

**THE EFFECT OF ELECTRONIC BANKING ON PROFITABILITY OF  
COMMERCIAL BANKS IN KENYA**

**BY**

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**DECLARATION**

This research project is my original work and has not been presented for examination in any other university.

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

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## **DEDICATION**

This research project is dedicated to my family for their constant support and encouragement throughout my studies. I cannot forget my parents for their wisdom and inspiration which has been my pillar in search for knowledge.

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## LIST OF ABBREVIATIONS

ANOVA	Analysis of Variance
ATMs	Automated Teller Machine
CBK	Central Bank of Kenya
CRBs	Credit Reference Bureaus
DTMs	Deposit-Taking Microfinance Institutions
EU	European Union
IT	Information Technology
MFC	Mortgage Finance Company
NIM	Net Interest Margin
NPLs	Non-Performing Loans
PC	Personal Computer
PDA	Personal Digital Assistant
PEU	Perceived Ease of Use
PIN	Personal Identification Number
POS	Point-of-Sale Transfer Terminals
ROA	Return on Assets
ROE	Return on Equity
SMS	Short Text Message
SPSS	Statistical Package for Social Science
TAM	Technology Acceptance Model
TPB	Theory of Planned Behavior

## ABSTRACT

Internet technology holds the potential to fundamentally change banks and the banking industry. An extreme view speculates that the Internet will destroy old models of how bank services are developed and delivered (DeYoung, 2001a). Electronic banking in Kenya has emerged as a strategic resource for achieving higher efficiency, control of operations and reduction of cost by replacing paper based and labour intensive methods with automated processes thus leading to higher productivity and profitability. This study sought to fill the existing research gap by answering the following research question: does electronic banking affect profitability of commercial banks in Kenya? The study objective was to determine the effects of electronic banking on profitability of commercial banks in Kenya. These data were collected from the Central Bank of Kenya and Commercial banks. Regression analysis was done for the period to determine the effects of electronic banking on profitability of commercial banks in Kenya. The study covered a period of 5 years from year 2009 to 2013. The findings on the coefficient of determination, the study found that major changes in the financial performance of commercial banks in Kenya could be accounted to changes in internet banking, point of sales, automatic teller machine, mobile banking and size of the bank at 95% confidence interval .The study found that there was a strong positive relationship between financial performance of commercial banks and electronic banking , as it was found that there was a strong relationship between financial performance of commercial banks and electronic banking. Size of of the bank was also found to positively influence the financial performance of commercial banks in Kenya. Electronic banking has helped the commercial banks to lower their cost of banking, through technology which has created greater opportunities to the banks to offer great flexibility to the customers, this has enabled commercial banks to be very fast in adopting electronic banking which has enabled commercial bank to be ubiquity in coverage, flexibility, interactivity, and with greater accessibility compared to conventional banking channels such as Automated Teller Machine (ATM),Point of Sale Mobile banking and internet banking which influence the financial; performance of the bank . Electronic banking service provides convenience and promptness to customers along with cost savings, banks are also interested in expanding their market through internet services.The study further revealed that the P-value were less than 0.05 in all the variables, which shows that all the independent variable were statistically significant .

# CHAPTER ONE

## INTRODUCTION

### 1.1 Background of the Study

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

E-banking is like traditional payment, inquiry, and information processing systems, differing only in that it utilizes a different delivery channel. Any decision to adopt E-banking is normally influenced by a number of factors. These include customer service enhancement and competitive costs, all of which motivate banks to assess their electronic commerce strategies (Kondabagil, 2007). Many researchers appreciate that electronic banking (e-banking) is defined to include 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).

### **1.1.1 Electronic Banking**

According to Basel Committee on banking supervision, (1998 and 2003) 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. The term "electronic banking" or "e-banking" covers both computer and telephone banking. It refers to the use of information and communication technology by banks to provide services and manage customer relationship more quickly and most satisfactorily (Charity-Commission, 2003). Burr (1996) describes it as an electronic connection between the bank and the customer in order to prepare, manage and control financial transactions.

The term e-banking is technically and intricately complex to define as it may be interpreted differently from different accessing viewpoints. The versatility of e-banking as delivery multichannel increases the intricacy of being precisely defined in the literature. Nonetheless, several attempts have been made to offer succinct and all-inclusive meaning of e-banking (Furst et al, 2000; Basel Committee Report on Banking Supervision, 1998; Kricks, 2009; Auta 2010). For example, Furst et al (2000) viewed e-banking or internet banking as the employment of a remote delivery channel in performing banking services; Kricks (2009) termed e-banking as automated delivery of new and conventional banking products and services directly to customers through electronic, interactive channels.

Kricks (2009) is more emphatic in definition of e-banking as the emergence of e-banking has not relinquished traditional banking products and services but rather transformed traditional models to enhance quality service delivery, real time access, reduce operational cost and ultimately achieve maximum efficiency in banking operations (Ovia, 2001; Gonzalez, 2008). While e-banking serves as automated, interactive channels by which customers conveniently gratify their demands for bank transactions, elsewhere the term is observed to be a larger concept than users' satisfactions (Pyun, 2002).

