EFFECT OF ONLINE BANKING ON FINANCIAL PERFORMANCE OF COMMERCIAL BANKS IN KENYA

BY

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DECLARATION

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

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DEDICATION

This research paper is lovingly dedicated to my parent Lenah Ngungi who has been a constant source of inspiration. She has given me the drive and discipline to tackle any task with enthusiasm and determination. Without her love and support this project would not have been made possible. It will also not be possible to forget the constant support of my supervisor, James Ng'ang'a throughout the project development.

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ABSTRACT

Internet banking is used as a marketing tool to attract and retain customers, expand market reach, and improve service quality, the extent and the intensity of banking products and services offered online is likely to have a significant impact on the bank's overall performance. Online banking still remains a fictitious idea to most people. With frequent cases of frauds seen within our country where cases of fraud have been reported in the basic electronic banking system like ATM cards most people would prefer taking money in cash than adopt technology. The purpose of the study was to investigate the impact of online banking on financial performance of commercial banks in Kenya. This study was conducted through the use of a descriptive design. The population comprised all the 43 commercial banks in Kenya and therefore a census survey was carried out. The primary data was collected through questionnaires while secondary data was collected from the annual reports issued by CBK. Data was analysed using multiple regression. The study concludes that generally, online banking has a weak positive and significant influence on the financial performance of commercial banks in Kenya. This is because online bank cut banks costs, increase commission income, reduce staffing levels and make banking more convenient for customers. The study recommends the banks' should encourage more customers to use internet banking since based on the results of the study, internet banking services were very effective in addressing lowering costs to the bank and customers, safety and accessibility by users. The banks need to address security concerns for the increasing online banking fraud cases. The study also recommends that review of Fraud Legislation could reduce fraud related risks in the banks. Kenya still lags behind on anti fraud laws. it is imperative for bank management to intensify investment in ICT products to facilitate speed, convenience, and accurate services, or otherwise lose out to their competitors.

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LIST OF ABBREVIATION

ATM	-	Automatic Teller Machine
BBC	-	British Broadcasting Cooperation
BFIU	-	Banking Fraud Investigations Unit
CBK	-	Central Bank of Kenya
ICT	-	Information Commutation Technology
KENEX	-	Kenya Exchange Service Bureau
MBA	-	Mumbai Banking Association
NSE	-	Nairobi Stock Exchange
PIN	-	Personal Identification Number
SPSS	-	Statistical Package for the Social Sciences
SWIFT	-	Society of Interbank Financial Telecommunication
UK	-	United Kingdom
UNEP	-	United Nation Education Program
UNON	-	United Nations Office in Nairobi

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

The application of internet technologies to businesses for improvements in their performances is not something new. As stated by Saffu, Walker and Hinson. (2008), there is an increase in applications of e-commerce in businesses in the past ten years. The benefits of e-commerce include reduction in cost, increasing business opportunities, reducing lead time and providing a more personalized service to the consumers (Turban, King, Lee & Chung, 2008). One e-commerce tool that is being adopted by the banking industry is online banking or e-banking. Online banking is the performance of banking activities via the Internet. Online banking is also known as "Internet banking" or "Web banking." A good online bank will offer customers just about every service traditionally available through a local branch, including accepting deposits (which is done online or through the mail), paying interest on savings and providing an online bill payment system (Investopedia, 2012).

Online banking differs with electronic banking according to Olivia (2011). She argues that online banking narrows to only use of internet while Electronic banking allows an individual to access the account using electronic teller machines. Daniel, (1999) found that online banking is a new phase in retail banking services. With the help of online banking several types of services through which customers can request information and carry out their banking transaction such as balance inquiry, inter account transfers, utility bills payment, request check book etc., via a telecommunication network or internet without physically visit the branches.

Banking over the Internet has attracted increasing attention from bankers and other financial services industry participants, the business press, regulators, and law makers. Among the reasons for Internet banking audience are the notion that electronic banking and payments will grow rapidly, more or less in tandem with proliferating internet commerce; industry projections that Internet banking will cut banks' costs, increase banks' revenue growth, and make banking more convenient for customers; and some vexing public policy issues. Despite this attention, there is a dearth of systematic information on the nature and scope of Internet banking. Bankers and public policymakers alike have to plan using largely anecdotal evidence and conjecture (Karen et al, 2010).

For customers, online banking and e-banking have brought a lot of convenience in their wake but for banks, they are much more than that. Banks switching to online banking have experienced reduction in operational costs. Earlier customers had to come physically even to know their account balances and certainly every time to withdraw money from their accounts. Even when they had to make payments to other accounts from their saving or current account, they had to come to the bank to deposit Cheques. All this was done by personnel at the bank which unnecessarily resulted in wastage of time and manpower. But the use of online banking and e-banking has obliterated the need of personally visiting the bank for such purposes (Olivia, 2011).

IT tools such as online banking have provided an improvement in services among the banking industry (Dawes & Rowley, 1998). There are currently more than thousands of e-banking web sites all over the world (Gurau, 2002). Although online banking has been implemented in many developed countries such as the United States and those in Europe (Pikkarainen *et al.*, 2004), there is a growing trend in the adoption of online banking by banks in developing

countries too (Gurau, 2002). One developing country, which has been growing rapidly in recent years is Kenya.

E-commerce is still very much at the beginning stage in Kenya (Huy & Filiatrault, 2006). Although Kenya is currently attracting foreign investors due to its low cost advantage when compared to other countries, a low cost strategy will not guarantee businesses to compete effectively in the long run (Chong & Ooi, 2008). In order for the companies to stay competitive, they can implement e-commerce to enable them to be more productive and efficient.

Although there are past literatures studied on the adoption of online banking, many of these studies have tended to focus on European countries or the United States (Pikkarainen *et al.*, 2004). However, Kenya is different from these countries given that the economy is still expanding in recent years and its e-commerce infrastructure is still developing. Thus the adoption of online banking is still at its infancy when compared to other developed nations. Therefore, the primary objective of this research is to understand the effect of online banking in Kenya on banks financial performance.

1.1.1 History of Online Banking

The concept of online banking as we know it today dates back to the early 1980s, when it was first envisioned and experimented with. However, it was only in 1995 (on October 6, to be exact) that Presidential Savings Bank first announced the facility for regular client use. The idea was quickly snapped up by other banks like Wells Fargo, Chase Manhattan and Security First Network Bank. Today, quite a few banks operate solely via the Internet and have no 'four-wall' entity at all (Ross Bainbridge, 2006).

