

**THE EFFECT OF FINANCIAL INNOVATIONS ON FINANCIAL
PERFORMANCE OF COMMERCIAL BANKS IN KENYA**

BY:

KORIR MILLICENT CHEROTICH

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DECLARATION

This is to declare that this project is my original work that has not been presented to any other University or Institution of Higher Learning for examination.

Signed: _____ Date: _____

NAME: KORIR MILLICENT CHEROTICH

REG: D61/69001/2013

This project has been forwarded for examination with my approval as university;

Signed: ----- Date: -----

WINNIE NYAMUTE

Lecturer, Department of Finance & Accounting

School of Business

University of Nairobi

DEDICATION

I wish to wholly dedicate this project first and foremost to almighty God whose grace, providence and endless care, I cherish.

I also dedicate this project to my family for spiritual, psychological and other forms of support accorded to me that largely contributed to the successful conduct of this study to completion. I am particularly grateful to my husband Sang, for the moral support that saw me through the challenges encountered while undertaking my MBA degree course especially in the research process.

I further dedicate the work to my dad; Mr. Korir, my mom; Nancy, my siblings and my grandmother Seroney for their extraordinary and exemplary effort in guiding and shaping my academic progress since childhood.

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ABSTRACT

Over the last decade, the role of banking in the process of financial intermediation has been undergoing a profound transformation, owing to changes in the global financial system. Kenya's banking system has seen some major financial innovations in the past decade as well as steps to promote financial inclusion. The major impetus for financial innovation has been globalization of financial systems, deregulation, and great advances in technologies. In increasingly integrated financial systems facing higher volatilities, more competition and wide varieties of risks, financial innovation has become an essence to provide new products and strategies to better suit different circumstances of time and market and to meet different requirements of participants in financial system. The objective of this study was to establish the effect of financial innovations on financial performance of commercial banks in Kenya.

This study relied on secondary data. The target population included all the 44 commercial banks in Kenya. It adopted a census survey where all the 44 banks were used in the study and there was no sampling since the population size was small. Regression and correlation analysis was used to study the relationship between the dependent and the independent variables of the study. These were employed to analyze the data and find out whether there was any effect of financial innovations on financial performance of commercial banks in Kenya. Significance of the relationship was tested at 5% level with a 2-tailed test through the use of a chi-square test.

The study found out that there is a strong relationship between financial innovations and financial performance. The value of the cheques cleared, the value of EFTs cleared and the value of the RTGS transfer explains 92.8% of the variability in the financial performance of the commercial banks where a unit increase in the RTGS transfers results to 2.945 times increase in the banks' financial performance. Also, a unit increase in the value of EFTs cleared leads to a 1.321 times increase in the banks' financial performance. The study also found out that a unit increase in the value of the cheques cleared will result to 7.632 times increase in the financial performance of the commercial banks. The significance of the relationship between the dependent and the independent variables in this study was tested at 5% confidence level using a chi-square test. The critical significance value at this level was set at 0.025 in a 2-tailed test. Thus, with a significant value below this value (0.025), the results reveal the significance of the relationship. The study concludes that financial innovations positively affect financial performance. Based on these results, the study recommends that financial innovation information should be available particularly to regulatory and advisory bodies for guidance to the commercial banks on the need to craft and employ sound strategies geared towards continuously embracing innovativeness since innovation leads to improved financial performance. In addition, the study also recommends that firms should create an enabling environment for the employees to be innovative in their operations in order to utilize its competitive advantage through creation of innovative services (financial) leading to increased financial performance and growth of the sector.

TABLE OF CONTENTS

| | |
|---|-------------|
| DECLARATION | ii |
| DEDICATION | iii |
| ACKNOWLEDGEMENT | iv |
| ABSTRACT | v |
| LIST OF TABLES | viii |
| LIST OF ABBREVIATIONS | ix |
| CHAPTER ONE | 1 |
| INTRODUCTION | 1 |
| 1.1 Background of the Study | 1 |
| 1.1.1 Financial Innovations | 2 |
| 1.1.2 Financial Performance | 3 |
| 1.1.3 The Effect of Financial Innovations of Financial Performance..... | 5 |
| 1.1.4 Commercial Banks in Kenya | 6 |
| 1.2 Research Problem | 7 |
| 1.3 Research Objective | 9 |
| 1.4 Value of the Study | 9 |
| CHAPTER TWO | 11 |
| LITERATURE REVIEW | 11 |
| 2.1 Introduction | 11 |
| 2.2 Theoretical Review..... | 11 |
| 2.2.1 Circumvention Innovation Theory..... | 11 |
| 2.2.2 Schumpeter Theory of Innovation | 12 |
| 2.2.3 Constraint-Induced Financial Innovation Theory..... | 13 |
| 2.2.4 Regulation Innovation Theory | 13 |
| 2.2.5 Transaction Cost Innovation Theory | 14 |
| 2.2.6 Location Innovation Theory | 15 |
| 2.3 Financial Innovations and Financial Performance | 16 |
| 2.4 Empirical Review | 18 |
| 2.5 Summary of Literature Review | 21 |
| CHAPTER THREE | 22 |
| RESEARCH METHODOLOGY | 22 |
| 3.1 Introduction | 22 |

| | |
|---|-----------|
| 3.2 Research Design | 22 |
| 3.3 Population and Sampling..... | 22 |
| 3.4 Data Collection | 23 |
| 3.5 Data Analysis..... | 23 |
| 3.5.1 Analytical Model | 24 |
| CHAPTER FOUR..... | 26 |
| DATA ANALYSIS, INTERPRETATION AND PRESENTATION..... | 26 |
| 4.1 Introduction | 26 |
| 4.2 Descriptive Statistics | 26 |
| 4.3 Correlation Analysis..... | 27 |
| 4.3.1 Correlation between Financial Performance and the Value of Cheques Cleared..... | 27 |
| 4.3.2 Correlation between Financial Performance and the Value of EFTs Cleared..... | 28 |
| 4.3.3 Correlation between Financial Performance and the Value of RTGS Transfers | 29 |
| 4.4 Regression Analysis | 30 |
| 4.4.1 Model Summary | 30 |
| 4.4.2 Analysis of Variance | 31 |
| 4.4.3 Regression Coefficients..... | 32 |
| 4.4.4 Test of Significance | 34 |
| 4.5 Summary and Interpretation of the Findings..... | 35 |
| CHAPTER FIVE..... | 37 |
| SUMMARY, CONCLUSION AND RECOMMENDATIONS..... | 37 |
| 5.1 Introduction | 37 |
| 5.2 Summary of the Findings and Discussions..... | 37 |
| 5.3 Conclusion..... | 39 |
| 5.4 Limitations of the Study | 40 |
| 5.5 Recommendations | 42 |
| 5.5.1 Policy Recommendations | 42 |
| 5.5.2 Suggestion for Further Research | 43 |
| REFERENCES..... | 44 |
| APPENDICES | 53 |
| APPENDIX I: CHEQUE & EFT CLEARING TRANSACTIONS (DATA)..... | 53 |
| APPENDIX II: REAL-TIME GROSS SETTLEMENT (DATA)..... | 55 |
| APPENDIX III: LIST OF COMMERCIAL BANKS OPERATING KENYA..... | 56 |

LIST OF TABLES

| | |
|--|----|
| Table 4.1 Descriptive Statistics of the Study Variables | 26 |
| Table 4.2 Correlation between Financial Performance and Value of Cheques Cleared | 28 |
| Table 4.3 Correlation between Financial Performance and Value of EFTs Cleared..... | 28 |
| Table 4.4 Correlation between Financial Performance and Value of RTGS Transfers | 29 |
| Table 4.5 Regression Model Summary | 30 |
| Table 4.6 ANOVA Table..... | 31 |
| Table 4.7 Regression Coefficients..... | 32 |
| Table 4.8 Chi-Square Test for the Relationship between the Variables..... | 34 |

LIST OF ABBREVIATIONS

| | |
|----------------|---|
| ACH | - Automated Clearing House |
| ATM | - Automated Teller Machine |
| CBK | - Central Bank of Kenya. |
| DFID | - Department of International Development |
| EFT | - Electronic Funds Transfer |
| IT | - Information Technology |
| KEPSS | - Kenya Electronic Payments and Settlement System |
| MICR | - Magnetic Ink Character Recognition |
| MVNO | - Mobile Virtual Network |
| NSE | - Nairobi Securities Exchange |
| R&D | - Research & Development |
| ROE | -Return on Equity |
| ROA | -Return on Assets |
| ROI | - Return on Investment |
| RTGS | - Real Time Gross Settlement |
| USA | - United States of America |

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Over the last decade, the role of banking in the process of financial intermediation has been undergoing a profound transformation, owing to changes in the global financial system. Kenya's banking system has seen some major financial innovations in the past decade as well as steps to promote financial inclusion. The major impetus for financial innovation has been globalization of financial systems, deregulation, and great advances in technologies. In increasingly integrated financial systems facing higher volatilities, more competition and wide varieties of risks, financial innovation has become an essence to provide new products and strategies to better suit different circumstances of time and market and to meet different requirements of participants in financial system.