In addition, e-banking is viewed as the process by which a customer carries out banking transactions electronically without going to a brick-and-mortar institution (Simpson, 2002). In this case, e-banking is defined from the state of branchless or virtual banking indicating that geographical location in banking sphere seems to be less important as banks continue to adopt e-banking. However, the most commonly accepted definition of e-banking is the one given by Basel Committee Report on Banking Supervision (1998). The committee defined e-banking as "the provision of retail and small value banking products and services through electronic channels". In this paper, e-banking is defined as the use of intelligent devices through internet to effect banking operations. Such intelligent devices may be mobile or immobile.

### **1.1.2 Profitability of Commercial Banks**

In most research papers relating to this study the profitability is measured in the form of ratios which are normally reported by commercial banks in their annual reports. Devinaga Rasiah (2010) claims that the use profitability ratios are not influence by changes in price

levels. And it is said to be the most appropriate way of measuring profitability as one make use of time series analysis. This is because the real value of profits cannot be affected by the varying inflation rates. According to Devinaga Rasiah (2010) for one to realise how well a bank is performing it is much more useful to consider return on assets (ROA) and return on equity (ROE); Bourke (1989) and Molyneux and Thornton (1992).

Return on assets (ROA) is the ratio of Net Income After Taxes (NIAT) divided by Total Assets. The ROA signifies managerial efficiency in other words it depicts how effective and efficient the management of banks has been as they seek to transform assets into earnings. The higher ratio is an indication of higher performance of the banks. It is a useful tool for comparing profitability of one bank with other or even the whole commercial banking system. Moreover, the ROA is said to measure the rate of return on the bank's shareholders equity and it is calculated by dividing banks net income after taxes by total equity capital which includes common and preferred stock, surplus, undivided profits, and capital reserves; Bourke (1989), and Molyneux and Thornton (1992).

This measure of profitability gives an indication of what the banks earns on the shareholders' investment; Devinaga Rasiah (2010). According to Anthony Karkrah and Ameyaw (2010) many researchers have presented ROA as an appropriate measure of bank profitability. Among them are Rivard and Thomas (1997) who argued that bank profitability is best measured by ROA However, Hassan and Bashir (2003) also claims that as ROA tend to be lower for financial intermediaries, most banks heavily utilized financial leverage to increase their ROA to competitive levels.

### **1.1.3 Effects of Electronic Banking on Profitability**

According to Nathan (1999), electronic banking services have provided numerous benefits for both banks and customers. The first benefit for the banks offering electronic banking service is better branding and better response to the market. Those banks that would offer such service would be perceived as leaders in technology implementation. As a result, they would enjoy a better brand image. The other benefits are possible to measure in monetary terms. The main goal of every company is to maximise profits for its owner and other stakeholders. According to Allen and Hamilton (2002), an estimated cost of providing the routine business of a full service branch in USA is \$1.07 per transaction, as compared to 54 cents for telephone banking, 27 cents for ATM banking and 1.5 cent for internet banking. On the other hand, the advantages for the customers are significant time saving and reduced costs in accessing and using the various banking products and service, increased comfort and convenience (Pyun, Scruggs and Nam, 2002).

Internet Banking provides clear advantages to both the financial institutions and the customers. From the banks' perspective, Internet Banking has very low cost transactions, compared to human teller banking. According to The Fourth International Conference on Electronic Business (ICEB2004) / Beijing, e-banking reduces the following expenses (Wright & Ralson, 2002): (1) Banks can reduce customer service staff as customers use more self-service functions; (2) There is less cheque processing costs due to an increase in electronic payments.; (3) Costs of paper and mail distribution are reduced as bank statements and disclosures are presented online; (4) There is less data entry as applications are completed and processed online by customers. On the other hand, according to KPMG

(1998), bank's revenue increases from Internet Banking due to: (1) Increased account sales; (2) Wider market reach; (3) New fee-based income; (4) New market opportunities; (5) Improved customer satisfaction. For consumers, Internet banking provides convenience, lower service charges, more accessible information about bank accounts, and an attractive option for busy people since it saves time to go to the bank branches and gives 24 hours access (Lee & Lee, 2000). All the benefits of B2C e-commerce such as 24\*7 bank service, convenience, access from anywhere, one stop shop and easy access to information also apply to internet banking Singh (2004).

The benefits of E-banking are manifold and are to be seen from the point of view of the banks themselves, customers and even the regulators Sergeant (2000). Sergeant is of the view that for banks, E-banking brings different and arguably lower barriers to entry; opportunities for significant cost reduction; the capacity to rapidly reengineer business processes; and greater opportunities to sell cross border. For customers, the potential benefits are: more choice; greater competition and better value for money; more information; better tools to manage and compare information and faster service.

Electronic banking (E-banking) enables customers to do their banking 24 hours a day, 7 days a week. E-banking customers are able to check their account balances, pay bills, apply for a loan, trade securities, and conduct other financial transactions. E-banking can be divided into five major categories: (1) Internet banking, (2) Telephone banking, (3) TV-based banking, (4) Mobile phone banking, and (5) PC were banking. Technological innovations in recent decades have made the move towards E-banking possible. The increasing competition for

customers in banking and need to decrease cost of providing banking services has led banks to integrate these changes.

#### **1.1.4 Banking Sector in Kenya**

As at 31st December 2011, 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), 4 representative offices of foreign banks, 6 Deposit-Taking Microfinance Institutions (DTMs), 118 Forex Bureaus and 2 Credit Reference Bureaus (CRBs). Out of the 44 banking institutions, 31 locally owned banks comprise 3 with public shareholding and 28 privately owned while 13 are foreign owned (CBK, 2011). The number of bank branches increased by 98 from 1,063 in 2010 to 1,161 branches in 2011 indicating increased access to banking products and services.

