer was first launched in Kenya by Safaricom mobile operator in 2007 through M-pesa and other mobile operators today provide similar services. In his study on the determinants of income velocity of money in Kenyan financial sector, innovations and changes are taking over the financial sector by storm. This has increased competition in the Kenyan financial services sector. The greater circulation of money means more businesses are coming up, and leads to better investment prospects as investor fell more comfortable. This innovation has brought significant changes in the country's banking and financial services landscape. The latest boost to financial services in Kenya is the partnership between mobile operators and commercial banks which, above doing away with account-opening fees and monthly charges, pays interest and offers account holders access to emergency credit facilities (King'ori, 2008).

Sullivan (2000) in his study on 10th Federal Reserve District compares banks that had transactional internet web-sites to be considerably larger and positioned in areas with more educated population with a higher population fraction in the 18 to 64 age group. This study concluded that banks offering transactional web-sites were found to have higher non-interest income and higher non-interest expenses. A study carried in the United Kingdom for a total of 12 internet banks by Jayewardene and Foley (2000) showed that Internet banking renders location and time irrelevant, and empowers customers with greater control of their accounts and efficiency gains by banks though with a few banks using internet and only few more than half a million customers being online in the United Kingdom. Simpson (2002) in the study on e-banking suggested that banks are by enlarge motivated by the foreseen forthcoming projections of operating revenues maximization and reduction in the operating costs. The comparison of online

banks between the developed and upcoming markets shows that the developed markets have lower operation cost and higher revenues as compared to the emerging markets. Lang and Nolle (2002) in their study carried out among banks that offer internet-related services noted that greater numbers of service offerings were positively related to bank size and the length of time offering internet banking.

Brazilian banks indicated that IT creates value flows that occur internally such as cost savings, product quality, and innovative service or product (Berger, 2003). Tufano (2003) observed that the web technology provided specified information based on the situation or tailored-made communication. These instances included where the customers can complain about a certain product or service in order to get their specific needs and wants using various including Frequently asked Questions page, live online help, and email, whereas the supplier responds more rapidly. Chang and Dutta (2012) in their study internet based banking has become a common practice among banks. Many banks with the adoption of internet banking have recognized that it is necessary to integrate the customers' new lifestyle and web based activity preferences in the banks business models. Internet banking has brought about extra ordinary speed in the way banking processes are carried out and therefore playing a major role in the globalization of banking organizations. With the adoption of online banking an upward trend has emerged in trading frequency, trading volume and turnover ratio.

Shirley and Sushanta (2006) carried out a study in the United States of America that consisted of sixty-eight banks on the Impact of Information Technology in the banking industry covering a period of twenty years and analyzing both the theoretical and empirical studies on how internet banking, electronic payments, security investments, and information exchanges relates to how banks expenditure can affect bank profits via competition in financial services that are offered by the banks. The study concluded that as much as Information Technology lead to saving of costs, however the higher costs of adopting IT creates network effects that leads to the reduction of bank profits. The study concluded that the expenditures of Information Technology and the bank' s financial performance is constrained to the extent of network effect.

2.4.4 Institutional Innovation and financial performance

Financial system institutional innovation involves the changes in the banks business structure, development of novel types of financial intermediaries and changes in the legal and supervisory framework (Frame & Lawrence, 2001). Salim and Sulaiman (2011) in their study concluded that organizational innovation and company performance are positively related. As much as organizational innovation led to company performance it was also concluded that innovations can be a source of competitive advantage if the firm is able to understand the competitors' actions, customer needs and technological adoption.

Lin and Chen (2007) in their study to investigate the multi-dimensional perspective and the nature and type of daily innovation practices of SMEs located in Taiwan concluded that the most important factor of innovation was the administrative factors rather than technological factors in explaining the amplified sales. Dalfard, Noruzy, Azhdari, Nazari-Shirkouhi and Rezazadeh (2013) in their study established that organizational innovation positively enhances business performance by investigating the association between transformational leadership, organizational learning, knowledge management, organizational innovation, and organizational performance among Iranian manufacturing companies. Muyoka (2014) institutional innovation increases firm performance in that firms reduces its costs of services, transaction costs, administrative costs, and labor productivity improvement in his study on Financial Innovation and performance of insurance firms in Kenya.

2.4.5 Financial Performance

Financial institutions have the responsibility to ensure that there is adequate liquidity, adeptness and the correct capitalization therefore enhancing profitability. As the credit risk increases, profitability tends to be lowered down therefore the need for appropriate credit risk management is essential for an increased profitability. Efficiency, capital

adequacy, adequate liquidity and risk management are significant factors that influence financial performance (Adhikary, 2014).

Investments on Information Technology enhanced increased quantity of deposits and (ROA) as profitability per employee as a productivity indicator and reduced the net non-performing assets ratio and staff costs as the public banks tried to adopt cost reduction and assets quality strategies to compete in the Indian bank market (Daveshnar & Ramesh, 2012). Boot and Thakur (2007) in their study pointed out that the adoption of various technologies such as the bank management technologies and client relation management are amidst the major changes in the internal banking systems with positive banking performance and profitability. Githikwa (2009) in his study concluded that banks view financial innovation as an avenue of banks to create profits. Financial innovation implementation requires that bank have so much resources in the short term period and this resources are obtained by banks reducing their operations costs to ensure that the banks meet its clients' necessities.

Crane (2011) in the study of the profitability measure showed that there are useful measures of the firms' profitability and these included; the rate of Return on the firm's assets (ROA) is used as a general index of profitability to measures the firms return against its assets, higher values of ROA indicate that firms are more profitable and perform better. On the other hand, ROE is the measurement for the owners' equity returns that organizations employ. It is important since it establishes whether a firm is making profits from their borrowings and that they are able to meet their financial obligation.

2.5 Critique of Literature Review

From reviewed relevant literature, it has come out strongly from several writers like; Muyoka (2014), Nader (2011), Chang and Dutta (2012), Tufano (2003) that innovations have positive impact on financial performance. They have agreed on the transformative impact of bank performance and operational efficiency. However other scholars like;

McAndrews (2002), Nader (2011), Prager (2001), Nadia, Anthony and Scholnick (2003) established that innovations have negative effects on performance indicators. The varied results from the different researchers and alternative views from different countries are predominantly as an outcome of lack of summarized analysis of multiple innovations and performance indicators. This study intends to take a departure from past studies and incorporate several innovations and their effect on multiple bank performance indicators. There is also concentration of innovation-performance studied on profitability and mostly in developed and emerging economies leaving a paucity of innovation performance literature for Africa and Kenya specifically. This literature gap is addressed by this comprehensive study.

2.6 Research Gap

Present study identifies the review of relevant literature in the area of bank innovations not conducted. All the literature reviewed indicates that previous researchers only concentrated on a few variables of innovations while this study covers additional important variables that were omitted by previous studies therefore this makes the study more comprehensive. This study therefore intends to fill these pertinent gaps in literature by reviewing the impact of Product innovation on financial performance where the range of products are viewed categorized into new products, improved products, quality of the products, product performance and differentiated products from and these compared against banks financial performance.

Studies carried out by the various researchers locally highlighted the variables of financial innovation ranging from product, service, process, and institutional innovation nonetheless the majority of the research carried out focused on product, process innovation, partly service and institutional innovation. The studies conducted included Kamau (2016) where the variables included mobile banking and agency banking. Gitonga (2015) variables of study included ATMs, Kenya Electronic payment settlement system, management efficiency and asset quality. Gichungu (2015) variables of study included mobile banking, ATM banking, online banking and agency banking.

Monyoncho (2015) financial innovation variables comprised of Automated Teller Machine, debit cards and credit cards, mobile banking and internet banking. Korir (2014) variables of financial innovation included RTGs, EFTs and Cheques cleared as a result of financial innovation. Mogaka (2013) variables of study included mobile banking, agency banking, ATM and plastic card usage. Makini (2010) study variables included ATM, Smart card, Telephone banking, Magnetic Ink Character Reader, Electronic data exchange and Electronic Home Banking. As such, Innovations are being adopted by the commercial banks. There is need to carry out studies on the effects of these Innovations on the commercial banks with listed banks being the specific reference point. The study gap exists as there have been no study done to examine the impact of Financial Innovations on the performance of Listed banks in Kenya.

The main aim of the study is to evaluate the following innovation variables; Product, Process, Service and Institutional innovations effect on the financial performance of commercial banks measured against its Profitability, Return on Assets and Return on Equity. Limitations of the previous studies being reviewed in this study.

2.7 Summary of the study

Diffusion Innovation Theory was important since it focuses on understanding how, why and at what rate innovative ideas and technologies spread in a social system. Instead of focusing on persuading individuals to change, it sees change as being primarily about the evolution or “reinvention” of products and behaviours so they become better fits for the needs of individuals and groups to the study. Banks are compelled to adopt to the new innovation that quickly diffuse in a social system. The degree of relative advantage is often expressed by a pot of sub dimensions (economic profitability, low initial costs, decreases in discomfort, social prestige, saving time and effort, immediacy of rewards) (Francesco, 2012).

The Technology Acceptance Model propositions that when the users are presented with a modern technology, there are factors that influence their decision making on how and

when to use the technology. This model helps to explain how product, process, service and institutional innovation in financial institutions be effective. Innovations in banking institutions must have requisite resources particularly in terms of technical expertise to enable them have the necessary technologies.

Financial Intermediation Theory was first developed with the idea of transactions costs in the context of the theory of the firm by Coase (1937). In their research Gurley and Shaw (1960) presented this as the major form of friction in the financial markets as also based on the theory of informational asymmetry and agency theory. This theory helps in improving productivity of the banking institution and appropriate corporate philosophy should result in goal congruence and channel all efforts of the management and employees towards a pre-determined goal and strategies of the banks.

In assessing the effects of financial innovation on commercial bank's financial performance in Kenya a study by (Corolyne, 2012). The findings indicated that financial innovation certainly has a positive correlation to the profitability in the banks especially the commercial banks. Ngari et al. (2014), found out from the study that some banks in Kenya had adopted various kinds of financial innovations elements such as credit cards, mobile, internet and agency banking and these innovation elements had a major impact on the financial performance of the banks. Patrick (2011) in his findings highlighted that there was a significant relationship between the adoption of various financial innovations and the profit levels of the commercial banks in Kenya. Duade et al. (2011) concluded that financial innovation significantly influenced the performance of banks employee's, banks customer's satisfaction and bank profitability improvement in a study conducted in Nigeria.

CHAPTER THREE

METHODOLOGY

3.1 Introduction

The chapter introduces the ways and measures that the study followed by conducting the research with the purpose of examining the effect of innovation on financial performance of commercial banks. This section is an overall structure, scheme or plan regarded to aid the study in answering the study research questions. Zikmund, Babin, Carr and Griffin (2010) describes a research methodology as a part that must explain technical procedures in a manner appropriate for the audience.

3.2 Research design

This study used descriptive research design. In his definition Lavrakas (2008) described a descriptive research design as method of collecting data systematically from a representative sample of individuals using instruments composed of closed-ended and/or open-ended questions, observations, and interviews. This design is widely used for non-experimental research designs across various fields of study to collect very large amounts of survey data from a sample representative and individuals sampled from the targeted population.