Financial innovations arise due to several reasons. Gorton and Metrick (2010) summarize the reasons for the growth of modern financial innovation as; reduction in bankruptcy costs, tax advantages, reduction in moral hazard, reduced regulatory costs, transparency and customization. A highly turbulent environment leads to successful innovation creating a unique competitive position and competitive advantage and lead to a superior performance (Roberts and Amit, 2003). This can only be maintained by ceaseless innovation and improvement of the product and the process (Porter, 2004). According to Ignazio (2007), financial innovation has not only opened up new opportunities for the sector participants, but also increased new market players arising from new products in the financial market.

Innovation consists of firms developing new products or new production processes to better perform their operations, in which case the new products could be based on the new processes (Tufano, 2002 & Lawrence, 2010). In the financial services industry, innovation is viewed as the act of creating and popularizing new financial instruments, technologies, institutions and markets, which facilitate access to information, trading and means of payment (Solans, 2003). Lerner (2006) puts forward that innovations are not just critical for firms in the financial services industry, but also affect other companies; for instance, enabling them to raise capital in larger amounts and at a lower cost than they could otherwise and that innovation is an important phenomenon in any sector of a modern economy.

1.1.1 Financial Innovations

According to Tufano (2002), financial innovation is the act of creating and then popularizing new financial instruments as well as new financial technologies, institutions, and markets. According to Lawrence (2010), financial Innovation involves the design, the development, and the implementation of innovative financial instruments and processes, and the formulation of creative solutions to problems in finance. Beaver (2002) believes that innovation is an essential element for economic progress of a country and competitiveness of an industry. Sandvik (2003) argues that innovation is one of the most important competitive weapons and generally seen as a firm's core value capability. Innovation is also considered as an effective way to improve firm's productivity due to the resource constraint issue facing a firm (Lumpkin and Dess, 1996).

According to Ignazio (2007), financial innovations can be grouped as new products (e.g., adjustable rate mortgages; exchange-traded index funds); new services (e.g., on-line securities trading; Internet banking); new "production" processes (e.g., electronic record-

keeping for securities; credit scoring); or new organizational forms (e.g., a new type of electronic exchange for trading securities; Internet-only banks). Financial innovation has not only opened up new opportunities for the sector participants, but also increased new market players arising from new products in the financial market (Noyer, 2007).

The developments in the financial sector have not only led to the increase in the number of financial institutions, but also the development in level of sophistication with new payment systems and asset alternatives to holding money. Associated with this rapid expansion in the banking sector is a range of financial innovations: the ATMs and debit cards introduced in the late 1990s; the electronic money introduced in early 2007; Value capping in 2009; the agent banking model introduced in mid-2010; Cheque Truncation System (CTS) in 2012 and more recently T+1 (cheques clearing in one day) in 2013 (CBK report, 2013). Other innovations in banking and financial sector are RTGS, EFT, ACH, MICR, Retail Banking, free advisory services, implementation of standing instructions of customers, payments of utility bills, fund transfers, internet banking, telephone banking, mobile banking, selling insurance products, issue of free cheque books, traveller's cheques and many more value added services (CBK report, 2013).

1.1.2 Financial Performance

External parties normally evaluate a firm's ability based on its performance (Bonn, 2000). This implies why performance is like a mirror to a firm. The level of goal accomplishment generally defines a firm's performance (Achrol and Etzel, 2003). Firm performance is the outcomes achieved in meeting internal and external goals of a firm (Lin et al., 2008). As a multidimensional construct, performance has several names, including growth, survival, success and competitiveness. The concept of firm growth was introduced in the early 1930s

known as the “Law of Proportionate Effect” (sometimes called Gibrat's rule of proportionate growth). The Law of Proportionate Effect is frequently used as a benchmark for many studies to determine business growth. Gibrat’s (1931) explains a firm’s growth rate does not depend on the size of a firm.

Firm performance is a multidimensional construct that consists of four elements (Alam et al. 2011). Customer-focused performance, including customer satisfaction, and product or service performance; financial and market performance, including revenue, profits, market position, cash-to-cash cycle time, and earnings per share; human resource performance, including employee satisfaction; and organizational effectiveness, including time to market, level of innovation, and production and supply chain flexibility.

Using organizational goals as a basis, different methods are adopted by different firms to measure their performance. This performance indicator can be measured in financial and non-financial terms (Bagorogoza and Waal, 2010; Bakar and Ahmad, 2010). Most firms, however, prefer to adopt financial indicators to measure their performance (Grant et al., 1988). Return on assets (ROA), average annual occupancy rate, net profit after tax and return on investment (ROI) are the commonly used financial or accounting indicators by firms (Tavitiyaman et al., 2012). Some other common measures are profitability, productivity, growth, stakeholder satisfaction, market share and competitive position (Bagorogoza and Waal, 2010).

However, financial elements are not the only indicator for measuring firm performance. It needs to combine with non-financial measurement in order to adapt to the changes of internal and external environments (Krager and Parnell, 1996). Supporting this opinion, Rubio and

Aragon (2009) divided business performance into four dimensions, that is internal process, open system, rational goal and human relations, where each dimension is measured by any changes in its own variables.

1.1.3 The Effect of Financial Innovations of Financial Performance

Studies from the early period of research on innovation have typically reported a positive relationship between innovation and measures of firm performance. In a new generation of models studying the impact of innovative activities on firm performance, the focus has shifted to the complex innovation process and channels through which the innovation inputs are transformed into better performance (Loof, et al., 2006; Kemp, et al., 2003; Bessler, et al., 2008).

The significance of financial innovation is described by Roberts and Amit (2003) as a means leading to a competitive advantage and superior financial performance. As revealed in many studies, financial innovation and firm financial performance have a positive relationship (for examples Zahra and Das, 1993; Capon et al., 1990; Calantone et al., 1995; Han et al., 1998). Innovation would appear in product, process, market, factor and organization (Kao, 1989), but the first three dimensions are more familiar in the innovation literature (Johne and Davies, 2000; Otero-Neira et al., 2009).

Innovation generally does seem to have positive effects in raising financial performance of innovators (Boot & Thakor, 2007). Crepon et al. (1998) used a four-equation model, to link the innovation decision of firms to their performance through the impact of innovation input on innovation output and the innovation output on productivity and better performance. Their findings confirm the positive relationship between innovation activities and productivity at

the firm level and provide further evidence on the relationship between size and innovation activities.

1.1.4 Commercial Banks in Kenya

The banking sector in Kenya is comprised of 44 commercial banks, two mortgage finance companies, 130 foreign exchange bureaus and fifteen micro finance institutions (CBK, 2012). The companies Act, the Central Bank of Kenya Act Cap 491, the banking Act Cap 488 and the micro finance Act 2006 are the main regulators and governors of the banking industry in Kenya. The Acts are used along with prudential guidelines that are issued by the central bank of Kenya. In 1995 the exchange controls were lifted after liberization of the banking in Kenya.

Today banking is known as innovative banking. Financial innovation associated with technological change has totally changed the banking philosophy and that is further tuned by the competition in the banking industry in Kenya. Challenging business environment within the banking system has created more innovation in the fields of product, process and market. Information technology has given rise to new innovations in the product designing and their delivery in the banking and finance industries. Customer services and customer satisfaction are their prime work. Current banking sector has come up with a lot of initiatives that oriented to providing a better customer services with the help of new technologies. Banking through internet has emerged as a strategic resource for achieving higher efficiency, control of operations and reduction of cost by replacing paper based and labour intensive methods with automated processes thus leading to higher productivity and profitability.

Innovations in the Kenyan banking sector include: increased use of paper money instead of cash. Cheques are the main paper based mode of payment accounting for 48% of non-cash payments. Use of Magnetic Ink Character Recognition (MICR) ensures clearing of cheques speedily and efficiently. The Central Bank of Kenya launched a Real Time Gross Settlement (RTGS) system known as the Kenya Electronic Payments and Settlement System (KEPSS) in July 2005 in an effort to modernize the country's payment system in line with global trends. E credit services e.g M-SHWARI has revolutionized the banking sector.

