THE RELATIONSHIP BETWEEN THE APPLICATION OF INTERNET BANKING AND FINANCIAL PERFORMANCE OF COMMERCIAL BANKS IN KENYA

BY

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DECLARATION

This Research Project is my original work and has not been presented for a degree in any other university

Sign…… Date……...

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This Research project has been submitted for examination with my approval as the university supervisor.

Sign……. Date……

Mr. Mirie Mwangi

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DEDICATION

This study is dedicated to my Mother; Rebecca, my late father from whom I always get inspiration to work hard, my brothers; Stephen, Peter, Joel, Mark and their families for their moral support, love and encouragement they gave me to complete my postgraduate studies.

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LIST OF ABBREVIATIONS

ATM	- Automated Teller Machine
BTASSETS	- Bank Total Assets
CAMEL	- Capital Adequacy, Asset Quality, Management Efficiency, Earnings Quality & Liquidity Management
CAPM	- Capital Asset Pricing Model
CAR	- Capital Adequacy Ratio
CBK	- Central Bank of Kenya
DEA	- Data Envelope Analysis
EFS	- Efficient Structure
E-Banking	- Electronic Banking
ER	- Efficiency Ratio
GDP	- Gross Domestic Product
IT	- Information Technology
KENEX	- Kenya Exchange Service Bureau
MBA	- Master of Business Administration

MS	- Microsoft
NIM	- Net Interest Margin
OLS	- Ordinary Least Square
ROA	- Return on Assets
ROE	- Return on Equity
SCP	- Structure Conduct Performance
SPSS	- Statistical Package for Social Sciences
SWIFT	- Society of Interbank Financial Telecommunication
USA	- United States of America

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ABSTRACT

The purpose of the study was to investigate the relationship between the application of internet banking and financial performance of commercial banks in Kenya for a period of 10 years. Kenya's financial sector has undergone significant financial innovations in the last few years. Many new more efficient and real time financial systems have come into place with the adoption and application of internet banking. Despite the undeniable importance of internet banking adoption and application, its effect on financial performance is not always obvious since there are reported cases of reverse causality between internet banking application and financial performance. Descriptive research design was used to carry out this study. The population of study was all the 43 commercial banks in Kenya as at 30th December 2013. The study used secondary data from published central banks' annual reports and the EFT settlement reports for every clearing centre as generated by the Kenya Bankers' Association. The independent variables were internet banking, bank size and efficiency ratio while dependent variable was financial performance of the banks measured by their Return on Equity. The relationship between the dependent variable and the independent variables was determined by use of linear regressions. Study results indicated that internet banking is positively correlated to financial performance of commercial banks in Kenya. It also indicated that the independent variables (Internet banking, Bank Size and Efficiency Ratio) explain and can predict financial performance of commercial banks in Kenya. The variables could explain 95.6% of the variation in profits in the commercial banks and only 4.4% of the variation in profitability in the banking sector could not be explained by the model used.

CHAPTER ONE

INTRODUCTION

1.1 Background to the study

Innovation is considered to be a critical requirement for the growth and profitability of organizations. One of the ways to achieving growth and sustaining performance is to encourage and foster innovative practices and creativity internally within the institution. For banking organizations operating in increasingly competitive market, innovation is often a condition for simple survival. The capability to innovate is ever more viewed as the single most vital factor in developing and supporting competitive advantage (Ngugi & Karina, 2013). The development and the increasing progress that is being experienced in the Information and Communication Technology have brought about a lot of changes in almost all facets of life. In the Banking Industry, it has been in the form of online banking, which is now replacing the traditional banking practice (Chavan, 2013).

Banks have been delivering electronic services to consumers and businesses remotely for years. Banks are deemed to be the early users of technology and the main drivers of technological revolution. Electronic funds transfer, including small payments and corporate cash managements systems, as well as publicly accessible automated machines for currency withdrawals and retail account management, are global fixtures. However, the increased world-wide acceptance of the internet as a delivery channel for banking products and services provides new business opportunities for banks as well as for customers. At the same time this new opportunities carry risks as well as benefits (Khrawish and Al-Sa'di, 2011).

1.1.1 Internet Banking

Furst et al. (2002) viewed internet banking as the employment of a remote delivery channel in performing banking services. Pikkarainen et al (2004) defined internet banking as an internet portal, through which consumers can use different kind of banking services ranging from bill payment to making investment, thus banks just offering information through their web sites are not considered as using internet banking. Thulani, Tofara and Langton (2009) defined Internet Banking as the systems that enable bank customers to get access to their accounts and general information on bank products and services through the use of bank's website, without the intervention or inconvenience of sending letters, faxes, original signatures and telephone confirmations. According to Ndung'u (2012), internet banking saves the bank time and money with an added advantage of minimizing bank teller errors. Internet banking has emerged as a new marketing channel for banking products and services to customers in many emerging economies like Kenya. It is intended to offer customers easy access to their money and other banking information while adding more value such as convenience.

Online banking in Kenya is a recent innovation which started back in 2008 (CBK, 2009). The first bank in Kenya to offer online banking was I and M bank who were granted the chatter to offer E-Commerce Internet system banking in the East African region in the year 2008 (I and M News, 2008). Since then several like banks have adopted the online banking which is most targeting the people living in the Diaspora. Currently Kenya has over 26 banks offering internet banking all which are members of the Society of

Interbank Financial Telecommunication (SWIFT) and Kenya Exchange Service Bureau (KENEX) (CBK, 2011).

Fierce competition between banks, both in retail and wholesale, has forced banks to find new and profitable areas where to expand. But Internet banking seems to represent a viable strategy also for new entrants in the banking sector.

1.1.2 Financial Performance of Commercial Banks

A firm's performance is the appraisal of prescribed indicators or standards of effectiveness, efficiency, and environmental accountability such as productivity, cycle time, regulatory compliance and waste reduction (Ngugi and Karina, 2013). 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 (Ngigi, 2012).

Commercial banks play a vital role in the economic resource allocation of countries. They channel funds from depositors to investors. They can do so if they generate necessary income to cover their operational cost they incur in the due course. For sustainable intermediation function, banks need to be profitable. Beyond the intermediation function, the financial performance of banks has critical implications for

economic growth of countries. Good financial performance rewards the shareholders for their investment. This, in turn, encourages additional investment and brings about economic growth. On the other hand, poor banking performance can lead to banking failure and crisis which have negative repercussions on the economic growth (Ongore, 2013).