The number of banks ATMs increased by 226 from 1,979 in December 2010 to 2,205 in December 2011 representing an increase of 11.4%. 6 large banks accounted for 54 percent of total assets, 53 percent of customer deposits, 55 percent of capital & reserves and 62 percent of pre-tax profit in 2011. Developments within the banking sector are strongly guided by the medium-term objectives of the financial sector reform and development strategy embedded in the economic development blueprint, Vision 2030. In the year 2011, access to financial services continued to be enhanced, spurred by increased innovation in the delivery of financial products and services throughout the country.

The banking sector registered enhanced growth in the year 2011, with a 20.4 percent increase in the total net assets from Ksh.1,678.1 billion in December 2010 to Ksh. 2,020.8 billion in December 2011. Loans and advances, government securities and placements which accounted for 57.0 percent, 15.1 percent and 5.8 percent of total assets respectively continue to be the major components of the balance sheet. Net Loans and Advances recorded a growth of 31.4 percent from Ksh.876.4 billion to Ksh.1,152.0 billion in December 2011. Significant portion of the sector's loans were advanced to personal, trade, manufacturing and the real estate sectors, which accounted for 72 percent of the gross loans in 2011. However, investment in Government securities declined from Ksh.342.5 billion in 2010 to Ksh.304.8 billion in 2011. This may be attributed to low interest rates on government securities during the first half of 2011 compared to lending interest rates.

The source of funding in the banking sector, mainly customer deposits grew by 20 percent from Ksh.1, 236.5 billion in 2010 to Ksh.1,488.2 billion. The growth was supported by branch expansion and receipts from exports. The increased deposits enhanced the banks' capacity to extend credit to various economic sectors. NPLs declined by Ksh. 4.6b in 2011 as banks enhanced credit appraisal standards. In terms of profitability, the sector registered a 30.5% growth in pre-tax from Kshs 14.9 billion in April 2009 to Kshs 19.5 billion at the end of April 2010. consequently, annualized return on assets has improved from 2.8% in April 2009 to 3.0% in April 2010, while return on equity increased from 25.3% to 27.3%. Total industry income increased by 18.5% during the year from Kshs 53.0 billion in April 2009 to Kshs 62.8 billion in April 2010, while total expenses increased by 13.7% from Kshs 38.1 billion in April 2009 to Kshs 43.4 billion, interest on loans and advances, fees and

commissions and government securities were the major sources of income accounting for 53.0%, 26% and 16.0% of total income, respectively. Meanwhile, staff costs, other expenses, and interest on deposits were the components of industry expenses, accounting for 34%, 27% and 26% respectively, (CBK, 2013).

## **1.2 Research Problem**

Internet technology holds the potential to fundamentally change banks and the banking industry. An extreme view speculates that the Internet will destroy old models of how bank services are developed and delivered (DeYoung, 2001a). The widespread availability of Electronic banking is expected to affect the mixture of financial services produced by banks, the manner in which banks produce these services and the resulting financial performances of these banks. Whether or not this extreme view proves correct and whether banks take advantage of this new technology will depend on their assessment of the profitability of such a delivery system for their services. In addition, industry analysis outlining the potential impact of Electronic banking on cost savings, revenue growth and risk profile of the banks have also generated considerable interest and speculation about the impact of the information technology on the banking industry (Berger, 2003).

Electronic banking in Kenya has emerged as a strategic resource for achieving higher efficiency, control of operations and reduction of cost by replacing paper based and labour intensive methods with automated processes thus leading to higher productivity and profitability. However, to date researchers have produced little evidence regarding these potential changes. Nonetheless, recent empirical studies indicate that Electronic banking is

not having an independent effect on banking profitability, although these findings may change as the use of the Internet becomes more widespread.

The number of banks offering financial services over the internet is increasing rapidly in Kenya. By using transactional websites customers can check account balances, transfer funds, pay/ receive bills, apply for loans, and perform a variety of other financial transactions without leaving their home or place of business. In other markets internet-only banks have struggled for profitability. These difficulties contrast with relatively recent predictions that they would come to dominate traditional branching banks, (Cheruiyot, 2010).

The resultant of technological innovation has been the transformation in operational dimension of banks over some decades. Information technology has brought about a paradigm shift in banking operations to the extent that banks embrace information technology to enhance effective and extensive delivery of wide range of value added products and services. However, the fact that e-banking is fast gaining acceptance in Kenyan banking sector does not assuredly signify improved bank performance nor would conspicuous use of internet as a delivery channel make it economically viable, productive or profitable. To the researcher knowledge there is limited empirical evidence on the effect of electronic banking on profitability of Commercial Banks in Kenya. This study sought to fill the existing research gap by answering the following research question: does electronic banking affect profitability of commercial banks in Kenya?

### **1.3 Objective of the Study**

To determine the effect of electronic banking on profitability of commercial banks in Kenya

### **1.4 Value of the Study**

The finding of the study will be of great importance to managers of commercial banks in Kenya as they will understand the effect of electronic banking on profitability of commercial banks in Kenya, this will assist them in making decision on whether to adopt electronic banking or not and the expected results of electronic banking adoption to their banks profitability.