1.2 Research Problem

The origins of financial innovations have attracted little empirical scrutiny. Frame and White (2008) point out that one of the major barriers to the study of financial innovation has been a paucity of data. The literature on financial innovation is still evolving as new financial instruments; financial services and operational techniques continue to enter the market. The existing scanty literature has focused on evolution of the financial system in the developed world with few studies focusing on developing countries. Despite the significance of financial innovation in demystifying performance in banks, the effect of innovation on financial performance, is still misunderstood for two main reasons, first, there is inadequate understanding about the drivers of innovation and secondly innovations' impact on bank's financial performance remains lowly untested (Mabrouk and Mamoghli, 2010).

The outcome of the previous studies on effect of financial innovation on performance has been empirically inconclusive (Bonn, 2000). Previous studies have produced mixed results regarding the effect of financial innovations on bank's financial performance. Scholars (Pooja and Singh, 2009; Franscesa and Claeys, 2010), in their studies concluded that financial

innovations had least impact on financial performance, while others (Batiz-Lazo and Woldeesenbet, 2006; Mwanja and Muganda, 2011) concluded that financial innovation had significant contribution to financial performance. It is at the center of such mixed conclusions that created and necessitated the need to carry out a study from a Kenyan context to establish the effect of financial innovations on commercial banks' performance.

The banking industry in Kenya has undergone phenomenal growth over the last decade. The notable innovations in banking and financial sector include the emergence of RTGS, EFT, ACH, MICR, Retail Banking, free advisory services, implementation of standing instructions of customers, payments of utility bills, internet banking, telephone banking, mobile banking, and many more value added services (CBK report, 2013). Over the last five years, the banking sector has witnessed a continued upsurge in financial innovations. This can be attributed to the introduction of Value capping, agent banking model, Cheque Truncation System (CTS), T+1 (cheques clearing in one day) and more recently the Mobile Network Virtual Network (MVNO) which is currently being rolled out. The relationship between the growing investment in technology based bank innovations and bank financial performance in Kenya needs to be studied. There is need to establish whether innovations have contributed to the financial performance of commercial banks in Kenya.

In Kenya, various studies have been conducted on the topic of financial innovations (Mwangi, 2007; Githikwa, 2009; Kinuthia, 2010; Makini, 2010; Karanja, 2011; Muiruri, 2011 and Waweru 2012). Many of these studies embrace more or less a positive association between innovations and firm performance, but there are also some studies indicating a no link at all. This study used regression model for data analysis unlike majority of the previous studies which relied heavily on the primary data. A gap in literature motivated this study as

the study sought to answer the research question, “what is the effect of financial innovations on financial performance of commercial banks in Kenya?”

1.3 Research Objective

The objective of the study was to establish the effect of financial innovations on financial performance of commercial banks in Kenya.

1.4 Value of the Study

This research will contribute to the enhancement of financial innovation theory. The study’s results on the influence of financial innovation on performance of commercial banks will provide strong empirical evidence on the ongoing debates on the sustainability of the firms’ performance in face of stiff competition and high regulation. By demonstrating that the market, production and financial performance have strong positive relationship with financial innovation, the results will provide point of reference to support the argument that financial innovation buffers financial performance.

The study’s findings will be of great significance to the government, policy makers and industry players. By demonstrating that financial innovation accounts for a high proportion of the organizational performance, the results will compel the policy makers to realign their strategies. The study’s findings will be a point of reference for the government policy makers in formulating solid, broad and balanced policies that lay foundation for financial innovation. The policies will enhance global competitiveness of the country, resilient economy and attainment of essential national goals. To the industry players, policies formulated will enhance stability, growth and performance in the banking sector.

The research findings will be of significance to the management practice. The findings have demonstrated whether that strategic innovation is a major driver of organizational performance. The findings will enable an organization to achieve a comprehensive growth through financial innovation along all the organizational performance dimensions. By therefore relying on these findings, the management can embrace desirable financial innovations that will steer organizations to greater financial performance.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter discusses various theories of innovation, financial innovations and financial performance, review of empirical studies and lastly summary of the literature review.

2.2 Theoretical Review

A theory is a systematic explanation of the relationship among phenomena and provides a generalized explanation to an occurrence (Dawson, 2009). In the literature of financial innovation, there is a wide range of theories that have been developed by various scholars. These theories include; Circumvention Innovation Theory, Schumpeter Theory of Innovation, Constraint-Induced Financial Innovation Theory, Regulation Innovation Theory, Transaction Cost Innovation Theory and lastly Location Innovation Theory. These theories are explained below;

2.2.1 Circumvention Innovation Theory

Kane (1981) pioneered circumvention innovation theory. He postulated that many forms of government regulations and controls, which have the same property of implicit taxation, embarrass the profitable activity engaged by the company and the opportunity of earning profit, so the market innovation and regulation innovation should be regarded as the continuous fighting process between independent economic force and political force. Because financial industry is special, it has the stricter regulations. Financial institutions deal with the status such as the reduction of profit and the failure of management induced by government

regulations in order to reduce the potential loss to the minimum. Therefore, financial innovation is mostly induced by the purpose of earning profit and circumventing government regulations.

Kane's (1981) theory is different from the reality. The regulation innovation he assumed is always towards the direction of reinforcing regulation, however, the regulation innovation in reality is always towards the direction of liberal markets innovation, the result of the game is release of financial regulation and markets become more liberal. This theory not only considered the origin of innovation in the market but also explained the process of regulation innovation and their dynamic relation.

2.2.2 Schumpeter Theory of Innovation

Schumpeter (1934) argued that entrepreneurs, who could be independent inventors or R&D engineers in large corporations, created the opportunity for new profits with their innovations. In turn, groups of imitators attracted by super-profits would start a wave of investment that would erode the profit margin for the innovation. However, before the economy could equilibrate a new innovation or set of innovations, conceptualized by Schumpeter (1934) as Kondratiev cycles, would emerge to begin the business cycle over again.

Schumpeter (1934) emphasized the role of entrepreneurship and the seeking out of opportunities for novel value generating activities which would expand and transform the circular flow of income, but it did so with reference to a distinction between invention or discovery on the one hand and innovation, commercialization and entrepreneurship on the other. This separation of invention and innovation marked out the typical nineteenth century institutional model of innovation, in which independent inventors typically fed discoveries as

potential inputs to entrepreneurial firms. The author further saw innovations as perpetual gales of creative destruction that were essential forces driving growth rates in a capitalist system. Schumpeter's thinking evolved over his lifetime to the extent that some scholars have differentiated his early thinking where innovation was largely dependent on exceptional individuals/entrepreneurs willing to take on exceptional hazards as an act of will.

2.2.3 Constraint-Induced Financial Innovation Theory

American economist Silber (1983) advanced constraint-induced financial innovation theory. This theory pointed out that the purpose of profit maximization of financial institution is the key reason of financial innovation. There are some restrictions (including external handicaps such as policy and internal handicaps such as organizational management and leadership style) in the process of pursuing profit maximization in an organization.

According to Silber (1983), these restrictions and limitations not only guarantee the stability of management, they reduce the efficiency of financial institution, and so financial institutions strive toward casting them off. Constraint-induced innovation theory discussed the financial innovation from microeconomics, so it is originated and representative. But it emphasized "innovation in adversity" excessively. So it can't express the phenomenon of financial innovation increasing in the trend of liberal finance commendably.

2.2.4 Regulation Innovation Theory

Scylla et al (1982) is credited with pioneering Regulation Innovation Theory. This theory explains financial innovation from the perspective of economy development history. The theory proposes that financial innovation connects with social regulation closely, and it is a

regulation transformation which has mutual influence and has mutual causality with economic regulation.

Scylla et al (1982) thought that it is very difficult to have space of financial innovation in the planned economy with strict control and in the pure free-market economy, so any change brought about by regulation reform in financial system can be regarded as financial innovation. Innovative activities can only appear in the market economy controlled by government. When government's intervention and the management have hindered the finance activities, there will be many kinds of financial innovation which intend to circumvent or get rid of government controls. The game between the market and government finally form the spiral development process, namely, “control-innovate, controls again-innovates again”.

This theory expanded the scope of financial innovation; government activity is also regarded as the origin of financial innovation. But it regards regulation innovation as one part of financial innovation. Especially, it regards rules and regulations which are used to control as financial innovation. The financial control is the obstructive force of financial innovation, so rules and regulations which are regarded as the symbol of financial control should be the direction of financial reform and innovation (Scylla et al, 1982).

2.2.5 Transaction Cost Innovation Theory

Hicks & Niehans (1983) advanced the transaction cost innovation theory in the research on innovation. They thought that the dominant factor of financial innovation is the reduction of transaction cost, and in fact, financial innovation is the response of the advance in technology which caused the transaction cost to reduce. The reduction of transaction cost can stimulate financial innovation and improvement in financial services.