Descriptive research design seeks to establish factors associated with certain occurrences, outcomes, conditions or types of behavior. Mugenda and Mugenda (2003), the method appropriately enables researchers to analyze the objectives tentatively increasing the validity and reliability of the results. Various studies have employed this research design. Mogaka (2013) in the analysis aimed at informing users how innovation affects banks performance in Kenya while Monyoncho (2015) used it to in establishing the relationship between ICT and financial performance of commercial banks where the study sought to investigate the relationship between bank innovations and financial performance among commercial banks in Kenya. Gitonga (2015) used this research

design to establish the impact of the effect of financial innovation on the financial performance of commercial banks in Kenya. In view of the above definitions, descriptive research designs entail measurement, categorization, analysis, evaluation as well as data interpretation to generate information that may be used to measure the strength of the relationship between the variables exhibited because of the innovation phenomenon. The variables, which are the innovations (dependent variable), financial performance (independent variable).

This study adopted a descriptive research design because it highlights a characteristic behavior on one variable because of another variable (Kothari, 2005). This kind of design was appropriate for conducting research in human contexts because of portraying accurate current facts through data collection.

3.3 Population

Lavrakas (2008) in his defines population as any collection of individual's elements that is finite or infinite. Also Hyndman (2008) describes a population as the entire collection of 'things' in which we are interested. The definition of population according to statistics is a populace that is specific and from which information is desired. Ngechu (2004), defined population is a well-defined or set of people, services, elements, events, group of things or households that are being investigated. An element is the subject on which the measurement is being taken and is the unit of the study.

The target population included 5 conveniently selected banks out of the 11 listed banks. The banks comprised of Equity bank, Kenya commercial bank, Cooperative bank of Kenya, National Bank of Kenya and Barclays Bank of Kenya. The target population for this study was at two levels. The first target population was at the institutional level where the study target 5 listed banks in Kenya. The second level of the target population was branch managers of the banks. The main reason for choosing branch managers is because they are responsible for performance of their respective banks and have higher level of appreciation on how innovations influence financial performance. They are also

responsible for managing performance of their units through the departmental budgets and action plans (Ngumi 2014). The banks in the target population are selected because they have readily available information and have a higher level of information disclosure. These are also the banks that have invested heavily in various innovations based on information available from their annual reports

According to the Central Bank of Kenya annual supervisory report of year 2016, there were 685 branches of the five selected listed bank as indicated in the table below.

Table 3.1: Target population

S/No.	Name of the Bank	No. of Branches	Percentage
1	KCB Bank	198	28.9%
2	Equity Bank	164	23.9%
3	Cooperative Bank	142	20.7%
4	National Bank	73	10.7%
5	Barclays Bank	108	15.8%
	Total	685	100

3.4 Sampling Frame

A sampling frame is a systematic list of subjects, elements, traits, firms or objects to be studied. From the population the required number of subjects, respondents, elements, firms are selected in order to make a sample. Gill and Johnson (2002) describes a sampling frame as a list of items from which a random sample may be drawn. Mugenda and Mugenda (2003) and Kothari (2004) defined sampling frame a list that contains the names of all the elements in a universe.

Since the samples are not perfectly representative of the population from which they are drawn, the study cannot be confident that the conclusions would generalize the entire population (Shahidul and Sheikh, 2006). Ngechu (2004) emphasizes the importance of selecting a representative sample through making a sampling frame. Polit and Beck (2006) refer to a sampling frame as the technical name for the list of the elements from which the sample is chosen from. Ngechu, M. (2004), underscores the importance of selecting a representative sample through making a sampling frame.

According to Kothari (2004) a study population that exceeds 100 should be sampled. Nassiuma's (2008) formula is used to determine the size of the sample as follows.

$$n = \frac{NC^2}{C^2 + (N - 1)e^2} \dots\dots\dots\text{Equation 3.1}$$

Where

n represents sample size,

N represents study population

C represents coefficient of variation ($21\% \leq C \leq 30\%$), and

e represents error margin ($2\% \leq e \leq 5\%$).

Calculating the sample size,

$$n = \frac{685(0.21)^2}{0.21^2 + (685 - 1)0.02^2}$$

n = 94 respondents

The size of the sample (n) was 94 respondents (branch managers) from which the data was collected from.

Table 3.2: Sampling Frame

S/No.	Designation	Target Population	Sample Population	Percentage
1	KCB Bank	198	27	28.7%
2	Equity Bank	164	23	24.5%
3	Cooperative Bank	142	19	20.3%
4	National Bank	73	10	10.6%
5	Barclays Bank	108	15	15.9%
Total		685	94	100

3.5 Sampling techniques and illustrations

The study employed stratified random sampling technique to select branch managers. This was necessitated by banks having different numbers of managers in each of the selected banks. This enabled the proportionate participation of all the managers in the five banks selected. The study used simple random sampling for distribution of the questionnaires.

Koul (2008) argued that there is no hard and fast rule for deciding a sample size, he acknowledge, nevertheless, the guidelines that are suggested for determining the sample size to be selected such as the use of sample error and the level of significance statistical concepts. This technique aims at a proportionate representation of the target population with the view of accounting for different sub-groups, since the population is not uniform and operates at different management level.

3.6 Data Collection instruments

The study employed self-administered structured questionnaires as the tool for data collection. According to (Mugenda & Mugenda, 2003) a questionnaire is a research instrument consisting of a list of questions and other prompts for the purpose of gathering information from respondents. According to Kothari, (2008), the questionnaires help in collecting potential information from a large portion of a group. The use of questionnaire relatively assists in quick collecting information from the respondents and this represents and covers the study variables. The questionnaires comprised of structured questions, which are on a Likert scale of 5 points. The study used five-year period secondary ranging from (2012-2016) collected from commercial banks financial statements and the Central Bank supervisory reports being in line with the study's specific variables to achieve the objective of this study. According to Kieso, et al., (2007) having a period of five years provides a better way to determine trends. Further, other empirical studies done previously used the five-year period for financial analysis.

3.7 Pilot Test

The study carried out a pilot test to assess the validity and reliability of the questionnaires in gathering the data required for purposes of the study. Kombo and Tromp (2009) and Kothari (2004) describe a pilot test as a replica and rehearsal of the main survey. Dawson (2002) states that pilot testing assists researchers to see if the questionnaires have obtained the required results. According to Polit and Beck (2006), a pilot study or test is a small-scale version, or trial run, done in preparation for a major study. The purpose of a pilot test is not to test research hypotheses, but rather to test protocols, data collection instruments, sample recruitment strategies and other aspects of a study in preparation for a larger study.

3.7.1 Validity Test

Validity of a questionnaire refers to the extent to which it measures what it claims to measure (Mugenda & Mugenda, 2003). In other words, validity is the degree to which results obtained from the analysis of the data actually represents the phenomena under study. Content validity test was used by seeking the expert opinion of the University supervisor. The questionnaires were validated by discussing it with two randomly selected branch managers of two bank branches. Their views were evaluated and incorporated to enhance content and construct validity of the questionnaire.

3.7.2 Reliability Test

Reliability is a measure of consistency of the research instrument (King 'ori 2008). Reliability was tested by the use of six questionnaires issued to the randomly selected bank employees who were not be included in the final study sample. The sample tests for a pilot study is expected to be within the recommendation. Therefore, the selected questionnaires were entered into Statistical Package for Social Sciences [SPSS] version 24 checking for the Cronbach reliability test. The closer the Cronbach's alpha coefficient is closer to 1, the higher the internal consistency reliability of a questionnaire (Sekaran, 2003).

3.8 Data collection procedures

Primary data was collected through the administration of questionnaires to the respondents. Kothari (2004) describe primary data as those, which are collected afresh and for the first time, and thus happen to be original in character. Ember and Ember (2009) describe primary data as data collected by the investigator in various field sites explicitly for a comparative study. The entry point to the banks was be through the branch managers.

Secondary data was obtained from the Central Bank of Kenya, Kenya National Bureau of Statistics and the Banking survey reports. Dawson (2009) states that secondary

research data involves the data collected using information from studies that other researchers have made of a subject. Ember and Ember (2009) describe secondary data as data collected by others and found by the comparative researcher in ethnographies, censuses and histories.

3.9 Data processing and analysis

The collected data was subjected to the relevant data cleaning, processing and analysis respectively. A factor analysis on both the dependent and independent variable items were conducted upon which reliability analysis for the retained items were computed. Secondly, correlation coefficients between independent variables (product innovation, process innovation, service innovation and institutional innovation) and dependent variable (financial performance) elements obtained from factor analysis computed to explore possible strengths and directions of relationships. Data processing and analysis was done by the use of the Statistical Package for Social Sciences (SPSS) Version 24 software. Data analysis consisted of both descriptive statistics and inferential statistics. Descriptive statistical tools, which included means, standard deviations on the other hand, inferential statistics in form of Pearson’s correlation coefficient and multiple regression analysis. The result of the analysis was presented in form of tables. The following regression model guided in the study.

Y= β0 + β1X1+ β2X2+ β3X3+ β4X4 +εEquation 3.2

Where:

Y is Performance

β0 is Constant

X1 is Product Innovation

X2 is Process Innovation

X3 is Service Innovation

X4 is Institutional Innovation

ϵ is Error term

β_1 , β_2 , β_3 and β_4 are Regression coefficients of Independent variables.

The significance of the relationship between each of the independent variables and financial performance of was established using the f-test. The significance level being 0.05 meaning 95% confidence level. In this study coefficient of correlation (r) and coefficient of determination (r^2) was used determine the nature and magnitude of the relationship. Correlation coefficient was used to measure the degree of effect of innovation on financial performance of the commercial banks.

CHAPTER FOUR

DATA ANALYSIS AND PRESENTATION

4.1 Introduction

This chapter therefore contains details of; the response rate, sample characteristics, presentation of data analysis, interpretation and discussion of findings. Data presentation is organized based on the specific objectives of the study for the data collected from the questionnaires; whereby the researcher sorted views and opinions of the respondents and from the secondary sources.

4.1.1 Kenya's banking Sector Performance

Banks performance have grown impressively over the years. Total net assets increased from Kshs. 2.33 trillion in December 2012 to Kshs 3.7 trillion in December 2016, with the growth being supported by the increase in loans and advances. Gross loans increased from Kshs. 1,330.4 billion in December 2012 to Kshs. 2.229 trillion in December 2016. The growth in loans were attributed to increased demand for credit by the various economic sectors. Customer deposits rose from Kshs. 1.71 trillion in December 2012 to Kshs 2.62 trillion in December 2016. The growth was attributed to increased deposit mobilization by banks as they expanded their outreach supported through agency banking and mobile phone platforms.

4.2 General and Demographic Information

This section provides response rate and demographic information of the respondents that participated in the study and included gender, age, education levels of the respondents, duration of experience in the banks and the banking institution.