1.1.3 Internet Banking and Financial Performance of Commercial Banks

The financial products and services of commercial banks have become available over the Internet, which has thus become an important distribution channel for commercial banks. Commercial banks boost technology investment spending strongly to address revenue, cost and competitiveness concerns (Chavan, 2013). Electronic banking greatest promise is timelier; more valuable information is accessible to more people, at reduced cost of information access. With the changes in business operations as a result of the Internet era, security concerns move from computer labs to the front page of newspapers. The promise of e-banking is offset by the security challenges associated with the disintermediation of data access (Aduda and King'oo, 2012).

Lyons, Chatman and Joyce (2007) argued that the relevant aspects of technological change include innovations that reduce costs related to the collection, storage, processing, and transmission of information, as well as innovations that transform the means by which customers' access bank services. They cited ATMs (automated teller machines), telephone banking, internet banking, and e-money as being among the significant innovations affecting the banking distribution system that influence banking performance

significantly. Mansury and Love (2008) added that client relation management systems, bank management technologies, and various other technologies are among the major changes in internal banking systems that also have exercised a positive influence on banking performance and profitability.

Internet banking offers many advantages both for the banks and customers. First the advantage of it for banks is the potential savings from the cost of maintaining a traditional branch network, and it creates an opportunity to increase the consumer base by reaching a differentiated target group from the traditional bank customers (Ozdemir et al., 2008). Overall it could be said that time and cost savings and freedom from place are among the main reasons of Internet banking acceptance (Pikkarainen et al., 2004). Liao and Cheung (2002) found that individual expectations regarding accuracy, security, transaction speed, user friendliness, user involvement, and convenience were the most important quality attributes in the perceived benefits of Internet banking.

1.1.4 Commercial Banks in Kenya

Commercial Banks are licensed and regulated pursuant to the provisions of the Banking Act and the Regulations and Prudential Guidelines issued thereunder. They are the dominant players in the Kenyan Banking system and closer attention is paid to them while conducting industry supervision to ensure that they are in compliance with the laws and regulations. Currently there are 43 licensed commercial banks in Kenya. Out of the 43 institutions, 30 are locally owned and 13 are foreign owned. The locally owned financial institutions comprise 3 banks with significant shareholding by the Government and State Corporations, and 27 commercial banks (CBK, 2014).

Kenyan commercial banks are classified into three peer groups using a weighted composite index that comprises assets, deposits, capital, number of deposit accounts and loan accounts. A bank with a weighted composite index of 5 percent and above is classified as a large bank, a medium bank has a weighted composite index of between 1 percent and 5 percent while a small bank has a weighted composite index of less than 1 percent. For the period ended 31st December 2013, there were 6 large banks with a market share of 52.39 percent, 15 medium banks with a market share of 37.95 percent and 22 small banks as shown in Appendix II (CBK, 2013).

The banking sector has reported massive growth and development in recent years. This is attributable to the effective regulation and reforms effected by the central bank after many banks went into bankruptcy in the 1990s. The banks have been in the frontline of automating their functions to give their customers good service. Kenyan commercial banks have engaged in product innovation where internet banking and mobile banking have taken root in various local banks. As the Kenyan financial market is expanding, banks have realized that they are facing more and more competition from other financial sectors thus forcing them to increase their marketing spending, lower charges such as lending rates and increase their presence (CBK, 2011).

Commercial banks continued to embrace the use of the internet as a remote delivery channel for banking services. Increased customer awareness and demand resulted in internet banking becoming a preferred mode of banking, rather than as an alternative channel. Internet services provided include; opening accounts, transferring funds to

different accounts, online viewing of the accounts, online inquiries and requests, online salaries payments, clearing cheques status query and instant alerts or messages of account status (CBK, 2012).

1.2 Research Problem

The health of the financial system has an important role in the country as its failure can disrupt economic development of the country. Financial performance is company's ability to generate new resources, from day-to-day operations over a given period of time and it is gauged by net income and cash from operations. A sound financial performance enables commercial banks to manage credit risk, interest rate risk, liquidity risk, market risk, foreign exchange risk and solvency risk. This means that the exposure of bank solvency and financial positions to risks, as a result of unsound banking practices, may result in loss of depositors' confidence and disruption of payment system mechanisms in the economy. Maintaining trust in the banking and financial system, along with firmly maintaining the strength of that system and the soundness of its institutions, has been the highest priority of central banks, particularly as banks represent the link through which monetary policy measures lead to final monetary policy objectives (Sangmi and Nazir, 2010).

The increased efficiency that results from shifting from paper based to electronic payments will reduce the amount of transactions required by the consumers. The shift from full service banking offices to more specialized delivery channels will streamline banking services as well. With the rapid diffusion of the Internet to all customer levels, banking online is fast becoming an alternate channel to provide banking services and

products (Bradley and Stewart, 2003). Various researches have been conducted with focus on bank innovations which broadly include internet banking. However, this research seeks to unravel the relationship between internet banking and financial performance of commercial banks in Kenya. This research thus addresses the research question from the perspective of the banks and utilizes indicators such as the bank size and the efficiency ratios to answer the research question. The adoption of internet banking is expected to improve the financial performance the commercial banks.

Malhotra and Singh (2009) found that in India, larger internet banks were more profitable. However their study also found that smaller banks had their profitability impacted negatively by internet adoption. DeYoung, Lang and Nolle (2007) also had contrary findings in the USA which concluded that internet banking improved bank profitability. Another contrary finding was reported in India by Kagan, Acharya, Rao and Kodepaka (2005) that internet banking helped community banks to improve their earning ability.

Gakure and Ngumi (2013) conducted a research to find out whether bank innovations had any influence on the profitability of commercial banks in Kenya. Their results indicated that there was less agreement on the assertion that internet banking has a positive influence on bank profitability. The findings showed that Kenyan commercial banks do not invest in internet banking with a sole objective of making high incomes from the service. Internet banking in Kenya is mainly used as a compliment of other service delivery channels in order to create convenience to the customers. Internet banking is also

used as a competitiveness tool in order to attract and retain mainly the corporate clients. This study focused on the general bank innovations and did not specifically address the effect of internet banking on commercial banks in Kenya. Aduda and King'oo (2012) observed that the promotion of online banking technology has enabled commercial banks in Kenya to enhance their operations with cost cutting effectively and efficiently in order to handle daily banking affairs through online banking channels. Customers are being facilitated by reducing their visits in banks and they can carry out their transactions via internet instead of personally visiting the branches. Mutua (2013) found out that online banking has improved the performance of commercial banks in Kenya.

Despite the above observations, there is almost no study available that systematically explains the relationship between the application of internet banking and financial performance of commercial banks in Kenya. With the mixed results of the studies, more studies should be carried out to evaluate this relationship. This study sought to investigate the relationship between the application of internet banking and financial performance of commercial banks in Kenya.

