

**THE EFFECT OF ELECTRONIC BANKING ON THE FINANCIAL
PERFORMANCE OF COMMERCIAL BANKS IN KENYA**

BY

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**A RESEARCH PROJECT SUBMITTED IN PARTIAL FULFILLMENT OF THE
REQUIREMENTS FOR THE MASTER OF BUSINESS ADMINISTRATION (MBA),
UNIVERSITY OF NAIROBI**

OCTOBER 2014

DECLARATION

This research project is my original work and has not been presented for the purpose of a degree course in any other university.

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ACKNOWLEDGEMENTS

Firstly,i thank the Almighty God for granting me the strength and privilege to see this far of my academic life.I would not have made it without God's grace and sustenance .

Secondly,i wish to extend my sincere gratitude to my supervisor Dr.Sifunjo for his immense contribution and guidance. Finally, special appreciation to my lovely wife for her enormous support and to our daughter for been a source of joy and encouragement especially when the going seemed quite challenging.To all fellow colleagues and all other people who assisted me in one way or another may God richly bless you.

DEDICATION

This research project is dedicated to my lovely wife Caroline Mwangi and daughter Claire Mwangi. To all my parents for their selfless love and support.

ABSTRACT

It is expected the adoption of electronic banking services will have a positive effect on the profitability of commercial banks. The objective of this research was to measure and compare the effect of e-banking technologies on the profitability of domestic banks, how much the provision of these services affect the service quality of the banks and hence their efficiency, to assess the impact of changing from the traditional banking to the electronic banking on the banks. This study targeted 44 commercial banks in Kenya where secondary data was used. Data from financial statements between year 2009 and 2013 was used for analysis. The study used correlation and regression statistics to analyse with the help of SPSS. The dependent variable (ROA) was correlated with independent variables (overhead ratio, market share, deposit asset ratio, loan asset ratio, effective lending rate and e-bank commission to income ratio) to determine if a relationship existed between variables. Regression statistics was used to determine the significance of the relationship between variables. This study investigated the returns on assets of commercial banks following the adoption of electronic banking in Kenya. Kenya is a developing economy pressing forward in the use of electronic banking for its banking activities. This study has provided evidence that electronic banking has advanced returns on the assets of Kenya commercial banks though not significantly based on the hypotheses tested. This study therefore recommends that the banking industry should adjust to total and effective deployment of information technology due to its sophistication since the technology is irreversible with relative perceived advantage. That Kenyan banks should be able to accept the level of risk that they can cope with in electronic banking system, measurable to the bank's overall strategic and business plans.

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ABBREVIATIONS

ATMS-Automated teller machines

CBK-Central bank of Kenya

EBIT-Earnings before interest and tax

EU-European union

ICT-Information & communication technology

IT-Information technology

NPV-Net present value

PC-Personal computer

PDA-Personal digital assistance

ROA-Return on asset

ROE-Return on equity

TAM-Technology acceptance model

TPB-Theory of planned behaviour

USA-United states of America

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Electronic banking (e-banking) is defined as the provision of retail and small value banking products and services through electronic channels as well as large value electronic payments and other wholesale banking services delivered electronically (Georgescu, 2005). At the Basel committee, E-banking is defined as the provision of retail and small value banking products and services through electronic channels. Such products and services can include deposit taking, lending, account management, the provision of financial advice, electronic bill payment, and the provision of other electronic payment products and services such as electronic money (Basel Committee on banking supervision, 1998 and 2003).

The revolution of information technology has influenced almost every facet of life, among them is the banking sector. The introduction of electronic banking has revolutionized and redefined the way banks are operating. As technology is now considered as the main contribution for the organizations' success and as their core competencies. So the banks, be it domestic or foreign are investing more on providing on the customers with the new technologies through e banking. PC banking, mobile banking, ATM, electronic funds transfer, account to account transfer, paying bills online, online statements and credit cards etc. are the services provided by banks. Also the feature which is commonly unique to internet banking includes importing data into personal accounting software. Some online banking platforms support account aggregation to allow the customers to monitor all of their accounts in one place whether they are with their main bank or with other institutions.

Banking through internet is considered as a complimentary delivery channel for the services rather than a substitute for the brick and mortar banking branches. This research paper aims at examining the impact of electronic banking on the profits of Kenya commercial banks. E-banking has increased the competition among the banks and both domestic and foreign banks are offering more and more modern ways of e-

banking. The study investigates the services provided by the banks and their impact on their profitability in particular. It is significant due to the proliferation of the service sector and its importance in the economy. It will discuss the services provided by the banks to its customers and also reveals the major rationales for the banks to use internet and other electronic mediums as the means to providing services to their customers.

The objectives of this research are to measure and compare the effect of the introduction of new technologies through e-banking on the profitability of domestic and foreign banks, how much the provision of these services effect the service quality of the banks and hence their efficiency, to assess the impact of changing from the traditional banking to the electronic banking on the banks and on the customers as well and also to examine the main motive or aim of the banks to provide these services to the customers and it also discusses the effect of customers ability on the provision of these services and hence their profits.

This study targeted 44 commercial banks in Kenya where secondary data was be used. Data from financial statements between year 2009 and 2013 was used for analysis.

1.1.1 Electronic Banking

E-banking can be classified into three basic types. These include Internet banking, Smart card banking and Mobile/telephone banking.

Internet banking: This is a type of e-banking service where customers' instructions are taken and attended to through the internet. Internet banking offers customers the possibility of enjoying banking services from the comfort of their homes and offices. What this means is that customers can buy goods by placing orders from the net, instruct their banks to pay the vendor the invoice amount involved, and the products are delivered to the destination where the buyer wants.

Smartcard banking: This is the conduct of banking transactions through the use of electronic cards (Value Card, ATM Card, Debit Card, Credit Card etc.). The smart card system makes it easy for bank customers to have access to cash, carry out transfers and make enquiries about their accounts without visiting the banking hall. Smart card facility is usually mounted at strategic places in the cities such as supermarkets, Hotels, Transport terminals, shopping malls etc.

Mobile/telephone banking: This involves the conduct of banking business through the use of mobile phones or fixed wireless phones. It takes the following steps: Instructions are passed via voice or short messages (SMS) to the computer; the computer decrypts the message and executes the instructions through a highly coded device. Then, the response is given back to the customer electronically.

1.1.2 Financial Performance

Performance of the banks has been regarded as a crucial area in contemporary public policy concerned with a country's economic development. Empirical analysis of performance is an important requirement for further policy changes. The Kenya banking sector remained stable and resilient despite the challenges caused by the global financial crisis and the failure of some domestic unauthorized institutions.

Bank financial performance means whether a bank has done well within a certain period to realize its set goals. Financial statements provides information on the performance. Measurement of bank's performance should start by evaluating whether it has been able to achieve the objectives set by stakeholders.

Clearly, many banks have their own unique objectives. Some wish to grow faster and achieve some long-range growth objective, others seem to prefer quiet life, minimizing risk and conveying the image of a sound bank, but with modest rewards to their shareholders. Ordinarily, stock prices are deemed to reflect the performance of a firm. This is a market indicator and may not be reliable always.

However, the size of the bank, the volume of deposit and its profitability could be deemed as more reliable performance indicators. For the purpose of this research, profitability indicators, ie the Return on Equity Capital (ROE) and the returns on Assets (ROA) are used to assess bank performance. These profitability ratios shows management efficiency, and rate of returns. Nikolai & Bazley (1997) says that the amount of net income earned in relation to total assets is an indicator of how efficiently a company uses its economic resources.

1.1.3 Electronic Banking and Financial Performance

Some factors which have made banks and customers to take advantage of e-banking are: high exchange speed, no need of direct referring of people to the banks to do their banking and reducing labor costs at the banks. Ceylan et al, (2008) have done a research entitled “The effect of e-banking on banks’ profitability in Turkey”. In this study, they have used bank specific variables and macroeconomic variables to evaluate the effect of internet banking on financial performance indicators of 14 commercial and saving banks in Turkey during the years 1996 and 2005. Results showed that investment in e-banking is a gradual process and e-banking activities has had a positive effect on performance of Turkey banking system (return on equity).