4.2.1 Response Rate

Primary data was collected between July and September 2018 using a questionnaire while a self-constructed data collection sheet was used to collect secondary data. The study administered 94 questionnaires to randomly selected bank senior managers from the five listed banks where 86.2% of the respondents filled and returned the questionnaires while 13.8% did not respond. Arora and Arora, (2003), stated that a questionnaire based study that produces 75% response and above, is rated as extremely well participated study. The response rate is considered adequate given the recommendations by Saunders, Lewis and Thornhill (2007) who suggest a 40% response, Sekaran (2003) documented response of 30%, Mugenda and Mugenda (2003) advise on response rates exceeding 50% and Hager, Wilson, Pollack and Rooney (2003) recommend 50%. Based on these statements, this implies that the response rate for this study was adequate for the research.

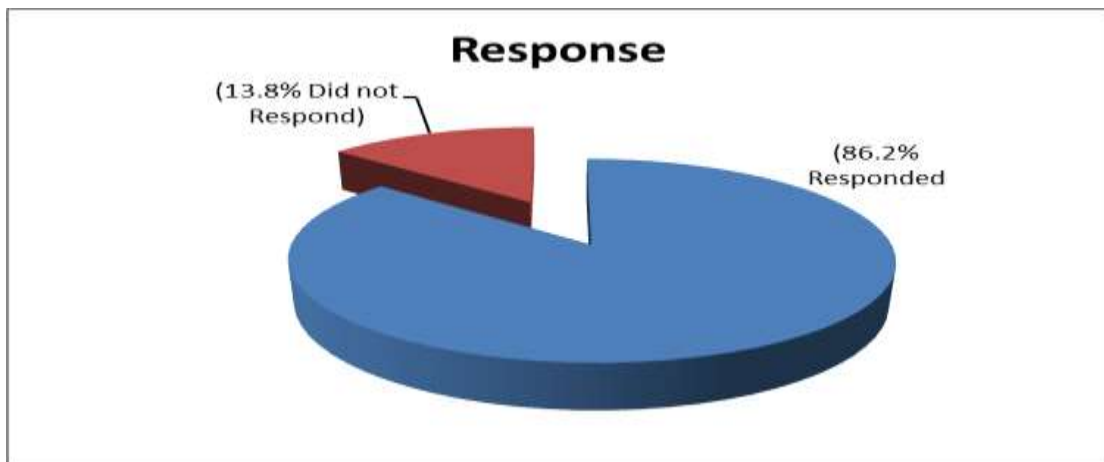


Figure 4.1: Response Rate

4.2.2 Gender of the Respondents

The study sought to establish how the sample population was distributed in terms of gender. The question sought to find out whether the genders of employees are preferred in some banks compared to others. A frequency distribution table of responses is shown

on table 4.1 below which represent the findings obtained from the respondents under the study.

Table 4.1: Gender of the Respondents

Gender	Frequency(F)	Percentage (%)
Male	51	63
Female	30	37
Total	81	100

The findings of the study indicated that 63.0% of the respondents were male while 37.0% were female. This indicates that the banks observe the two third gender rule where it gives an equal opportunity for both male and female employees when it comes to employment.

4.2.3 Level of Education

The study sought to establish how the sample population was distributed in terms of their level of education.

Table 4.2: Level of Education

Level of Educational	Frequency(F)	Percentage (%)
Diploma	6	7.4
Bachelor's Degree	48	59.3
Post Graduate Degree	13	16.0
Professional Certificate	14	17.3
Total	81	100.0

The findings of the study indicated that 7.4% of respondents had Diploma, 59.3% had Bachelor’s Degree in different fields, and 16.0% had Post Graduate Degree in different areas of specialization; while 17.3% had Professional Certificate in different areas that were not specified. This indicated that the respondents had the right knowledge on the issues under investigation and that the banks employees were well trained to handle their duties.

4.2.4 Duration of Experience

The researcher asserted that the duration of experience at the institution had helped to understand the subject of study. The purpose of this question was to find out whether the length of time in the institution influences the responses of the respondents.

Table 4.3: Duration of Experience

Duration of Experience	Frequency(F)	Percentage (%)
Less than 1 Year	7	8.6
1-5 Years	18	22.2
6-10 Years	16	19.8
More than 10 Years	40	49.4
Total	81	100.0

The study sought out to establish the years that the respondents had worked in the banking institutions, the findings of the study indicated that 8.6% of the respondents had worked in the banking institution for less than one year, 22.2% had worked in the banking institutions for 1-5 years while 19.8% had worked in the institutions for 6-10 years and 49.4% of the respondents had worked in the institutions for more than 10 years. The results show that most banks have turned themselves into employers of choice in the country by initiating several employee retention strategies and hence more respondents had worked for the banking sector for more than ten years.

4.2.5 Banking institutions

The study had sought to establish the banking institutions that the respondents worked for to understand which respondent shows more.

Table 4.4: Banking institutions

Banking institutions	Frequency(F)	Percentage (%)
KCB	24	29.6
Equity Bank	20	24.7
Co-Operative Bank	16	19.8
National Bank	9	11.1
Barclays Bank	12	14.8
Total	81	100

The finding of the study indicated that 29.6% worked for Kenya Commercial Bank, 24.7% for the Equity Bank, 19.8 % for Co-operative bank, 11.1% for National Bank of Kenya and 14.8% for Barclays Bank of Kenya. The nature of the study generated more interest from KCB, Equity and Co-operative Bank as they are the bank with more branches set up within the country.

4.3 Descriptive Statistics

The study requested respondents to give their opinion in regards to the effect of product, process, service and institutional innovation on performance of banks. The findings of the study were analyzed in order of the specific objectives. Frequencies and descriptive

statistics are presented first followed by inferential statistics. The questionnaire responses were based on a Likert scale which was coded with numerical values for ease of data analysis.

Descriptive statistics enables the meaningful description of a distribution of scores or measurements using a few indices or statistics. Mean values informed the researcher on the expected score or measure from a group of scores in a study. Standard deviations informed the analyst about the distribution of scores around the mean of the distribution. The frequency distribution and percentages recorded the number of times a score occurs and the extent of occurrence of a particular observation respectively, Babbie (2007).

4.3.1 The Effect of Product Innovation on Financial Performance

In this part, the study had sought to establish the effect of product innovation on financial performance. The respondents were asked to indicate their level of agreement on the effect of product innovation on the financial performance. The findings were as indicated in Table:

Table 4.5: The Effect of Product Innovation on Financial Performance

Product Innovation Factors	SA&A	Neutral	SD&D	Mean	STDV
	%	%	%		
Banks develop new deposit accounts quite regularly.	50.6	19.8	29.6	3.27	1.323
Debit & credit cards have attracted more retail depositors for the bank	49.4	23.5	27.1	3.33	1.323
ATMs have enabled customers to access their deposits with ease	45.7	16.0	38.5	3.11	1.332
Banks investment in differentiated products is motivated by high returns	51.9	19.8	28.3	3.33	1.351

According to the findings 50.6%, 19.8% and 29.6% of the respondents agreed or strongly agreed, neutral and strongly disagreed or disagreed respectively that the banks develop new deposit accounts quite regularly with a mean of 3.27 and standard deviation of 1.323. The study sought to establish whether debit & credit cards have attracted more retail depositors for the bank, the findings indicated that 49.4%, 23.5% and 27.1% of the respondents agreed or strongly agreed, neutral and strongly disagreed or disagreed respectively with a mean of 3.33 and a standard deviation of 1.323. The findings of the study also indicated that, 45.7%, 16.0% and 38.5% of the respondents agreed or strongly agreed, neutral and strongly disagreed or disagreed respectively that ATMs have enabled customers to access their deposits with ease with a mean of 3.11 and a standard deviation of 1.332.

Further the findings also indicated that 51.9%, 19.8% and 28.3% of the respondents agreed or strongly agreed, neutral and strongly disagreed or disagreed respectively that banks investment in differentiated products is motivated by high returns. The response indicated a mean of 3.33 and a standard deviation of 1.351.

The highest and lowest mean between 3.11 and 3.33 confirms that different product innovation factors had an influence on the financial performance of listed banks in Kenya. On the other hand, a standard deviation of between 1.323 and 1.351 indicated that the responses on the various factors of product innovation were varied and that different respondents had varied opinion on these factors of product innovation. The results of the study were in line Walker (2008) noted that specific product improvements in a firm enhance firm growth. Rosli and Sidek (2013) observed that product innovation indeed significantly influences firm performance.

4.3.2 The Effect of Process Innovation on Financial Performance

The respondents were asked to indicate their level of agreement on the effect process innovation on financial performance. The findings were as indicated in Table.

Table 4.6: The Effect of Process Innovation on Financial Performance

Process Innovation Factors	SA&A	Neutral	SD&D	Mean	STDV
	%	%	%		
Banks have automated their processes to enhance operations	61.7	16.0	22.3	3.22	1.332
Banks process automation have an impact on the reduction of operational costs	53.1	14.8	32.1	3.32	1.302
Computerization in banks has led to reduction of fraud in banks	61.7	13.6	24.7	3.53	1.266
Bank automation has enabled increased income generating potential of a bank	54.3	18.5	27.2	3.41	1.233

According to the findings 61.7%, 16.0% and 22.3% of the respondents agreed or strongly agreed, neutral and strongly disagreed or disagreed respectively to establish whether banks have automated their processes to enhance operations with a mean of 3.22 and standard deviation of 1.332. The study sought to establish whether banks process automation have an impact on the reduction of operational costs, the findings indicated that 53.1%, 14.8% and 32.1% of the respondents agreed or strongly agreed, neutral and strongly disagreed or disagreed respectively with a mean of 3.32 and a standard deviation of 1.302.

The findings of the study also indicated that, 61.7% ,18.5% and 24.7% of the respondents agreed or strongly agreed, neutral and strongly disagreed or disagreed respectively that computerization in banks has led to reduction of fraud in banks with a mean of 3.53 and a standard deviation of 1.266. Further the findings also indicated that 54.3%, 19.8% and 28.3% of the respondents agreed or strongly agreed, neutral and strongly disagreed or

disagreed respectively that bank automation has enabled increased income generating potential of a bank and increases banks savings. The response indicated a mean of 3.41 and a standard deviation of 1.233.

The mean of between 3.22 and 3.41 indicated that different process innovation factors had an influence on the financial performance of listed banks in Kenya. On the other hand, a standard deviation of between 1.233 and 1.332 implies that the responses on the various process innovation factors were varied and that different respondents had varied opinion on these factors.

Sampong (2015) in his study discovered that most of the innovations have a positive effect on the revenue creating potentials of the banks which also improves efficiency, liquidity and profitability of the banks. In the study E-zwich as an innovation factor in the financial sector had no direct effect on financial performance of the universal banks in Ghana. The study recommended that corporate banks must make ensure that a policy to establish an efficient and effective marketing department to oversee the publicity of all bank innovative products. Wang and Wei (2005) established that there was an increase in customer satisfaction and an improvement in the market share as a result of process innovations by the firm. The relationship between financial engineering and performance of commercial banks in Kenya was examined (Kariuki, 2010) the findings indicated that commercial banks had adopted various financial engineering strategies among them process innovation.

The findings of the study by Mabrouk and Mamoghli (2010), if process innovation is continued and new technologies are introduced then innovative banks continue to earn high profits. Nader (2011) the availability of phone banking positively influence profit efficiency. This was observed when the study analyzed the effect of banking expansion on profit efficiency of Saudi banks.