This theory studied the financial innovation from the perspective of microscopic economic structure change. It thought that the motive of financial innovation is to reduce the transaction cost. And the theory explained from another perspective that the radical motive of financial innovation is the financial institutes' purpose of earning benefits. This theory discussed the motive and the process of financial innovation from different sides.

2.2.6 Location Innovation Theory

Desai & Low (1987) with the location theory thought that financial innovation is the method which can make the integrity of financial market come true. According to the Location Innovation Theory, they advanced the financial innovation microscopic economic model. Desai & Low (1987) utilized this theory to confirm and measure the gap in the scope of acquirable product in financial market, which indicates the potential opportunity of the new products' innovation and promotion. Chen (1995) built the financial intermediacy model in which new security secured by old security is created. In the period of decomposing the old securities and opening new market, innovators play an influential economical role. For example, investors can obtain the consumption at lower cost; investors can realize a better share of risks.

His model indicated that even when introducing the surplus securities which are not distributed yet, the innovators can also play these roles. In other words, although these innovations have not changed the scope of acquirable financial tools, it makes investor's trade at lower expected cost. The main focus is on security designing in incomplete financial

markets. These theories will be applied to point in the way of explaining the impact of financial innovation on financial performance.

2.3 Financial Innovations and Financial Performance

Financial performance is a measure of how well a firm can use assets from its primary mode of business and generate revenues (Bessler et al., 2008). This term is also used as a general measure of a firm's overall financial health over a given period of time, and can be used to compare similar firms across the same industry or to compare industries or sectors in aggregation. There are many different ways to measure financial performance, but all measures should be taken in aggregation. Line items such as revenue from operations, operating income or cash flow from operations can be used, as well as total unit sales (Business Dictionary, 2011).

The most commonly employed measures of the performance are productivity, sales, export revenues and profits although sometimes financial measures such as the returns on the assets are also employed (Loof, et al., 2002; Bessler, et al., 2008). Most studies have reported a positive relationship between innovation and firm performance. Loof (2000) tests the existence of a positive relationship between the innovation output measured by sales of new products per employee and five different measures of firm performance (employment growth, value added per employee, sales per employee, operating profit per employee and return on assets). A positive relationship was confirmed for all five indicators. However, not all studies have confirmed the existence of this relationship. Klomp and Van Leeuwen (2001), for example, have found a positive relationship between innovation output and sales growth but no evidences of a relationship between the innovation output and employment growth.

Kemp et al. (2003) have found a positive relationship between the innovation output (measured by the share of sales from new products in total turnover) and the growth of turnover and employment and no significant with profit. Bloom and Van Reenen (2002) find that the impact of innovation output on the firm performance appears to be contemporaneous when performance is measured by market value but it occurs with a lag when performance is measured by productivity. Bessler and Bittelmeyer (2008) report that innovations bestow on firms only temporary advantage in the short run and their effect appears to be diminishing in the long run. This finding is consistent with Schumpeterian thesis of creative destruction. Innovations provide competitive advantage for a limited period of time after which knowledge is diffused across the market. As new products enter the market the competitive advantage of the firm diminishes and it will suffer loss and eventually will be forced to exit the market unless it develops even better product.

Malhotra and Singh (2009) in their study on the impact of internet banking on bank performance and risk found out that on average internet banks are larger, more profitable and are more operationally efficient. They also found that internet banks have higher asset quality and are better managed to lower the expenses for building and equipment and that internet banks in India rely substantially on deposits. They further found out that smaller banks that adopt internet banking have been negatively impacted on profitability.

Mabrouk and Mamoghli (2010) in their study on Dynamics of Financial Innovation and Performance of Banking Firms: Context of an Emerging Banking Industry, analyzed the effect of the adoption of two types of financial innovations namely; product innovation (telephone banking and SMS banking etc) and process innovation (Magnetic strip card (debit, ATM and credit card), Automatic cash dispenser; (Automatic teller machine; Electronic

payment terminal etc) on the performance of banks. Their analysis included two adoption behaviours, first mover in adoption of the financial innovation and imitator of the first movers. They found out that first mover initiative in product innovation improves profitability while process initiative has a positive effect on profitability and efficiency. Banks that imitate are less profitable and less efficient than first movers

2.4 Empirical Review

The significance of financial innovation is widely recognized. Many leading scholars, including Miller (1986) and Merton (1992), have highlighted the importance of new products and services in the financial arena. Empirically, Tufano (2002) showed that of all public offerings in 2000, 18% (on a dollar-weighted basis) consisted of securities that had not been in existence in 1994. These innovations are not just critical for firms in the financial services industry, but also impact other companies: for instance, enabling them to raise capital in larger amounts and at a lower cost than they could otherwise.

Nader (2011) analyzed the profit efficiency of the Saudi Arabia Commercial banks during the period 1998- 2007. The results of his study indicated that availability of phone banking, number of ATMs and number of branches had a positive effect on profit efficiency of Saudi banks. On the contrary he found that the number of point of sale terminals (POSs), availability of PC banking and availability of mobile banking did not improve profit efficiency.

Innovation in the financial sector is key to financial inclusion according to a review on Kenyan mobile financial services (Njuguna, 2011). In Kenya, mobile banking services have been the landmark of financial innovation. The Department of International Development

(DFID) gave Vodafone a grant of £1 million. This funded Safaricom (the network affiliated with Vodafone in Kenya) to create a competitive financial service, that ultimately brought 12 million people into formalized financial markets.

Kagan et al (2005) in their study on whether internet banking affects the performance of community banks found that banks that provide extensive online banking services tend to perform better. They further found out that online 45 banking helps community banks improve their earning ability as measured by return on equity and improved asset quality by reducing the proportion of overdue and underperforming assets.

Shirley and Sushanta (2006) studied the impact of information technology on the banking industry and analyzed both theoretically and empirically how information technology related spending can affect bank profits via competition in financial services that are offered by the banks. Using a panel of 68 US banks for a period of over 20 years to estimate the impact of IT on profitability of banks, they found out that though IT might lead to cost saving, higher IT spending can create network effects lowering bank profits. They further contend that the relationship between IT expenditures and bank's financial performance is conditional to the extent of network effect. They say that if network effect is too low, IT expenditures are likely to; reduce payroll expenses, increase market share, and increase revenue and profit.

Mwangi (2007) carried out a study on factors influencing innovation of companies listed of the Nairobi Securities Exchange. The findings concluded that the laws protecting investors was the major factor influencing financial innovation. He also observed that. The absence of automated trading system as a technical factor was found to have influence on innovation. In addition, he postulated that financial competition and integration had an influence on

financial innovation with increased financial competition amongst financial institution influencing innovation the most.

Githikwa (2009) carried out a study on the relationship between financial innovation and profitability of commercial banks in Kenya. The findings concluded that banks conceptualize financial innovation as a means to create impact in the profit performance. In addition, the study revealed that implementation of financial innovation requires more banks to have a great deal of resources and reduce costs of operations, reduce cost per transaction and equally enable banks to satisfy the customer needs. Implementing product, process and institutional innovation makes the commercial banks to become more flexible in their operations and it leads to acquisition of qualified personnel in the bank, quality products and allows bank expansion.

Waweru (2012) carried out a study on the effects of financial innovation on risk management of commercial banks in Kenya. The study concluded that financial innovations have exposed commercial banks in Kenya to various risks e.g. credit risks, liquidity risk, interest rate risk, country risk, compliance risk and reputational risks. All of these risks should therefore inform overall risk management of institutions through realistic risk index factors at any period. The researcher recommended a more robust risk mitigation practices and policies to ensure that all elements of risks are captured in the risk index factors of commercial banks.

Mwangi (2013) carried out a research on Innovations and financial performance in the financial industry in Kenya. The findings revealed that bank innovations had statistically significant influence on income, return on assets, profitability and customer deposits of commercial banks in Kenya and tests for significance also showed that the influence was

statistically significant. The findings also revealed that mobile phones had a higher moderating effect than internet services on the bank innovations when influencing financial performance of commercial banks in Kenya. Based on the findings of the study, the researcher concluded that bank innovations influence financial performance of commercial banks in Kenya positively.

2.5 Summary of Literature Review

From reviewed relevant literature, it has come out strongly from several studies (Walker, 2004; Damanpour, 1991; Atuahene-Gima, 1996 and Subramanian & Nilakanta, 1996) indicate that innovations have positive impact on performance indicators. They have agreed on the transformational effects of innovations on bank performance and operational efficiency. However other scholars (Capon, 1990 and Chandler & Hanks, 1994) found out that innovations have negative effects on performance indicators.

These mixed results and alternative views from different countries and writers are mainly as a result of lack of comprehensive 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.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter articulates the methodology used in the study to find answers to the research question. Dawson (2009) states that research methodology is the philosophy or general principle which guides the research. In this chapter, the research methodology has been presented in the following order, research design, target population, sampling procedure, data collection methods and finally the data analysis.