Khrawish and Al-sa’di (2011) studied the impact of e-banking on bank profitability with evidence from Jordan. For banks that applied electronic services for less than two years, they found that there was no significant effect of these electronic services on the return of assets and the returns on equity. The study however, showed that such services made significant impact on the profit margin of the concerned banks. They also found that there was no significant effect of these services on banks profitability after two years of applying it in Jordan.

Sumra et al. (2011), posit that e-banking is considered to have a significant impact on banks performance because it has opened new frontiers for retail banking. The adoption of e-banking has made banks to automate tasks which has led to greater efficiency and effectiveness, better time usage and enhanced controls. This has enabled banks to better manage their total costs.

1.1.4 Banking Industry in Kenya

As at 31st December 2013, the banking sector comprised of the Central Bank of Kenya, as the regulatory authority, 44 banking institutions (43 commercial banks and 1 mortgage finance company - MFC). Out of the 44 banking institutions, 30 locally owned banks comprise 3 with public shareholding and 27 privately owned while 14 are foreign owned . The foreign owned financial institutions comprise of 10 locally incorporated foreign banks and 4 branches of foreign incorporated banks.

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. The number of bank branches were 1,342 in 2013, which translated to an increase of 70 branches indicating increased demand for financial services partly occasioned by increased economic activities following introduction of the county government system.

The major indicator of e-banking is ATM. The number of ATMs was 2,487 in December 2013 representing an increase of 106 ATMs. The increase in the use of technology by banks has been driven mainly by stiff competition leading them to adopt cost effective channels in offering financial services to ensure efficiency and maintain market share. The use of technology continues to enhance commercial banks efficiency in offering financial services. Continuing advances in and deployment of information and communications technology in the banking sector is expected to significantly impact the banking sector's operating efficiency and capacity.

1.2 Research Problem

Despite the rapid growth of electronic banking, this topic has not received sufficient research. At the same time, the effect of e-banking on the financial performance of adopting banks is not yet clear. Sullivan (2000) compared the financial performance and risk of a sample of banks that are located in Tenth Federal Reserve District states and observed that the profitability and risk of the non internet banks and internet banks in the sample are similar.

Sathye (2005) compared the performance of major credit unions in Australia, and found that transactional internet banking does not have a significant impact on performance and risk. Delgado, Hernando, and Nieto (2007) observed that primarily internet banking in European Union affects profitability negatively. In contrast, recent studies associate a significantly positive impact on internet banking on banks' performance.

DeYoung, Lang, and Nolle (2007) compared 424 internet banks and 5175 non internet banks and concluded that internet banks are more profitable compared with non internet banks in the US. Acharya, Kagan, and Linam (2008) reported that empirical evidence indicates that the increasing use of the internet as an additional channel of banking services has significantly improved the financial performance of community banks in the US. Ciciretti, Hasan, and Zazzara (2009) found a significant positive relationship between offerings of internet banking products and Italian banks' performance and a significant negative relationship between the adoption of internet activities and banks' risks.

Most commercial banks in Kenya are new adopters of electronic banking services. They are committing huge amount of their scarce resources to electronic banking technologies in line with rendering quality and acceptable services. While the rapid adoption of electronic banking has made some banking tasks more efficient and cheaper, technological investments are taking a larger share of bank's resources. Therefore, a sound analysis of costs and risks associated with electronic banking is needed to avoid harms on bank financial performance.

Kingoo(2011) assessed the relationship between the dependent variable i.e., performance measured by return on assets and the independent variables: investments in e-banking, number of ATMS and number of debits cards issued to customers as proxy for e-banking. The study investigated 26 commercial banks in Kenya. The banks that had adopted e-banking were found have better performance.

While bank performance is directly related to efficiency and effectiveness of electronic banking, several controls measures are needed to prevent financial losses related with electronic banking. Commercial banks have to find balance between the costs and benefits of electronic banking. This is only possible if overall effects of electronic banking on the banks financial performance is understood.

Clearly, there is mixed evidence about the effect of e-banking on banks' financial performance. It is therefore, important for bankers, bank regulators, supervisors and researchers to understand how e-banking affects the financial performance of banks. Hence, the main purpose in this research is to fill this significant gap by providing systematic analysis of the effect of electronic banking on the financial performance of Kenya commercial banks.

The main question i will be trying to ask is whether adoption of e-banking services have enhanced the performance and profitability of commercial banks in Kenya.

As a researcher the following will be the specific questions.

- (i) Which banks have adopted e-banking and for how long?
- (ii) What is the market share of the specific banks?
- (iii) Does adoption of e-banking increase operations costs?
- (iv) Does e-banking boost efficiency and customer retention?
- (v) How does adoption of e-banking contribute to profitability of banks?

1.3 Objective of the Research

To determine the effect of electronic banking on the financial performance of commercial banks in Kenya.

1.4 Value of the Study

A study such as this is important for many reasons. Firstly, it is generally believed that E- banking will bring benefits to both commercial banks and users (customers) of this service. Because of these perceived benefits, many banks are committing their scarce resources to introduce such e-banking services. If e-banking services does not yield the perceived advantages, such banks will be subject to unnecessary financial strain which they can ill afford.

Secondly, adoption of e-banking brings with it additional risks. The Basel Committee noted that e-banking activities‘increased and modified some of the traditional risks associated with banking activities, thereby influencing the overall risk profile of banking’ (Basel, 2001). In view of the above, it is felt that the results of this study could be useful to financial institutions and academics researching in this area.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter on the literature review includes section 2.2 that discusses theoretical literature ,section 2.3 highlights the determinants of financial performance ,section 2.4 and section 2.5 presents respectively various international and local research studies on the impact of e-banking to the performance of commercial banks.Section 2.6 provides the summary of the chapter.

2.2 Theoretical Literature

The definition of electronic banking varies among researchers, because electronic banking refers to several types of services through which bank customers can request information and carry out most retail banking services via computer, television or mobile phone (Daniel, 1999). The definition of electronic banking used in this study is adopted from the Basel committee report which defined it as the provision of retail and small value banking products and services through electronic channels as well as a large value electronic payment and other wholesale banking services which are delivered electronically. Such products and services can include deposit taking, lending, account management, the provision of financial device, electronic bill payment, and the provision for other products and services such as electronic money (Basel committee on banking supervision, 2003).

In recent times, electronic banking has spread rapidly all over the globe.In Kenya, most banks are making greater use of e-banking channels to provide better services in order to excel in the competitive banking industry. The spread of e-banking has also greatly benefited the ordinary customer in general and corporate world in particular. E-banking offers the convenience of conducting most of the banking transactions at a time that suits the customer. The customer can access funds and transfer funds between accounts, pay bills and make purchases 24 hours a day, 7 days a week.

In the past few years, banking activities in Kenya have increasingly depended on the deployment of ICT. Banks offer e-banking services to defend or expand market share or as a cost saving strategy to reduce paperwork and personnel. The internet also provides banks with sustainable opportunity to extend their customer reach beyond existing boundaries.

Clients demands for efficient services has compelled financial institutions to fast track to a more radical transformation of their business systems and models for embracing e-banking. The success of e-banking is dependent upon reliable and adequate data communication infrastructure. Therefore, it is efficient for banks to invest in online transactions through the creation of networks. However, there has been a mix up between electronic banking and internet banking. The fact is that internet banking is subsumed in electronic banking.

Banking has come a long way from the time of ledger cards and other manual filing systems. Most banks today have electronic systems to handle their daily voluminous tasks of information retrieval, storage and processing. Irrespective of whether they are automated or not, banks by their nature are continually involved in all forms of information management on a continuous basis. The computer is of course an established tool for achieving a competitive edge and optimal resource allocation. The most obvious application of computers in the banking industry is in the area of customer services, information management and control. Computerized banks respond immediately to requests from customers for statement of accounts, balance and account activity enquiries.

E-banking includes systems that enable financial institutions, customers, individuals and businesses, to access accounts, transact business, or obtain information on financial products and services through public or private networks, including the internet. Customers access e-banking services using an intelligent electronic devise, such as a personal computer (PC), personal digital assistant (PDA), automated teller machine (ATM).