4.3.3 The Effect of Service Innovation on Financial Performance

The study had sought to establish the effect of service innovation on financial performance and the response of findings were as indicated in Table below.

Table 4.7: The Effect of Service Innovation on Financial Performance

Service Innovation Factors	SA&A	Neutral	SD&D	Mean	STDV
	%	%	%		
Banks offer mobile banking services to meet customers demand	49.4	22.2	28.4	3.35	1.266
Banks offer internet banking service to meet the demands of the wide customer base	48.2	14.8	37.0	3.20	1.327
Banks offer high quality of its mobile and internet banking services attracts customers	47.0	18.5	34.5	3.16	1.373
Mobile banking and internet banking has increased income generating potential of the banks	48.2	18.5	33.3	3.16	1.346

According to the findings 49.4%, 22.2% and 28.4% of the respondents agreed or strongly agreed, neutral and strongly disagreed or disagreed respectively to establish whether banks offer mobile banking services to meet customers demand, with a mean of 3.35 and standard deviation of 1.266. The study sought to establish whether banks offer internet banking service to meet the demands of the wide customer base the findings indicated that 48.2%, 14.8% and 37% of the respondents agreed or strongly agreed, neutral and strongly disagreed or disagreed respectively with a mean of 3.2 and a standard deviation of 1.327.

The findings of the study also indicated that, 47% ,18.5%and 34.5% of the respondents agreed or strongly agreed, neutral and strongly disagreed or disagreed respectively that banks offer high quality of its mobile and internet banking services attracts customers with a mean of 3.16 and a standard deviation of 1.373. Further the findings also indicated that 48.2%, 18.5% and 33.3% of the respondents agreed or strongly agreed, neutral and strongly disagreed or disagreed respectively that mobile banking and internet banking has increased income generating potential of the banks. The response indicated a mean of 3.16 and a standard deviation of 1.346.

The highest mean of 3.35 and lowest of 3.16 confirms that different service innovation factors had an influence on the financial performance of listed banks in Kenya. Notably also, was a standard deviation of between 1.266 and 1.373 that indicated that the responses on the various factors of Service Innovation were varied and that different respondents had varied opinion on these service innovation factors.

The findings corroborated with Porteus (2006) on mobile banking and bank profitability, affirms that in Uganda mobile banking has increased access to banking services and subsequently income and profits for the banks. In Kenya, Ndung'u (2011) concurs that mobile banking has revolutionized the money transfer business and has created further innovations that have lowered the transaction costs for both the banks and customers. The findings on EFT and bank profitability, by Sana, Mohammad, Hassan and Momina (2011) in a study conducted in Pakistan found that electronic funds transfer reduced costs, saved time, improved accuracy, improved reliability and quality of services and eventually led to improved profitability for the banks. The findings reveal that improvement in service quality is important to banks to enhance their profits.

4.3.4 The Effect of Institutional Innovation on Financial Performance

The study had sought to establish the effect of institutional on financial performance and the response was as shown

Table 4.8: The Effect of Institutional Innovation on Financial Performance

Institutional Factors	Innovation	SA&A %	Neutral %	SD&D %	Mean	STDV
Bank linkages have improved business structure with technological advancement		49.4	23.5	27.1	3.30	1.259
Banks agency services has increased growth, competition, productivity and profits		54.4	19.8	25.8	3.40	1.232
Banks business structure and agency services have increased banks operations and customer base		58.0	22.2	19.8	3.59	1.233
Bank linkages and agency services have increased income generating potential of the banks		52.5	17.3	30.2	3.26	1.310

According to the findings 49.4%, 23.5% and 27.1% of the respondents agreed or strongly agreed, neutral and strongly disagreed or disagreed respectively to establish whether bank linkages have improved business structure with technological advancement, with a mean of 3.30 and standard deviation of 1.259. The study sought to establish whether that banks agency services has increased growth, competition, productivity and profits the findings indicated that 54.4%, 19.8% and 25.8% of the respondents agreed or strongly agreed, neutral and strongly disagreed or disagreed respectively with a mean of 3.4 and a standard deviation of 1.232.

The findings of the study also indicated that, 58% , 22.2% and 19.8% of the respondents agreed or strongly agreed, neutral and strongly disagreed or disagreed respectively that banks business structure and agency services have increased banks operations and customer base with a mean of 3.59 and a standard deviation of 1.233. Further the findings also indicated that 52.5%, 17.3% and 30.2% of the respondents agreed or strongly agreed, neutral and strongly disagreed or disagreed respectively that the bank linkages and agency services have increased income generating potential of the banks. The response indicated a mean of 3.26 and a standard deviation of 1.310.

The mean scores of between 3.30 and 3.59 indicated that different institutional innovation factors had an influence on the financial performance of listed banks in Kenya although respondents' agreed that the banks act in accordance to its supervisory framework that ensures that all innovation in use are allowed and operationalized. The study also observed a standard deviation of between 1.232 and 1.310 indicated that the responses on the various Institution Innovation factors were varied and that different respondents felt very different on the various Institution Innovation factors.

The study findings agreed with the studies by: Frame & Lawrence (2001) Institutional innovations in financial system entail the changes in the business structure, establishment of new types of financial intermediaries and changes in legal and supervisory framework. Muyoka (2014) investigated the relationship between financial innovation and performance of insurance firms in Kenya. In the study, it was noted that institutional innovations increase firm performance by considerably reducing administrative and transaction costs, reducing costs of service and improving labor productivity. Boachie-Mensahand (2015) noted that innovation in general accounts for over fifty percent of the variation in firm performance they observed that to further enhance firm performance management ought to focus on the firm activities aligned towards renewing routines, procedures and processes in an innovative manner in a firm.

4.3.5 Financial Performance

The performance of the banking Institutions depends on innovation factors. The more the innovation factors are improved the more the banking Institutions that are listed in the NSE are able to achieve high levels of performance. The following table shows the performance indicator factors that can be realized because of improved innovation.

Table 4.9: Financial Performance

Financial Performance	SA&A	Neutral	SD&D	Mean	STDV
	%	%	%		
Income from new product innovations contribute positively to bank annual profitability	48.2	23.5	28.3	3.30	1.289
Bank automated processes have low maintenance costs leading to high levels of profitability over their economic lifetime	51.9	25.9	22.2	3.43	1.161
Bank investment in service innovation is mostly motivated by profits to the bank	59.3	14.8	25.9	3.48	1.266
Banks institutional innovation have enabled ease of operation and increased profitability	51.9	23.5	24.6	3.46	1.194

According to the findings 48.2%, 23.5% and 28.3% of the respondents agreed or strongly agreed, neutral and strongly disagreed or disagreed respectively to establish whether Income from new product innovations contribute positively to bank annual profitability, with a mean of 3.30 and standard deviation of 1.289. The study sought to

establish whether the bank automated processes have low maintenance costs leading to high levels of profitability over their economic lifetime. The findings indicated that 51.9%, 25.9% and 22.2% of the respondents agreed or strongly agreed, neutral and strongly disagreed or disagreed respectively with a mean of 3.43 and a standard deviation of 1.161.

The findings of the study also indicated that, 59.3% ,14.8% and 25.9% of the respondents agreed or strongly agreed, neutral and strongly disagreed or disagreed respectively that bank investment in service innovation is mostly motivated by profits to the bank with a mean of 3.48 and a standard deviation of 1.266. Further the findings also indicated that 51.9%, 23.5% and 24.6% of the respondents agreed or strongly agreed, neutral and strongly disagreed or disagreed respectively that the banks institutional innovation have enabled ease of operation and increased profitability. The response indicated a mean of 3.46 and a standard deviation of 1.194

On the various performance factors observed by the study, the mean scores of between 3.30 and 3.48 indicated that various financial performance factors of listed banks in Kenya were significantly influenced by the innovation factors of product, process, service and institution. On the other hand, the study also observed a standard deviation of between 1.161 and 1.289 that indicated that the responses on the various financial performance factors were varied and that different respondents felt very different on the various aspect of performance.

Daveshnar and Ramesh (2012) carried out a study on a panel of two public banks for the period 1998 to 2009 to examine the impact of IT investments on profitability and productivity of Indian public sector banks. The results indicated that investments on financial innovation contributed to increased amount of deposits and return on assets (ROA) as profitability per employee as productivity indicator and reduces the net non-performing assets ratio and staff costs. The findings of the study are also in line with study by Hasan, Schmiedel and Song (2010) which analyzed the performance of multi-channel commercial banks vis à vis traditional banks in Italy.

Innovations seems to influence positively bank performance, measured in terms of ROA and ROE. Githikwa (2009) carried out a study on the relationship between financial innovation and profitability of commercial banks in Kenya. The findings concluded that banks conceptualized financial innovation as a means to create impact in the profit performance. The authors conclude that the adoption of the innovation in service delivery channel gradually reduces overhead expenses. This cost reduction boosts the performance of banks about one year and a half after the adoption in terms of ROA, and after three years in terms of ROE. DeYoung (2005), in his study proves that the financial innovations have been used a complement than being a substitute for physical branches therefore this presents the dominance of a multi-channel banking model.

4.4 Inferential Statistics

4.4.1 Bivariate Linear Correlation Analysis

Pearson correlation coefficient also referred to as Pearson's r , the Pearson product-moment correlation coefficient (PPMCC) or the bivariate correlation, is a measure of the linear correlation between two variables X and Y . It has a value between $+1$ and -1 , where 1 is total positive linear correlation, 0 is no linear correlation, and -1 is total negative linear correlation (Schmid, 2007). This part of the study contains the analysis to establish whether each of the independent variable: product innovation (X_1), process innovation (X_2), service innovation (X_3), and institutional innovation (X_4), influence the Dependent Variable: financial performance of listed banks in Kenya under investigation. The findings for each variable is given by Pearson (r) and its corresponding p-value is less 0.05 at 95% confidence level, the study concludes that there is a significant relationship between the variables. The Table 4.10 below shows the analysis.

Table 4.10: Bivariate Linear Correlation Analysis: Effect of innovation on financial performance of listed banks in Kenya

			Y	X1	X2	X3	X4
Financial performance (Y)	Sig. (2-tailed)	-	-				
	N	81					
Product Innovation (X1)	Pearson Correlation	.607**	1				
	Sig. (2-tailed)	.000	-				
	N	81	81				
Process Innovation (X2)	Pearson Correlation	.573**	.546**	1			
	Sig. (2-tailed)	.000	.000	-			
	N	81	81	81			
Service Innovation (X3)	Pearson Correlation	.456**	.582**	.710**	1		
	Sig. (2-tailed)	.000	.000	.000	-		
	N	81	81	81	81		
Institutional Innovation (X4)	Pearson Correlation	.553**	.494**	.573**	.483**	1	
	Sig. (2-tailed)	.000	.000	.000	.000	-	
	N	81	81	81	81	81	81

According to the findings, there is a significance influence of product innovation (X1) on financial performance (Y) of listed banks in Kenya. This is shown by correlation ($r=.607$) and P value ($P < .000$). The study established that there is a significant association between process innovation (X2) factors on financial performance of listed banks in Kenya. This is as indicated by coefficient correlation ($r=.573$) and P-value ($P < .000$). Further, the study shows that service innovation factors (X3) has a significance influence on financial performance of listed banks in Kenya with correlation of ($r=.456$) and P-vale of ($P < 0.000$). Finally, the study shows that institutional innovation factors

(X4) has a significance influence on financial performance of listed banks in Kenya. This is as shown by correlation of ($r=.553$) and P-value ($P < 0.000$). This shows that financial performance of listed banks in Kenya can be improved if the process Institutional Innovation factor is improved.