The study finding will enlighten the policy makers in the banking industry on the expected effect of electronic banking on banks profitability; this will assist them in designing appropriate policy for electronic banking adoption by commercial banking in Kenya.

The study will be of great importance to future scholars and academicians as it will form basis for future research as well as providing literature for future studies on electronic banking.

## **CHAPTER TWO**

### **LITERATURE REVIEW**

#### **2.1 Introduction**

This chapter reviews the existing literature on the effect of electronic banking on profitability of commercial banks. In specific the chapter reviews that theoretical review where various theories on electronic banking are reviewed, empirical review where empirical studies done on effects of electronic banking on banks profitability are reviewed, the concept of electronic banking and last but not the least the summary of the literature review which summarize the existing gaps on the literature.

#### **2.2 Theoretical Review**

This study seeks to establish the effects of electronic banking on profitability of commercial banks in Kenya. The study is based on the following theories the technology acceptance model, theory of planned behaviour and Financial Performance Theories.

##### **2.2.1 Technology Acceptance Model**

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). Davis suggested 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. Technology acceptance model is used to explain how banks adopt electronic banking.

### **2.2.2 Theory of Planned Behavior**

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) analysed 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. The theory of planned behavior is used in this study to explain how electronic banking is adopted.

### **2.2.3 Social Construction Theory**

Another theory relevant for the analyzing electronic banking and perhaps the most relevant is Trevor Pinch and Wiebe Bijker's social construction of technology theory. This theory argues that technology does not determine how people receive and use mobile technology but that people determine how and in what ways technology is used. The theory posits that the use of a technology cannot be understood without understanding how it is socially integrated within society. Within different social contexts, technology can take different meanings and adoption depends on how society views the technology.

Under this theory, the adoption of a technology is not only due to its technical superiority but due to social factors as well. In the context of this study, mobile phone technology and specifically mobile phone financial services having been driven by both business factors and social networks related to business and family. The decomposition theories of planned behavior not only keep the theory of planned behavior principles but also add important value of the original theory, as it adds a bigger number of beliefs and constructs to the models (Vankatesh, Davis and Morris, 2007). The theory of planned behavior is used in this study to explain how electronic banking is adopted and how it influence profitability of commercial banks.

### **2.3 Determinants of Profitability of Commercial Banks**

According to Husni (2011) the determinants of banks profitability are normally consisting of factors which affect the revenue and the cost of the banks. Some studies classified them into two categories namely the financial statement variables and non-financial variables. The

financial statement variables include factors that are directly related to the bank's balance sheet and income statement. While, the non-financial statement variables include factors like the number of branches of a particular bank, location and size of the bank etc; Haron, Sudin (2004).

### **2.3.1 Income**

Rasiah (2010) presented that banks generate income mostly on their assets and the assets could be termed as income and non-income generating. With regards to commercial banks income Rasiah (2010) classified it into two, namely interest and non-interest income. The interest income consist of rates charge on loans, overdraft and trade finance which the banks offers to customers. Whereas, the non-interest income is consisting of fees, commissions, brokerage charges and returns on investments in subsidiaries and securities. According to Vong et al (2009), the major source of banks revenue is interest income. It contributes about 80% of commercial banks earnings. The other source of banks revenue includes dividends and gains from dealing in the securities market.

### **2.3.2 Loan quality**

As it has been mentioned above, one of the major roles of banks is to offer loans to borrowers and loans serve as one of the ultimate source of earnings for commercial banks. In other words loans represent one of the highest yielding assets on banks' balances sheet. It is obvious that the more banks offer loans the more it does generate revenue and more profit; Abreu and Mendes (2000). But then banks have to be courteous in offering more loans

because as they offer more loans to customers they expose themselves to liquidity and default risks which impacts negatively on banks' profits and survival; Rasiah (2010).

### **2.3.3 Deposits**

Banks are said to be heavily dependent on the funds mainly provided by the public as deposits to finance the loans being offered to the customers. There is a general notion that deposits are the cheapest sources of funds for banks and so to this extent deposits have positive impact on banks profitability if the demand for bank loans is very high. That is, the more deposits commercial bank is able accumulate the greater is its capacity to offer more loans and make profits; Devinaga Rasiah (2010). However, one should be aware that if banks loans are not high in demand, having more deposits could decrease earnings and may result in low profit for the banks. This is because deposits like Fixed, Time or Term deposits attract high interest from the banks to the depositors, Devinaga Rasiah (2010). Investigation done by Husni (2011) on the determinants commercial banks performance in Jordan disclosed that there is significant positive relationship between ROA and Total liability to total Assets. To capture deposits in the model Vong et al (2009) presented the effect of deposits (DETA) on profitability as deposits to total assets ratio.

### **2.3.4 Capital ratio**

Devinaga (2010) and Vong et al (2009) included capital ratio (EQTA or CTRA) as a variable in their study of determinants of banks profitability and performance because capital also serve as a source of funds along with deposits and borrowings. They argue that capital structure which includes shareholders' funds, reserves and retained profit affect the

profitability of commercial banks because of its effect on leverage and risk. They documented that, commercial banks assets could be also financed by either capital or debt.

### **2.3.5 Liquidity ratio**

According to Devinaga Rasiah (2010) commercial banks are required by regulators to hold a certain level of liquidity assets. And the reason behind this regulation is to make sure that the commercial banks always possess enough liquidity in order to be able to deal with bank runs. He further argue that a bank assume the status of highly liquid only if it has been able to accumulate enough cash and have in possession other liquid assets as well as having the ability to raise funds quickly from other sources to be able to meet its payment obligation and other financial commitments on time.