1.3 Research Objective

The objective of this study was to investigate the relationship between internet banking and financial performance of commercial banks in Kenya.

1.4 Value of the Study

This study will be valuable to commercial banks in Kenya as will bring out the relationship between internet banking and financial performance. This will inform the

banks' strategy formulation as to whether investment in internet banking infrastructure is important or not.

This study will form a basis for further research. Students and other academic researchers will use this study as a basis to further knowledge and critic it for development of knowledge in the issues involved in this study.

The government is involved in the regulation of the commercial banking sector in Kenya through the CBK and its prudential guidelines. This study will inform policy making for the industry as to whether investments in the internet banking infrastructure is viable to the commercial banks as well as its social impacts.

CHAPTER TWO

LITERATURE RIVIEW

2.1 Introduction

This chapter reviews both theoretical and empirical literature. Theoretical review literature reviews previous studies that have been conducted related to the present study. The subsections review the theory and empirical evidence on the relationship between internet banking and financial performance of commercial banks. It also reviews literature on other factors which related to commercial bank performance including internet banking. The objective of this section is to try and identify the potential gaps on the studies that have been conducted on internet banking and financial performance of commercial banks as the main variable.

2.2 Theoretical Review

Different scholars have come up with several theories to explain financial innovation. This study will be guided by three major theories which are relevant to in evaluating the relationship between internet banking and financial performance of commercial banks. These include constraint-induced financial innovation theory, circumventation innovation theory and transaction cost innovation theory.

2.2.1 Constraint-Induced Financial Innovation Theory

American Economist Sibler (1983) advanced this theory. He pointed out that the purpose of profit maximization of financial institutions is the key reason of financial innovation. There are some restrictions (including external handicaps such as policy and internal handicaps such as organizational management) in the process of pursuing profit

maximization. Though these restrictions not only guarantee the stability of management, they reduce the efficiency of financial institutions, so financial institutions strive toward casting them off. Constraint-induced innovation theory discusses financial innovation from microeconomics, so it is originated and representative (Shakhala, 2012). But it emphasizes "innovation in adversity" excessively. So it can't express the phenomenon of financial innovation increasing in the trend of liberal finance commendably.

New innovations are usually faced with stiff oppositions from within and externally. This can explain inefficiencies that are experienced over the different process, service, and organizational and product innovations carried out by banks. Effects of restrictive policies that government and regulatory bank's bodies give on innovation can also be established.

2.2.2 Circumvention Innovation Theory

American economist Kane (1981) is the pioneer of circumvention innovation theory. He proposed 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 theory can therefore be used to show if cost reduction has been achieved and if internet baking adoption has been used to circumvent controls in Kenya.

2.2.3 Transaction Cost Innovation Theory

The transaction cost innovation theory's main pioneers are Hicks and Niehans (1983). 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.

2.3 Determinants of Financial Performance of Commercial Banks

Various factors influence banks' financial performance which can be classified into bank specific (internal) and macroeconomic (external) factors (Aburime, 2005). These are stochastic variables that determine the output of banks (Ongore and Kusa, 2013). For this study to evaluate the placement of internet banking on the factors affecting the financial performance of commercial banks in Kenya, it is necessary to discuss these factors.

2.3.1 Bank Specific Factors

Bank specific factors are the internal variables which influence the profitability of specific bank. These factors are within the scope of the bank to manipulate them and that they differ from bank to bank. These include capital size, size of deposit liabilities, size and composition of credit portfolio, interest rate policy, labor productivity, and the state of information technology, risk level, management quality, bank size, ownership and the like. CAMEL framework is often used by scholars to proxy the bank specific factors (Dang, 2011). This framework is discussed further below.

2.3.1.1 Capital Adequacy

Capital is the amount of own fund available to support the bank's business and act as a buffer in case of adverse situation (Athanasoglou et al. 2005). Capital is seen as cushion to protect the depositors and promote the stability and efficiency of financial systems around the world (Vijayakumar, 2012). Capital adequacy is the level of capital required by banks to enable them to withstand risks such as credit, market and operational risks they are exposed to in order to absorb the potential losses and protect the bank's debtors. Capital adequacy ratio (CAR) shows the internal strength of the bank to withstand losses during crisis. Capital adequacy ratio is directly proportional to the resilience of the bank to crisis situations. It has also a direct effect on the profitability of banks by determining its expansion to risky but profitable ventures or areas (Sangmi and Nazir, 2010)

2.3.1.2 Asset Quality

The bank asset includes among others current asset, credit portfolio, fixed asset, and other investments. Often a growing asset (size) related to the age of the bank (Athanasoglou et

al., 2005). The prime goal for measuring the assets quality is to ascertain the quality of assets and majority of the segments are related with non-performing assets. For any bank, an asset mainly represents loans that a bank extends to its customers. Asset quality of a bank can be judged based on the potential credit risk associated with the loan. It also acts as testing instrument which reflects the ability of the management in discovering and controlling such risks. The quality of the loan is one of the most crucial aspects that determine the financial health of commercial banks (Vijayakumar, 2012). Thus, nonperforming loan ratios are the best proxies for asset quality. It is the major concern of all commercial banks to keep the amount of nonperforming loans to a low level (Sangmi and Nazir, 2010).

2.3.1.3 Management Efficiency

Management is the most important ingredient that ensures the sound functioning of banks. With increased competition in the banking sector, efficiency and effectiveness have become the rule as banks constantly strive to improve the productivity of their employees (Vijayakumar, 2012). The capability of the management to deploy its resources efficiently, income maximization, reducing operating costs can be measured by financial ratios. One of this ratios used to measure management quality is operating profit to income ratio (Sangmi and Nazir, 2010). The higher the operating profits to total income (revenue) the more the efficient management is in terms of operational efficiency and income generation. Management quality determines the level of operating expenses and in turn affects profitability (Athanasoglou et al. 2005).

2.3.1.4 Earning Quality

Earnings quality assesses the quantity of income in terms of income generated by core activity, that is, income from lending operations. Investing additional funds forms an important part of the banking function along with lending. The earning of bank reflects its growth capacity and financial health. Quality of earnings is very important creditor that determines the ability of the bank to earn consistently, going to future. It basically determines the profitability of the banks. It also explains the sustainability and growth in earnings in the future. This parameters gain importance in the light of the arguments, that much of the banks income earned through non-core activities like investments, treasury operations and corporate advisory services (Vijayakumar, 2012).