4.4.2 Regression Coefficient Analysis

Table 4.11: Coefficient results of the Model

Model 1	Coefficients ^a			t	Sig.
	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta		
(Constant)	.523	.333		1.571	.118
Product Innovation	.291	.086	.297	3.394	.001
Process Innovation	.200	.073	.200	2.735	.007
Service Innovation	.213	.069	.234	3.072	.002
Institutional Innovation	.351	.058	.385	6.000	.000

Dependent Variable: financial performance

Predictors: (Constant), Innovation factors

The regression test results presented in the table indicate that, all the coefficients are positive and are also significant as given by their p-values (sig. values) which are all less than 0.025 testing at 5% level with a 2-tailed test. Thus, with these values being less than the critical value at 5% level, the coefficients are statistically significant and explain significant influence of the independent variables to the financial performance of the banks. These coefficients therefore are used to answer the following regression model which relates the predictor variables (independent variables) and the dependent variables;

The interpretations of the findings indicated the following regression model:

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

Therefore;

$$Y = 0.523 + 0.291 X_1 + 0.200 X_2 + 0.213 X_3 + 0.351 X_4$$

The Beta coefficients indicate the extent to which bank financial performance changes due to a unit change in the independent variable. The positive Beta coefficients indicate that a unit change in the innovation factors leads to a positive change in financial performance. Thus, the model indicates that, holding the predictor variables constant, the financial performance of commercial banks would be 0.523. This explains that, without the influence of the innovation factors, the Financial performance value of the banks would be 0.523. Also, the model shows that, a unit increase in product innovation transfer would result to 0.291 times increase in the bank's financial performance. Thus the two variables are positively related with a magnitude of 0.291 explaining the extent of influence to the dependent variable. Also, it is clear that a unit change (increase/ decrease) in the value of process innovation lead to a 0.200 times direct changes in the banks' financial performance. This indicates that, process innovation and the financial performance off the banks are positively related where increasing process innovation gave a corresponding increase of 0.200 times to the financial performance and vice versa.

Further, the model indicates that, the coefficient of service innovation and the financial performance of the commercial banks is 0.213. This reveals that, given a unit increase in the service innovation, the financial performance of the commercial banks was affected by 0.213 times increase consequently. Thus, the two variables are positively related and a unit change in service innovation resulted to 0.213 times changes in the same direction to the financial performance of the commercial banks. Findings from the model shows that, a unit increase in institutional innovation transfer would result to

0.351 times increase in the bank’s financial performance. Thus, the two variables are positively related and a unit change in service innovation resulting to 0.351 times changes in the same direction to the financial performance of the commercial banks.

Out of the four factors investigated, Product innovation and Institutional innovation were the most important since to generate one unit of financial performance, 0.291 units of product innovation and 0.351 units of institutional innovation must be increased. Therefore, listed banks in Kenya should focus more on product innovation and institutional innovation.

4.4.3 Banks innovation and financial performance (secondary data)

To elaborate the findings from the primary data, secondary data on innovations in banks and financial performance was collected for the period 2012 to 2016. The collected data was for the entire commercial banking sector. The individual bank innovations revealed high multicollinearity and a composite variable was computed to represent the bank innovations (Ngumi 2014).

Table 4.12: Effects of Innovation on ROE of banks listed in Kenya

Variable	Performance
ROE	
Pearson Correlation	.194**
Sig. (2-tailed)	.546
N	12

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

Table 4.12 shows the results of bank innovations on financial performance indicate that the combined effect of bank innovations can be explained by correlation ($r=.194$) and significance at (0.546). These findings reveal a statistically significant influence of bank innovations on the return on equity his indicates that innovation significantly affects

financial performance of banks in Kenya and hence agrees with the correlation results from the primary data which were derived from the questionnaire responses.

Table 4.13: Effects of Innovation on ROA of banks listed in Kenya

Variable		Performance
ROA	Pearson Correlation	.134**
	Sig. (2-tailed)	.678
	N	12

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

Table 4.13 shows the results of bank innovations on financial performance indicate that the combined effect of bank innovations can be explained by correlation ($r=.134$) and significance at (0.678). These findings reveal a statistically significant influence of bank innovations on the return on equity his indicates that innovation significantly affects financial performance of banks in Kenya and hence agrees with the correlation results from the primary data which were derived from questionnaire responses.

4.4.4 Model Estimation

Table 4.14: Effect of innovation on financial performance of listed banks in Kenya

Model Summary

Model 1	R	R Square	Adjusted Square	R Std. Error of the Estimate
	.821 ^a	.674	.670	0.77148

- a. Predictors: (Constant) Product innovation, process innovation, service innovation, institutional innovation

The findings shown in Table 4.14 indicate the extent of variations on the financial performance which are explained by the independent variables. The R square value is 0.674. This means that the independent variables explain 67.4% of the variations in dependent variable. The rest 32.6% are explained by other factors that have not been included in the regression model under investigation. This means that the model used was appropriate and the relationship of the variables shown could not have occurred by chance. The results indicate a strong and positive association between the dependent variable (financial performance) and the independent variables (product, process, service and institutional innovation).

4.4.5 Analysis of Variance

Table 4.15: Effect of innovation on financial performance of listed banks in Kenya: ANOVA

Model 1	Sum of Squares	df	Mean Square	F	Sig.
Regression	185.741	7	26.534	22.016	.000 ^b
Residual	376.034	312	1.205		
Total	561.775	319			

ANOVA was used to test the effects of innovation on financial performance of listed banks in Kenya. The table 4.16 above shows a regression output of the innovation (product, process, service and institutional innovation) factors as valid ($F(7, 312) = 22.016, P < 0.000$). This means that the innovation factors can be used as predictors explaining the variation in financial performance of listed banks in Kenya. The $P < 0.000$ which is less than the critical value of 0.05. This therefore reveals that the regression model developed has statistical significance and the variation in the results is insignificant that cannot result to a much difference in case of a change in the study units (population) and therefore the model can be relied upon to explain the effect of innovation on performance of banks.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This study examined the effect of innovation on financial performance of listed banks in Kenya. Innovation factors that were studied included; product, process, service and institutional. Indicators of financial performance included return on assets and return on equity. This chapter summarizes the findings obtained from respondents and makes conclusions and recommendations of the study. The study had four objectives upon which conclusions and recommendations were drawn. As a way of filling the research gaps identified, suggestions for further study are also made.

5.2 Summary of Findings

The study findings are summarized and presented in this section. The summary captures both the descriptive and inferential findings.

5.2.1 Product innovation on financial performance of listed banks in Kenya

The first objective of the study was to establish the effect of product innovation on financial performance of listed banks in Kenya. The findings revealed that product innovation has a positive influence on the financial performance of listed banks in Kenya. Regarding the effect of product innovation on financial performance, it emerged from the results that banks develop new products quite regularly. The findings revealed that product innovations have a positive effect on the financial performance of banks in Kenya. The effect is also statistically significant. Banks in Kenya have been using product innovations to curb competition and enhance their performance. Some innovations are at early stages and may not be easily accepted by customers and have much influence on performance.

5.2.2 Process innovation on financial performance of listed banks in Kenya

The second objective of the study was to establish the effect of process innovation on financial performance of listed banks in Kenya. The findings revealed that process innovation have a positive influence on the financial performance of listed banks in Kenya.

The outcome of process innovation on financial performance showed that banks have a well-articulated automated processes and design which reduces operational costs and increases banks savings. In addition, banks also have enacted changes in provision of services and have adopted cost effective operations. Process innovations result to general increase in customer satisfaction and enhance performance. As the innovations becomes widely adopted by competitor banks this may have negative results on profitability.

5.2.3 Service innovation affect financial performance of listed banks in Kenya

The third objective of the study was to establish the effect of service innovation on financial performance of listed banks in Kenya. The findings revealed that service innovation have a positive influence on the financial performance of listed banks in Kenya. The result of service innovation on financial performance indicated that banks offer high level of service automation and high quality of service to attract more customers and meet their demands. Well-enhanced service quality also reduces the operational costs and increases the banks profit. In addition, banks regularly update their existing services to enhance service performance and increase efficiency. Customer are more drawn to banks that have effective and efficient service delivery.

5.2.4 Institutional innovation affects financial performance of listed banks in Kenya

The fourth objective of the study was to establish the effect of institutional innovation on financial performance of listed banks in Kenya. The findings revealed that institutional innovation have a positive influence on the financial performance of listed banks in

Kenya. According to the findings banks have a clear business structure that enhances performance; Banks have also adopted advanced technologies for growth, competition, increased productivity and profits and are also guided with a clear legal framework to mitigate against consequences of innovation malpractices. The study further established that banks have collaborated with various financial intermediaries to improve performance. It can therefore be suggested that banks act in accordance to its supervisory framework that ensures that all innovation in use are allowed and operationalized.

5.3 Conclusion

Based on the findings, the researcher concluded that bank innovations positively influence financial performance of banks in Kenya. The bank also has a supervisory framework that monitors it. Banks in Kenya have continued to perform well even when other sectors of the economy show lagged behind. This is due to use of innovations which have enabled banks to start making profits from different services and products like mobile phones, internet, among others. It was also concluded that innovations can be a source of competitive advantage if a banks understands customer needs, competitors' actions and technological development and act accordingly to stay at par with rivals.

In relation to product performance, banks offer highly differentiated products. Product innovations indicators in terms of new, improved and quality products largely and positively influence bank performance. Innovation boosts bank performance by strategically placing a bank in a competitive market. On process innovation, it can be concluded that the delivery process in banks are up to date with automation in most service delivery. Process innovation also enhance speed and quality result to flexibility and cost efficiency. Institutional innovation positively enhances bank performance through transformational leadership, knowledge management, organizational learning and banks performance.

5.4 Recommendation

There is need for the listed banks in Kenya to improve their product innovation so that they are able to achieve high levels of financial performance. They should consider how they can continue developing new products that are able to meet the customers' needs and that the products are as competitive as possible. As technology improves in many sectors the banking institutions should also develop products that respond towards the present technological needs.

There is also need for improved process through innovation if the listed banks in Kenya are going to improve their financial performance. The process needs not only to be effective but also efficient in order for the organizations to achieve the set out goals and objectives in terms of performance. On the other hand, the commercial banks need to ensure that they innovate ways that can reduce the process time of various services that are offered by the banking institutions.

The banking institutions should understand that the service innovation affect financial performance of listed banks strive to offer high level of service automation through continuous innovation in order to meet customers demand, the banks should offer high quality services to attract customers to their products. The banks institutions should also enhance service quality to reduces the operational costs and increases the profit. There is also need for the listed banks in Kenya to regularly update their existing services enhance the service performance and increases efficiency.