It is important to identify factors that cause people to adopt new technologies and information systems and use them. Several theories are offered in this respect. These models are discussed to investigate the attitudes of consumers to use electronic banking services.

2.2.1 Technology Acceptance Model (TAM)

To understand, predict and explain why people accept or reject information systems; researchers have developed and used various models to understand the acceptance of users of the information systems. The technology acceptance model (TAM) that was introduced by Davis, Bagozzi, and Warshaw (1989) is one of the most cited models that researchers used to study underlying factors that motivate users to accept and adopt a new information system (Al Shibly, 2011). The primary goal of TAM is to provide an explanation of factors affecting computer applications' acceptance in general. In addition, this model helps researchers and practitioners to identify why a particular system is unacceptable (Davis, 1989).

The theory of TAM proposes that using an information system is directly determined by the behavioral intention to use it, which is in turn influenced by the users' attitudes toward using the system and the perceived usefulness of the system. Attitude and perceived usefulness are also affected by the perceived ease of use. According to TAM, greater perceived usefulness and the perceived ease of use of an information system will positively influence the attitude toward this system. The attitude, in turn leads to a greater intention to use the system, which positively affects one's actual use of the system.

TAM is based on two main assumptions; perceived usefulness (PU) and perceived ease of use (PEOU). TAM supposes that, other thing being equal, perceived usefulness is influenced by the perceived ease of use because the easier a technology to use, the more useful it can be. Perceived usefulness (PU) is defined as the degree to which a person believes that using a particular system would enhance his or her job performance. Perceived ease of use (PEU) refers to the degree to which a person

believes that using the system will be free of effort. Attitude (ATT) explains a person's favorable or unfavorable assessment regarding the behavior in question. Intention (INT) is a measure of the strength of a person's willingness to use effort while performing a certain behavior. The external variables in the model refer to a set of variables that can influence information system adoption indirectly through perceived ease of use and perceived usefulness (Davis et al., 1989).

The theory has been criticised for lack of absolute measure to ease of use or usefulness. According to Taylor and Todd (1995), constructs of TAM are almost measured in the same way in every context. Further, the user perceptions of these constructs may vary with time and experience for any given application.

2.2.2 Theory of Planned Behavior (TPB)

The theory of planned behavior (TPB) suggested that human behavior is determined by intention to perform the behavior, which is affected jointly by attitude toward behavior, subjective norm and perceived behavioral control (Ajzen, 1991, 2002). Attitude (ATT) is the general feeling of people about the desirability or undesirability of a specific behavior. Subjective norm (SN) expresses the perceived organizational or social pressure of a person who intends to perform a particular behavior.

Perceived behavioral control (PBC) reflects a person's perception of the ease or difficulty of implementing a particular behavior. The ability of TBP in providing a useful theoretical framework for understanding and predicting the acceptance of new information systems is demonstrated (Ajzen, 2002). Armitage and Conner (2001) analyzed previous studies using the TBP in a meta-analysis study. The major conclusion was support for the efficacy of the TPB and the suggestion that more work on new variables is needed to increase the predictability of the model.

Theory assumes people are rational and make systematic decisions based on available information. Ignores unconscious motives. Human behavior is under the voluntary control of the individual. It further assumes that people think about the consequences and implications of their actions behavior before they decide whether to do or not to do something.

The limitation of this theory of planned behavior is that it is based on cognitive processing and level of behavior change. Compared to affective processing models, the theory of planned behavior overlooks emotional variables such as threat, fear, mood and negative or positive feeling and assessed them in a limited fashion. The theory is largely dependent on rational processes and do not allow explicitly for the impacts of emotions and beliefs.

2.3 Determinants of Financial Performance

The impact of size on bank financial performance is hotly debated among researchers. In study of bank size Jonghe (2010) concludes that small banks are better able to withstand difficult economic conditions, while Barros, Ferreira and Williams (2007) argue that small banks are more likely to get good performance and less chances of getting bad performance. Conversely, large banks are less likely to obtain good performance and a greater chance of getting bad results. Many other authors such as Berger et al (1987) respond to the argument of economies of scale and argue that some costs can be reduced simply by increasing the size.

Capitalization is usually measured by the ratio of equity to assets ratio (CAR capital to asset ratio). Rapid approach to the question might suggest a higher CAR ratio reduces the ROE due to two mechanisms: A high ratio indicates a lower risk, and the theory of markets to balance advocating a strong relationship at risk and profitability would lead us to infer a lower profitability, An increase in this ratio may indicate that the share of the debt decreases and thus implies a lower earnings from the tax exemption of the debt burden.

Very often, liquidity is measured by the ratio of loans to assets. The higher the ratio, the lower the bank has liquidity. In fact, the loan agreements have various maturities, and thus, in case of urgent need of capital, the bank cannot rely on these loans, since they will only be reimbursed later. The vast majority of authors found a positive

relationship between this ratio and performance, and therefore a negative relationship between liquidity and performance. This result is surprising, especially in these times of crisis, where we could see how the banks were seeking liquidity. Authors obtain results more consistent with what one might think, as Berger and Bouwman (2009) which explain in detail the positive impact of liquidity on the value of banks.

It is not easy to estimate a priori the impact of the level of bank deposits on bank performance. Indeed, two arguments can be opposed on the one hand, a high level of deposits can increase performance, because they are more stable funding and less expensive than borrowed funds, but on the other hand, such deposits require large teams and specialist departments to manage, causing many expenses. It seems that only Kunt and Huizinga (1999) were interested in this issue. Their results support the second argument that the high costs generated by these deposits lead to weigh negatively on the performance of banks.

The impact of market share on performance has mainly been studied by Liu and Wilson (2010).. These authors show that, at least in Japan, a negative relationship between market share and performance regardless of the type of bank. On the one hand, by analyzing the behavior of banks with low market share. Banks seek to grow and gain market share. To do this, one of the few resources at their disposal is the granting of loans to risky people.

2.4 International Research Evidence

In their study conducted in Turkish retail banking sector Polatoglu and Ekin (2001) concluded that e-banking decreases operational costs and it amplifies customers' satisfaction and retention. The usage of e-banking induces many risk factors to firms' overall risk profile. Ceylan Onay and et al (2008) states that Internet has changed the dimensions of competition in the retail banking sector. Following the introduction of PC banking, ATMs and phone banking, which are the initial cornerstones of electronic finance, the increased adoption and penetration of Internet has added a new distribution channel to retail banking: Internet/Online-banking.

Allen et al (2002) define E-finance as “the provision of financial services and markets using electronic communication and computation” and today retail banks are switching to multi-channel distribution of financial services in hybrid platforms where the traditional services of banks are provided through both “bricks and mortar” branches and Internet. However the research on the adoption of internet banking by the consumers has been vast, while there has been very limited research on the effects of internet banking on the bank profitability especially within the European Union context.

Simpson (2002) suggests that e-banking is driven largely by the prospects of operating costs minimization and operating revenues maximization. A comparison of online banking in developed and emerging markets reveal that in developed markets lower costs and higher revenues are more noticeable.

While Sullivan (2000) finds no systematic evidence of a benefit of internet banking in US brick and mortar banks, Furst et al. (2002) find that federally chartered US banks had higher ROE by using the brick-and-mortar business model. Furst et al (2002) also examine the determinants of internet banking adoption and observe that more profitable banks adopt internet banking after 1998 but yet they are not the first movers (Ceylan Onay and et al, 2008). Ceylan Onay and et al (2008) states that the greater use of Internet in retail banking however brings additional risk components to overall risk profile of the banks. The Basel committee has recognized these related risks and has issued Risk Management Principles for Electronic Banking (2003). It aims to promote safety and soundness of e-banking activities while preserving the necessary flexibility in implementation due to speed of change in technology (Ceylan Onay and et al, 2008).

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.

According to Centeno (2004), the e-banking adoption factors are divided into two categories. Factors relating to the infrastructure and accessing technology. Factors that are related to retail banking factors. The prior factors include skills on the part of consumers in using internet and other related technologies, attitudes towards technologies, internet penetration rate, privacy and security concerns. Later involves factors like banking culture, e-banking culture, trust in banking institutions and internet banking push. However, lack of PC and internet penetrations serve as barriers for development of e-banking.