### **2.3.6 Taxation**

Vong et al (2009) defined the tax variable (TOPB) in their study as taxes over operating profit before tax. This study treated it as separate variable others like Devinaga Rasiah (2010) added it to the expense variable but whatever way one sees it, one still cannot ignore its impact on the profitability of banks. Vong et al (2009) argues that if a positive relationship exists between the tax variable and the profitability, it indicate that the bank is able to pass the tax cost on to its Customers by increasing the fees and the interest spread. Moreover, they further stressed that findings of Demirguc-Kunt and Huizinga (1999), Bashir (2000) and Jiang et al. (2003) indicated a positive relationship existing between the tax variable and profitability.

## **2.4 Empirical Review**

Egland et al. (1998) was the first important study, which estimated the number of US banks offering electronic 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 electronic banking activities compared to those that do not offer such services in terms of profitability, efficiency or credit quality. However, transactional electronic banks differed from other banks primarily by size.

In contrast to the results of Egland et al. (1998), Furst et al. (2000a, 2000b, 2002a and 2002b) found that banks in all size categories offering electronic banking were generally more profitable and tended to rely less heavily on traditional banking activities in comparison to non- electronic banks. An exception to the superior performance of electronic 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<sup>th</sup> 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. (2000a, 2000b, 2002a and 2002b), this study also found that de novo click and mortar banks performed significantly worse than de novo brick and mortar banks.

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 (2001a, 2001b, 2001c and 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.

Bello and Dogarawa (2005) also examined and assessed the impact of e-banking services on customer satisfaction in the Nigerian banking industry. Their study found out that many banks' customers in Nigeria are fully aware of the positive developments in information technology and telecommunications which led to the introduction of new delivery channels

for Nigerian commercial banks' products and services. The aim was to satisfy and get customer delighted. Most customers however, still patronise the bank branches and find interaction with human tellers as very important. Secondly the study found that customers enjoying electronic banking services are still not satisfied with the quality and efficiency of the services. This is expressed in the number of times customers physically visit banks and length of time spent before such services are received. Customers' perception of and reaction to these developments are issues of concern to both Government and banking industry.

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 electronic adoption was associated with an economically and statistically significant improvement in bank profitability.

Mahotra and Singh (2007) examined the impact of Internet banking on banks' performance and risk in India. The study examined a comprehensive set of 10 measures of financial performance that made it possible for the authors to critically look into bank performance. By developing a deeper understanding of these phenomena, the researchers drew more insightful inferences about the impact of the Internet on banking on business strategies, production processes and financial performance. The results of the study revealed that on average,

Internet banks are more profitable than non-Internet banks and are operating with lower cost as compared to non-Internet banks, thus, representing the efficiency of the Internet banks.

Njuru (2007), did a study on the challenges in implementing electronic banking strategy by commercial banks in Kenya. The objective of the study was establishing the challenges inhibiting electronic banking implementation and how banks are responding to these challenges. The targets of the study were the commercial banks in Kenya. This study gives a brief overview of the academic literature on the challenges and the responses that organizations employ in strategy implementation and the extent of electronic business use. The study found that there exist various challenges to the implementation of electronic banking in Kenya Commercial banks. The banks have thus employed strategic responses to overcome these challenges with some of the responses being more popular than the rest depending on the Impact they have on the implementation process. Lack of required infrastructure, resources and specialized skills, commitment from the senior management team and fear of adopting the system by both the bank employees and customers were some of the major challenges that were identified while training of bank employees and customers, employing specialized technology and staff and lowering electronic banking charges were some of the popular responses that banks have been using. The entire internal and external environment however needs to be considered during the implementation of the electronic banking strategy.

Malhotra (2009) did a study on the Impact of Internet Banking on Bank Performance and Risk: The Indian Experience. Particularly, it seeks to examine the impact of Internet banking on banks' performance and risk. Using information drawn from the survey of 85 scheduled

commercial bank's websites, during the period of June 2007, the results show that nearly 57 percent of the Indian commercial banks are providing transactional Internet banking services. The univariate analysis indicates that Internet banks are larger banks and have better operating efficiency ratios and profitability as compared to non-Internet banks. Internet banks rely more heavily on core deposits for funding than non-Internet banks do. However, the multiple regression results reveal that the profitability and offering of Internet banking does not have any significant association, on the other hand, Internet banking has a significant and negative association with risk profile of the banks.

Noor (2011), conducted a study on the impact of e-banking on bank profitability: evidence from Jordan. This study is aimed to test the effect of e-banking services provided by banks on the internet on the profitability of these banks during the period 2000-2009. The study sample consists of all domestic banks in Jordan separated into 3 groups: Non-internet service providers, recent adopters of the service, and early adopters of the service. Ratios are used to test the effect on profitability; these ratios are Return on Assets, Return on Equity Margin of Interest as profitability measures. Other ratios are used as independent variables which are: Market share, Overhead RATIO, Deposits/Assets, and Loan/Assets. Regression analysis is used to test the effect of e-banking services on the profit. The regression analysis showed that there is no significant effect of e-banking services on the profitability of recent adopter's banks in terms of ROA, and ROE. It gives an indicator of high expenses and cost associated with applying these services. Unlike Margin, It is significantly affected by the e-banking services. For early adopters, the result were much better than those for the early adopters, but still not significant with the profitability of these bank. Finally, Internet banking

is new and changing rapidly, and therefore results of empirical studies on Internet banking may vary considerably with different sample and methods of analysis.