2.3.1.5 Liquidity Management

Liquidity is another factor that determines the level of bank performance. Liquidity refers to the ability of the bank to fulfill its obligations, mainly of depositors. According to Dang (2011) adequate level of liquidity is positively related with bank profitability. The most common financial ratios that reflect the liquidity position of a bank according to the above author are customer deposit to total asset and total loan to customer deposits. Other scholars use different financial ratio to measure liquidity. However, the study conducted in China and Malaysia found that liquidity level of banks has no relationship with the performances of banks (Said and Tumin, 2011).

2.3.1.6 External Factors/ Macroeconomic Factors

The macroeconomic policy stability, Gross Domestic Product, Inflation, Interest Rate and Political instability are also other macroeconomic variables that affect the financial

performance of commercial banks. For instance, the trend of GDP affects the demand for banks asset. During the declining GDP growth the demand for credit falls which in turn negatively affect the profitability of banks. On the contrary, in a growing economy as expressed by a positive GDP growth, the demand for credit is high due to the nature of business cycle. During boom the demand for credit is high compared to recession (Athanasoglou et al., 2005). The same authors state in relation to the Greek situation that the relationship between inflation level and banks profitability is remained to be debatable. The direction of the relationship is not clear (Vong and Chan, 2009).

2.4 Empirical Studies

Oyewole et al. (2013) investigated the impact of electronic banking on banks' performance in Nigeria. A panel data comprising annual audited financial statements of eight banks that have adopted e-banking between 2000 and 2010 as well as macroeconomic control variables were employed to investigate the impact of e-banking on return on asset (ROA), return on equity (ROE) and net interest margin (NIM). In order to establish empirical relationship between bank performance and electronic banking in Nigeria, a multiple regression model was predicted. The results were analyzed using Pooled Ordinary Least Square Model. The results indicated that e-banking begins to contribute positively to bank performance in terms of ROA and NIM with a time lag of two years while a negative impact was observed in the first year of adoption. They recommended that investment decision on electronic banking should be rational so as to justify cost and revenue implications on bank performance.

Mohammad and Saad (2011) examined the impact of electronic banking on the performance of Jordanian banks over the period between 2000 and 2010 using OLS regression and found that electronic banking has a significant negative impact on banks performance.

Onay et al (2008) did a study on the impact of internet banking on bank profitability in Turkey. Their analysis covered thirteen banks that had adopted online banking in Turkey between 1996 and 2005. By using bank specific and macroeconomic control variables, they investigated the impact of internet banking on the return on assets (ROA) and equity (ROE), the interest spread, overhead expenses and on commission and fee income controlling for systemic bank crises in the country during the timeframe. Their study included time-lagged measures of internet banking adoption to exhibit the changes in effect over time. Their results showed that internet banking starts contributing to banks' ROE with a time lag of two years while a negative impact is observed for one year lagged dummy. For the intermediation spread and commission and fee income their estimations failed to provide any significant relationship with internet banking.

Gakure and Ngumi (2013) did a study to establish the influence that bank innovations have on profitability of commercial banks in Kenya during the period of May to August, 2012. Descriptive survey research design was used. The target population comprised all commercial banks in Kenya. More specifically the target population was forty four commercial banks based on latest available information from central bank of Kenya. The accessible population was twenty banks. The study used multiple linear regression

analysis to test the statistical significance of the various independent variables (automated teller machines, debit and credit cards, point of sale terminals, mobile banking, internet banking and electronic funds transfer) on the dependent variable of profit before tax. The study results show that bank innovations have a moderate influence on profitability of commercial banks in Kenya.

In their study, Sumra et al (2011) examined the impact of E-banking on the profitability of Pakistani banks. Their main study objectives were to measure and compare the effect of the introduction of new technologies through e-banking on the profitability of domestic and foreign banks. Their study employed both descriptive and explanatory research designs. A survey was conducted by interviewing managers of 12 banks from three cities namely; Bahawalpur, Lahore and Islamabad. The results showed that e-banking has increased the profitability of banks and has enabled the banks to meet their costs and earn profits even in the short span of time.

Gitonga (2013) did a study on the relationship between financial innovation and efficiency of commercial banks in Kenya for the period between 2009 and 2012 based on a descriptive research design. The population comprised of 43 commercial banks out of which 21 were selected, forming the sample size. The DEA model was used using a DEA computer program. The objective of the study was to obtain information for each firm on: Relative efficiency score, peer for each inefficient bank, objective output and input targets. The mean relative efficiency score for the selected banks was found to be approximately 80%. Large banks in terms of assets were found to be relatively more

efficient than small and medium sized banks. Foreign banks were found to have a higher efficiency score than public and private-domestic banks in terms of ownership.

Mutua (2013) study on the effect of online banking on cost efficiency in Kenyan commercial banks employed a descriptive research design. In this study, the target population was the 43 commercial banks and a sample of seven banks was selected for the period between 2008 and 2012. The data was analyzed using multiple linear regressions and the results were that online banking has improved the performance of these banks.

Gitau (2011) did a longitudinal study on the relationship between financial innovation and financial performance of commercial banks in Kenya from January 1st 2006 to December 31st 2010 based on a quasi-experimental research design. The target population of the study was all 44 commercial banks in Kenya where primary data was collected from the questionnaires and secondary data about financial innovation collected from the bank's financial results and publications. The study found that 70% of the institutions had adopted process innovations, 16% product innovations and 14% institutional innovations. The study also conducted that there was a positive relationship between financial innovation and financial performance of commercial banks in Kenya.

A correlation study conducted by Shakhala (2012) on the relationship between financial innovations and the growth of commercial banks in Kenya over 2002 to 2011 used a population of 43 commercial banks registered and operating in Kenya. He noted that

given the nature of his study, it was prudent that all the banks formed the sample size, thus a sample size of 43 commercial banks. He observed that financial innovation had a positive but insignificant effect on all the measures of banking growth. The found out that financial innovation accounted for 18% of the variance in pre-tax profit growth but the F-statistics of 3.072 was insignificant at 5%.

Ngigi (2012) assessed the effect of financial innovation on commercial bank's financial performance in Kenya for a period of four years up to 30th June 2012. The causal research design was used to carry out this study. The population of study was all the 43 commercial banks in Kenya as at 30th June 2012. The relationship between the dependent variable and the independent variables was determined by use of a regression model. The study results indicated that financial innovation indeed contributes to and is positively correlated to profitability in the banking sector particularly that of commercial banks.

2.5 Summary of Literature Review

The literature review has broadly introduced the adoption of internet banking and its effects on the performance of commercial banks both globally and locally. The theories underlying financial innovation and which internet banking is one of the financial innovations have been discussed. Internet banking cannot solely determine the performance of commercial banks. As a result, other factors which determine the profitability of commercial banks have been reviewed. Past studies on financial innovation have also been reviewed.