Finally, yet importantly, the banks should have a clear business structure that can enhance performance, the banks have adopted enhanced technologies for growth, competition, increased productivity and profits and that the banks act in accordance to its supervisory framework that ensures that all innovation in use are allowed and operationalized. There is also need for the banks legal framework to be able to mitigate against consequences of innovation malpractices and partner with various financial

intermediaries that include communication service providers such as Safaricom, Airtel and Telecom to improve performance.

5.5 Suggestions for Further Studies

There is need for a study on the cost associated with innovation in the commercial banking institutions that are listed in the NSE. There is also need for a study to identify customers' satisfaction factors that can be improved through process and product innovation by banks that are listed in the NSE.

Studies should be carried out on banking sector in Kenya however this should consist of various commercial banks which differ in their way of management and those that have different settings all together. This warrants the need for other studies which would ensure generalization of the findings for all the commercial banks in Kenya and hence pave way for new policy adoption.

Other Studies should be carried out to find out the hindrances faced by commercial banks when executing the financial innovation policies. Lastly, the study recommends that a similar study should also be carried out within the context of non-financial organizations other than banking industry for comparative purpose.

REFERENCES

- Adams, D. A., Nelson, R. R., & Todd, P. A. (1992). Perceived usefulness, ease of use, and usage of information technology: A replication. *MIS quarterly*, 227-247.
- Oni, A. A., & Ayo, C. K. (2010). An empirical investigation of the level of users' acceptance of e-banking in Nigeria. *Journal of internet banking and commerce*, 15(1), 1-13.
- Addai, B., & Pu, C. (2015). The impact of delinquent loans on performance of banks in Ghana. *British Journal of Economics, Management & Trade*, 9(2), 1-8.
- Adhikary, S. (2014). *Performance of microfinance institutions and outreach to the poor in South Asia*. Unpublished PhD Thesis. Thessaloniki, Greece: Aristotle University of Thessaloniki.
- Agboola, A. A., Nassar, M. L., & Ilori, M. O. (2006). Information and Communication Technology (ICT) in Banking Operations in Nigeria. *Journal of Business and Economics*, 2, 43, 62.
- Aghion, P., Bloom, N., Blundell, R., Griffith, R., & Howitt, P. (2005). Competition and innovation: An inverted-U relationship. *Quarterly Journal of Economics*, 120, 701-728
- Ajzen, I., & Fishbein, M. (2004). Questions raised by a reasoned action approach: Comment on Ogden (2003). *Health Psychology*, 23(4), 431-434.
- Alegre, J., Lapiedra, R., & Chiva, R. (2006). A measurement scale for product innovation performance. *European Journal of Innovation Management*, 9(4), 333-346.
- Allen, F., & Santomero, A. M. (2001). What do financial intermediaries do?. *Journal of Banking & Finance*, 25(2), 271-294.

- Arora, A., & Fosfuri, A. (2003). Licensing the market for technology. *Journal of Economic Behavior & Organization*, 52(2), 277-295.
- Ayo, C. K., Adebisi, A. A., Afolabi, I. T., & Ekong, U. O. (2008). A framework for e-commerce implementation: Nigeria a case study. *Journal of Internet Banking and Commerce*, 13(2), 1-12.
- Bagozzi, R. P., Davis, F. D., & Warshaw, P. R. (1992). Development and test of a theory of technological learning and usage. *Human relations*, 45(7), 659-686.
- Bátiz-Lazo, B., & Woldesenbet, K. (2006). The dynamics of product and process innovations in UK banking. *International Journal of Financial Services Management*, 1(4), 400-421.
- Bayus, B. L., Erickson, G., & Jacobson, R. (2003). Financial rewards of new product introductions. *Management Science*, 49(2), 197-210.
- Berger, A. N. (2003). The economic effects of technological progress: Evidence from the banking industry. *Journal of Money, credit and Banking*, 141-176.
- Berlyne, D.E. (1962). Uncertainty and epistemic curiosity. *British Journal of Psychology*, 53, 27-34.
- Boachie-Mensah, F., & Acquah, I.S.K. (2015). The effects of innovation types on the performance of small and medium-sized enterprises in the Sekondi-Takoradi metropolis. *Archives of Business Research*, 3(3), 77-98.
- Boot, A. W., & Thakor, A. V. (2009). The accelerating integration of banks and markets and its implications for regulation. *The Oxford handbook of banking*, 58-90.
- Brancheau, J., & Wetherbe, J. (1990). The adoption of spreadsheet software: testing innovation diffusion theory in the context of end-user computing. *Information Systems Research*, 1 (2), 115-143.

- CBK. (2016). Central Bank of Kenya. Quarterly report on Development in the Kenyan Banking Sector for the period ended 30th December 2016. Retrieved from: <https://www.centrabank.go.ke/>
- Chiemeke, S. C., Ewwiekpaefe, A. E., & Chete, F. O. (2006). The adoption of IB in Nigeria: An empirical investigation. *Journal of IB and Commerce* 11(3), 243-265.
- Chang, B., & Dutta, S. (2012). *Internet banking and online trading. E-government service maturity and development: cultural, organizational and technological perspectives*. Information Science Reference-Imprint of: IGI Publishing.
- Coase, R. H. (1937). The nature of the firm. *economica*, 4(16), 386-405.
- Cooper, D.R., & Schindler, P.S. (2011). *Business Research Methods*, (11th, edition). New Delhi-India: McGraw-Hill Publishing, Co. Ltd.
- Corolyne, N., (2012). *Financial Innovation and its effects on financial performance on the commercial banks in Kenya*, Unpublished MBA Project, Nairobi: University of Nairobi.
- Creswell, J. W. (2003). *Research Design: Qualitative, Quantitative and Mixed Methods and Approaches* (2nd ed.). Thousand Oaks, CA: Sage.
- Dary, S.K., & Issahaku, H. (2013). Exploring innovations in microfinance institutions in Northern Ghana. *Business and Economic Research*, 3(1), 442-460.
- Daneshvar, P., & Ramesh, H.N. (2012). Determination of IT strategies to improve bank's performance- Indian Public banks experience. *Asian Journal of Research in Business Economics and Management*, 2(2), 453 – 461.
- Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly* 13(3), 319–340

- Davis, F.D. (1993). User acceptance of information technology: system characteristics, user perceptions and behavioral impacts. *International Journal of Man-Machine Studies*, 38(3), 475-487.
- Dawson, C. (2002). *Practical Research Methods: A user friendly guide to research*. 3 Newtec Place, United Kingdom: How to Books Ltd.
- Dawson, C. (2009). *Introduction to Research Methods: A practical guide for anyone undertaking a research project*. 3 Newtec Place, United Kingdom: How to Books Ltd.
- 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.
- Derreumaux, P. (2013). The renewal of African banking sector. *Private Sector & Development, Proparco's Magazine*, 16, 2-5.
- Desai, M. & Low, M. (1987). *Measuring the opportunity for product innovation, in M.de Cecco (de.), Changing Money: Financial Innovation in Developed Countries*[M]., Oxford: Basil Blackwell.
- Dillon, A., & Morris, M. (1996). User acceptance of new information technology: theories and models. *Annual Review of Information Science and Technology*, Medford(NJ), 31, 3-32.
- Daude, Y. B., & Akingbade, R. (2011). Equity and Bond Portfolio Analyst at Asset Management Corporation of Nigeria. *Financial Service Industry, Lagos Nigeria*.
- Ember, C., & Ember, M. (2009). *Cross Cultural Research Methods*, (2nd edition), New York: Altamira Press.
- Nyamongo, E., & Ndirangu, L. N. (2013). Financial innovations and monetary policy in Kenya. Retrieved from: <https://mpira.ub.uni-muenchen.de/id/eprint/52387>
- Fama, E. F. (1998). Market efficiency, long-term returns, and behavioral finance1. *Journal of financial economics*, 49(3), 283-306.

- Fichman, R. G. (1992, December). Information technology diffusion: a review of empirical research. In *ICIS* (pp. 195-206).
- Fishbein, M. & Ajzen, I., (1980). Understanding attitudes and predicting social behaviour. *Journal of alcohol and drug education*, 51(1), 3.
- Foley, P. & Jayawardhena, C. (2000). Changes in the banking sector—the case of Internet banking in the UK. *Internet Research*, 10(1), 19-31.
- Frame, W., & Lawrence, J. (2001). The diffusion of financial innovation: an examination of the adoption of small business credit scoring by large banking, 1187-1240.
- Francesco, P., Mathieu, P., & Sénéchal, D. (2012). *Conformal field theory*. New York: Springer Science & Business Media.
- Francesca, A., & Claeys, P. (2010). Innovation and performance of European banks adopting Internet. University of Milan and Cass Business School, City University London and University of Barcelona Centre for Banking Research, Cass Business School, City University London Working Paper Series, WP 04/10
- Fred, D. D., Bagozzi, R. P., & Warshaw, P. R. (1989). User acceptance of computer technology: a comparison of two theoretical models. *Management science*, 35(8), 982-1003.
- Fred, D. D., Bagozzi, R. P., & Warshaw, P. R. (1992). Development and test of a theory of technological learning and usage. *Human relations*, 45(7), 659-686.
- Freeman, C. (1994). The diffusion of information and communication technology in the world economy in the 1990s, In R. Mansell (Ed.), *The Management of Information and Communication Technologies: Emerging Patterns of Control*, Aslib, London, Pp. 8-41. *Canadian Journal of Communication*, 19(1).

- Gardachew, W. (2010). Electronic-banking in Ethiopia: Practices, opportunities and challenges. *The Journal of Internet Banking and Commerce*, 15(2), 1-8.
- Gichungu, N.Z., & Oloko, A.M. (2015). Relationship between bank innovations and financial performance of Commercial Banks in Kenya. *International Journal of Education and Research*, 31(5), 443-456.
- Gill, J., & Johnson, P. (2002). *Research Methods for Managers*, (3rd ed.), London Sage Publications.
- Gitau, R.M. (2011). *The relationship between financial innovation and financial performance of commercial banks in Kenya*. Unpublished MBA project, Nairobi: University of Nairobi.
- Githikwa, P. W. (2011). *The relationship between financial innovation and profitability of commercial banks in Kenya*. Unpublished Master of Business Administration project, Nairobi: University of Nairobi.
- Gitonga T. (2015). *Innovation Processes and the Perceived Role of the CEO in the Banking Industry*. Unpublished Master of Business Administration Project, Nairobi: University of Nairobi.
- Hager, M. A., Wilson, S., Pollak, T. H., & Rooney, P. M. (2003). Response rates for mail surveys of nonprofit organizations: A review and empirical test. *Nonprofit and Voluntary Sector Quarterly*, 32(2), 252-267
- Hasan, I., Schmiedel, H., & Song, L. (2009). Retail payments: Integration and innovation. Return to retail banking and payments. ECB, Working Paper Series No 1135, December 2009.
- Hasan, I., Schmiedel, H., & Song, L. (2010). Return from retail banking and payments. Bank of Finland Research, Discussion Papers, No. 3.