Khrawish and Al-sadi (2011) made an attempt to assess the impact of e-banking on banks profitability for the banking sector in Jordan during the period (2000-2009). Their study found that for banks that do not apply the e-banking services through the internet, have no significant effect on the Return on Equity (ROE) and the margin of the sample, but significant in terms of Return on Assets(ROA). For banks that apply the electronic banking services for less than 2 years, there is no significant effect of these services on the return on assets and the return on equity but was founded to be significant on margin. For banks that apply the electronic banking services, there is no significant effect of these services on banks profitability after 2 years of applying it for the tested sample during the period 2000-2009.

Oginni, Mohammed, El-maude and Abam (2013), did a study on e-banking and bank performance: evidence from Nigeria. The study examined the impact of electronic banking on banks' performance in Nigeria. Panel data comprised annual audited financial statements of eight banks that have adopted e-) and retained their brand name banking between 2000 and 2010 as well as macroeconomic control variables were employed to investigate the impact of e-banking on return on asset (ROA), return on equity (ROE) and net interest margin (NIM). Result from pooled OLS estimations indicate that e-banking begins to contribute positively to bank performance in terms of ROA and NIM with a time lag of two years while a negative impact was observed in the first year of adoption. It was

recommended that investment decision on electronic banking should be rational so as to justify cost and revenue implications on bank performance.

Ongare (2013), did a study on the effect of electronic banking on the financial performance of commercial banks in Kenya, the study sought 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. The study used secondary data which was collected from the annual report of commercial banks and Central Bank of Kenya. The study used both descriptive and inferential statistics in analyzing the data. The findings of the study were that e-banking has a strong and significant effect on the profitability of commercial banks in the Kenyan banking industry. Thus, there exists 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.

Maiyo (2013), conducted a study on the effect of electronic banking on financial performance of commercial banks in Kenya. The main objective of the study was to establish the effect of electronic banking on financial performance of commercial banks in Kenya. The specific objectives were to determine the extent of e-banking adoption and the effect of this adoption on financial performance of commercial banks in Kenya. The study adopted a descriptive research design. Primary data was collected through data collection form that was

developed and sent to the respondents of commercial banks. The primary data was also augmented with secondary materials collected from published financial statements of the respective commercial banks and central bank of Kenya supervision reports. Appropriate frequency tables and charts were used, a multiple regression analysis was also used to explain the relationship between the variables and present the findings. The study 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.

## **2.5 Summary of Literature Review**

The evidence of the impact of the adoption of Internet as a delivery channel on financial performance is mixed at both sides. Nevertheless, the latest studies seem to find a positive relationship with profitability. It can be argued that as the intensity and experience in the usage of Internet increases, the financial performance of multichannel banks is likely to improve. The number of banks offering financial services over the internet is increasing rapidly in Kenya. By using transactional websites customers can check account balances, transfer funds, pay/ receive bills, apply for loans, and perform a variety of other financial transactions without leaving their home or place of business. In other markets internet-only banks have struggled for profitability. These difficulties contrast with relatively recent predictions that they would come to dominate traditional branching banks, (Cheruiyot, 2010).

According to the standard internet based bank business model, low overhead expenses and access to larger geographic markets should allow internet based banks to offer better prices (higher deposit rates, lower loan rates) than branching banks, grow faster than branching banks, and still earn normal profits. However, in practice the number of physical branch locations is growing, not shrinking, (Cheruiyot, 2010). In Kenya context, many publications throw light over the importance of Internet banking and also its prospects for the Kenyan banking industry. However these studies don't depict an empirical relationship between banks' profitability and electronic banking. The purpose of this paper is to study the same correlation applicable in Kenya context.

## **CHAPTER THREE**

### **RESEARCH METHODOLOGY**

#### **3.1 Introduction**

The chapter presents the research design, population of the study, sample size, data sources and data analysis procedure together with the model specification.

#### **3.2 Research Design**

The descriptive research design was employed in this research. Descriptive Research design research suggests linkages between variables by observing existing phenomena and then searching back through available data in order to try to identify plausible relationships. It was concerned with determining cause and effect relationship and to understand which variable is dependent and which is independent. This research design was the best in explaining if two variables are related or if they vary. This was established by use of enough information and data for testing cause and effect relationship. It aimed to determine the effects of electronic banking on profitability of commercial banks in Kenya and the empirical evidences that help answer the research objective.

#### **3.3 Population**

The population for this study was commercial banks in Kenya (Appendix 1). There are a total of 43 Commercial Banks in Kenya which formed the target population for this study. Mugenda and Mugenda, (2003), explain that the target population should have some observable characteristics, to which the researcher intends to generalize the results of the study. A census survey was used. The sample a period of 5 year between years 2009 to 2013.

### 3.4 Data Collection

Secondary data from financial statements of commercial banks in Kenya will be collected using data collection forms. The study collected secondary data for the for 5 years from 2009 to 2013, on the bank profitability and electronic banking. The data obtained from the bank's financial statements; return on assets, revenue generated from ATMs, POS and electronic banking, mobile banking and the natural log of total deposits for the banks.