It is clear that from the global review, researchers have established mixed results on the effect and relationship between internet banking and bank performance on different periods in time. It is also clear from the empirical review that little if any has been done by the local studies to systematically establish the relationship between internet banking and the overall commercial bank performance in Kenya. This study therefore sought to systematically establish the relationship.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This study aimed at investigating the correlation between internet banking services and financial performance of commercial banks registered and operating in Kenya. This section deals with the research design which was used to conduct this study, the population of the study and sample size used as well as data collection methods and analysis.

3.2 Research Design

This study employed descriptive research design. A descriptive study is used to describe or define, often by creating a profile of a group of problems, people or events, through the collection of data and tabulation of the frequencies on research variables or their interaction (Cooper and Schindles, 2003). Descriptive research design was chosen because it enabled the researcher to generalize the findings to a larger population. This design is appropriate because it allowed the analysis and relation of variables.

3.3 The Population

Ngechu (2006) defined a population as a complete set of individuals, cases, or objects with some common observable characteristics. A particular population has some characteristics that differentiate it from other population. He further indicated that a target population is a group of individuals, events or objects which a researcher wants to generalise the findings. The population of this study comprised of all commercial banks

licensed and operating in Kenya as at 31st December 2013 (See Appendix 1). Therefore a census survey was carried out.

3.4 Data Collection Instruments

This study relied on secondary data which was obtained from annual reports published by the Central Bank of Kenya; which is also the regulator of the banking sector. This yielded the Net Income figures as well as the Average Shareholders' Equity. The dependent variable, that is commercial banks' Return on Equity was calculated from profit after tax and exceptional items while shareholders' equity were obtained from CBK's annual bank supervision reports. The researcher also developed a data collection sheet to capture the incidence of internet banking in the commercial banks in Kenya. This was done by summarising the EFT monthly settlement reports to get the value of internet banking transactions. The period covered by the study was between years 2004 to 2013 (Both years inclusive).

The independent variable bank size (BSIZE) was calculated as the natural logarithm of the banks' assets; log (BTASSETS) which were obtained from the annual reports published by the CBK. Noninterest expense, net interest income and noninterest income were obtained from the banks' published annual financial statements to calculate the Efficiency Ratios. Also, secondary data was obtained from unpublished data generated by the Kenya Bankers Association for all EFTS clearing houses and was used to obtain the variable internet banking (iBanking). This was done using the value of the internet transactions in Kenya shillings as standardized shareholders equity. The iBanking

variable standardization was achieved by dividing the value of the transactions with the shareholders' equity.

3.5 Data Analysis

The relationship between the dependent variable and the independent variables was determined by the use of the multiple linear regressions. The data was analysed using Statistical Package for Social Sciences (SPSS) version 16.0 and Microsoft (MS) Excel. Given the ten year Panel structure of sample data gathered, regression analysis was conducted to investigate the relationship between internet banking and financial performance of commercial banks in Kenya. The Regression model was of the form;

$Y_{it} = c + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \varepsilon$, Where:

Y_{it} is the financial performance of a bank represented by average ROE. This was measured as the ratio of average net income to average shareholders' equity.

X_1 is the standardized average value of internet banking transactions in KSh. The standardization was done using the shareholders equity.

The coefficient β_1- β_3 is the coefficients as determined by the model. The coefficients were estimated by use of Ordinary Least Squares (OLS) regressions on the population under study.

X_2 represents the average bank size as measured by the natural logarithm of the bank assets; log (BTASSETS) (Hirofumi et al., 2006).

X_3 represents the efficiency ratio. This a normalised measure of banks operating cost obtained as shown below;

Efficiency Ratio (ER) = Noninterest Expense ÷ (Net Interest Income + Noninterest Income)

Noninterest expense includes a variety of operational costs such as employee compensation and benefits, IT, legal fees and consultancy services (Federal Reserve Bank, 2014).

c- Constant of regression

ε- Error term of the model

The significance of internet banking variables as predictors of financial performance was tested using the t-test with a confidence interval of 99% and 42 degrees of freedom (v=n-1) using SPSS. The coefficient of determination (R^2) was used to measure the strength to which independent variables explain variations in the dependent variables. The analysed data was then presented using tables.

CHAPTER FOUR

DATA ANALYSIS, RESULTS AND DISCUSSION

4.1 Introduction

This chapter presents the analysis of data, findings from the study and discussion of the findings. Section 4.2 presents data analysis while section 4.3 presents findings from the study. Section 4.4 presents discussion of the findings where the findings are compared and contrasted with other results from previous studies. The study targeted forty three (43) commercial banks licensed an operating in Kenya and covered the period from 2004 to 2013. Data for all the 43 commercial banks were available representing a response rate of 100%.

4.2 Descriptive Statistics

Descriptive analysis is very important as it gives a summary of the independent variables i.e. internet banking, bank size and efficiency ratio. It is a generated report of univariate statistics for data in the input range providing information about the central tendency and variability of the data as shown below.

Analysis Table 1: Descriptive Statistics Analysis

	Minimum	Maximum	Mean	Median	Std. Deviation
ROE	-18.63	47.91	11.9256	15.4668	11.58439
IBANKING	.49	19.28	7.8714	8.3432	3.52514
BSIZE	6.27	11.20	10.0051	9.94	.78392
ERATIO	-3.78	1.67	.5922	.6372	.72056

The table above shows the mean, median and standard deviation which are very crucial for this report. Both mean and median of the variables indicate where the centre of the

data is located. We deduce that mean for bank size is higher than mean for internet banking and efficiency ratio. This means that investment in internet banking depends on the size of the bank. The larger the bank, the higher the value of internet transactions at a specific period of time. The mean of the efficiency ratio is seen to be more than 0.5 which means that most almost all the banks are above the preferred ratio. According to Jacewitz and Kupiec (2012), higher efficiency ratios indicate less efficient banks.

4.3 Correlation Analysis

A correlation analysis using Karl Pearson correlation coefficient was performed. A negative coefficient indicates a negative relationship between the variables correlated; in which case an increase in one variable would result into a decrease in the other variable and vice versa. A positive coefficient on the other hand indicates a positive relationship in the variables; meaning that changes in the variables move together. An increase in one variable would therefore result into an increase in the other variable and vice versa. ROE was correlated with internet banking (IBANKING) having bank size (BSIZE) and efficiency ratio (ERATIO) as the control variables.