3.2 Research Design

According to Denvir & Millet (2003), a research design provides glue that holds a project together. A design is used to structure research, to show how all the major parts of the project, which include sample or groups, measures, treatments or programs, and methods of assignment that work together to try to address the central research question. This study adopted a descriptive design that is aimed at establishing the effect of financial innovations on financial performance. This is because the study sought to establish a relationship between two variables. Kothari (2004) describe a descriptive design as a design that seeks to portray accurately the characteristics of a particular individual, situation or a group. A descriptive survey was undertaken in this study.

3.3 Population and Sampling

According to Mugenda and Mugenda (2003), a population is a well-defined as a set of people, services, elements and events, group of things or households that are being

investigated. The population comprised of all 44 commercial banks in Kenya as at 31st December, 2013 which have been in operation from 2008 to 2013 (Appendix 1). This period was considered long enough to provide sufficient variables to assist in establishing the effect of financial innovations on financial performance. This period was chosen in order to capture the most recent data and to give results that are conclusive and reflect the current trend. No sampling was done due to the small population size and the study employed a census survey where all the 44 banks were used in the study.

3.4 Data Collection

Dawson (2009) states that secondary research data involves the data collected using information from studies that other researchers have made of a subject. This study was facilitated by the use of data for financial innovations and financial performance covering a period of 5 years (2009 to 2013). Data for financial innovation included the value of EFTs, Cheques and RTGS which were obtained from CBK's annual statistics presented under payments systems statistics. Data for financial performance included ROE which was obtained from CBK's annual bank supervision reports as well as bank's annual financial statements.

3.5 Data Analysis

According to Marshall and Rossman (1999), data analysis is a process of bringing order, structure and interpretation of mass collected data. Data collected was systematically organized in a proper manner to facilitate analysis. Data analysis involved preparation of the collected data, coding, editing and cleaning of data in readiness for processing using SPSS package version 20. SPSS was preferred because it is systematic and covers a wide range of the most common statistical and graphical data analysis.

3.5.1 Analytical Model

Regression model was used to establish the relationship between the variables. Multiple regression models were used in this study as it allows simultaneous investigation of the effect of two or more variables (Zikmund, 2003). The model established the relationship between financial innovations and financial performance. In regression terminology, the variable that is predicted is called dependent variable while the variable used to predict the value of dependent variable is called independent variable. In this study, dependent variable was ROE while independent variables were value of EFTs, Cheques and RTGS. For the variables in this study, an average was computed for each year and then simple average for all 5 years was computed. The equation representing the algebraic expression of multiple regression model of the form below was applied;

Financial Performance = f (Financial Innovation)

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

Where Y = Financial Performance (Measured by ROE) which is the dependent variable

β_0 = Constant which defines long term interest rate without inclusion of independent variables

X_{1-3} = Independent variables are,

X_1 = Value of RTGS transfers

X_2 = Value of EFTs Cleared

X_3 = Value of Cheques cleared

e = Error Term

β_1 -K Regression coefficients- define the amount by which Y is changed for every unit change in independent variable.

3.5.2 Test of Significance

The significance of each independent variable was tested at a confidence level of 95%. Significance of innovation variables as predictors of financial performance was tested using the chi-square test. A correlation analysis was also performed to find how the variables relate to each other in the model.

The information used in this study has been compiled from reliable and credible sources justifying the completeness and accuracy of the data to be used. All information contained in this study is from sources well quoted. Some information was obtained from reliable international journals and the validity of the information published is tied to the institution that carried out the publication(s).

CHAPTER FOUR

DATA ANALYSIS, INTERPRETATION AND PRESENTATION

4.1 Introduction

The chapter presents the analysis part of the study. The analysis is based on the research objective the objective is tackled according to the analysis techniques designed in the methodology. Data collected was analyzed and the findings are as presented in this chapter inform of tables and narration/ discussion of the results.

4.2 Descriptive Statistics

Table 4.1 presents the descriptive analysis results of the variables of the study. The data collected on the financial performance of the sector (measured in ROE) and the financial innovativeness (measured in three aspects; RTGS transfers, the value of EFTs cleared and the value of cheques cleared) was analyzed to give the mean values for the entire period under study as well as their standard deviations.

Table 4.1 Descriptive Statistics of the Study Variables

| | Mean | Std. Deviation |
|----------------------|-----------|----------------|
| ROE | .2866 | .02276 |
| RTGs transfer | 1.9094E7 | 3.60292 |
| EFTs Value cleared | 438.5306 | 14.33981 |
| Cheque value cleared | 2330.7404 | 58.42504 |

According to the study results in table 4.1, the average ROE (financial Performance) of the commercial banks in Kenya for a five year period (2009 – 2013) was obtained to be 0.2866 (28.66%) with a standard deviation of 0.02276. this shows that for the entire period studied, the banks' ROE (profitability) can be summarized as 28.7% as the standard deviation value

obtained was very small indicating a small deviation of the individual values per year. Also, the table indicates that, the financial innovation of commercial banks for the period as measured in three aspects was summarized to be 1.9094E7, 438.5306 and 2330.7404 for the value of RTGS transfers, value of EFTs cleared and the value of cheques cleared respectively. The standard deviations for all the factors above indicate small variations of the individual yearly data values from the mean value. Thus, these values can be relied as representatives of the financial innovativeness of the commercial banks.

4.3 Correlation Analysis

In this study, the Pearson r statistic is used to calculate bivariate correlations. Values between 0 and 0.3 (0 and -0.3) indicate no correlation (variables not associated), 0.3 and 0.5 (-0.3 and -0.5) a weak positive (negative) linear association, Values between 0.5 and 0.7 (-0.5 and -0.7) indicate a moderate positive (negative) linear association and Values between 0.7 and 1.0 (-0.7 and -1.0) indicate a strong positive (negative) linear association. The significance of the relationship is tested at 95% level with a 2-tailed test where a statistically significant correlation is indicated by a probability value of less than 0.025. This means that the probability of obtaining such a correlation coefficient by chance is less than 2.5 times out of 100, so the result indicates the presence of an association.

4.3.1 Correlation between Financial Performance and the Value of Cheques Cleared

Correlation analysis results for the association between the banks' financial performance and the value of cheques cleared is presented in table 4 below. It gives the Pearson's coefficient value (correlation test) and the significance value (measuring significance of the association).

Table 4.2 Correlation between Financial Performance and Value of Cheques Cleared

| | | value of Cheques cleared |
|-----|---------------------|--------------------------|
| ROE | Pearson Correlation | .803 |
| | Sig. (2-tailed) | .012 |
| | N | 5 |

From the table, the Pearson correlation value was obtained to be 0.803. This is a coefficient value in the interval 0.7 to 1.0 which indicates that the variables have a strong correlation value which is as well positive. Testing the significance of the association at 5% level with a 2-tailed test, the association has a significant value of 0.012. This value is less than the critical value at 5% level (0.025, 2-tailed). This therefore confirms the significance of the association between the two variables. The results therefore suggest that there is a strong positive correlation between financial performance and the value of cheques cleared which is also statistically significant.

4.3.2 Correlation between Financial Performance and the Value of EFTs Cleared

The analysis of correlation aimed at testing the association between the banks' financial performance and the value of EFTs cleared was conducted and tested for its significance at 5% level. The results are as presented in table 4.3 below.

Table 4.3 Correlation between Financial Performance and Value of EFTs Cleared

| | | Value of EFTs cleared |
|-----|---------------------|-----------------------|
| ROE | Pearson Correlation | .863 |
| | Sig. (2-tailed) | .060 |
| | N | 5 |

Based on the findings in the table, the financial performance of the banks and the value of EFTs cleared have a correlation coefficient of 0.863 which is a strong and positive correlation coefficient. Its significance tested at 5% level with a 2-tailed test indicated a significant value of 0.006 less than 0.025 (the critical value). Thus, the findings indicate that there is a strong positive association between financial performance and the value of EFTs cleared. This association was also proved to be statistically significant hence explaining the reliability of the association.

4.3.3 Correlation between Financial Performance and the Value of RTGS Transfers

Table 4.4 below presents the correlation analysis results for the test of association between financial performance of banks and the value of RTGS transfers. It gives the correlation coefficient and the significance value of the association.

Table 4.4 Correlation between Financial Performance and Value of RTGS Transfers

| | | Value of RTGS transfers |
|-----|---------------------|-------------------------|
| ROE | Pearson Correlation | .887* |
| | Sig. (2-tailed) | .015 |
| | N | 5 |

The study results in the table indicate that, the banks' financial performance and the value of RTGS transfers have a correlation of 0.887. This according to the Pearson's correlation scale indicates a strong positive correlation. Its significant value is 0.015 as the table shows. This is also a value less than 0.025 at 5% level thus revealing that the association is statistically significant. The results therefore show that there is a strong and positive correlation between financial performance of commercial banks in Kenya and the value of RTGS transfers.