### 3.5 Data Analysis

#### 3.5.1 Empirical model

Data analysis was done using SPSS Version 22 whereby multiple regression models was employed. To test the effects of electronic banking on profitability of commercial banks in Kenya, a logit regression model was used:

$$Y_{jt} = C + \alpha X_{jt} + \beta Z_t + \epsilon_{jt} \text{-----} (1)$$

$j$  refers to the commercial bank;  $t$  refers to year;  $Y_{jt}$  is the dependent variable and refers to the return on assets (ROA) of bank  $j$  in a particular year  $t$ ;  $C$  is the intercept;  $X$  represents the independent variable which is Electronic Banking, whereas  $Z$  represents the other determinants of commercial bank profitability;  $\alpha$  and  $\beta$  are co-efficient and  $\epsilon_{jt}$  represent the error term. The significance of the regression model will be determined at 95% confidence interval and 5% level of significance.

The empirical model to be used in the study to test the effect of electronic banking on profitability of commercial banks in Kenya is presented as follows:

$$ROA_{jt} = C + \beta_1 IB_{jt} + \beta_2 POS_{jt} + \beta_3 ATM_{jt} + \beta_4 MB_{jt} + \beta_5 LOGTA_{jt} + \epsilon_{jt} \text{ ----- (2)}$$

Where:

$ROA_{jt}$  : return on assets for bank  $j$  in year  $t$

$IB_{jt}$  : is the internet banking which was measured by the ratio of revenue generated from internet banking over total non-funded revenue for the bank

$POS_{jt}$ : is the point of sale which was measured by the ratio of revenue generated from point of sale over total non-funded revenue for the bank.

$ATM_{jt}$  : is the Automatic Teller Machine which was measured by the ratio of revenue generated from ATM over total non-funded revenue for the bank.

$MB_{jt}$  : is the mobile banking which was measured by the ratio of revenue generated from mobile banking over total non-funded revenue for the bank.

$LOGTA_{jt}$ : is the bank size which was measured using the natural log of total deposits for bank  $j$  in year  $t$

### **3.5.1 Test of Significant**

In order to test the model significance, the study used ANOVA to test the model level of significance at 95% confidence level and 5% level of significance.

**CHAPTER FOUR:  
DATA ANALYSIS, RESULTS AND DISCUSSION**

**4.1 Introduction**

This chapter presents the data findings to determine the effects of electronic banking on profitability of commercial banks in Kenya. These data were collected from the Central Bank of Kenya and Commercial banks in Kenya. Regression analysis was done for the periods to determine the effects of electronic banking on profitability of commercial banks in Kenya. The study covered a period of 5 years from year 2009 to 2013.

**4.2 Findings**

**Table 4.1: Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.914 <sup>a</sup>	.835	.819	.17823

**Source ; Research Findings**

Adjusted R squared is coefficient of determination which tells us the variation in the dependent variable due to changes in the independent variable, from the findings in the above table the value of adjusted R squared was 0.819 an indication that there was variation of 81.9% on performance of commercial banks in Kenya due to changes in internet banking, point of sales, automatic teller machine, mobile banking and size of the bank at 95% confidence interval . This shows that 81.9 % changes in financial performance of commercial bank could be accounted to changes in internet banking, point of sales, automatic teller machine, mobile banking and size of the bank. R is the correlation coefficient which shows the relationship between the study variables, from the findings shown in the table

above there was a strong positive relationship between the study variables as shown by 0.836.

**Table 4.2: ANOVA**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	24.515	5	4.903	10.288	.000 <sup>b</sup>
	Residual	17.649	37	0.477		
	Total	42.164	42			

**Source ; Research Findings**

From the ANOVA statics in table above, the processed data which is the population parameters, had a significance level of 0% which shows that the data is ideal for making a conclusion on the population's parameter as the value of significance (p-value ) is less than 5%. The calculated value was greater than the critical value ( $10.288 > 1.984$ ) an indication that internet banking, point of sales, automatic teller machine, mobile banking and size of the bank significantly influence financial performance of commercial banks.

**Table 4.3: Coefficients**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.232	.567		2.231	.000
	Internet banking	.118	.077	.164	1.519	.003
	Point of Sale	.198	.099	.237	2.011	.048
	Automatic teller machine	.271	.130	.278	2.083	.040
	mobile banking	.035	.124	.036	.285	.006
	Size of the bank	.208	.093	.268	2.231	.028

**Source ; Research Findings**

The established regression equation was

$$Y = 1.232 + 0.118 X_1 + 0.198X_2 + 0.271 X_3 + 0.035X_4 + 0.208X_5$$

From the above regression model, holding internet banking, point of sales, automatic teller machine, mobile banking and size of the bank to a constant zero, financial performance of commercial banks would be 1.232, its established that a unit increase in internet banking would cause an increase in financial performance of commercial banks by a factor of 0.118, a unit increase in point of sale would cause an increase financial performance of the bank by a factor of 0.198, a unit increase in automatic teller machine would lead to an increase financial performance of the bank by a factor of 0.271, a unit increase in mobile banking would lead to an increase financial performance of the bank by a factor of 0.035 and further unit increase in size of the banks would lead to an increase financial performance of the bank by a factor of 0.208. This clearly shows that there is a positive relationship between financial performance of commercial banks and internet banking, automatic teller machine, point of sale, mobile phone banking and size of the bank. The study further revealed that the P-value were less than 0.05 in all the variables, which shows that all the independent variable were statistically significant and thus in position to make conclusion for the study .