Analysis Table 2: Correlation Matrix

	ROE	IBANKING	BSIZE	ERATIO
ROE	1			
IBANKING	.977**	1		
BSIZE	.398**	.467**	1	
ERATIO	.031	.014	-.088	1

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

Table 2 above indicates that ROE is strongly positively correlated with iBanking. The correlation between ROE and ibanking (0.977) is a strong positive correlation. This is significant at 99% significance level. The correlation between ROE and BSIZE is weak (0.398) indicating that there is a weak positive linear association between ROE and bank size. The correlation between ROE and ERATIO is weak (0.031) indicating that there is a very weak positive correlation between ROE and Efficiency Ratio. This association is statistically significant at 99% significance levels. These findings indicate that the three independent variables have a positive correlation with financial performance as measured by ROE.

4.4 Regression Analysis

The raw data was summarized so that it became amenable to statistical analysis. This was achieved by computing the arithmetic means of the data for the period of study so as to arrive at a comparable figure(s) per bank for analysis.

4.4.1 Regression Model Summary

A regression analysis between the dependent variable and the independent variables was performed; independent variables being the arithmetic means of the standardized internet banking, arithmetic means of the bank size and arithmetic means of the efficiency ratios. The dependent variable was arithmetic means of the Return on Equity for the banks under study. The results of the study are as discussed below.

Analysis Table 3: Regression Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.979[a]	.959	.956	2.44021

a. Predictors: (Constant), eratio, ibanking, bsize

Results in the analysis table 3 above indicate that the r-squared for the model was 0.956, which indicates that the independent variables can be used to explain about 95.6% of the variation in return on equity in the commercial banks. This indicates that the regression model has a strong explanatory power as only about 4.4% of variation in return on equity in the commercial banks is not explained by the model.

4.4.2 Test of Statistical Significance of Independent Variables

The analysis table below shows the analysis of variance between the independent variables.

Analysis Table 4: Analysis of Variance

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	5404.091	3	1801.364	302.516	.0005[a]
	Residual	232.230	39	5.955		
	Total	5636.321	42			

a. Predictors: (Constant), eratio, ibanking, bsize

b. Dependent Variable: roe

The p-value for the entire model was found to be 0.0005, which is below 0.05 implying that there is a statistically significant difference between the independent variables. Hence the model was reliable to draw conclusions from.

Results in analysis table 5 above present the test of the statistical significance of the independent variables in the model. This provides the estimates of independent variables, their standard error and the t-ratios. The table also provides the statistical significance of each independent variable in the regression model.

Analysis Table 5: Test of Statistical Significance of Independent Variables

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-3.442	5.143		-.669	.507
	IBANKING	3.323	.121	1.011	27.450	.001
	BSIZE	-1.088	.546	-.074	-1.991	.053
	ERATIO	.163	.526	.010	.310	.758

a. Dependent Variable: roe

The results indicate that the t-ratio for average internet banking (IBANKING) was 27.45. The estimate of value of the commercial banks' average iBanking is 3.323 which indicate that the average ibanking value of the commercial banks is positively related to their ROE. The standard error is an indication of the mean. A small standard error is an indication that the sample mean is a more accurate reflection of the actual population mean. This is evidenced by the small standard error of 5.143. The regression model that explain the data collected was found to be

$Y = -3.442 + 3.323\ X_1 - 1.088\ X_2 + 0.163\ X_3$

4.5 Discussion of Findings

The research findings indicated that the independent variables (IBANKING, BSIZE, and ERATIO) explain and can therefore predict financial performance of commercial banks. These variables could explain 95.6% of the variation in profits in the commercial banks ($R^2 = 0.956$). This indicates that the regression model had a strong explanatory power as only 4.4% of variation in profitability in the banking sector is not explained by the model.

This is consistent with a study by Aduda and King'oo (2012) who observed that the promotion of online banking has enabled commercial banks in Kenya to enhance their operations with cost cutting effectively and efficiently in order to handle daily banking affairs through internet banking. A study by Mutua (2013) had a similar finding. He found out that online banking has improved the performance of commercial banks in Kenya.

The study results indicated that the t-ratio for ibanking to ROE was 27.450, the ratio being significant at 99% level of significance which indicates that ibanking is a significant predictor of financial performance of commercial banks, while the t-ratio of ibanking had a coefficient estimate of 3.323 which indicates that it had a positive relationship with financial performance. The t-ratio for bank size was -1.991 and efficiency ratio was 0.31 which were significant at 99% level of significance. This indicates that the bank size and efficiency ratio are significant predictors of financial performance of commercial banks in Kenya. This implies that as the value of bank efficiency decreases, profitability increases.

The mean and median derived from the set of data used are common measures of central tendency; represent either a typical or representative score and/or a value about which the data tend to center. The means for ROE, IBANKING, BSIZE and ERATIO were 11.9256, 7.8714, 10.0051 and 0.5992 respectively. The means for ROE, IBANKING and ERATIO are lower than their respective medians. The mean for BSIZE is slightly higher than the median and this implies that the histogram is slightly skewed in a positive direction. The median scores represent the middle value when the scores are arranged as an array in order of increasing magnitude. The median often becomes more appropriate measure of central tendency when the data is skewed. The median of the data used were 15.4668, 8.3432, 9.94 and 0.6372 for ROE, IBANKING, BSIZE and ERATIO respectively.

Correlation analysis indicated a very strong positive correlation, at 0.977, between ROE and ibanking. This positive linear correlation was statistically significant at 99% significance level. Correlation between ROE and BSIZE was found to be weak positive at 0.398. Correlation between ROE and ERATIO was found to be a very weak positive at 0.031. An increase in IBANKING would likely to result into an increase in ROE and vice versa as the changes in the two moves in the same direction.

These findings are evidence that as more effective payment systems are developed through the internet, bank customers' progressively adopt them in place of the traditional systems. Internet banking present more benefits in funds transfers and payments while at the same time significantly reduce operational costs.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

In this chapter, the researcher presents the summary, conclusions and the recommendations made from the study findings. In section 5.2, summary of findings are presented. Section 5.3 presents conclusions made from the study findings while section 5.4 presents recommendations made after considering the study findings. Section 5.5 presents suggestions for any further studies that may be done in field of financial innovation in the banking sector and section 5.6 presents the limitations encountered during the study by the researcher.

5.2 Summary of Findings

The study sought to collect data of 43 commercial banks in Kenya. Data analysis was through linear regression and correlation analysis. Correlation analysis was through Karl Pearson correlation coefficients.

The results of the study indicate that the independent variables (ibanking, BSIZE and ERATIO) explain and can therefore predict financial performance of commercial banks in Kenya. These variables could explain 95.6% of the variation in profits in the commercial banks (r-squared = 0.956). This indicates that the regression model had a strong explanatory power as only 4.4% of variation in profitability in the banking sector is not explained by the model.