4.4 Regression Analysis

The objective of this study was to establish the effect of financial innovations on financial performance of commercial banks in Kenya. To accomplish this, the study conducted a regression analysis which gives the relationship between the measures of performance (independent variables) used in the study including the value of cheques cleared, the value of EFTs cleared and the value of RTGS transfers and the performance of the commercial banks (measured by ROE). The data used was collected for 5 years thus giving a 5 year period data which facilitated linear regression analysis. The regression results are presented in tables 4.5 and 4.6 below.

4.4.1 Model Summary

Table 4.5 gives the regression model summary results. It presents the R value which is the measure of association between the dependent and the independent variables, the R Square which is the coefficient of determination measuring the extent at which the independent variables influence the dependent variable as well as the Adjusted R Square which measures the reliability of the regression results.

Table 4.5 Regression Model Summary

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|-------|-------------------|----------|-------------------|----------------------------|
| 1 | .939 ^a | .928 | .923 | .00196 |

a. Predictors: (Constant), Cheque value cleared, RTGs transfer, EFTs Value cleared

According to the table results, there is a strong and positive association between the dependent variable (performance) and the independent variables (value of cheques cleared, value of EFTs cleared and the value of RTGS transfers). This is as given by the R value of

0.939 revealing the strength of the association. The coefficient of determination (R Square) in the table is 0.928. This value explains that, holding other factors (not mentioned in the study) constant, the value of the cheques cleared, value of the EFTs cleared and the value of the RTGS transfer contributes to 92.8% of the variance in the financial performance of the commercial banks while the other factors accounting for 7.2% of the variability (1-0.928).

The variation due to the studied variables (92.8%) is very high and therefore can be relied on to explain the changes in the financial performance of the commercial banks in Kenya. The results obtained are also reliable as given by the Adjusted R Square value of 0.923 which explains that the study results are 92.3% reliable and therefore the regression model developed can be relied on to explain the trends in the financial performance of the commercial banks.

4.4.2 Analysis of Variance

The results presented in table 4.6 gives the ANOVA results which shows the reliability of the model developed in explaining the relationship between the study variables. The significance of the model was tested at 5% level with a 2-tailed test.

Table 4.6 ANOVA Table

| Model | | Sum of Squares | df | Mean Square | F | Sig. |
|-------|------------|----------------|----|-------------|-------|-------------------|
| 1 | Regression | .268 | 3 | .08934 | 3.436 | .015 ^a |
| | Residual | .026 | 1 | .026 | | |
| | Total | .138 | 4 | | | |

a. Predictors: (Constant), Cheque value cleared, RTGS transfer, EFTs Value cleared

b. Dependent Variable: ROE

From the table, the F statistic is 3.436 with a distribution F(3,1), and the probability of observing a value greater than or equal to 3.436 is less than 0.001 as given by the significance value of 0.015 which is less than the critical value at 5% level in a 2-tailed test. This therefore

reveals that the regression model developed is statistically 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 financial innovation on performance of commercial banks.

4.4.3 Regression Coefficients

In order to answer the proposed model for the relationship between financial performance of commercial banks and the independent variables, the regression coefficients were calculated and presented in table 4.7 below. These with their significance values (also given in the table) measures the influence of each independent variable to the financial performance of the banks (dependent variable) and the effect that would occur to the financial performance in an attempt to changing (increasing/decreasing) these variables.

Table 4.7 Regression Coefficients

| Model | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
|--------------------------|-----------------------------|------------|---------------------------|-------|------|
| | B | Std. Error | Beta | | |
| 1 (Constant) | .227 | .011 | | 1.096 | .005 |
| RTGS transfers | 2.945 | .024 | .466 | 1.901 | .020 |
| Value of EFTs cleared | 1.321 | .006 | 2.511 | 1.490 | .014 |
| Value of Cheques cleared | 7.632 | .019 | 1.970 | 1.099 | .003 |

a. Dependent Variable: ROE

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;

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

Where Y = Financial Performance (Measured by ROE) which is the dependent variable

β_0 = Constant which defines long term Financial performance value without inclusion of independent variables

X1 = Value of RTGS transfers

X2 = Value of EFTs Cleared

X3 = Value of Cheques cleared

e = Error Term

Based on these coefficients, the regression model therefore becomes;

$$Y = 0.227 + 2.945 X_1 + 1.321 X_2 + 7.632 X_3$$

Thus, the model indicates that, holding the predictor variables constant, the financial performance of commercial banks would be 0.227. This explains that, without the influence of the value of cheques cleared, the value of the EFTs cleared and the value of RTGS transfers, the ROE value of the commercial banks would be 0.227. Also, the model shows that, a unit increase in the RTGS transfer would result to 2.945 times increase in the banks' financial performance. Thus the two variables are positively related with a magnitude of 2.945 explaining the extent of influence to the dependent variable.

From the model developed also, it is clear that a unit change (increase/ decrease) in the value of EFTs cleared will lead to a 1.321 times direct changes in the banks' financial performance.

This indicates that, the value of EFTs cleared and the financial performance off the commercial banks are positively related where increasing the value of EFTs cleared will give a corresponding increase of 1.321 times to the financial performance and vice versa.

Further, the model indicates that, the coefficient of the value of cheques cleared and the financial performance of the commercial banks is 7.632. This reveals that, given a unit increase in the value of the cheques cleared, the financial performance of the commercial banks will be affected by 7.632 times increase consequently. Thus, the two variables are positively related and a unit change in the value of cheques cleared will result to 7.632 times changes in the same direction to the financial performance of the commercial banks.

4.4.4 Test of Significance

The significance of the relationship between the dependent and the independent variables in this study was tested at 5% confidence level using a chi-square test. The critical significance value at this level was set at 0.025 in a 2-tailed test. Thus, with a significant value below this value (0.025), the results reveal the significance of the relationship. The chi-square test results for the significance of the relationship between financial performance and the independent variables are as presented in table 4.8 below;

Table 4.8 Chi-Square Test for the Relationship between the Variables

| | Value | df | Asymp. Sig. (2-sided) |
|------------------------------|---------------------|----|-----------------------|
| Pearson Chi-Square | 20.000 ^a | 16 | .020 |
| Likelihood Ratio | 16.094 | 16 | .004 |
| Linear-by-Linear Association | 3.147 | 1 | .016 |
| N of Valid Cases | 5 | | |

Based on the table results, the significance test results indicate a Pearson chi-square value of 20 with 16 degrees of freedom at 5% confidence level. The significance value is 0.02 which

is less than the critical value (0.025) in a 2-tailed test. Thus, based on these results there is a statistically significant relationship between the financial performance of the commercial banks and the financial innovativeness of the commercial banks.

4.5 Summary and Interpretation of the Findings

The study evaluated the association between financial innovation measures (independent variables) and the performance of commercial banks (dependent variable) which was tested through correlation analysis. The significance of the relationship was also tested at 95% level with a 2-tailed test where the significance of the relationship is indicated by a probability value less than 0.025. The test revealed that, with a Pearson correlation coefficient of 0.803, there is a strong and positive correlation between financial performance and the value of cheques cleared. This was also significant at 5% level indicating that, increasing the value of the cheques cleared would have a positive a corresponding increase in the financial performance of the commercial banks.

Findings also revealed that the financial performance of the banks and the value of EFTs cleared have a correlation coefficient of 0.863 which is a strong and positive correlation coefficient. Also, the financial performance of commercial banks and the value of RTGS transfers have a correlation of 0.887, a strong positive correlation. This therefore illustrates that the variables are positively associated with the financial performance of commercial banks where increasing the independent variables would result to increases in the dependent variable.

From the regression analysis results, the value of the cheques cleared, the value of EFTs cleared and the value of the RTGS transfer explains 92.8% of the variability in the financial

performance of the commercial banks. This shows that other factors which are not studied in the current study would account for 7.2% of the variability in the financial performance. The model developed revealed that all the coefficients are positive and significant. This shows that there is a positive relationship between the independent variables and the dependent variable.

The regression model results reveals that, a unit increase in the RTGS transfer would result to 2.945 times increase in the banks' financial performance. It is also clear from the model that a unit change (increase/ decrease) in the value of EFTs cleared will lead to a 1.321 times direct changes in the banks' financial performance. Further, the model indicates that, given a unit increase in the value of the cheques cleared, the financial performance of the commercial banks will be affected by 7.632 times increase consequently.