In 2001, the Bank of America was the first bank in the world to reach 3 million online banking customers. Over the next ten years, online banking grew exponentially, and some banks came into existence which only existed online! These banks were able to offer better interest rates, more features, and other services because they had the advantage of not having to maintain the expenses of brick and mortar bank buildings (Tech, 2011).

The 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&M bank who were granted the chatter to offer E-Commerce Internet system banking in the East African region in the year 2008 (I&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 30 banks offering internet banking all which are members of the Society of Interbank Financial Telecommunication (SWIFT) and Kenya Exchange Service Bureau (KENEX) (CBK, 2011).

1.1.2 Financial Performance

Financial performance measures are intended to evaluate the effectiveness and efficiency by which organisations use financial and physical capital to create value for shareholders. Some authors have suggested the balanced scorecard which provides a framework, which encourages the use of financial and non- financial measures of performance via balancing four perspectives - financial, customers, internal business processes, and learning and growth (Kaplan and Norton, 1992).

The key recommended measures for financial analysis include: profitability, liquidity and solvency (Zenios et al. 1999). Profitability measures the extent to which a business generates a profit from the factors of production: labour, management and capital. A subjective measure of how well a firm can use assets from its primary mode of business and generate revenues.

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 (Copisarow, 2000). Profitability analysis focuses on the relationship between revenues and expenses and on the level of profits relative to the size of investment in the business.

Four useful profitability ratios and measures are the return on assets (ROA), return on equity (ROE), operating profit margin and net income. The ROA measures the return to all assets and is often used as an overall index of profitability and the higher the value, the more profitable the business. The ROE measures the rate of return on the owner's equity employed in the business. It is useful to consider the ROE in relation to ROA to determine if the firm is making a profitable return on their borrowed money. The operating profit margin measures the returns to capital per unit of gross revenue.Net income comes directly off of the income statement and is calculated by matching revenues with the expenses incurred to create those revenues, plus the gain or loss on the sale of capital assets (Zenios et al. 1999).

Liquidity measures the ability of the business to meet financial obligations as they come due, without disrupting the normal, ongoing operations of the business. Liquidity can be analyzed both structurally and operationally. Structural liquidity refers to the balance sheet (assets and liabilities) and operational liquidity refers to cash flow measures. On the other hand Quach, (2005) indicated that solvency measures the amount of borrowed capital used by the business relative the amount of owner's equity capital invested in the business. In other words, solvency measures provide an indication of the business' ability to repay all indebtedness if all of the assets were sold. Solvency measures also provide an indication of the business' ability to withstand risks by providing information about the firm's ability to continue operating after a major financial adversity.

Two recommended measures of liquidity are the current ratio and working capital. The current ratio measures the relationship between total current assets and total current liabilities. The higher the ratio, the more liquid the firm is considered to be. Working capital is a measure of the amount of funds available to purchase inputs and inventory items after the sale of current assets and payment of all current liabilities (Zenios et al. 1999).

Solvency measures the amount of borrowed capital used by the business relative the amount of owner's equity capital invested in the business. In other words, solvency measures provide an indication of the business' ability to repay all indebtedness if all of the assets were sold. Unlike liquidity, solvency is concerned with long-term as well as short-term assets and liabilities. Solvency measures evaluate what would happen if all assets were sold and converted into cash and all liabilities were paid (Quach, 2005).

Three widely used financial ratios to measure solvency are the debt-to-asset ratio, the equity-to-asset ratio (sometimes referred to as percent ownership) and the debt-to-equity ratio (sometimes referred to as the leverage ratio) (Quach, 2005).These three solvency ratios provide equivalent information, so the best choice is strictly a matter of personal preference. The debt-to-asset ratio expresses total firm liabilities as a proportion of total firm assets. The higher the ratio, the greater the risk exposure of the firm. The equity-to-asset ratio expresses the proportion of total assets financed by the owner's equity. The debt-to-equity ratio reflects the capital structure of the firm and the extent to which debt capital is being combined with equity capital.

1.1.3 Determinants of Financial Performance for Commercial Banks

Measures of financial performance according to Copisarow, (2000) are subjective measures of how well a firm can use assets from its primary mode of business and generate revenues. 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.

Financial performance is the single most important factor in assessing growth potential, earnings capacity and overall financial strength (Richardson, 2002). In theory, product diversification should lead to reduce volatility of earnings. However, earnings arising from non-interest activities of banks are much more volatile than net interest income (European Central Bank, 2010).

Most studies divide the determinants of commercial banks financial performance into two categories, namely internal and external factors. Internal determinants of profitability, which are within the control of bank management, can be broadly classified into two categories, i.e. financial statement variables and non financial statement variables. Financial statement variables relate to the decisions which directly involve items in the balance sheet and income statement including product development. Developing new products is a major responsibility for bank product managers, which includes defining marketing needs and scanning the environment for new opportunities as additional major responsibilities. Among the internal, management controllable factors are bank specific financial ratios representing cost efficiency, liquidity, asset quality, and capital adequacy (Richardson, 2002).

Non-financial statement variables involve factors that have no direct relation to the financial statements. The examples of non-financial variables within this category are management, ownership structure, number of branches, and status of the branch, location and size of the bank. Large size is expected to promote economies of scale and reduce the cost of gathering and processing information. Ownership structure (private, public, foreign) affects the financial performance, privately owned banks are considered to be more innovative than public ones.

In general, large-sized banks have the advantage of providing a larger menu of financial services to their customers, and hence mobilize more funds (Haron, Sudin 2004). High net interest margin and profitability tend to be associated with banks that hold a relatively high amount of capital, and with large overheads. Stronger management's beliefs and strategic planning results in better financial performance.

External factors are those factors that are considered to be beyond the control of the management of a bank. Among the widely discussed external variables are competition, regulation, market share, bank ownership and structure, monetary policy, and macro economic indicators including inflation, money supply, exchange rate and gross domestic product. Annual Growth Rate for Gross domestic product is considered important factor affecting bank financial performance because the high of GDP growth means the increased of investment. Inflation is another important environmental condition which may effect on ROE and ROA as this factor represents the changes in the general price level or inflationary conditions in the economy and affects the investor's return. Inflation affects the real value of costs and revenues although it may have a positive or negative effect on profitability depending on whether it is anticipated or unanticipated. Exchange rate stability has a direct impact on financial performance given a favorable movement and stability in the market (Haron, Sudin 2004).

The main conclusion emerging from these studies is that internal factors such as online banking explain a large proportion of banks profitability; nevertheless external factors have also had an impact on their performance (Haron, Sudin 2004).