- Hauner, D. & S. J. Peiris (2005). Bank Efficiency and Competition in Low-Income Countries: The Case of Uganda. International Monetary Fund Working Paper WP/05/240
- Hendrickson, J., & Nichols, M. W. (2011). Small bank performance: The case of U.S. commercial banks. *Journal of Money, Investment and Banking*, 20 (2011).
- Heremans, D. (2007). Corporate governance issues for banks: a financial stability perspective. Retrieved from: SSRN 1024693
- Hult, G. T. M., Hurley, R. F., & Knight, G. A. (2004). Innovativeness: Its antecedents and impact on business performance. *Industrial marketing management*, 33(5), 429-438.
- Hyndman, R. (2008). *Quantitative Business Research Methods*. Department of Econometrics and Business Statistics, Monash: Monash University (Clayton campus).
- Imali, A.J. (2013). *Determinants of performance of microfinance institutions in Nairobi Kenya*. Unpublished Masters project in Banking and Finance Eldoret: Moi University
- Ismail Sahin, & Thompson, A. (2006). Using Rogers' theory to interpret instructional computer use by COE faculty. *Journal of Research on Technology in Education*, 39(1), 81-104.
- Izogo, E. E., Nnaemeka, O. C., Onuoha, A. O., & Ezema, K. S. (2012). Impact of demographic variables on consumers' adoption of e-banking in Nigeria: An empirical investigation. *European Journal of Business and Management*, 4(17), 27-39.

- Jayawardhena, C., & Foley, P. (2000). Changes in the banking sector—the case of Internet banking in the UK. *Internet research*, 10(1), 19-31.
- Joshua, Abor (2005). Technological innovations and banking in Ghana: an evaluation of customers' perceptions. *IFE Psychologia: An International Journal*, 13(1), 170-187.
- Kagan, A., Acharya, R. N., Rao, L. S., & Kodepaka, V. (2005). *Does internet banking affect the performance of community banks?* Selected Paper prepared for presentation at the American Agricultural Economics Association Annual Meeting, Providence, Rhode Island, 24-27.
- Kamau, D. M., & Oluoch, J. (2016). Relationship between Financial Innovation and Commercial Bank Performance in Kenya. *International Journal of Social Sciences and Information Technology*, 2(4), 34-47.
- Kariuki, F. W. (2010). *The relationship between financial engineering and financial performance of commercial banks in Kenya*. Unpublished MBA project, Nairobi: University of Nairobi.
- Kibugo, M. K. & Kimani, E. M., (2016). *Effect of Financial Innovations On Performance of Microfinance Institutions in Nakuru Town, Kenya*. – Retrieved from: embuni.ac.ke
- Kigen, K. P. (2010). *The impact of mobile banking on transaction costs of microfinance institutions*. Unpublished MBA Thesis, Nairobi: University of Nairobi.
- Kimberlin, C. L., & Winterstein, A. G. (2008). Validity and reliability of measurement instruments used in research. *American Journal of Health-System Pharmacy*, 65(23), 2276-2284.

- King 'ori, Z. (2008). *The Determinants of income velocity of money in Kenya*. Unpublished Thesis, Zimbabwe: University of Zimbabwe.
- Koech, C.S., & Makori, M. (2014). Effects of innovation orientation on financial performance of commercial Banks in Kenya: A Case of National Bank of Kenya. *European Journal of Business Management*, 2(1), 161-173.
- Kombo, D. K., & Tromp, D. L. (2009). *Introduction to proposal writing*. Nairobi: Pauline publications.
- Korir, M. C. (2014). *The effect of financial innovations on financial performance of commercial banks in Kenya*. Unpublished MBA project, Nairobi: University of Nairobi.
- Korir C, K. M., Sang, W., Shisia, A., & Mutung'u, C. (2015). Financial innovations and performance of commercial banks in Kenya. *Int J Econ Commer Manage II(5)*, 1242-1265.
- Kothari, C. R. (2004). *Research methodology: Methods and techniques*. New Delhi: New Age International.
- Kothari, R., Buddhi, D., & Sawhney, R. L. (2008). Comparison of environmental and economic aspects of various hydrogen production methods. *Renewable and Sustainable Energy Reviews*, 12(2), 553-563.
- Koul, O., Walia, S., & Dhaliwal, G. S. (2008). Essential oils as green pesticides: potential and constraints. *Biopestic Int*, 4(1), 63-84.
- Kozak, S. (2005). The role of information technology in the profit and cost efficiency improvements of the banking sector. *Journal of Academy of Business and Economics*, 2(1), 34-38.
- Krugman, P. (Ed.). (2007). *Currency crises*. Chicago: University of Chicago Press.

- Lang F. K., W. W., & Nolle, D. E. (2002). Internet banking. *Journal of Financial Services Research*, 22(1-2), 95-117.
- Lavrakas, P. J. (2008). *Encyclopedia of survey research methods*. New York: Sage Publications.
- Lazo, B., & Woldesenbet, K. (2006). The dynamics of product and process innovations in UK banking. *International Journal of Financial Services Management*, 1(4), 400-421.
- Legris, P., Ingham, J., & Collette, P. (2003). Why do people use information technology? A critical review of the technology acceptance model. *Information & management*, 40(3), 191-204.
- Robinson, L. (2009). A summary of diffusion of innovations. *Enabling change*, 5(10).
- Lewis, P., & Thornhill, A. (2007). *Research methods for business studies*. Second Impression, Dorling Kindersley (India): Pearson Education India.
- Lin, C.Y., & Chen, M.Y. (2007). Does innovation lead to performance? An empirical study of SMEs in Taiwan. *Management Research News*, 30(2), 115-132.
- Kamotho, A. D. (2008). *Mobile phone banking: Usage experiences in Kenya*. Unpublished MBA project Nairobi: University of Nairobi.
- Louis, C., Lawrence, M., & Keith, M. (2007). *Research methods in education*. New York: Routledge.
- Lundblad, J. P. (2003). A review and critique of Rogers' diffusion of innovation theory as it applies to organizations. *Organization Development Journal*, 21(4), 50.

- Mabrouk, A., & Mamoghli, C. (2010). Is financial innovation influenced by financial liberalization? Evidence from the Tunisian banking industry. *Banks Systems Journal*, 5(3), 45-50.
- Makini, O. S. (2010). *The relationship between financial innovation and financial performance of commercial banks in Kenya*. Unpublished Master of Business Administration Project, Nairobi: University of Nairobi.
- Masinge, K. (2010). *Factors influencing the adoption of mobile banking services at the Bottom of the Pyramid in South Africa* Unpublished PhD dissertation, Pretoria: University of Pretoria.
- McAndrews, J., Allen, F., & Strahan, P. (2002). E-finance: an introduction. *Journal of Financial Services Research*, 22(1-2), 5-27.
- Miller, M. H. (1986). Financial innovation: The last twenty years and the next. *Journal of Financial and Quantitative Analysis*, 21(4), 459-471.
- Mogaka, N. H. (2013). *The effect of financial innovation on the financial performance of commercial banks in Kenya*. Unpublished MSc. Project. Nairobi: University of Nairobi.
- Malhotra, P., & Singh, B. (2010). An analysis of Internet banking offerings and its determinants in India. *Internet Research*, 20(1), 87-106.
- Montiel, P. J. (2003). Development of financial markets and macroeconomic policy. *Journal of African Economies*, 12(suppl_2), ii12-ii52.
- Monyoncho, L. N. A. (2015). Relationship between Banking Technologies and Financial Performance of Commercial Banks in Kenya. *International Journal of Economics, Commerce and Management*, 3(2), 748-815

- Moore, G. C., & Benbasat, I. (1991). Development of an instrument to measure the perceptions of adopting an information technology innovation. *Information systems research*, 2(3), 192-222.
- Mugenda, O.M. & Mugenda, A.G. (2003). *Research Methods: Quantitative and Qualitative Approaches*. Nairobi: Acts Press
- Muthoni, M. G. (2013). *The effect of financial innovation of financial performance of insurance companies in Kenya*. Unpublished MBA Project, Nairobi: University of Nairobi.
- Muyoka, C. (2014). *The effect of mobile banking on the financial performance of commercial banks in Kenya*. Unpublished MSC research project, Nairobi: University of Nairobi.
- Mwangi, M. K. (2007). *Factors influencing financial innovation in Kenya's securities market*: Unpublished MBA project. Nairobi: University of Nairobi.
- Mwania, M., & Muganda, N. (2011). An investigation on the relationship between information technology (IT) conceptualization and bank performance. School of Computer Science & Information Technology, Kimathi University College of Technology, Kenya, AIBUMA Conference paper, 2011
- Mytelka, L., & Farinelli, F. (2000). Local clusters, innovation systems and sustained competitiveness. *UNU/INTECH Discussion Paper*, (2005).
- Nader, A. (2011). The effect of banking expansion on profit efficiency of Saudi banks. 2nd International Conference on Business and Economic Research (2nd ICBER 2011) Proceeding 269.
- Nadia M., Saunders, A., & Scholnick, B. (2003). The Impact of ATM Surcharges on Large Versus Small Banks: Is There a Customer Relationship Effect?

- Nassiuma's, K. (2008). *Survey Sampling: Theory and Methods*. Nairobi: Nairobi University Press.
- Ndung'u, N. (2011). Governor Central Bank of Kenya in his speech during the Launch of the Mobile Pay Tangaza E-Commerce and Money Transfer Service on 24th January 2011. Retrieved from: [//www. centralbank. go. ke/ downloads/ speeches/ 2011/Tangaza% 20E-Commerce% 20Jan% 202011. pdf](http://www.centralbank.go.ke/downloads/speeches/2011/Tangaza%20E-Commerce%20Jan%202011.pdf).
- Ngari, J. M. K., & Muiruri, J. K. (2014). *Effects of financial innovations on the financial performance of commercial banks in Kenya*. Retrieved from: erepo.usiu.ac.ke
- Ngechu, M. (2004). *Understanding the research process and methods. An introduction to research methods*. Unpublished MBA Thesis, Nairobi: University of Nairobi.
- Noyer, C. (2007). Financial innovation, monetary policy and financial stability. Spring Conference, Banque de France.
- Nyangosi, R., & Arora, D. J. (2009). Emergency of information technology in the Kenyan banking sector: An Empirical study In a Proceeding Conference of Global Business and Management Forum 2009 (GBMF) Jointly Organized by Department of Finance. In *University of Dhaka, Bangladesh and Global Business and Management Forum, USA on December* (pp. 22-23).
- Oloo, M. (2007). *The Banking Survey, Kenya*. Nairobi: Think Business Ltd.
- Onduko, E. M. (2013). *The relationship between financial innovation and financial performance among SACCOs in Nairobi County*. Unpublished MBA project, Nairobi: University of Nairobi.
- Ngumi, P. M. (2014). *Effect of bank innovations on financial performance of commercial banks in Kenya*, Unpublished PhD thesis, Juja JKUAT.