The findings therefore reveals that the value of the cheques cleared has the highest effect in the financial performance of the commercial banks followed by the value of the RTGs transfer which is approximately a quarter to the effect created by the value of the cheques cleared while the value of EFTs cleared has the lowest effect to the financial performance of the commercial banks.

The significance of the relationship was tested through a chi-square test where based on the results, there is a statistically significant relationship between the financial performance of the commercial banks and the financial innovativeness of the commercial banks. It is therefore clear that, any changes to the financial innovativeness of the banks would significantly result to corresponding changes to the financial performance of the commercial banks.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter presents the summary of the study findings, conclusions and the recommendations made based on the results. It also presents the limitation encountered in the study as well as the areas for further research as pointed out during the study.

5.2 Summary of the Findings and Discussions

The study was conducted with the aim of evaluating the effects of financial innovations on financial performance of commercial banks. The financial performance as the dependent variable was measured by ROE for the banking sector in the period 2009 to 2013. The financial innovativeness aspect is measured by three factors (value of cheques cleared, value of EFTs cleared and the value of RTGS transfers) which are the independent variables of the study. The major analysis to answer this object was regression analysis. Correlation analysis was conducted to evaluate the association of the variables. Multiple regression analysis was also conducted to evaluate the linear relationship between the dependent and the independent variables. The significance of the association and relationships was tested at 5% confidence level with a 2-tailed test. Chi-square test was the main test statistics conducted to test the significance of the relationships.

Testing the association between the financial innovations and the financial performance of commercial banks, the Pearson correlation test was conducted for each independent variable and the dependent variable separately. For the value of cheques cleared and the financial performance, the Pearson correlation value was found to be positive and strong as indicated

by the obtained value of 0.803. The association was also found to be statistically significant since the significant value supporting this association was 0.012 which is less than the critical value of 0.025 at 5% level with a 2-tailed test.

The study findings indicated that, the financial performance of the banks and the value of EFTs cleared have positive and strong correlation which is also significant tested at 5% level. This is as indicated by the Pearson coefficient value of 0.863 which is a strong and positive correlation coefficient. Thus, the findings indicate that there is a strong positive association between financial performance and the value of EFTs cleared.

The study also found out that, the banks' financial performance and the value of RTGS transfers have a strong and positive correlation as given by the Pearson correlation coefficient of 0.887. The association was also found to be statistically significant at 5% level. This therefore shows that there is a strong and positive correlation between financial performance of commercial banks in Kenya and the value of RTGS transfers.

These findings were contrary to the findings of the study conducted by Shirley and Sushanta (2006) who studied the impact of information technology on the banking industry. Their research illustrated that; though IT might lead to cost saving, higher IT spending can create network effects lowering bank profits.

The study findings illustrated that, holding other factors constant, the value of the cheques cleared, value of the EFTs cleared and the value of the RTGS transfer (independent variables) determines 92.8% of the financial performance of the commercial banks. Only 7.2% of the financial performance has not been accounted for by the studied factors (independent

variables). Also, without the influence of the value of cheques cleared, the value of the EFTs cleared and the value of RTGS transfers, the financial performance of the commercial banks would be 0.227. Further, findings indicated that, commercial bank's financial performance and RTGS transfers are positively related with a magnitude of 2.945 explaining the extent of influence to the dependent variable.

The findings also revealed that, the value of EFTs cleared and the financial performance of the commercial banks are positively related where increasing the value of EFTs cleared will give a corresponding increase of 1.321 times to the financial performance and vice versa.

Further, the study found out that, given a unit increase in the value of the cheques cleared, the financial performance of the commercial banks will be affected by 7.632 times increase consequently. Thus, the value of cheques cleared and the financial performance of the commercial banks are positively related.

5.3 Conclusion

The study accounts for the study of innovativeness, identifying the relationship among financial innovation and financial performance of commercial banks in the banking sector of Kenya. The researcher therefore based on the findings presented in the above section makes conclusions regarding the effects of financial innovations and financial performance of commercial banks. These are as presented below;

In general, the financial innovations in the Kenya's banking sector influence financial performance of commercial banks positively. This has a significant effect on the profitability of the commercial banks which also influence their competitive advantage. This is in agreement with the argument of several studies including: Walker (2004); Damanpour

(1991); Atuahene-Gima (1996) and Subramanian & Nilakanta (1996). These in their findings indicate that innovations have positive impact on performance indicators. Their findings also support significance of the transformational effects of innovations on bank performance and operational efficiency.

Results from the data collected discovered that financial innovativeness of commercial banks had a positive and significant effect on financial performance of the banks. From these findings, it is evident that innovativeness dimension of commercial banks significantly affect financial performance of the banking sector in Kenya.

The findings confirm that an increase in the innovation level results to increased financial performance. Specifically, the study findings give the relevance of the innovation developed in order to meet the customers' needs as well as of those developed in order to differentiate from the competitors in improving the financial performance. These findings agree with the findings of the study conducted by Mwangi (2013) on Innovations and financial performance which illustrated that, bank innovations had statistically significant influence on income, return on assets, and profitability and customer deposits of commercial banks. This was the case from the findings as the financial innovativeness of the banks have been evaluated to be significantly related to the financial performance of the commercial banks which determines the banks' profitability and asset value.

5.4 Limitations of the Study

The study was limited only on financial innovativeness of the commercial banks as the determinant of financial performance of commercial banks in Kenya. While there are other factors that influence the financial performance of the banks, generalizing the results that the

financial innovativeness is the key determinant of financial performance would therefore limit the relationship as assuming the other factors gives assumed results also.

The study was also limited to the commercial banks only as the areas of interest whereas other sectors in the economy experience different financial fight back which determines their growth ability. This also limits the results as they can only be used to inform the economy on the situation in the commercial banks but not in the general economic aspect.

The use of secondary data also limited the study findings. This is because the use of secondary data that had been collected for other purposes would not fit the purpose of the study. Secondary data also is prone to the owner biasness. Therefore employing secondary data might be questionable for the prediction of future trends in the model developed.

The data collection procedures were as well source of limitation to the researcher's ability to meet the research timeframe. This is because the procedure involved delays as the data was not readily available at the time of request which was to be compiled to be collected at a later date which the researcher had to keep on following for it to be released.

Related literature on the subject was also inadequate. The researcher basically reviewed literature which was from foreign articles and journals with the local literature accounting for approximately a quarter of the literature reviewed. This therefore limited the ability of the study to evaluate existing knowledge in the field and relate it to the current situation.

5.5 Recommendations

5.5.1 Policy Recommendations

Based on the study findings and conclusions that have been derived from these findings, the researcher gives recommendations which can be adopted for betterment of the financial sector through creation of more innovative environment for the banks' operations. These include;

Since the financial performance is the most extremely explicit and valid focus among the other performance dimensions, financial innovativeness information should be available particularly for regulatory and advisory bodies for guidance of the commercial banks to employ the strategies leading to their innovativeness for increased profitability and financial effectiveness.

Innovation capability is one of the most important dynamics which enables firms to achieve a high level of competitiveness both in the national and international market. Thus, how to promote and sustain an improved innovation capability should be the key focus area of the top managers of the commercial banks as well of the regulatory agents of the sector.

The study also recommends that firms should create enabling environment for the employees to be innovative in their operations in order to take its competitive advantage through creation of innovative services (financial) leading to increased financial performance and growth of the sector.

5.5.2 Suggestion for Further Research

As indicated in the limitation part, the study focused on financial innovativeness of the commercial banks as the determinant of financial performance of commercial banks in Kenya. Due to this limitation therefore, further studies should be conducted in other aspects (factors) which determine the performance of the commercial banks.

Also, further studies would be undertaken covering other sectors in the economy as the study only dealt with financial performance of the commercial banks. These would include; Quality management practices and adoption of innovative operational procedures in service delivery in the financial sector, environmental innovativeness and its influence on adoption of innovative operations as well as the factors/ determinants of financial innovativeness in the public and private sector.

A study would also be done on the financial innovativeness of the commercial banks and other financial institutions and their financial performance which would utilize the use of primary data collected from the individual institutions. This would facilitate accuracy in data collection as well as provide a chance for the researcher to meet the financial controllers of these institutions for relevant interviews.

To assist in undertaking a comprehensive study for all the financial institutions, the regulatory authority should facilitate the interested parties to undertake their review of the sector through assisting them with relevant materials for their study. This would enable them to evaluate the financial sector's trends in the performance thereby giving them an opportunity to understand the sector and make appropriate recommendations for

improvements. More research is therefore required in this area to provide more literature on the innovativeness of the financial sector.

The financial sector should also sponsor some researchers to undertake a baseline survey to evaluate the effect of the sector's financial innovativeness on the customer's/client's loyalty. This would be done within a programmed time span to allow for detailed information to be collected which would give relevant results facilitating evaluation of the sector's performance.