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 et al. (2006) observed the change in financial performance of Internet community banks in U.S. during 1999-2001. The results found that Internet adoption improved community banks' profitability, particularly through increased revenues from deposit service charges. Internet adoption was also associated with movements of deposits from checking accounts to money market deposit accounts, increased use of brokered deposits and higher average wage rates for bank employees. It found little evidence of changes in loan portfolio mix. The findings suggested that Internet adoption was associated with an economically and statistically significant improvement in bank profitability.

Siam (2006) examined the effect of electronic banking in bank profitability in Jordan. The population of the study is all working banks in Jordan which have sites on the internet for the period of 1999-2004. The results from the data analysis that were gathered from study instrument (questionnaire) showed that: There is a correlation with statistical significance between the impacts of electronic banking in banks profitability as the following: A negative effect in profitability in the short run. A positive effect on profitability on the long run. Managers and banks employees prefer their banks to expand their electronic operations in servicing customers, but not converting bank into a total electronic banks. Electronic banking services in Jordan still at its early stages. However, it is reality and not a trend, especially Jordan as people, institutions in both private and public sectors are gearing up their efforts towards the maximum use of the internet and IT.

Also, Siam (2006) examined the impact of e-banking on Jordanian banks and concluded that majority of the banks are providing services on internet through their websites and his findings show that the attention is more to achieving e-banking as satisfying and fulfilling customers' needs. He also concluded that there should be a well articulated strategy to achieve success and profits in the long run.

In their research, De Young et al (2007) analyzed the effect of e-banking on the performance of banks by studying US community banks markets and compared the performance of virtual click and mortar banks with brick and mortar banks. Their findings concluded that e-banking improved the profitability of banks hence increasing their revenues. Also, E-banking is largely driven by the factors of minimizing the operating costs and maximizing operating profit, suggests Simpson (2002).

Onay et al (2008) in their research on Turkish banks concluded that e-banking has a positive impact on the profits of banks. According to their study, "Internet has changed the dimensions of competition in the retail banking sector. It has also provided opportunities for emerging countries to build up their financial intermediation infrastructure. Investment in e-banking is a gradual process. The

internet banking variable has had a positive effect on the performance of the banking system in Turkey.”

Internet banking allows customers to perform a wide range of banking transactions electronically via the bank’s Web site. When first introduced, Internet banking was used mainly as an informational medium in which banks marketed their products and services on their Websites. With the development of secured transaction technologies, more banks are using Internet banking as a transactional as well as an informational medium. As a result Internet banking users can now perform common banking transactions such as writing checks, paying bills, transferring funds, printing statements and checking account balances online using a computer (Acharya and Kagan, 2004).

The increased efficiency that results from shifting from paper based to electronic payments will reduce the amount of transactions required by consumers. Consequently 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. It is believed that, in the future, Internet banking will continue to increase in importance as a strategic application and will become a competitive necessity that must be adopted by financial institutions to remain in the banking sector (Bradley and Stewart, 2003).

2.5 Local Research Evidence

Kingoo (2011) assessed the relationship between the dependent variable i.e., performance measured by return on assets and the independent variables: investments in e-banking, number of ATMS and number of debits cards issued to customers as proxy for e-banking. The study investigated 26 commercial banks in Kenya. The banks that had adopted e-banking were found have better performance.

Maiyo (2013) in her study to establish the effect of electronic banking on financial performance of commercial banks in Kenya revealed that fees and commission from

debit cards, credit cards and mobile banking has a significant effect on returns on asset whereas fees and commission from internet banking as well as the amount of money that commercial banks invest in electronic banking to install, train staff and maintain the platforms has no or minimal effect on return on assets. The adoption of e-banking banking has enhanced performance of commercial banks due to increased efficiency, effectiveness and productivity. The study recommends that commercial banks should expand their electronic services in a planned and well-articulated strategy for the long run, in order to achieve customer satisfaction and increase in banks profitability. The study adopted a descriptive research design.

Ogare(2013) investigated the relationship between e-banking and performance of commercial banks in Kenya. Specifically, the study was meant to establish whether there exists a relationship between the dependent variable, for example, performance measured by profit after tax and the independent variables consisting of number of ATMS, number of debits and credit cards issued to customers, number of point of sales terminals and the usage levels of Mobile banking, Internet banking and Electronic funds transfer, as components of e-banking. descriptive and inferential statistics in analyzing the data. The study found a positive relationship between e-banking and bank performance. The significance test showed that the influence of bank innovations on bank profitability was statistically significant meaning that the combined effect of the bank innovations in this research is statistically significant in explaining the profits of commercial banks in Kenya.

2.6 Summary of Literature Review

While the adoption of electronic banking has made some banking tasks more efficient and cheaper, technological investments are taking a larger share of bank's resources. Therefore, a sound analysis of costs and risks associated with electronic banking is needed to avoid harms on bank financial performance.

There is mixed empirical evidence about the impact of e-banking on banks' performance. It is therefore, important for bankers, bank regulators, supervisors and researchers to understand how e-banking affects the performance of banks before committing huge amount of their scarce resources to e-banking technologies. Hence, this research main purpose is to fill this significant gap by providing systematic analysis of the impact of electronic banking on the performance of Kenya banks.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter gives a brief description of the methodology that was used in conducting this study. This chapter is organized into the following sections; section 3.2 explains the research design to be used, section 3.3 shows the population and sample design of the study. Data collection tools, data analysis techniques and models are discussed in sections 3.4 and 3.5 respectively.

3.2 Research Design

The researcher employed descriptive survey design. This refers to the techniques for collecting data on human characteristics, attitudes, thoughts and behaviour by obtaining responses from individuals to a set of prepared questions (Bryman, 2004).

This design is most appropriate because it is less expensive and needs less time. In addition, the information that will be collected is of high quality since similar questions are asked to all participants that reduces any bias.

3.3 Population

Population refers to the entire group of entities (the universe) to which the findings of the sample are to be generalized (Cooper & Schindler, 2007). The target population of the study consisted of all 43 operating commercial banks in Kenya, registered with the CBK. They comprise 6 big banks, 15 medium banks and 22 small banks (CBK supervision report 2013)

A sample is part of the target population that has been systematically selected to represent the whole population. This study used census sampling procedure which involves the entire population as a sample. A census is ideal for small population. It eliminates sampling error and provides data on all the entities of the population. Therefore the sample in this study will consist of all the 44 banks in the entire population.

3.4 Data Collection Instruments

Secondary data was collected from the comparative financial reports for the last 5 years period (2009-2013). Data from books, articles, e-articles, and website that are related to the subject of the study was also used.

3.5 Data Analysis

The study used correlation and regression statistics to analyse with the help of SPSS. The dependent variable was correlated with independent variables to determine if a relationship exist between variables. Regression statistics was used to determine the significance of the relationship between variables.

3.5.1 Conceptual Model

$$Y=f(x_1,x_2,x_3,x_4,x_5,x_6)$$

Y is the dependent variable (ROA) which is a measure of profitability. It is the ratio of bank net income to total assets. Independent variables are;

- (i) X_1 is overhead ratio (OHR) which measures the operating efficiency of the bank related to the e-banking service. It is calculated using expense as a percent of net operating revenue.
- (ii) X_2 is market share (Mshare) which is the proportion of the market that the bank is able to hold. Market share is estimated by dividing individual bank's deposits with the total sector deposits.
- (iii) X_3 is deposit to assets (D/A) ratio. This ratio is calculated by dividing total deposits with total assets for each bank.
- (iv) X_4 is loan to assets (L/A) ratio. A major source of risk for banks is credit risk. One factor that may affect the profitability of bank is loan-assets ratio. It is calculated by dividing loans with total assets.
- (v) X_5 is the effective lending rate (LR) which is the macroeconomic variable that capture the effect of economy. It is calculated by dividing interest income with total loans outstanding.

(vi) X_6 is fees and commissions from ATM ,mobile Banking and internet banking as a ratio of bank net income.