- Noruzi, A., Dalfard, V.M, Azhdari, B., Nazari-, S., &Rezazadeh, A. (2013). Relations between transformational leadership, organizational learning, knowledge management, organizational innovation, and organizational performance: An empirical investigation of manufacturing firms. *International Journal of Advanced Manufacturing and Technology*, 64, 1073- 1085.
- Noyer, C. (2007). Financial innovation, monetary policy and financial stability. Spring Conference, Banque de France.
- Nugroho, Y., & Miles, I. (2009). *Global Review of Innovation Intelligence and Policy Studies, Mini Study 06 – Microfinance & Innovation. A Project for DG Enterprise and Industry*. Brussels: The European Commission.
- Ongwen, P. C. C. (2015). *The impact of product innovation on financial performance of commercial banks in Kenya. Unpublished MBA Project. Nairobi: University of Nairobi*.
- Padachi, K., Rojid, S., & Seetanah, B. (2008). Investigating into the factors that influence the adoption of internet banking in Mauritius. *Journal of Internet business*, (5), 356-369.
- Prager, R. (2001). The effect of ATM surcharges on Small banking organizations. *Review of Industrial Organization* 18, 161-173
- Patrick G. W. (2011). *The relationship between financial innovation and profitability of commercial banks in Kenya*, Unpublished PhD dissertation, Nairobi: University of Nairobi.
- Polit, D. F., & Beck, C. T. (2006). The content validity index: are you sure you know what's being reported? Critique and recommendations. *Research in nursing & health*, 29(5), 489-497.

- Pooja, M., & Balwinder, S. (2010). An analysis of Internet banking offerings and its determinants in India. *Internet Research*, 20(1), 87-106.
- Porteous, D. (2006). The Enabling Environment for Mobile Banking in Africa, London: DFID. <http://www.bankablefrontier.com/assets/ee.mobil.banking.report.v3.1.pdf>
- Rakesh, M. (2006). Economic growth, financial deepening, and financial inclusion. *Dynamics of Indian Banking: Views and Vistas*, 92-120.
- Rao, L. S., Kodepaka, Kagan, A., & Acharya, R. N., V. (2005, July). Does Internet banking affect the performance of community banks? In *American Agricultural Economics Association Annual Meeting*.
- Rezazadeh, A., Najmabadi, A. D., & Shoghi, B. (2013). Entrepreneurial orientation and firm performance: the moderating effect of organizational structure.
- Rogers, E. (1983). *Diffusion of Innovations*, (3rd edition.) New York, NY: The Free Press.
- Rogers, E. M. (1995). Lessons for guidelines from the diffusion of innovations. *Joint Commission Journal on Quality and Patient Safety*, 21(7), 324-328.
- Rogers, E.M. (2003). *Diffusion Innovation* (5th Ed.) New York: The Free Press.
- Rogers, E. M. (2010). *Diffusion of innovations*. New Jersey: Simon and Schuster.
- Rosli, M. M., & Sidek, S. (2013). The Impact of Innovation on the Performance of Small and Medium Manufacturing Enterprises: Evidence from Malaysia. *Journal of Innovation Management in Small & Medium Enterprises*, 2013, 1.

- Salim, I. M., & Sulaiman, M. B. (2011). Impact of organizational innovation on firm performance: Evidence from Malaysian-based ICT companies. *Business and Management Review, 1*(5).
- Sampong, W.Y. (2015). *Effect of bank innovations on performance of universal banks in Ghana*. Unpublished MBA Thesis, Ghana: Kwame Nkrumah University of Science and Technology.
- Sana, H. S., Mohammad, K. M., Hassan H. S., & Momina, A. (2011). The impact of Ebanking on the profitability of banks: A study of Pakistani banks. *Journal of Public Administration and Governance, 1*(1), 216- 227.
- Seetanah, B., Padachi, K., & Rojid, S. (2008). Investigating into the factors that influence the adoption of internet banking in Mauritius. *Journal of Internet business, (5)*.
- Sekaran, U. (2003). The Research Process. *Research Methods for Business: A Skill Building Approach, 4*, 116-138.
- Shahidul I., & Sheikh, M., (2006). Mobile Commerce: the use of m-commerce by customers today
- Shirley, J. H., & Sushanta, K. M. (2006). The impact of information technology on the banking industry: Theory and empirics. *Assessed from [http: webspaces. qmul. ac. uk/pmartins/mallick. pdf](http://webspaces.qmul.ac.uk/pmartins/mallick.pdf) on, 4*.
- Shu, W., & Strassmann, P. A. (2005). Does information technology provide banks with profit. *Information & management, 42*(5), 781-787
- Siam, A. Z. (2006). Role of the electronic banking services on the profits of Jordanian banks. *American Journal of Applied Sciences, 1999-2004*.

- Simpson, J. (2002). The impact of the internet in banking: observations and evidence from developed and emerging markets. *Telematics and Informatics*, 19, 315-330.
- Sullivan, S., & Richard J., (2000). How has the adoption of internet banking affected performance and risk at banks? *A look at internet banking in the tenth Federal Reserve district*. Federal Reserve Bank of Kansas City. Financial Industry Perspectives (December), 1–16.
- Szajna, B. (1994). Software evaluation and choice: Predictive validation of the technology acceptance instrument. *MIS quarterly*, 319-324.
- Tornatzky, L. G., & Klein, K. J. (1982). Innovation characteristics and innovation adoption-implementation: A meta-analysis of findings. *IEEE Transactions on engineering management*, (1), 28-45.
- Tufano, P. (2003). Financial innovation. In: *Handbook of the Economics of Finance* (Volume 1a: Corporate Finance). Eds: George Constantinidis, Milton Harris, and Rene Stulz. Elsevier North-Holland. 307-336
- Van Leeuwen, G., & Klomp, L. (2001). Linking innovation and firm performance: a new approach. *International Journal of the Economics of Business*, 8(3), 343-364
- Walker, M. P., Duley, S. I., Beach, M. M., Deem, L., Pileggi, R., Samet, N., ... & Williams, J. N. (2008). Dental education economics: challenges and innovative strategies. *Journal of Dental Education*, 72(12), 1440-1449.
- Wang, E. T., Wei, H. L., & Ju, P. H. (2005). Understanding misalignment and cascading change of ERP implementation: a stage view of process analysis. *European Journal of Information Systems*, 14(4), 324-334.

Yin, R., & ZhengZheng, L. (2010). How commercial banks implement financial innovations- A case from retail operation of the Bank of China. Retrieved from: <http://www.myacme.org/ACMEProceedings09/p22.pdf>

Zewdie, G.H. (2013). *The Effects of Financial Innovation on the Financial Performance of Listed Commercial Banks in Kenya*, Unpublished MBA Projects, Nairobi: University of Nairobi.

Zikmund, G.W., Babin, B.J., Carr, C.J. & Griffin, M. (2010). *Business Research Methods* (8th ed.), South-Western: Cengage Learning

APPENDICES

Appendix I: Introduction Letter

Dear respondent,

RE: REQUEST FOR INFORMATION

I am an MBA (Finance Option) student at Jomo Kenyatta University of Agriculture and Technology. I am currently undertaking a research study titled: “*The effect of innovation on financial performance of listed banks in Kenya.*”

I kindly request you to provide the required information to the best of your knowledge; the information provided will be treated in a confidential manner and will only be used for academic purpose. I kindly request you to fill in the questionnaire that is accompanied by this letter.

The questionnaires are intended to collect information for academic purpose only. Confidentiality of the information acquired will be adhered to.

Thank you

Yours faithfully,

Amina Mohamed

Student

Dr. Tobias Olweny

Supervisor

Appendix II: Questionnaire

This questionnaire is an integral part of a study titled: “*The effect of innovation on financial performance of listed banks in Kenya.*” You are kindly requested to give precise and honest information. Please fill in the required information in the spaces provides by placing a tick (√) where appropriate.

SECTION A: GENERAL INFORMATION

1: Bank Particulars

Name of the Bank (optional).....

2: Respondents' Particulars

Gender Male () Female ()

3: Academic qualifications

Diploma () Post Graduate Degree ()
Bachelor's Degree () Professional Certificate ()

4: How long have you been working with the institutions?

Less than 1 year () 6-10 years ()
1 - 5 years () More than 10 years ()

SECTION B: THE EFFECT OF PRODUCT INNOVATION ON FINANCIAL PERFORMANCE

This section has statements regarding the effect of Product Innovation on Financial Performance of listed banks. Kindly respond with the response that matches your opinion. Please tick as appropriate MFIs offer improved products to their customers' in the boxes using a tick (√) or cross mark (x).

No	Statement	Strongly Agree	Agree	Neither Agree Nor Disagree	Disagree	Strongly Disagree
		5	4	3	2	1
1	Banks develop new deposit accounts quite regularly.					
2	Debit & credit cards have attracted more retail depositors for the bank					
3	ATMs have enabled customers to access their deposits with ease					
4	Banks investment in differentiated products is motivated by high returns					

SECTION C: THE EFFECT OF PROCESS INNOVATION ON FINANCIAL PERFORMANCE

5	Banks have automated their processes to enhance operation					
6	Banks process automation have an impact on the reduction of operational costs					
7	Computerization in banks has led to reduction of fraud					

	in banks					
8	Bank automation has enabled increased income generating potential of a bank					

SECTION D: THE EFFECT OF SERVICE INNOVATION ON FINANCIAL PERFORMANCE

9	Banks offer mobile banking services to meet customers demand					
1	Banks offer internet banking service to meet the demands of the wide customer base					
1	Banks offer high quality of its mobile and internet banking services attracts customers					
1	Mobile banking and internet banking has increased income generating potential of the banks					

SECTION E: THE EFFECT OF INSTITUTIONAL INNOVATION ON FINANCIAL PERFORMANCE

1	Bank linkages have improved business structure with technological advancement					
1	Banks agency services has increased growth, competition, productivity and profits					
1	Banks business structure and agency services have increased banks operations					

	and customer base					
1	Bank linkages and agency services have increased income generating potential of the banks					

SECTION G: FINANCIAL PERFORMANCE

	Income from new product innovations contribute positively to bank annual profitability					
	Bank automated processes have low maintenance costs leading to high levels of profitability over their economic lifetime					
	Bank investment in service innovation is mostly motivated by profits to the bank					
2	Banks institutional innovation have enabled ease of operation and increased profitability					

End of the questionnaire

Thank you for your participation

Appendix III: Secondary Data Collection Sheet

Innovation Type	Unit	2012	2013	2014	2015	2016
New Deposit Accounts	No. of Accounts	15,861,417				
Debit cards & Credit cards	No. of cards					
Office Automation	No. of branches					
Mobile banking	No. of transactions	1,545,000,000				
Internet banking	No. of subscribers banks	26				
Agency Banking	No. of agency banks	16,333				
Regulatory structure	Types					
Financial Performance	Percentage					

Appendix IV: Listed Banks in NSE

S/No.	Bank Name
1.	Kenya Commercial Bank
2.	Equity Bank
3.	Barclays bank of Kenya Limited
4.	National Bank of Kenya
5.	Co-operative bank of Kenya limited
6.	Stanbic Bank
7.	Diamond Trust Bank
8.	NIC Bank
9.	I & M Bank
10.	Standard Chartered Bank
11.	Housing Finance

(Source: Central Bank of Kenya, 2016)