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APPENDICES

APPENDIX I: CHEQUE & EFT CLEARING TRANSACTIONS (DATA).

| Period | (EFTs) | | (Cheques) | |
|--------------|----------------|--|------------------|--|
| | Values (bn) | | Values (bn) | |
| Jan-09 | 56.537 | | 299.909 | |
| Feb-09 | 57.356 | | 293.620 | |
| Mar-09 | 67.666 | | 340.995 | |
| Apr-09 | 88.044 | | 325.310 | |
| May-09 | 61.787 | | 308.818 | |
| Jun-09 | 65.020 | | 349.205 | |
| Jul-09 | 63.375 | | 333.858 | |
| Aug-09 | 67.079 | | 307.501 | |
| Sep-09 | 67.376 | | 345.838 | |
| Oct-09 | 31.762 | | 134.017 | |
| Nov-09 | 24.964 | | 139.764 | |
| Dec-09 | 32.509 | | 153.919 | |
| TOTAL | 683.476 | | 3,332.753 | |
| Jan-10 | 21.394 | | 131.416 | |
| Feb-10 | 24.481 | | 138.491 | |
| Mar-10 | 32.584 | | 160.672 | |
| Apr-10 | 26.963 | | 144.008 | |
| May-10 | 26.631 | | 147.481 | |
| Jun-10 | 22.346 | | 137.294 | |
| Jul-10 | 25.067 | | 153.604 | |
| Aug-10 | 27.794 | | 148.091 | |
| Sep-10 | 30.000 | | 163.000 | |
| Oct-10 | 32.584 | | 150.759 | |
| Nov-10 | 29.261 | | 165.839 | |
| Dec-10 | 36.000 | | 170.000 | |
| TOTAL | 335.105 | | 1,810.653 | |
| Jan-11 | 24.000 | | 155.000 | |
| Feb-11 | 27.000 | | 157.000 | |
| Mar-11 | 31.000 | | 181.000 | |
| Apr-11 | 25.000 | | 147.000 | |
| May-11 | 28.805 | | 181.262 | |
| Jun-11 | 28.102 | | 166.656 | |
| Jul-11 | 26.996 | | 169.020 | |
| Aug-11 | 30.384 | | 177.079 | |

| | | | | |
|--------------|--|----------------|--|------------------|
| Sep-11 | | 31.494 | | 186.105 |
| Oct-11 | | 29.253 | | 170.370 |
| Nov-11 | | 30.209 | | 184.321 |
| Dec-11 | | 34.300 | | 176.384 |
| TOTAL | | 346.544 | | 2,051.197 |

| | | | | |
|--------------|--|----------------|--|------------------|
| Jan-12 | | 26.679 | | 174.963 |
| Feb-12 | | 29.181 | | 174.173 |
| Mar-12 | | 31.955 | | 183.184 |
| Apr-12 | | 29.289 | | 171.953 |
| May-12 | | 33.099 | | 193.845 |
| Jun-12 | | 30.090 | | 172.956 |
| Jul-12 | | 33.180 | | 189.698 |
| Aug-12 | | 33.796 | | 179.788 |
| Sep-12 | | 29.929 | | 171.611 |
| Oct-12 | | 35.406 | | 198.146 |
| Nov-12 | | 33.690 | | 183.415 |
| Dec-12 | | 37.456 | | 176.115 |
| TOTAL | | 383.749 | | 2,169.848 |

| | | | | |
|--------------|--|----------------|--|------------------|
| Jan-13 | | 32.756 | | 189.553 |
| Feb-13 | | 33.669 | | 176.727 |
| Mar-13 | | 32.773 | | 167.486 |
| Apr-13 | | 36.116 | | 191.323 |
| May-13 | | 39.558 | | 197.239 |
| Jun-13 | | 32.916 | | 175.141 |
| Jul-13 | | 40.753 | | 207.953 |
| Aug-13 | | 38.101 | | 184.986 |
| Sep-13 | | 36.077 | | 192.800 |
| Oct-13 | | 40.026 | | 210.743 |
| Nov-13 | | 37.030 | | 193.938 |
| Dec-13 | | 44.003 | | 201.362 |
| TOTAL | | 443.779 | | 2,289.249 |

APPENDIX II: REAL-TIME GROSS SETTLEMENT (DATA)

| YEAR | 2013 | 2012 | 2011 | 2010 | 2009 |
|--------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|
| Month, Year | Value (Ksh millions) | Value (Ksh millions) | Value (Ksh millions) | Value (Ksh millions) | Value (Ksh millions) |
| Jan | 1632331 | 1579320 | 1319870 | 1254020 | 1375950 |
| Feb | 1548394 | 1546480 | 1288840 | 1458480 | 1236480 |
| Mar | 1630838 | 1638150 | 1801550 | 1694230 | 1234920 |
| Apr | 2010659 | 1528600 | 1727570 | 1436310 | 107235 |
| May | 1868735 | 1610126 | 1867910 | 1587240 | 1064250 |
| Jun | 1711803 | 1693432 | 2617340 | 1500990 | 1031560 |
| Jul | 2109433 | 1560938 | 2151280 | 1425810 | 1184970 |
| Aug | 2020546 | 1637004 | 2007040 | 1280470 | 1127100 |
| Sep | 1948919 | 1738832 | 1729950 | 1256470 | 1198240 |
| Oct | 2300706 | 1899675 | 2004110 | 1375620 | 1480730 |
| Nov | 1982011 | 1819579 | 1816270 | 1430130 | 1429960 |
| Dec | 1904603 | 1627431 | 1562080 | 1400960 | 1454000 |
| TOTAL | 22668978 | 19879567 | 21893810 | 17100730 | 13925395 |

APPENDIX III: LIST OF COMMERCIAL BANKS OPERATING KENYA

| |
|---|
| 1 African Banking Corporation, Nairobi |
| 2 Bank of Africa Kenya, Nairobi |
| 3 Bank of Baroda, Nairobi |
| 4 Bank of India, Nairobi (foreign owned) |
| 5 Barclays Bank of Kenya, Nairobi (listed on NSE) |
| 6 CFC Stanbic Bank, Nairobi (listed on NSE) |
| 7 Chase Bank Ltd, Nairobi |
| 8 Citibank, Nairobi (foreign owned) |
| 9 City Finance Bank, Nairobi |
| 10 Co-operative Bank of Kenya, Nairobi (listed on NSE) |
| 11 Commercial Bank of Africa, Nairobi |
| 12 Consolidated Bank of Kenya Ltd, Nairobi |
| 13 Credit Bank Ltd, Nairobi |
| 14 Development Bank of Kenya, Nairobi |
| 15 Diamond Trust Bank, Nairobi (listed on NSE) |
| 16 Dubai Bank Kenya Ltd, Nairobi |
| 17 Equatorial Commercial Bank Ltd, Nairobi |
| 18 Equity Bank, Nairobi (listed on NSE) |
| 19 Family Bank, Nairobi |
| 20 Fidelity (Commercial) Bank Ltd, Nairobi |
| 21 Fina Bank Ltd, Nairobi |
| 22 First Community Bank Ltd, Nairobi |
| 23 Giro Commercial Bank Ltd, Nairobi |
| 24 Guardian Bank, Nairobi |
| 25 Gulf African Bank Ltd, Nairobi |
| 26 Habib Bank A.G. Zurich, Nairobi (foreign owned) |
| 27 Habib Bank Ltd, Nairobi (foreign owned) |
| 28 Housing Finance Co. Ltd, Nairobi (gov) (listed on NSE) |

| |
|--|
| 29 Imperial Bank, Nairobi |
| 30 I&M Bank Ltd (former Investment & Mortgages Bank Ltd), Nairobi |
| 31 K-Rep Bank Ltd, Nairobi |
| 32 Kenya Commercial Bank Ltd, Nairobi (gov) (listed on NSE) |
| 33 Middle East Bank, Nairobi |
| 34 National Bank of Kenya, Nairobi (gov) (listed on NSE) |
| 35 National Industrial Credit Bank Ltd (NIC Bank), Nairobi (listed on NSE) |
| 36 Oriental Commercial Bank Ltd, Nairobi |
| 37 Paramount Universal Bank Ltd, Nairobi |
| 38 Prime Bank Ltd, Nairobi |
| 39 Southern Credit Banking Corp. Ltd, Nairobi |
| 40 Standard Chartered Bank , Nairobi (listed on NSE) |
| 41 Trans-National Bank Ltd, Nairobi |
| 42 UBA Kenya Bank Ltd., Nairobi |
| 43 Victoria Commercial Bank Ltd, Nairobi |
| 44 Jamii Bora Bank |

Source: CBK, (2013)