3.5.2 Analytical Model

$$Y_{it} = \alpha_0 + \beta_1 X_{1t} + \beta_2 X_{2t} + \beta_3 X_{3t} + \beta_4 X_{4t} + \beta_5 X_{5t} + \beta_6 X_{6t} + \varepsilon_{it}$$

This analytical model is advancement of previous works of Athanasoglou, (2008), and by Aburime, (2008) .

α =fixed effect term that captures time-invariant influences specific to bank i .

ε = is the error term.

β = is the coefficient.

CHAPTER FOUR

DATA ANALYSIS, RESULTS AND DISCUSSIONS

4.1 Introduction

This chapter presents analysis and findings of the study as set out in the research methodology. The study findings are presented on the effects of electronic banking on financial performance of commercial banks. The data was collected from banks' financial statements for years 2009 to 2013.

4.2 Descriptive Statistics

This section explains the characteristics of determinants that affect the financial performance of commercial banks regulated by CBK.

The results as per the table 4.1 below showed that OHR and D/A had the highest mean above all variables while ROA and effective lending rate (LR) had the lowest std.deviation. Overhead, market share, effective lending rate (LR) and E-bank income ratio were skewed asymmetrical to the right while D/A and L/A are asymmetrical to the left.

Table 4.1: Descriptive statistics

YEAR: 2009-2013							
	<i>ROA</i>	<i>OHR</i>	<i>MSHARE</i>	<i>D/A</i>	<i>L/A</i>	<i>LR</i>	<i>E/O</i>
Mean	0.0210	0.7765	0.0520	0.7586	0.5542	0.1659	0.1214
Standard Error	.0022	0.0493	0.0054	0.0074	0.0086	0.0047	0.0075
Median	.02239	0.6293	0.0275	0.7634	0.5656	0.1625	0.0985
Standard Deviation	0.0213	0.4804	0.0528	0.0720	0.0842	0.0454	0.0730
Sample Variance	0.0005	0.2308	.0028	0.0052	0.0071	0.0021	0.0053
Kurtosis	0.5513	5.3727	-0.1265	2.1881	0.9080	1.4518	3.9940
Skewness	-0.8454	2.3643	0.9893	-0.9797	-0.7126	0.6106	1.7131
Minimum	-0.0378	0.3010	0.0025	0.5099	0.2559	0.0705	0.0067
Maximum	0.0590	2.6349	0.1906	0.9188	0.7070	0.3409	0.4010

Source: Research Findings

4.3 Correlation Analysis

After the descriptive analysis, correlation analysis was done to indicate a linear association between variables or among the latter. This analysis helped in determining the strengths of association in the model, that is, which variable best explained the relationship between electronic banking and financial performance measured by ROA.

Table 4.2: Correlation between variables

	ROA	OHR	MSHARE	D/A	L/A	LR	E/O income
ROA	1						
OHR	-0.8855	1					
MSHARE	0.5048	-0.2684	1				
D/A	-0.2370	0.1553	-0.1354	1			
L/A	0.3350	-0.3271	0.1048	0.2060	1		
LR	-0.1655	0.2787	-0.0671	-0.0054	-0.3442	1	
E/income	-0.3602	0.5229	-0.0725	0.2300	-0.2119	0.1249	1

Source: Research Findings

From the Table 4.2, it can be concluded that there was a negative correlation between ROA and OHR, D/A, LR and e-banking income ratio. The ROA had a negative correlation of -0.3602 with e-banking income ratio which is not significant. Market share and loan asset ratio had a positive correlation of 0.5048 and 0.3350 respectively with ROA.

4.4 Regression Analysis

Least square method was used to determine the line of best fit for the model through minimizing the sum of squares of the distances from the points to the line of best fit. Through this method, the analysis assumed linearity between the dependent variable and the independent variables.

Table 4.3: Regression Model Summary

Regression Statistics	
Multiple R	0.95
R Square	0.90
Adjusted R Square	0.89
Std. Error	0.01

Source: Research Findings

The model had a multiple R of 0.95, which is a good fit. The closer to 1, the better the regression line (read on) fits the data. The model was also fairly strong due to R-square value of 0.90 which was adjusted for errors to 0.89. This means 89% of the variation in ROA is explained by the independent variables. The results of this tests show that there is an effective relationship of 0.95 between variables.

Table 4.4: Analysis of Variance (ANOVA)

	Sum of Squares	df	Mean Square	F	Sig.f
Regression	0.0383	6	0.0064	127.7930	0.0000
Residual	0.0044	88	0.0000		
Total	0.0427	94			

Source: Research Findings

Analysis of Variance's (ANOVA) f-test was used to make comparisons between two or more means; thus, testing whether a reasonable relationship exists between

variables (independent variables and dependent variable); thus, helping in bringing out the significance of the regression model. To check if your results are reliable (statistically significant), look at Significance F (0.001) .If this value is less than 0.05, you're OK. If Significance F is greater than 0.05, it's probably better to stop using this set of independent variables.

Table 4.5: Regression Coefficient

	Coefficients	Standard error	t Stat	p-value	lower 95%	upper 95%
Intercept	0.0423	0.0095	4.4523	0.0000	0.0234	0.0612
OHR	-0.0385	0.0019	-19.8022	0.0000	-0.0424	-0.0347
MSHARE	0.1053	0.0145	7.2529	0.0000	0.0765	0.1342
D/A	-0.0375	0.0110	-3.4175	0.0010	-0.0593	-0.0157
L/A	0.0309	0.0100	3.0938	0.0026	0.0111	0.0508
LR	0.0545	0.0174	3.1270	0.0024	0.0199	0.0892
E/O income	0.0448	0.0121	3.7144	0.0004	0.0208	0.0688

Source: Research Findings

Variable with a high P-value (greater than 0.05) should be deleted and rerun the regression until Significance F drops below 0.05.

Most or all P-values should be below 0.05. In our case all are 0.0000. Table 4.4 above shows f-value 127.7930 at significance value of 0.0000 (p is less than 0.05). It can be concluded that the regression model was significant.

From the data in the above table 4.5 the established regression equation was

$$Y = 0.0423 - 0.0385X_1 + 0.1053X_2 - 0.0375X_3 + 0.0309X_4 + 0.0545X_5 + 0.0448X_6$$

4.5 Discussion of Findings

This study found that adoption of electronic banking technologies boosts the financial performance of commercial banks. From the regression equation it was revealed that financial performance measures like the market share, loan asset ratio and the e-bank commission income ratio had a positive relationship with performance measured by ROA.

A unit increase in overheads leads to decrease in financial performance by a factor of 0.0385, unit increase in market share leads to increase of financial performance by factor 0.1053, unit increase in effective lending rate leads to increase of financial performance by factor 0.0545 and a unit investment in electronic banking technologies leads to an increase in financial performance by factor 0.0448. A unit increase in the size of loans leads to an increase in financial performance by factor 0.0309, while a unit increase in deposits leads to a decrease in financial performance by factor 0.0375.

At 5% level of significance and 95% level of confidence, overheads ratio had a 0.0000 level of significance, market share showed a 0.0000 level of significance, deposit asset ratio had a 0.0010 level of significance, loan asset ratio had a 0.0026 level of significance, effective lending rate had 0.0024 level of significance while e-banking income ratio had 0.0004 level of significance. Overhead ratio, market share

and e-banking income ratio had the greatest effect on the financial performance of commercial banks. All the variables were significant because ($p < 0.05$).

Electronic banking has positive relation with financial performance hence the adoption of various e-banking platforms like POS, mobile banking will improve the financial performance and efficiency.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

The chapter provides the summary of the findings from chapter four, and it also gives the conclusions and recommendations of the study based on the objectives of the study. The objectives of this study were to investigate the effects of electronic banking on the financial performance of commercial banks.

5.2 Summary of Findings

This study investigated the returns on assets of commercial banks following the adoption of electronic banking in Kenya. Kenya is a developing economy pressing forward in the use of electronic banking for its banking activities. With high level of electronic banking fraud, some customers feel disheartened with the use of Automated Teller Machines (ATM), an electronic banking product. This study has provided evidence that electronic banking has advanced returns on the assets of Kenya commercial banks though not significantly based on the hypotheses tested.