1.1.1 Commercial Banking in Kenya

The commercial banks and non-banking financial institutions offer corporate and retail banking services but a small number, mainly comprising the larger commercial banks, offer other services including investment banking, (Dikken & Hoeksema, 2001). In Kenya, The Companies Act, the Banking Act, the Central Bank of Kenya Act and the various prudential guidelines issued by the Central Bank of Kenya (CBK), govern the banking industry. The banking sector was liberalised in 1995 and exchange controls lifted. The CBK is responsible for formulating and implementing monetary policy and fostering the liquidity, solvency and proper functioning of the financial system. The CBK publishes information on Kenya's commercial banks and non-banking financial institutions, interest rates and other publications and guidelines. The commercial banks have come together under the Kenya Bankers Association (KBA), which serves as a lobby for the commercial banks' interests and addresses issues affecting its members (Kenya Bankers Association Annual Report, 2008).

Currently there are there are 43 licensed commercial banks and 1 mortgage finance company. Out of the 44 institutions, 31 are locally owned and 13 are foreign owned. The locally owned financial institutions comprise 3 commercial banks with significant shareholding by the Government and State Corporations, 27 commercial banks and 1 mortgage finance institution. The industry is dominated by a few large commercial banks most of which are foreign-owned, though some are partially owned locally (CBK annual report, 2010). Six of the major commercial banks are listed on the Nairobi Stock Exchange.

Any innovation initiative from the commercial banks requires the endorsement of the monetary authority, CBK. Key innovations emerging from Kenyan commercial banks include Free ATM Usage by BBK in 2010, Diva Account by SCB in 2007, Launch of Islamic products by BBK in 2005 among others.

1.2 Problem Statement

The quest for survival, global relevance, maintenance of existing market share and sustainable development makes exploitation of ICT imperative in the banking industry. Application of ICT concepts, techniques and the development of policies and strategies is a subject of fundamental importance and concern to all banks, and is a prerequisite for local and global competitiveness. ICT directly influences the strategies banks employ in offering various products and services in the industry.

According to the Global System for Mobile Communications Association (GSMA), about 40 per cent of Africa's one billion population has mobile phones, but only 20 per cent have bank accounts (Anyanzwa, 2011). Citibank also points out that Kenya was one of the largest recipients of aid in Africa, with a total of $1.8 trillion (Sh165.6 trillion) worth of Official Development Assistance (ODA) received in 2009. But the bank raised concern that securely managing the receipt and distribution of donor aid flows within Kenya's complex and often paper-based market â creates many challenges.

Internet banking is used as a marketing tool to attract and retain customers, expand market reach, and improve service quality, the extent and the intensity of banking products and services offered online is likely to have a significant impact on the bank's overall performance. Some of the e-banking services introduced by financial institutions include the electronic transfer of funds between accounts, payments of utility bills, airtime top ups, balance enquiries, loan applications, and cheque book requests.

At the international level, Acharya, Kagan, & Lingam (2008) did a study on online banking applications and community bank performance. Locally, Cheruiyot (2010) did a study on impact of internet banking on financial performance of commercial banks in Kenya.

Therefore, as far as the author is informed, no study has been undertaken with regard to impact of challenges affecting online banking to financial performance.

Online banking still remains a fictitious idea to most people. With frequent cases of frauds seen within our country where cases of fraud have been reported in the basic electronic banking system like ATM cards most people would prefer taking money in cash than adopt technology. The emergence of mobile banking has made an assumption to many minds that they have adopted online banking not understanding the differences. The researcher therefore intends to determine the impact of online banking on financial performance and come up with relevant recommendations that may be used to create a better platform towards marketing online banking not only to the people in Diaspora but as well as the locals towards achieving the vision 2030 target.

1.3 Objective of the Study

The objective of the study was to investigate the impact of online banking on financial performance of commercial banks in Kenya.

1.4 Significance of the Study

The findings of this study would be important to the following groups:

(i) Commercial Banks Top Management

The findings of this study will enable commercial banks top management to understand the effect of online banking on financial performance in Kenya and how they can use online banking improve performance.

(ii) Government Departments

This study would provide useful information to other government departments in order for them to develop useful strategies for effective and efficient banking platforms in order to increase performance, come up with policies and procedures with regard to technology.

iii) Researchers

The findings of this study would enrich existing knowledge and will be of interest to both researchers and academicians who seek to explore and carry out further investigations. It will provide basis for further research.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter will discuss analyze the previous literatures that have already been covered on online banking system. The chapter will also expand and explain the gaps that still lie un attended from the conceptual framework.

2.2 Theoretical Basis of Online Banking

To assess the adoption scenario of IT application in the market, such as internet banking, a lot of previous studies and research have carried out and various frameworks were proposed to identify the factors or determinants influencing the acceptance of technology in the consumer context. Since online banking is a type of technological innovation (Lin and Lee, 2005), existing studies on innovation adoption could be used in the study of online banking.

2.2.1 Technology Acceptance Model

One of the most common models used by researchers in the study of individual's adoption of technology is Technology Acceptance Model (TAM) (Davis, 1989). TAM proposed that both the perceived usefulness and perceived ease of use can be used to predict the attitude towards using new technology, which in turn affects the behavioral intention to use the actual system directly (Davis, 1989) and hence performance.

Perceived usefulness is defined by Davis as “the degree to which a person believes that using a particular system would enhance his or her job performance” (Davis, 1989). Thus for users of online banking, they will adopt the system if they believe the system will bring benefits such as reducing time spent on going to bank and improving efficiency (Rao *et al.*, 2003).

According to TAM, perceived ease of use is "the degree to which the prospective adopter expects the new technology adopted to be a free effort regarding its transfer and utilization" (Davis, 1989). Therefore if users feel that online banking is easy to use and free of hustle, then the chances of them to use the system will be greater.

Jeyaraj *et al.* (2006) conducted a comprehensive review of predictors of technology adoptions by organizations and individuals that were published between 1992 and 2003 and found that TAM is one of the most widely used technology adoption model. Although TAM was first introduced in 1989, it is still being widely used as shown in Jeyaraj *et al.* (2006). However, many research state that TAM itself is insufficient to explain users' decisions to adopt technologies, therefore they use TAM as a base model and extended the model by adding additional variables to the model depending on the types of technologies they studied. For example, Kamarulzaman (2007) on his study of internet shopping adoption drew upon TAM and included personal and cognitive influence. Amin (2007) also modified the original TAM by including perceived credibility and the amount of information on mobile credit card were added to his study of mobile credit card usage intentions. Various extensions to the TAM were also conducted in the study of online banking such as those conducted by Pikkarainen *et al.* (2004) also used TAM as a base and included various factors such as security and privacy, enjoyment and amount of information.