The t-ratio for ibanking/to ROE was 27.450, the ratio being statistically significant at 99% indicating that internet banking is a significant predictor of return on equity of

commercial banks. The t-ratios of bank size and efficiency ratio had coefficient estimates of -1.991 and 0.310 respectively which were statistically significant at 99%. This indicates that bank size and efficiency ratios are significant predictors of profitability of commercial banks. This implies that as efficiency ratio of the banks decreases, profitability increases.

Correlation analysis indicates a very strong positive correlation at 0.956, between ROE and ibanking. This positive linear correlation was statistically significant at 99%. Correlation between ROE and BSIZE was found to be a weak positive at 0.398. Correlation between ROE and ERATIO was found to be a very weak positive at 0.031. This implies that the lower the efficiency ratio, the higher the ROE and vice versa.

5.3 Conclusion

This study sought to investigate the relationship between internet banking and financial performance of commercial banks in Kenya. Through the existing literature and empirical evidence, the study concludes that internet banking has resulted into improved financial performance of commercial. This is supported by the positive correlation between return on equity and internet banking. As a financial innovation method, internet banking presents more convenience, efficiency and security to commercial banks' customers resulting to more uptake of the innovation.

The adoption of internet banking has enhanced the Kenyan banking industry by making it more productive and effective. Internet banking has also a strong positive relationship on the overall banking performance by making workers performance more effective and efficient. The adoption of internet banking has improved the fortune of the Kenyan

commercial banks. This has been achieved through fees charged on the transfer of funds from one account to another and across banks by the bank clients.

Internet banking has improved the bank customer relationship by rendering effective services twenty four hours, seven days a week. Customers can now have access to their account outside working hours to transact. Customers can pay their bills, transfer funds and even access the status of their accounts through the internet.

5.4 Recommendations

The researcher encountered difficulties in getting data on internet banking with some of the banks having policies that do not permit information sharing especially on the competitive data. The researcher therefore recommends that the school of business should carry out an outreach program to sensitize the industry(s) in general as to the benefits and importance of participating in such research efforts. This could take the form of campaigns with an aim of getting the industry(s) to understand the nature of the MBA program and expectations of the school on its students. This could reduce the time of data collection and provide more time for data analysis and thus the reliability and comparability of any results obtained could be improved.

The management of all the commercial banks need to keep improving upon the web design of the internet banking portal to make it more navigable, provide sufficient and real time information to customers, and make it easier for customers to complete online transactions and do so as quickly as possible in order to avoid wasting customers' time for online transactions as a result of the web page design. They need also to secure their systems in order to reduce cases of cyber crime which has recently been witnessed in

Kenya. This will help in provision of secure links for the transmission of funds through the internet.

The researcher noted that the research effort of other students before him was not available online other than the abstracts of those studies. Some of the works were in high demand and because they were in hard copies only the researcher found it inconveniencing to queue for the works in the library. The researcher thus recommends that all research efforts to be digitized and availed in a portal where the School of Business Students can interrogate in which ever location they may be in the space of time. This in the opinion of the researcher would increase the number of works reviewed and also improve the quality of the future researches.

5.6 Limitations of the Study

The internet banking data used in the research was for only three years (2011-2013). This is due to the short time of data collection available. The data was highly competitive and the researcher had to seek more assistance from the CBK research department where authority was sought to access the data. The data was bulky in nature because it captured all the 43 clearing houses and this was to be done manually and it could have required some more time to generate and summarize.

The study was not able to use all input and output variables involved in banking operations, in particular qualitative variables were excluded from this study. More accurate results could have been obtained if more variables were used. The time available for the data collection and analysis could be extended to accommodate all the variables under consideration for better results.

The ROE was calculated from figures which were available on an annual basis. Regression was therefore based on the annual figures even though internet banking values were available on a monthly basis which gave the researcher a great challenge in summarizing the data to an annual basis. Availability of the ROE data on a quarterly or monthly basis would have provided more precision in the regression results. The CBK could consider publishing banking sector financial reports on a quarterly basis where feasible.

5.5 Suggestions for further Research

This study reveals that the use of internet banking by commercial banks has improved their financial performance. In order to maintain a competitive edge in the growing trend of information technology which involves internet banking, the following suggestions are made; this study was done only on the commercial banks in Kenya. The same study can be done on other financial markets. This will help to understand the implication of internet banking on the overall financial institutions in Kenya. Similar studies can also be done for banking industry in other countries.

The study was confined to commercial banks yet the current financial innovation in internet banking includes the rural marginalized mostly served by micro finance institutions in the banking industry. There is need therefore to study the adoption and use of internet banking by Micro finance institutions. Another suggested study would be to explore on the challenges that commercial banks face in adoption and maintenance of internet banking and ways of addressing such challenges.

This study sought to investigate the relationship between internet banking and financial performance of commercial banks in Kenya. It used ROE as the measure of financial performance and the variables used in the study were not exhaustive. Further research could use other measures of financial performance such as ROA and ROCE. It would also be of great value to explore whether bank characteristics such as capital base, top management and geographical coverage determine the banks innovation orientation.

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APPENDICES

Appendix I: List of Commercial Banks in Kenya

1. Bank of India
2. Citibank N.A. Kenya
3. Habib Bank A.G. Zurich
4. Habib Bank Ltd.
5. Bank of Baroda (K) Ltd.
6. Barclays Bank of Kenya Ltd.
7. Diamond Trust Bank Kenya Ltd.
8. K-Rep Bank Ltd.
9. Standard Chartered Bank (K) Ltd.
10. Ecobank Ltd
11. Gulf Africa Bank (K) Ltd
12. First Community Bank
13. Bank of Africa (K) Ltd.
14. UBA Kenya Bank Limited
15. Consolidated Bank of Kenya Ltd.
16. Development Bank of Kenya Ltd.
17. Housing Finance Ltd.
18. Kenya Commercial Bank Ltd.
19. National Bank of Kenya Ltd.
20. CFC Stanbic Bank Ltd.
21. African Banking Corporation Ltd.
22. Jamii Bora Bank Ltd.
23. Commercial Bank of Africa Ltd.
24. Co-operative Bank of Kenya Ltd.
25. Credit Bank Ltd.
26. Chase Bank (K) Ltd.
27. Dubai Bank Kenya Ltd

28. Equatorial Commercial Bank Ltd.
29. Equity Bank Ltd.
30. Family Bank Ltd.
31. Fidelity Commercial Bank Ltd.
32. Fina Bank Ltd.
33. Giro Commercial Bank Ltd.
34. Guardian Bank Ltd.
35. Imperial Bank Ltd.
36. Investment & Mortgages Bank Ltd.
37. Middle East Bank (K) Ltd.
38. NIC Bank Ltd.
39. Oriental Commercial Bank Ltd.
40. Paramount Universal Bank Ltd.
41. Prime Bank Ltd.
42. Trans-National Bank Ltd.
43. Victoria Commercial Bank Ltd.