5.3 Conclusion

As revealed by the empirical result on returns on assets, this study does not suggest that the adoption of e-banking is a useless investment rather it helps to satisfy customers' desire for improved service delivery and convenience. The unimproved returns may have arisen from the high cost of maintenance of equipment, software and training of staff. Electronic banking is cost intensive and will improve on total profitability performance in future as incidence of banking fraud caused by electronic facilities reduces. The study encourages the use of electronic banking technologies based on its enormous benefits to the bank management, customers and the regulatory authorities.

5.4 Policy Recommendation

This study therefore recommends that the banking industry should adjust to full and effective deployment of information technology due to its sophistication since the technology is irreversible with relative perceived advantage. That Kenyan banks should be able to accept the level of risk that they can cope with in electronic banking system, measurable to the bank's overall strategic and business plans. Though there is inherent risk for not adopting e-banking.

That banks should be able to provide adequate security both physically and electronically to check the incidence of hacking by fraudsters. Network hackers successfully steal billions of shillings and can send banks into huge losses. That shareholders of banks should exercise patience with the banks management in the payment of dividend as perceived future dividends will be fatter after some lag period of cost recovery.

Customer illiteracy is somewhat coming on the way of e-banking as infrastructure in the country for information technology is not satisfactory, people use other electronic banking services regularly but they are not much informed about how to get advantage from e-banking like mobile banking. Therefore, the banks management should from time to time train customers with regard to electronic banking, its benefits, risk exposure, physical and electronic security to avoid financial loss in the hands of fraudsters. Also, trainings should be held for bank staff in short periods to acquaint them with modern developments of the sophisticated technology in changing times.

5.5 Limitations of the Study

The study used secondary data which can be general and vague and may not really help companies make decisions on current issues. The information and data may not be very accurate and the source of the data had to be checked properly.

As a researcher i encountered problems of time as the research was being undertaken in a short period with limited timeframe for doing an extended research. Nevertheless, as a researcher i was able to carry out the research across the banks that were selected by generalizing the study findings on the effects of electronic banking to the financial performance of commercial banks in Kenya.

The study encountered the challenge of privacy with regard to disclosure of information on banks as only a few disclosures are given in financial statements to comply with statutory requirements. The management are hesitant when it come to exposing information to the public which it considered as a top secret. The researcher surmounted the challenge by way of assuring them that the study was purely academic and their identity would always remain confidential.

Lastly, findings generated as a result of the study are not in themselves final as the study centered on six determinants of financial performance. Also, availability of data determined the elements for the study and not any statistical or probabilistic criterion. Hence, care should be exercised in generalizing the results of the study.

5.6 Suggestions for Further Studies

In recent years, there are huge efforts in increasing E- banking with IT in developed countries. It is very clear that E-Banking increase with the increase in profitability. Recently, due to a lot of E-banking economic advantages in decreasing bank charges and increasing profit, increasing in quality of giving services to clients most banks provide E-banking along with traditional banking services.

Due to the many advantages, the country banking industry should do more researches in this field. According to research finding there is effective relationship between E-banking and bank income and also using E-bank is a mandate for the

banks to be able to stay alive among intensive banks competition. So the experts and scholars in banking field have to be more kind to this aspect.

Studies can also be done on the effects of e-banking to risk profile of banks. With increased incidences of online frauds banks continue to incur huge losses.

REFERENCES

- Aburime, T.U. (2008). Determinants Bank Profitability: Macroeconomic Evidence from Nigeria, Deakin University, Working Paper, pp1-10.
- Athanasoglou, P. (2008) Determinants of Bank Profitability in South Eastern European Region, MPRA Paper No.10274, posted 03. September 2008 / 09:24, Online at <http://mpa.ub.uni-muenchen.de/10274/>
- Azouzi, D. (2009). The adoption of electronic banking in Tunisia: an exploratory study. *Journal of Internet Banking and Commerce*, 14(3), 1-11.
- Acharya, R. N., & A. Kagan, A. (2004). Community Banks and Internet Commerce. *Journal of Internet Commerce*, 3(1), 23-30.
- Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, 50, 197-211.
- Ajzen, I. (2002). Perceived Behavioral Control, Self Efficacy, Locus of Control, and the Theory of Planned Behavior. *Journal of applied social psychology*, 32(4), 665-683.
- Ala`Eddin, M.K.A. & Hasan, A.A. (2011). E-banking functionality and outcomes of customer satisfaction: *An empirical investigation. Int. J. Market. Stud.*, 3(1).
- Aladwani, A. M. (2001). Online banking: a field study of drivers, development challenges, and expectations. *International Journal of Information Management*, 21(3), 213- 225.
- Allen, F., McAndrews, J. & Strahan, P. (2002). E-finance: *An Introduction, Journal of Financial Services Research*, 22:1/2, 5-27.
- Al-Majali, M, Nik Kamariah Nik Mat (2010). Application of decomposed theory of planned behavior on internet banking adoption in Jordan. *Journal of Internet Banking and Commerce*, 15(2).
- Alrawahdeh, B.S. (2010). A study of auditing practices of banking sector in Jordan. PH.D. Thesis, Aligrah Muslim University, India.
- Al Shibly, H. H. (2011). An Extended Tam Model to Evaluate User's Acceptance of Electronic Cheque Clearing Systems at Jordanian Commercial Banks. *Australian Journal of Basic and Applied Sciences*, 5(5), 147-156.

- Amtul, F. (2011). E-banking security issues-is there a solution in biometrics. *J. Internet Bank. Commerce*, 16(2).
- Armitage, C. J., & Conner, M. (2001). Efficacy of the theory of planned behavior: A meta analytic review. *British journal of social psychology*, 40(4), 471-499
- Ayrga, A. (2011). Is Mauritius Ready to E-Bank? From A Customer and Banking Perspective. *Journal of Internet Banking and Commerce*, 16(1).
- Badi, S.M., AL-Rawashdeh, A., Abu-Errub, Y.,Areiqat,Y.A & D. Mohammad D.(2012). Information technology role in reducing e-banking services risk in Jordanian banking sector. *J. Comp. Sci.*, 8(3), 374-381, ISSN 1549-3636.
- Basel Committee on Banking Supervision. (1998) Risk Management for Electronic Banking and Electronic Money Activities.
- Basel Committee on Banking Supervision. (2003) Risk Management Principles for Electronic Banking. Bank for International Settlement.
- Barros,C., Ferreira,C.&Williams, J., (2007). Analysing the determinants of performance of best and worst European banks: A mixed logit approach. *Journal of Banking & Finance* 31, 218 2203.
- Blanca, H.O. (2011). The role of post use trust in the acceptance of a technology: Drivers and consequences. *Technovation*, 3(10-11),523-538.
- Bradley, L. & Stewart,K.,(2003) “The Diffusion of Online Banking.” *Journal of Marketing Management* ,19 ,1087-1109.
- Berger,A., Hanweck,D. & Humphrey, D., (1987). Competitive viability in banking: scale, scope, and product mix economies. *Journal of Monetary Economics* 20 (3), 501–520.
- Berger,A. & Bouwman, C., (2009). Bank Capital, Survival, and Performance around Financial Crises.Working Papers–Financial Institutions Center at The Wharton School, 1–42.
- Carvalho, T. & Siegel, M.(2002) Return On Investment From Online Banking Services: An Analysis of Financial Account Aggregation, *MIT Sloan School of Management Working Paper*, 4384-02.