2.2.2 Diffusion of Innovation theory

Rogers (1962) pioneering work in the adoption of innovations led to the development of the Diffusion of Innovations theory (DoI). According to this theory, the decision to adopt an innovation depends on, among other things, the perceptions of the members of a social system regarding five specific attributes of the innovation in question, namely: relative advantage, i.e. the degree to which the innovation is perceived to be better than what it supersedes;

compatibility, i.e. the degree to which the innovation is perceived to be consistent with existing values, past experiences and needs; complexity, i.e. the degree to which the innovation is perceived to be difficult to understand and use; trialability, i.e. the degree to which the innovation can be experimented with on a limited basis; and observability, the degree to which one can see and understand the results of adopting the innovation before the full adoption.

According to Rogers (1962), perceptions regarding those five attributes represent reliable predictors of innovation adoption and diffusion. Indeed, various studies since the DoI framework was originally introduced have shown that the framework is superior to other predictors of the adoption decision, such as the demographic profile of the consumers (Holak, 1988).

2.2.3 Perceived Characteristics theory

In a recent appreciation of the status of frameworks developed within the IS field, Orlikowski and Iacono (2001) have depicted many theoretical constructs (including TAM) as "black boxed" and abstracted from aspects other than the technological ones, which may be the main concern for the medium predictive ability of the TAM (King and He, 2006). In fact, recent research efforts attempt to remedy this emphasis on the usability aspects of technology acceptance by considering social and psychological factors, which are proved important predictors of the decision to adopt/accept a technologically based innovation (Konana and Balasubramanian, 2005).

An exciting and empirically validated framework that does not focus only on the usability aspects of a technologically based innovation is the Perceived Characteristics of the Innovation (PCI) framework (Moore and Benbasat, 1991). Having considered the DoI and TAM frameworks, the authors identified various issues needing reconsideration and

improvement. For instance, relative advantage and complexity coincide conceptually with perceived usefulness and perceived ease of use (Moore and Benbasat, 1991).

Furthermore, observability in the DoI framework is actually comprised of two dimensions, namely visibility (i.e. the degree to which one can identify those who have already adopted and used the innovation), and result demonstrability (Moore and Benbasat, 1991). Moreover, adoption of an innovation is a socially embedded phenomenon, characterized by social-type assessments that lead to changes in the social image/status of adopters (Rogers, 1962). Finally, because the adoption of innovations, particularly in work contexts, may be compulsory, the perceived degree of voluntariness of the adoption will have a direct positive effect on the adoption decision (Moore and Benbasat, 1991).

Moore and Benbasat (1991) incorporated these interrelations between the aforementioned drivers of innovation adoption in a unified comprehensive framework (PCI) that consists of eight parameters: relative advantage (usefulness); ease of use (complexity); compatibility; trialability; result demonstrability; visibility; image; and voluntariness. Furthermore, PCI has been validated by a number of research studies (Venkatesh *et al.*, 2003).

PCI incorporates not only the usability/economic aspects of technology adoption (relative advantage, ease of use, compatibility) but also the social (image, visibility, result demonstrability) as well as psychological ones (voluntariness, trialability) (Moore and Benbasat, 1991). Interestingly enough, although clearly PCI does not represent an innovative framework for decoding the decision to adopt an innovation, it makes a significant contribution in the relevant literature by augmenting the antecedents of the adoption decision in a manner that allows deriving a broader, not solely technology oriented, insight of the topic under study. In fact, Rogers (1995), concedes the merits and the contributions of the PCI framework.

2.3 Empirical Review of online banking on commercial banks

A few empirical studies exist in the literature, which have examined the relative performance of banks offering Internet banking services. Egland et al. (1998) was the first important study, which estimated the number of US banks offering Internet banking and analyzed the structure and performance characteristics of these banks. It found no evidence of major differences in the performance of the group of banks offering Internet banking activities compared to those that do not offer such services in terms of profitability, efficiency or credit quality. However, transactional Internet banks differed from other banks primarily by size.

In contrast to the results of Egland et al. (1998), Furst et al. (2000) found that banks in all size categories offering Internet banking were generally more profitable and tended to rely less heavily on traditional banking activities in comparison to non-Internet banks. An exception to the superior performance of Internet banks was the de novo (new start-ups) Internet banks, which were less profitable and less efficient than non-Internet de novos. The authors concluded that Internet banking was too small a factor to have affected banks' profitability. Sullivan (2000) found that click and mortar banks in the 10^{th} Federal Reserve District incurred somewhat higher operating expenses but offset these expenses with somewhat higher fee income. On average, this study found no systematic evidence that banks were either helped or harmed by offering the Internet delivery channel. Similar to the results of Furst et al., this study also found that de novo click and mortar banks performed significantly worse than de novo brick and mortar banks.

Banks may evaluate their online banking performance using the approaches in online performance measurement. The previous literature on online banking performance evaluation mainly includes the following approaches, such as linear regression (e.g. logit model in Furst et al., 2000), DEA (Zenios, 1999), Free disposal hull (Tulkens, 1993), stochastic frontier

approach (also called econometric frontier approach, e.g. Berger and Humphrey, 1992), thick frontier approach (Berger and Humphrey, 1997), distribution free approach (Berger et al., 1993), and so on.

Using information drawn from banks in Italy, Hasan et al. (2002) found that the Internet banking institutions were performing significantly better than the non-Internet groups. Additionally, the risk variables associated with the Internet group continued to be lower relative to the non-Internet group. The asset-liability variables revealed that on average the banks in this Internet group were larger and had significantly higher trading and investment activities and less dependent on retail deposits (both demand and saving deposits) relative to the non-Internet group. The only category where the Internet group showed a lower performance was the noninterest expense category. It found a significant and positive link between offering of Internet banking activities and banks' profitability and a negative but marginally significant association between the adoption of Internet banking and bank risk levels particularly due to increased diversification.

Hernando and Nieto (2005) examined the performance of multichannel banks in Spain between 1994 and 2002. The study found higher profitability for multichannel banks through increased commission income, increased brokerage fees and (eventual) reductions in staffing levels and concluded that the Internet channel was a complement to physical banking channels. In contrast to earlier studies, the multichannel banks in Spain relied more on typical banking business (lending, deposit taking and securities trading). The adoption of the Internet as a delivery channel had a positive impact on banks' profitability after one and a half years of adoption. It was explained by the lower overhead expenses and in particular, staff and IT costs after the same period.