Source: Central Bank of Kenya (2014).

Appendix II: Classification of Commercial Banks in Kenya into Peer Groups

Large Peer Group>5%

1. Kenya Commercial Bank Ltd
2. Equity Bank Ltd
3. Co-operative Bank of Kenya Ltd
4. Standard Chartered Bank (K) Ltd
5. Barclays Bank of Kenya Ltd
6. CFC Stanbic Bank (K) Ltd

Medium Peer Group> 1% & < 5%

7. Commercial Bank of Africa Ltd
8. NIC Bank Ltd
9. Diamond Trust Bank (K) Ltd
10. I&M Bank Ltd
11. National Bank of Kenya Ltd
12. Chase Bank Ltd
13. Citibank N.A. Kenya
14. Bank of Africa (K) Ltd
15. Bank of Baroda (K) Ltd
16. Prime Bank Ltd
17. Housing Finance Co. of Kenya Ltd
18. Family Bank Ltd
19. Imperial Bank Ltd
20. Bank of India
21. Guaranty Trust Bank Ltd

Small Peer Group<1%

22. Ecobank Kenya Ltd
23. African Banking Corporation Ltd

24. Consolidated Bank of Kenya Ltd
25. Gulf African Bank Ltd
26. Development Bank of Kenya Ltd
27. Equatorial Commercial Bank Ltd
28. K - Rep Bank Ltd
29. Giro Commercial Bank Ltd
30. Guardian Bank Ltd
31. Victoria Commercial Bank Ltd
32. Fidelity Commercial Bank Ltd
33. First Community Bank Ltd
34. Habib Bank A.G. Zurich
35. Trans - National Bank Ltd
36. Paramount Universal Bank Ltd
37. Habib Bank Ltd
38. Credit Bank Ltd
39. Oriental Commercial Bank Ltd
40. Jamii Bora Bank Ltd
41. Middle East Bank (K) Ltd
42. Dubai Bank Ltd
43. UBA Kenya Ltd

Source: Central Bank of Kenya (2014).

Appendix III: Raw Data on the Averages of ROE, iBanking, BSIZE and Eratio.

BANK	ROE	iBANKING	BSIZE	ERATIO
Bank of India	20.53325459	10.15838814	9.94	0.627408737
Citibank N.A. Kenya	21.87313654	10.85416013	10.69	0.665909995
Habib Bank A.G. Zurich	19.24268162	9.69527698	9.84	0.654158768
Habib Bank Ltd.	15.46683002	8.343201054	9.56	0.678927517
Bank of Baroda (K) Ltd.	23.04314151	11.12091351	10.32	0.66763733
Barclays Bank of Kenya Ltd.	26.93884294	12.6737002	11.08	0.725557762
Diamond Trust Bank Kenya Ltd.	18.70001856	9.768483202	10.61	0.539826882
K-Rep Bank Ltd.	4.558257658	4.763715688	9.73	0.624948415
Standard Chartered Bank (K) Ltd.	29.5520819	13.53929454	11.07	0.642135738
Ecobank Ltd	-11.8386034	0.492735503	10.36	0.504485051
Gulf Africa Bank (K) Ltd	1.346679289	3.783297142	10.00	0.605922495
First Community Bank	-1.29545856	2.843140933	9.82	0.579901296
Bank of Africa (K) Ltd.	6.919614447	5.668692241	10.09	0.634006792
UBA Kenya Bank Limited	-6.6109947	1.394473857	9.40	0.523216081
Consolidated Bank of Kenya Ltd.	5.31735792	5.048724918	9.83	0.687539635
Development Bank of Kenya Ltd.	10.64872162	6.787906972	9.71	0.556842573
Housing Finance Ltd.	7.850369496	4.706591274	6.27	0.68794075
Kenya Commercial Bank Ltd.	18.49198375	9.896499881	11.20	0.744384702
National Bank of Kenya Ltd.	19.31160538	9.968233594	10.59	0.628480968
CFC Stanbic Bank Ltd.	17.91768803	9.568147797	10.79	-3.783615745
African Banking Corporation Ltd.	18.00786124	9.313035091	9.93	1.249603708
Jamii Bora Bank Ltd.	1.281053632	5.382970926	9.48	0.788670565
Commercial Bank of Africa Ltd.	22.21007585	10.97803931	10.72	1.666744129
Co-operative Bank of Kenya Ltd.	17.87636987	9.592592495	10.90	0.775446628

Credit Bank Ltd.	10.46568385	6.689421748	9.60	0.560957653
Chase Bank (K) Ltd.	15.70004705	8.590658497	10.07	0.595987223
Dubai Bank Kenya Ltd	4.034107542	4.423887838	9.24	0.637150802
Equatorial Commercial Bank Ltd.	0.635593445	3.414523191	9.61	0.575449943
Equity Bank Ltd.	23.16589231	11.31790663	10.79	0.657520428
Family Bank Ltd.	11.65740938	7.31134184	10.28	0.607805478
Fidelity Commercial Bank Ltd.	19.55945322	9.746334103	9.68	0.60089199
Fina Bank Ltd.	8.467506463	6.167479339	10.03	0.647826372
Giro Commercial Bank Ltd.	19.22440761	9.699821597	9.88	0.718365364
Guardian Bank Ltd.	10.07125954	6.634959417	9.83	0.707912539
Imperial Bank Ltd.	47.85772611	19.28230439	9.99	0.638102868
I & M Bank Ltd.	20.38497493	10.33320529	10.61	0.621683714
Middle East Bank (K) Ltd.	7.738788935	5.781276431	9.61	0.550260142
NIC Bank Ltd.	18.60503892	9.748720741	10.64	1.506763248
Oriental Commercial Bank Ltd.	-0.51094532	2.984200015	9.46	0.595978738
Paramount Universal Bank Ltd.	7.501390229	5.668942499	9.51	0.625296773
Prime Bank Ltd.	14.41913911	8.234552973	10.28	0.612730331
Trans-National Bank Ltd.	13.50532461	7.640485509	9.42	0.674949993
Victoria Commercial Bank Ltd.	15.61755441	8.459722139	9.76	0.653617567

Source: Research findings (2014)