- Ceylan O, Emre O & Aslı,D.H. (2008). “The impact of Internet-Banking on Bank Profitability the Case of Turkey”, *.Oxford Business &Economics Conference Program*.
- Compeau, D. & Higgins, C (1995). Application of social cognitive theory to training for computer skills. *Information Systems Research*, 6(2), 118-143.
- Daniel, E. (1999). Provision of electronic banking in the UK and the Republic of Ireland. *International Journal of Bank Marketing*, 17(2), 72-83.
- Davis, F.D., Bagozzi, R.P., Warshaw, P.R. (1989). User acceptance of computer technology: A comparison of two theoretical models. *Management Science*, 35(8), 982-1003
- Davis, F.D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of computer technology. *MIS Quarterly*, 13(3), 319-340.
- Davis, F.D.,Bagozzi.R.P ,Warshaw,P.R. ,Yeoh, S.F. & Benjamin, C.Y.F. (2011). InternetUser acceptance of computer technology: a banking adoption in Kuala Lumpur: an application of comparison of tow theoretical models. Management Utaut model. *International Journal of Business andScience*, 35(8): 982-1003
- DeYoung, R., Lang, W. W., & Nolle, D. L. (2007). How the Internet affects output and performance at community banks. *Journal of Banking & Finance*, 31(4), 1033-1060.
- DeYoung, R., Lang, W. W. & Nolle, D. E. (2006), “How the Internet Affects Output and Performance at Community Banks”, *Journal of Banking and Finance (forthcoming)*.
- Dr Anthony,G .& Dr Chris,C.(1996),The Electronic bank:Banking and IT in Partnership.The Chartered institute of Bankers Emmanuel House,4-9 Burgate Lanw,Canterbury,Kent.
- Furst, K., Lang, W.W. & Nolle,D.E. (2002). Internet Banking.*Journal of Financial Services Research*, 22:1/2, 95-117.
- Georgescu, M.(2005). Some issues about risk management for e-banking.
- Godwin, J.U., Kallol,K.B. & Peeter,J.K.(2010). An assessment of customers’ e-service quality perception, satisfaction and intention. *International Journal Information Management.*, 30, 481-492.

- Hernando, I. & Nieto, M. J. (2005). "Is the Internet Delivery Channel Changing Banks' Performance? *The Case of Spanish Banks*", *Banco de Espana, Unpublished Manuscript*.
- Jayawardhena, C. & Foley, P. (2000). Changes in the banking sector: the case of Internet banking in the UK. *Internet Research, 10(1)*, 19-31.
- Jeoungkun, K., Soongeun, H., Jinyoung, M. & Heeseok, L. (2011). Antecedents of application service continuance: *A synthesis of satisfaction and trust. Expert Syst. Appl., 38*, 9530-9542.
- Kingoo, N. (2011) Assessment of the relationship between performance and investment in e-banking. Unpublished MBA project University of Nairobi.
- Kondabagil, J. (2007) Risk Management in electronic banking concepts and best practices, John Wiley and Sons (Asia) Pte Ltd. Singapore.
- Kunt, A. & Huizinga, H., (1999). Determinants of commercial bank Interest margins and profitability: some international evidence. *World Bank Economic Review 13 (2)*, 379-408.
- Laukkanen, T. & Cruz, P. (2009). Comparing consumer resistance to mobile banking in Finland and Portugal. in Filipe, J. and Obaidat, M.S. (Eds), *e-Business and Telecommunications*, Springer, Berlin, 89-98.
- Liu, H. & Wilson, J.O.S., (2010). The profitability of banks in Japan. *Applied Financial Economics, 20*: 24, 1851-1866.
- Maiyo, J. (2013) Effect of electronic banking on financial performance of commercial banks in Kenya. Unpublished MBA project University of Nairobi.
- Moore, G.C. & Benbasat, I (1991). Development of an instrument to measure the Perceptions of Adopting an Information Technology Innovation. *Information Systems Research, 2(3)*, 192-222.
- Nikolai L. & Bazlay J.D (1997) *Intermediate Accounting*, South-Western College Publishing, Ohio.
- Nyangosi, R. (2008). E-banking: An Integration Technology in Kenya. Retrieved from <http://www.africanexecutive.com/modules/magazine/articles.php?article=3296>
- Ogare, H.O. (2013) The relationship between e-banking and performance of commercial banks in Kenya. Unpublished MBA project University of Nairobi.

- Ovia, J. (2001) Internet Banking: practice and Potentials in Nigeria. Paper Delivered at a Workshop organized by ICAN at Lagos.
- Pedersen, P.E. (2005). Adoption of mobile internet services: an exploratory study of mobile commerce early adopters. *Journal of Organizational Computing*, 15(2), 203-22
- Polatoglu, V. N., & Ekin, S. (2001). An empirical investigation of the Turkish consumers acceptance of Internet banking services. *International Journal of Bank Marketing*, 19(4), 156-165.
- Sathye, M. (2005). "The Impact of Internet Banking on Performance and Risk Profile: Evidence from Australian Credit Unions", *The Journal of International Banking Regulation*, Vol. 6 No. 2, February.
- Siam, A. Z. (2006). Role of the Electronic Banking Services on the Profits of Jordanian Banks. *American Journal of Applied Sciences*, 1999-2004.
- Simpson, J., (2002). The Impact of the Internet in Banking: Observations and Evidence from Developed and Emerging Markets. *Telematics and Informatics*, 19, pp. 315-330.
- Sullivan, R. J., (2000). How has the adoption of Internet banking affected performance and risk at banks? A look at Internet banking in the tenth Federal Reserve district," Federal Reserve Bank of Kansas City. *Financia Industry Perspectives* (Dec), 1-16.
- Rogers, E.M. (1995), Diffusion of Innovation 4th Edition. New York, The Free Press.
- Tan, M., & Teo, T. (2000). Factors influencing the adoption of Internet banking. *Journal of the Association for Information Sciences*, 1, 1-42.
- Taylor, S. and Todd, P.A. (1995). Understanding information technology usage: a test of competing models. *Information Systems Research*, 6(2), 144-176.

Appendix I

List of Commercial banks in Kenya

- 1 African Banking Corporation
- 2 Bank of Africa
- 3 Bank of Baroda
- 4 Bank of India
- 5 Barclays Bank
- 6 CfC Stanbic Bank
- 7 Charterhouse Bank
- 8 Chase Bank
- 9 Citibank, N.A
- 10 Commercial Bank of Africa
- 11 Consolidated Bank
- 12 Co-operative Bank
- 13 Credit Bank
- 14 Development Bank
- 15 Diamond Trust Bank
- 16 Dubai Bank
- 17 Ecobank
- 18 Equity Bank
- 19 Equatorial Commercial Bank
- 20 Family Bank
- 21 Fidelity Commercial Bank
- 22 Fina Bank
- 23 First Community Bank
- 24 Giro Commercial Bank
- 25 Guardian Bank
- 26 Gulf African Bank
- 27 Habib Bank Ltd
- 28 Habib Bank A.G. Zurich
- 29 Imperial Bank
- 30 I&M Bank
- 31 Jamii Bora Bank
- 32 Kenya Commercial Bank
- 33 K-Rep Bank
- 34 Middle East Bank
- 35 National Bank
- 36 NIC Bank
- 37 Oriental Commercial Bank

- 38 Paramount Universal Bank
- 39 Prime Bank
- 40 Southern Credit Banking Corporation
- 41 Standard Chartered Bank
- 42 Transnational Bank
- 43 UBA Kenya Bank
- 44 Victoria Commercial Bank

Source Central Bank of Kenya

APPENDIX II

LETTER OF INTRODUCTION

Dear Sir/Madam,

Re: Request for Research Data

The researcher is a Postgraduate student at the University of Nairobi pursuing a Master of Business Administration (MBA) program. Topic of research is “**An assessment of the Effect of E-banking on Performance of Commercial Banks Kenya.**”

The researcher will ensure that all data given is treated with confidentiality and no disclosures will be done without your consent. The information sought is purely for academic purposes. Findings of this research will be given to UON, in line with agreement of the researcher and the institution.

Kindly facilitate the data collection necessary by answering all the questions precisely and accurately as possible.

Yours truly,

Daniel Mwangi Kinyua

Email: dmkinyua@yahoo.com

Researcher

Appendix III: Data Collection Form

A. BANK PROFILE

1. Name of the bank.....
2. Year of Establishment.....
3. Have the bank adopted electronic banking?.....

B. FINANCIAL PERFORMANCE OF THE BANK OVER THE LAST 5 YEARS.

Year/ Performance measure	2009	2010	2011	2012	2013
Deposits					
Expenses					
Interest income					
E-banking commissions					
Loans outstanding					
Operating Income					
Net Income					

APPENDIX IV:Data analysed from financial statements.