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

DeYoung (2005) analyzed systematically the financial performance of pure-play Internet banks in U.S. The study found relatively lower profits at the Internet-only institutions than the branching banks, caused in part by high labour costs, low fee based revenues and difficulty in generating deposit funding. However, consistent with the standard Internet banking model, the results indicated that Internet-only banks tended to grow faster than traditional branching banks. Internet-only banks have access to deeper scale economies than branching banks and because of this, they are likely to become more financially competitive over time as they grow larger. Delgado et al. (2004 and 2006) found similar results for Internet-only banks in the EU. Nevertheless, the magnitude of technology based scale economies found in Delgado et al. (2004 and 2006) was substantially larger than that estimated by DeYoung studies.

Cheruiyot (2010) did a study on impact of internet banking on financial performance of commercial banks in Kenya. He measured the internet variable using banking intensity as derived from a web feature data collected from bank websites. He measured performance using ROA and ROE variables. He observed from the multiple regression results that the profitability and offering of Internet banking does have a small significant association. This study seeks to measure performance using four variables, return on average equity, return on average assets, cost to income ratio and the overheads/profit before tax ratio. In addition, it seeks to investigate the impact of amounts invested in internet banking including number of

internet products offered by commercial banks on financial performance. Therefore, to the extent of the knowledge of the researcher no study has been conducted in assessing these aspects of online banking on financial performance.

2.4 Chapter Summary

A study by Egland et al. (1998) found no evidence of major differences in the performance of the group of banks offering Internet banking activities compared to those that do not offer such services in terms of profitability, efficiency or credit quality. Further, a study by Furst et al. (2000) concluded that Internet banking was too small a factor to have affected banks' profitability. A further, study by Sullivan (2000) found no systematic evidence that banks were either helped or harmed by offering the Internet delivery channel. Based on these consistent results, this study seeks to establish the impact of online banking on financial performance.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter covers the description of the methods that were applied in carrying out research study. It is organized under the following subsections. The research design, target population, sampling techniques and sample size. It also covers construction of research instruments, validity and reliability, data collection techniques, data analysis and presentation.

3.2 Research Design

Descriptive research design was used in this study, because it describes the state of affairs as it exists, when reporting the findings. Mugenda and Mugenda (2003) points out that descriptive studies result in the formulation of important principles of knowledge and solution to significant problems. Descriptive design enabled the researcher to measure, analyze, compare and interpret data in order to understand the effect of online banking on commercial banks in Kenya.

3.3 Target Population

This comprised all the 43 commercial banks in Kenya and therefore a census survey was carried out (Banking Supervisory Report, 2011).

3.4 Data Collection

This section focused on the particular methods of data collection used as well as the benefits obtained from particular data. The study collected both primary and secondary data for the purpose of analyzing the effects of online products on the financial performance of

commercial banks. The primary data collected was through questionnaires carried out with heads including Head of IT, Head of Finance and Head of Alternate Channels.

The secondary data run from 2008 to 2012 and focused on the collection of written documentation and depend on the following sources for collecting the data needed: Annual reports issued by CBK, Annual report issued by BBK, Annual reports issued by NSE and Some statistics issued by KNBS

3.5 Data Validity and Reliability

The researcher carried out a pilot study to pretest the validity and reliability of data collected using the questionnaire. According to Berg and Gall (1989), validity is the degree by which the sample of test items represents the content of test is designed to measure. Content validity which was employed by this study is a measure of the degree to which data collected using a particular instrument represents a specific domain or content of a particular concept. Mugenda and Mugenda (1999) contend that the usual procedure in assessing the content validity of measure is to use a professional or expert in a particular field.

Reliability is increased by including many similar items on a measure, by testing a diverse sample of individuals and by using uniform testing procedures. The researcher selected a pilot group of 15 individuals from the target population to test the reliability of the research instruments. In order to test the reliability of the instruments, internal consistency techniques will be applied using Cronbach's Alpha. The alpha value ranges between 0 and 1 with reliability increasing with the increase in value. Coefficient of 0.6-0.7 is a commonly accepted rule of thumb that indicates acceptable reliability and 0.8 or higher indicated good reliability (Mugenda, 2008). The pilot data was not included in the actual study..

3.6 Data Analysis

Data collected was purely quantitative and it was analyzed by descriptive analysis and multiple regression analysis. The descriptive statistical tools such as SPSS and MS Excel helped to describe the data and determine the extent used. The findings were presented using tables and charts. Data analysis used SPSS and Microsoft excel percentages, tabulations, means and other central tendencies. Tables were used to summarize responses for further analysis and facilitate comparison. In addition, a multiple regression analysis was conducted so as to determine the effects of online banking on financial performance of commercial banks.

A study by Callaway (2011) on internet banking and performance measures the impact of web site rank, percent of total internet users, and number of external links, using data from Alexa.com on bank performance, measured by deposits per branch, net income, return on assets, noninterest income to earning assets, and noninterest expense to earning assets, using data reported from the FDIC.

Bank profitability can be measured in terms of return on average equity, return on average assets, cost to income ratio and the overheads/profit before tax ratio. ROAA is the ratio of gross income to average assets and ROAE is the ratio of gross or net income to average equity. Gross income is usually preferred to net income to avoid the differences in taxation among countries. ROAA is a good overall indicator for banking performance showing the ability of a bank to generate profits from the assets at its disposal. Nonetheless, it has some disadvantages. The denominator does not account for off balance sheet activities. ROAE is an alternative measure of profitability designed to reflect the return to owners' investment. Its main disadvantage is that the denominator may vary across banks, due to the choices made by management as to the mix between equity and debt capital as well as the total amount of

capital held by a firm. On the cost side of bank operations, the cost to income ratio reflects the ability of the bank to generate revenue from its expenditures. The ratio of overheads on profit before tax ratio gives similar information, but constitutes an improved check on costs.

An increased use at lower costs of online technologies should improve the performance of online banking. A third group of variables concern aggregate technological indicators, such as R&D expenses, employment in R&D sectors, communication and technology and data on human resources investment (in all sectors, knowledge-intensive financial services and financial intermediation, respectively). Increasing expenditure in each of these categories would raise the viability of online banking as an alternative-banking channel.

A further study by Malhotra (2009) on the impact of internet banking on bank performance and risk employed multiple regression model with performance being measured using return on assets and return on equity and independent variables for banks' internal measures, being size, capital, risk management, expenses management ratios and bank ownership dummies while macro-economic indicators being used to represent the external measures. This study combined the parameters employed in the two models as follows:

$Y_{it} = \beta_0 + X_1\beta_1 + X_2\beta_2$

Y_{it} – Return on Asset of bank i at time t,

X_1 – Ratio of customers registered for online banking service

X_2 – Number of internet products offered by bank

This study had limitations as other aspects of online banking such as quality of service and operational efficiency.

CHAPTER FOUR

DATA ANALYSIS, RESULTS AND DISCUSSION

4.1 Introduction

This chapter presents the information processed from the data collected during the study on effect of online banking on financial performance of commercial banks in Kenya. The sample composed of 43 commercial banks in Kenya for the period (2008-2012).

4.2 Regression Results

The study conducted a cross-sectional OLS multiple regression on the selected independent variables over the period 2008-2012 and results of financial performance.

4.2.1 Year 2008 Analysis and Interpretations

Table 4.1: ANOVA Statistics for 2008 Data

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.844[a]	.712	.657	.02388

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.010	2	.005	8.413	.001[a]
	Residual	.023	40	.001		
	Total	.032	42			

Table 4.2: Coefficients of 2008 Model

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.006	.011		-.525	.603
	Online Banking customers	.027	.077	.048	.345	.732
	Internet products offered	.006	.002	.556	4.016	.000

The data findings from 2008 market statistics were analyzed and the SPSS output presented in table 4.1 and 4.2 above. From the ANOVA statistics in table 4.1, the processed data, which are the population parameters, had a significance level of 0.001 which shows that the data is ideal for making a conclusion on the population's parameter. The coefficient table in table 4.1 above was used in coming up with the model below:

FP = 0.006 + 0.027 COB + 0.006 PRO

According to the model, only customers using online banking and number of internet products offered were positively correlated with financial performance. From the model, taking all factors (percentage of customers registered for online banking service and number of internet products offered by bank) constant at zero, financial performance will be 0.006. The data findings analyzed also shows that taking all other independent variables at zero, a unit increase in customers using online banking will lead to a 0.027 increase in financial performance. A unit increase in number of internet products offered will lead to a 0.006

increase in financial performance. This infers that customers using online banking had more effect on financial performance than the number of internet products offered.

4.2.2 Year 2009 Analysis and Interpretations

Table 4.3: ANOVA Statistics for 2009 Data

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.722[a]	.521	.497	.01541

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.010	2	.005	21.766	.0007[a]
	Residual	.009	40	.000		
	Total	.020	42			

Table 4.4: Coefficients of 2009 Model

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-.018	.008		-2.285	.028
	Online Banking customers	.013	.015	.059	.533	.597
	Internet products offered	.008	.001	.730	6.571	.000

The data findings for 2009 statistics were processed using SPSS and the output presented in table 4.3 and 4.4 above. According to the ANOVA table 4.3 above, the parameters predicted in the table above had a significance level of .0007 which is adequate to be used as a population parameter in predicting the effect of online banking on financial performance of commercial banks in Kenya. The regression model drawn from table 4.4 above is presented below:

FP = -0.018 + 0.013 COB + 0.008 PRO

According to the table, the financial performance had an autonomous value of -0.018 that is when the value of all the independent variables is zero. A unit increase in customers using online banking increases the financial performance by 0.013 when the number of internet products offered is held constant. A unit increase in number of internet products offered, holding customers using online banking constant, increased the financial performance by 0.008. This shows that percentage of customers registered for online banking service and number of internet products offered by bank had a positive relationship with the financial performance.

4.2.3 Year 2010 Analysis and Interpretations

Table 4.5: ANOVA for 2010 Statistics

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.947[a]	.898	.892	.00663

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.015	2	.008	175.324	.003[a]
	Residual	.002	40	.000		
	Total	.017	42			

Table 4.6: Coefficients of 2010 Model

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.029	.004		7.260	.000
	Online Banking customers	.024	.021	.058	1.140	.261
	Internet products offered	.010	.001	.943	18.611	.000

From the finding of the study on the 2010 market statistics as analyzed and presented in the above table, the following regression equation was established by the study for the year 2010:

FP = 0.029 + 0.024 COB + 0.010 PRO

From the findings of the data it can be concluded that when the value of Percentage of customers registered for online banking service and number of internet products offered by bank were zero, financial performance was 0.029. The table also shows that holding number of internet products offered constant, an increase by one unit of customers using online banking increases financial performance by 0.024, when other factors are held constant an increase in number of internet products offered by one unit increases financial performance by 0.010. This shows that the customers using online banking and number of internet products offered have a positive relationship with financial performance. However, the model was arrived at a significance level of 0.003 which means that the model is adequate in drawing a conclusion on the population parameters.

4.2.4 Year 2011 Analysis and Interpretations

Table 4.7: ANOVA Statistics for 2011 Data

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.767[a]	.589	.568	.01276

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.009	2	.005	28.615	.026[a]
	Residual	.007	40	.000		
	Total	.016	42			

Table 4.8: Coefficients of 2011 Model

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.022	.008		2.654	.011
	Online Banking customers	.012	.034	.037	.355	.724
	Internet products offered	.007	.001	.759	7.340	.000

The market data for 2011 was regressed on SPSS and the output presented in table 7 and 8

above. From the data analyzed and presented in the table above, the model for the year 2011 is presented below:

FP = 0.022 + 0.012 COB + 0.007 PRO

According to the model above, holding Percentage of customers registered for online banking service and number of internet products offered by bank constant at zero, financial performance will be 0.022. When the number of internet products offered is held constant, a unit increase in customers using online banking will increase the financial performance by 0.012. When other factors are held constant, a unit increase in number of internet products offered will increase the financial performance by 0.007. From the above model it can be concluded that customers using online banking and number of internet products offered positively influenced financial performance. From the ANOVA statistics table 4.8 above, it shows that the parameters in the model have a 0.026 level of significance which shows that it is significant in predicting the effect of online banking on financial performance.

4.2.5 Year 2012 Analysis and Interpretations

Table 4.9: ANOVA Statistics for 2011 Data

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.797[a]	.636	.618	.01810

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.023	2	.011	34.931	.000[a]
	Residual	.013	40	.000		
	Total	.036	42			

Table 4.10: Coefficients of 2012 Model

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.070	.013		5.213	.000
	Online Banking customers	.002	.002	.075	.784	.437
	Internet products offered	-.013	.001	.794	8.323	-.000

The data findings for 2012 were computed, analyzed and presented in table 4.19 and 4.20 above. According to the ANOVA statistics in table 4.19 above, the model had a significance level of 0.049 which means that the model is appropriate to be used as a population parameter. From table 4.20, the regression model is presented below:

FP = 0.070 + 0.071 COB - 0.013 PRO

According to the regression model, when the values of percentage of customers registered for online banking service and number of internet products offered by bank are zero, financial performance will be 0.070. When customers using online banking is increased by one unit, the financial performance will increase by 0.071 while when number of internet products offered is increased by one unit, the financial performance will decrease by - 0.013. This shows that

in this year, customers using online banking had a positive correlation with financial performance while number of internet products offered had a negative correlation with financial performance.