	Year	Row	ROA	OHR	MSHARE	D/A	L/A	LR	E/O Income
ABC	2009	1	0.03	0.56	0.01	0.81	0.51	0.15	0.14
	2010	2	0.03	0.56	0.01	0.81	0.51	0.15	0.14
	2011	3	0.03	0.58	0.01	0.84	0.57	0.13	0.14
	2012	4	0.02	0.60	0.01	0.80	0.51	0.18	0.13
	2013	5	0.02	0.63	0.01	0.81	0.55	0.16	0.12
Bank of Africa	2009	1	-0.03	2.35	0.02	0.73	0.54	0.23	0.26
	2010	2	-0.03	2.63	0.02	0.74	0.53	0.20	0.34
	2011	3	-0.02	2.15	0.02	0.62	0.56	0.20	0.01
	2012	4	0.01	0.74	0.03	0.72	0.61	0.19	0.02
	2013	5	0.01	0.65	0.03	0.70	0.59	0.17	0.05
Barclays	2009	1	0.04	0.59	0.17	0.76	0.57	0.19	0.10
	2010	2	0.05	0.54	0.13	0.72	0.51	0.20	0.15
	2011	3	0.05	0.54	0.11	0.75	0.60	0.14	0.19
	2012	4	0.05	0.52	0.11	0.75	0.56	0.20	0.21
	2013	5	0.04	0.53	0.11	0.73	0.57	0.18	0.20
CfC Stanbic	2009	1	0.01	0.76	0.07	0.51	0.42	0.07	0.05
	2010	2	0.01	0.76	0.08	0.51	0.42	0.07	0.06
	2011	3	0.01	0.78	0.01	0.78	0.60	0.17	0.07
	2012	4	0.03	0.63	0.08	0.70	0.55	0.08	0.08
	2013	5	0.03	0.51	0.09	0.72	0.58	0.07	0.09
Consolidated	2009	1	0.01	0.87	0.01	0.70	0.55	0.14	0.16
	2010	2	0.02	0.79	0.01	0.76	0.58	0.13	0.12
	2011	3	0.02	0.78	0.01	0.78	0.60	0.17	0.07
	2012	4	0.00	1.03	0.01	0.75	0.56	0.23	0.16
	2013	5	-0.01	1.09	0.01	0.70	0.65	0.18	0.13
Co-operative	2009	1	0.03	0.68	0.12	0.83	0.56	0.15	0.18
	2010	2	0.03	0.64	0.13	0.81	0.37	0.21	0.18
	2011	3	0.03	0.66	0.13	0.85	0.65	0.15	0.18
	2012	4	0.04	0.59	0.13	0.81	0.60	0.19	0.16
	2013	5	0.04	0.61	0.12	0.76	0.60	0.16	0.14
Credit	2009	1	0.00	1.01	0.00	0.76	0.51	0.17	0.12
	2010	2	0.01	0.93	0.00	0.72	0.43	0.17	0.06
	2011	3	0.01	0.90	0.00	0.73	0.53	0.15	0.06
	2012	4	0.01	0.85	0.00	0.75	0.49	0.25	0.07
	2013	5	0.01	0.89	0.00	0.75	0.59	0.17	0.07
Equity	2009	1	0.04	0.61	0.09	0.68	0.62	0.16	0.09
	2010	2	0.06	0.46	0.10	0.71	0.54	0.18	0.06
	2011	3	0.05	0.46	0.11	0.71	0.60	0.17	0.06
	2012	4	0.06	0.45	0.11	0.66	0.57	0.23	0.04
	2013	5	0.06	0.44	0.11	0.67	0.64	0.19	0.04
Equatorial	2009	1	0.01	0.76	0.00	0.79	0.62	0.16	0.15

	2010	2	0.00	0.99	0.01	0.77	0.46	0.11	0.09
	2011	3	0.00	0.90	0.01	0.77	0.52	0.12	0.13
	2012	4	-0.03	2.23	0.01	0.92	0.53	0.21	0.15
	2013	5	0.01	0.86	0.01	0.89	0.58	0.17	0.07
Family	2009	1	0.02	0.84	0.01	0.79	0.58	0.16	0.32
	2010	2	0.02	0.83	0.02	0.78	0.51	0.15	0.25
	2011	3	0.01	0.86	0.02	0.82	0.63	0.14	0.21
	2012	4	0.02	0.82	0.02	0.79	0.58	0.24	0.19
	2013	5	0.03	0.72	0.02	0.80	0.64	0.17	0.16
Gulf African	2009	1	-0.02	1.31	0.01	0.83	0.64	0.10	0.19
	2010	2	0.01	0.92	0.01	0.85	0.65	0.11	0.14
	2011	3	0.02	0.74	0.01	0.86	0.70	0.13	0.08
	2012	4	0.02	0.74	0.01	0.86	0.70	0.13	0.08
	2013	5	0.02	0.73	0.01	0.81	0.66	0.13	0.08
I&M	2009	1	0.03	0.42	0.05	0.79	0.56	0.18	0.06
	2010	2	0.04	0.32	0.05	0.74	0.57	0.15	0.06
	2011	3	0.04	0.30	0.05	0.74	0.61	0.15	0.06
	2012	4	0.04	0.34	0.05	0.72	0.61	0.20	0.06
	2013	5	0.04	0.30	0.05	0.68	0.67	0.16	0.06
KCB	2009	1	0.03	0.65	0.19	0.82	0.59	0.15	0.09
	2010	2	0.04	0.59	0.18	0.73	0.62	0.12	0.08
	2011	3	0.03	0.58	0.19	0.74	0.64	0.12	0.10
	2012	4	0.04	0.52	0.17	0.73	0.61	0.21	0.11
	2013	5	0.04	0.53	0.17	0.74	0.61	0.18	0.09
National	2009	1	-0.02	1.63	0.06	0.82	0.26	0.34	0.12
	2010	2	-0.02	1.49	0.05	0.80	0.35	0.26	0.10
	2011	3	-0.02	1.72	0.05	0.83	0.41	0.23	0.09
	2012	4	-0.04	2.28	0.04	0.82	0.42	0.19	0.40
	2013	5	-0.03	2.38	0.05	0.84	0.43	0.12	0.40
NIC	2009	1	0.02	0.60	0.05	0.83	0.70	0.14	0.09
	2010	2	0.03	0.50	0.05	0.83	0.70	0.13	0.08
	2011	3	0.03	0.43	0.06	0.84	0.71	0.11	0.09
	2012	4	0.03	0.39	0.07	0.82	0.65	0.16	0.10
	2013	5	0.03	0.39	0.06	0.81	0.68	0.13	0.04
Oriental	2009	1	0.04	0.48	0.00	0.66	0.50	0.13	0.08
	2010	2	0.04	0.41	0.00	0.72	0.54	0.13	0.05
	2011	3	0.02	0.58	0.00	0.73	0.56	0.16	0.05
	2012	4	0.01	0.67	0.00	0.77	0.56	0.24	0.10
	2013	5	0.02	0.60	0.00	0.77	0.58	0.21	0.04
Prime	2009	1	0.02	0.58	0.03	0.81	0.45	0.13	0.13
	2010	2	0.02	0.57	0.03	0.79	0.46	0.11	0.11
	2011	3	0.02	0.53	0.03	0.82	0.52	0.13	0.10
	2012	4	0.02	0.53	0.03	0.84	0.49	0.16	0.10
	2013	5	0.03	0.44	0.03	0.82	0.54	0.13	0.07

StanChart	2009	1	0.04	0.41	0.12	0.70	0.46	0.16	0.10
	2010	2	0.04	0.42	0.11	0.70	0.42	0.16	0.10
	2011	3	0.04	0.46	0.11	0.75	0.59	0.12	0.13
	2012	4	0.04	0.41	0.11	0.72	0.58	0.17	0.10
	2013	5	0.04	0.44	0.11	0.70	0.59	0.12	0.12
Transnational	2009	1	0.03	0.75	0.00	0.55	0.50	0.25	0.21
	2010	2	0.03	0.67	0.00	0.63	0.41	0.23	0.17
	2011	3	0.03	0.57	0.00	0.72	0.45	0.21	0.18
	2012	4	0.03	0.61	0.01	0.73	0.48	0.23	0.17
	2013	5	0.02	0.66	0.00	0.73	0.53	0.21	0.17