4.3 Summary and Interpretation of Findings

From the above regression models for the five years, the study found out that there were several factors influencing the financial performance of commercial banks in Kenya, which are percentage of customers registered for online banking service and number of internet products offered by bank. They either influenced it positively or negatively. The study found out that the intercept varied. The highest value was 0.029 and the lowest was -0.018 with an average of 0.022 for all years.

The study also found out that the coefficient of customers using online banking varied from positive to negative. The highest regression value was positive with an average coefficient of 0.016. This means that customers using online banking positively influenced the financial performance. The study found out that the number of internet products offered varied in value although it was positive in all cases. This means that number of internet products offered positively influenced the financial performance.

The two independent variables that were studied (Percentage of customers registered for online banking service and number of internet products offered by bank) explain only 67.1% of financial performance as represented by the average adjusted R^2 (0.671). This therefore means the independent variables contribute about 67% of financial performance while other factors not studied in this research contributes 33% of the financial performance of commercial banks in Kenya.

There has been several studies carried out on the effect of online banking on performance in different countries but findings have to a large extent corroborated the findings on the effect of customers using online banking on financial performance among commercial banks in Kenya. The study concludes that online banking have a weak positive influence on the financial performance among commercial banks in Kenya. My results are consistent with prior research by Hasan et al. (2002) who found that the Internet banking institutions were performing significantly better than the non-Internet groups. Hernando and Nieto (2005) examined the performance of multichannel banks in Spain between 1994 and 2002. The study found higher profitability for multichannel banks through increased commission income, increased brokerage fees and (eventual) reductions in staffing levels and concluded that the Internet channel was a complement to physical banking channels.

The study deduced that although the overall relationship between online banking and financial performance is positive, there are some cases showing negative relationship. Thus, the relationship between online banking and financial performance remains a controversial. This is in line with earlier studies that showed mixed results about the relationship between online banking and financial performance with few predicting a negative relationship while other confirms positive relationship between online banking and financial performance. Egland et al. (1998) was the first important study, which estimated the number of US banks offering Internet banking and analyzed the structure and performance characteristics of these banks. It found no evidence of major differences in the performance of the group of banks offering Internet banking activities compared to those that do not offer such services in terms of profitability, efficiency or credit quality. In contrast to the results of Egland et al. (1998), Furst et al. (2000) found that banks in all size categories offering Internet banking were generally more profitable and tended to rely less heavily on traditional banking activities in comparison to non-Internet banks. An exception to the superior performance of Internet banks

was the de novo (new start-ups) Internet banks, which were less profitable and less efficient than non-Internet de novos. The authors concluded that Internet banking was too small a factor to have affected banks' profitability.

Sullivan (2000) found that click and mortar banks in the 10th Federal Reserve District incurred somewhat higher operating expenses but offset these expenses with somewhat higher fee income. On average, this study found no systematic evidence that banks were either helped or harmed by offering the Internet delivery channel. Sathye (2005) investigated the impact of the introduction of transactional Internet banking on performance and risk profile of major credit unions in Australia. Similar to the results of Sullivan (2000), the Internet banking variable didn't show a significant association with the performance as well as with operating risk variable. Thus, Internet banking didn't prove to be a performance enhancing tool in the context of major credit unions in Australia.

From the findings, it can be observed that online banking affects financial performance of commercial banks positively. The new information technology is becoming an important factor in the future development of financial services industry, and especially banking industry hence the conclusion of this study is that customers using online banking and number of internet products offered have a weak positive correlation with financial performance. Therefore it will be important for the banks management to understand the relationship that exists between customers registered for online banking service and number of internet products offered by bank and financial performance and the direction that they affect the level of financial performance for effective strategic orientation.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Summary

The secondary data in this analysis covered a period of five years from 2008 to 2012. The population of study comprised of all commercial banks in Kenya during the study period. The purpose of the study is to investigate the effect of online banking on financial performance of commercial banks in Kenya.

This study was conducted through the use of a descriptive design. The population comprised all the 43 commercial banks in Kenya and therefore a census survey was carried out. The primary data was collected through questionnaires while secondary data was collected from the annual reports issued by CBK. Data was analysed using multiple regression.

The study found that the regression equations for the period 2008 to 2012 related online banking to the financial performance. From the regression models for the five years, the study found out that there were several factors influencing the financial performance of commercial banks in Kenya, which are percentage of customers registered for online banking service and number of internet products offered by bank. They either influenced it positively or negatively. The study found out that the intercept varied. The two independent variables that were studied (Percentage of customers registered for online banking service and number of internet products offered by bank) explain only 67.1% of financial performance as represented by the average adjusted R^2 (0.671). The study concludes that generally online banking has a positive influence on the financial performance of commercial banks in Kenya. The study recommends that banks' should encourage more customers to use internet banking since based on the results of the study, internet banking services were very effective in addressing lowering costs to the bank and customers, safety and accessibility by users. The banks need to

address security concerns for the increasing online banking fraud cases. To begin overcoming employee/customer distrust of the system, banks need to visibly demonstrate concern for security, reliability, and liability with concrete solutions to reduce or eliminate costs to customers in case transactions fail or are processed inaccurately..

5.2 Conclusions

This paper examines the effect of online banking on financial performance of commercial banks in Kenya. The study concludes that generally, online banking has a weak positive and significant influence on the financial performance of commercial banks in Kenya. This is because online bank cut banks costs, increase commission income, reduce staffing levels and make banking more convenient for customers.

The new information technology is becoming an important factor in the future development of financial services industry, and especially banking industry. The application of information and communication technology concepts to banking services is a subject of fundamental importance and concerns to all banks and indeed a prerequisite for local and global competitiveness banking. The advancement in technology plays an important role in improving service delivery standards in the Banking industry. In their simplest form, online banking allow consumers to carry out banking transactions beyond banking hours. The profitability gains associated with the adoption of a transactional online banking are mainly explained by a significant reduction in overhead expenses. Banks would therefore profit from cost reductions to the extent that the online banking channels do not function as a substitute for traditional distribution channels. This is because technology adoption climates in developing countries such as Kenya are, by nature, problematic, characterized by poor business and governance conditions, low educational levels, and inappropriate infrastructure.

The study finally concluded that although the overall relationship between online banking adoption and financial performance of commercial banks in Kenya is weak and positive, there are some cases showing negative relationship. Thus, the relationship between online banking and financial performance of commercial banks in Kenya remains a controversial. This is shows there are mixed results about the relationship between online banking and financial performance of commercial banks in Kenya. The adoption of the Internet as a delivery channel had a positive impact on banks' profitability after sometimes of adoption. This is explained by the lower overhead expenses and in particular, staff and IT costs after some time.

5.3 Recommendations for Policy and Practice

The study recommends the banks' should encourage more customers to use internet banking since based on the results of the study, internet banking services were very effective in addressing lowering costs to the bank and customers, safety and accessibility by users. In addition, internet banking services were effective in addressing convenience, ease of use, customer satisfaction and service delivery to customers. Customers should therefore rely more on internet banking instead of visiting branches.

The banks need to address security concerns for the increasing online banking fraud cases. The study also recommends that review of Fraud Legislation could reduce fraud related risks in the banks. Kenya still lags behind on anti fraud laws. The Anti-money laundering act was just passed the other day while others have not been passed. The online banking in the country faces a real risk from fraudsters because supporting laws have not been enacted. The communications act and the rules of evidence in the country have to be reviewed to be in sync with the current challenges. Bank operations are now hi-tech on technology. The crimes have

also spontaneously gone hi-tech therefore calling for amendments to the laws. The two partners will not meet face to face and there will be no binding executions to be made.

To begin overcoming employee/customer distrust of the system, banks need to visibly demonstrate concern for security, reliability, and liability with concrete solutions to reduce or eliminate costs to customers in case transactions fail or are processed inaccurately. Often, these are not purely technical issues, but rather, are related to process design, or, sometimes, partly to customer psychology and beliefs, which may or may not be consistent with the actual technology and system. All customers, even users, believe that problems will occur, so it is about what customers believe the bank will do when the problems do arise. The Internet channel must be well integrated into other channels so that customers can easily interact with people who are trained to handle problems efficiently, and banks must adopt strong customer orientations.

Since adoption of ICT improves the banks' image and leads to a wider, faster and more efficient market, it is imperative for bank management to intensify investment in ICT products to facilitate speed, convenience, and accurate services, or otherwise lose out to their competitors.

5.4 Limitations of the Study

Confidentiality and sensitivity of financial institution matters was a major limitation since respondents could fear revealing important and confidential organizational information. In order to address this limitation, the researcher requested for an introduction letter from the University to support the research work. Further, the model may not be reliable due to some shortcoming of the regression models. Due to the shortcomings of regression models, other models can be used to explain the various relationships between the variables. In addition, the

data was tedious to collect and compute as it was in very raw form. Due to lack of standardized financial statements from various banks which made the data computation even harder.

5.5 Suggestions for Further Research

The study focused on the effect of online banking on financial performance of commercial banks in Kenya and so a similar study should be done on all the financial institutions in Kenya including MFIs and Saccos to allow for generalization of results.

Further studies should also be done on the challenges that affect the adoption of online banking among customers in commercial banks in Kenya since only a very small proportion of the customers have adopted it.

The study also recommends that further studies should be done on the effect of online banking on other banks operations and customer acquisition. A similar study should also be done whereby the data collection relies on primary data.

A further study should also be done on the effect of other forms of technological adoption such as ATMs and mobile banking on the operational efficiency and also the financial performance of commercial banks in Kenya.

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APPENDIX I: BANKERS QUESTIONNAIRE

INTRODUCTION

a. The questionnaire is meant for academic research purposes and shall not be used for any purpose whatsoever.
b. Do not write your name or contact on the questionnaire
c. Tick the appropriate answer and in cases where comments are needed respond accordingly
d. In cases of difficulty please ask for assistance
e. There should be no victimization of whatever kind based on the answers provided and any persons using the responses to judge or victimize shall be liable to legal action

SECTION A: DEMOGRAPHIC DATA

1. What is you gender
    a. Male [ ]
    b. Female [ ]
2. What is your age group
    a. 18-30 [ ]
    b. 31-40 [ ]
    c. 41-50 [ ]
    d. 51-60 [ ]
    e. 61 and above [ ]

3. What level are you within the organization?

   a. Executive [ ]

   b. Middle [ ]

   c. Lower [ ]

SECTION B: ONLINE BANKING

Please indicate the online products offered by your bank. Tick as Appropriate

Customer Information		YES	NO
	Account Balances		
	Account Statements		
	Loan Details		
Payments			
	To own customer account		
	To other banks		
	To mobile money accounts		
	To international Banks		
Bankers Checks			
Standing orders			
Direct Debits			
Card Services			
Customer Services Request			
	Cheque Book		
	New Account Request		
	Loan Request		
	statement request		
Alert services			
	Via Email		
	Via SMS		
Foreign Exchange Rates			
Corporate Banking			
Trade finance			
	Initiate, amend or cancel Letters of Credit		
	Initiate, amend or cancel Guarantees		
	Make enquiries		

Please indicate the approximate percentage range of customers registered for online banking.

a. Below 20% [ ]

b. 21% - 40% [ ]

c. 41% – 60% [ ]

d. 61% – 80% [ ]

e. Above 80% [ ]

Thank you for your cooperation

APPENDIX LIST OF BANKS

1. African Banking Corporation
2. Bank of Africa Ltd
3. Bank of Baroda
4. Bank of India
5. Barclays Bank of Kenya Ltd
6. CFC Stanbic Bank Limited
7. Charterhouse Bank Limited
8. Chase Bank Limited
9. Citibank N.A.
10. Commercial Bank of Africa
11. Consolidated Bank of Kenya
12. Co-operative Bank of Kenya
13. Credit Bank Limited
14. Development Bank of Kenya
15. Diamond Trust Bank Kenya
16. Dubai Bank Limited
17. Ecobank
18. Equatorial Commercial Bank
19. Equity Bank Limited
20. Family Bank Ltd
21. Fidelity Commercial Bank
22. Fina Bank Limited
23. First community bank
24. Giro Commercial Bank
25. Guardian Bank
26. Gulf African bank
27. Habib AG Zurich
28. Habib Bank Limited
29. I&M Bank
30. Imperial Bank Limited
31. Jamii bora Bank
32. Kenya Commercial Bank Ltd

33. K-REP BANK
34. Middle East Bank of Kenya
35. National Bank of Kenya Ltd
36. National Industrial Credit Bank
37. Oriental Commercial Bank
38. Paramount-Universal Bank
39. Prime Bank Limited
40. Standard Chartered Bank Ltd
41. Transnational Bank Limited
42. UBA Kenya bank Ltd
43. Victoria Commercial Bank