### **4.3 Interpretation of the Findings**

From the findings on the coefficient of determination, the study found that there was a great variation in the financial performance of commercial banks in Kenya could be accounted to changes in internet banking, automatic teller machine, point of sale, mobile phone banking and size of the bank at 95% confidence interval . From the findings on the R correlation the study found that there was a strong relationship between financial performance of

commercial bank and internet banking, automatic teller machine, point of sale, mobile phone banking and size of the bank. From the coefficient result the study revealed that there is a positive relationship between financial performance of commercial banks and mobile phone banking and size of the bank. The study further revealed that that there was a statically significant relationship between financial performance of commercial banks and size of the banks and mobile phone banking.

The introduction of electronic banking has revolutionized and redefined the ways banks were 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 customers with the new technologies through mobile banking. Back in Kenya the scenario is no better. Astonishingly half of the Kenyan populations especially the rural folk do not have a clue on mobile banking. However, the outreach of the mobile banking sector has been found to vary across country.

The findings of the study concur with the funding of Laukkanen & Pasanen, (2007) , who found that technology created greater opportunities to service providers to offer great flexibility to the customers. To this end banks are fast developing branchless banking such as ATM, internet and mobile banking among others. The finding further concurs with the findings of Suoranta and Mattila (2004) , who found that that mobile banking is among the most recent financial channels today. Riquelme et al, (2010) agree that the mobile phone banking service provides convenience and promptness to customers along with cost savings, banks are also interested in expanding their market through mobile services. Kleijnen et al.,

(2004) found that the advancement of mobile technologies has provided an opportunity for financial providers in introducing new financial innovations. One of the emerging financial innovations introduced by financial providers is mobile phone banking.

## **CHAPTER FIVE**

### **SUMMARY, CONCLUSION AND RECOMMENDATIONS**

#### **5.1 Summary**

The study objective was to determine the effects of electronic banking on profitability of commercial banks in Kenya. These data were collected from the Central Bank of Kenya and Commercial banks. Regression analysis was done for the period to determine the effects of electronic banking on profitability of commercial banks in Kenya. The study covered a period of 5 years from year 2009 to 2013. The findings on the coefficient of determination, the study found that major changes in the financial performance of commercial banks in Kenya could be accounted to changes in internet banking, point of sales, automatic teller machine, mobile banking and size of the bank at 95% confidence interval . From the findings on the R correlation the study found that there was a strong relationship between financial performance of commercial banks and internet banking, point of sales, automatic teller machine, mobile banking and size of the bank. From the coefficient result the study revealed that there is a positive relationship between financial performance of commercial banks and internet banking, point of sales, automatic teller machine, mobile banking and size of the bank. The study further revealed that there was a statistically significant relationship between financial performance of commercial banks and internet banking, point of sales, automatic teller machine, mobile banking and size of the bank.

Banks and other financial institutions which have traditionally relied on physically established branches to provide banking services are now gearing towards the adoption of mobile banking services (MBS) as a form of branchless banking. This has the consequence of lowering cost of banking. Technology has therefore created greater opportunities to

service providers to offer great flexibility to the customers. To this end banks are fast developing branchless banking such as ATM, internet and mobile banking among others. Mobile banking is among the most recent financial channel today. Several authors have further identified the benefits of mobile phone banking in terms of ubiquity coverage, flexibility, interactivity, and with greater accessibility compared to conventional banking channels such as Automated Teller Machine (ATM), and non-mobile banking. Mobile phone banking service provides convenience and promptness to customers along with cost savings, banks are also interested in expanding their market through mobile services. Traditionally, the most widespread method of conducting banking transactions has been through offline retail banking. Wireless technology, however, is rapidly changing the way personal financial services are designed and delivered. With the increased use of mobile phones in Kenya, the commercial banking sector has introduced and diffused mobile banking systems throughout their operations to improve their operations as well as to reduce costs.

## **5.2 Conclusion**

The study concludes that there was a strong positive relationship between financial performance of commercial banks and electronic banking, as it was found that there was a strong relationship between financial performance of commercial banks and electronic banking. Size of the bank was also found to positively influence the financial performance of commercial banks in Kenya.

Electronic banking has helped the commercial banks to lower their cost of banking, through technology which has created greater opportunities to the banks to offer great flexibility to the customers, this has enabled commercial banks to be very fast in adopting electronic

banking which has enabled commercial bank to be ubiquity in coverage, flexibility, interactivity, and with greater accessibility compared to conventional banking channels such as Automated Teller Machine (ATM),Point of Sale Mobile banking and internet banking which influence the financial; performance of the bank . Electronic banking service provides convenience and promptness to customers along with cost savings, banks are also interested in expanding their market through internet services.

### **5.3 Policy Recommendations**

From the finding there is need for various players in the banking sectors to adopt electronic banking service as this will enable them have a ubiquity in coverage, flexibility, interactivity, and greater accessibility compared to conventional banking. There is need for commercial banks to heavily invest in technology as this will highly encourage the adoption of electronic banking technologies and this will influence the financial performance of commercial banks. There is also need for commercial banks in Kenya to increase their size as it positively influence their financial performance.

### **5.4 Limitation of the Study**

The study was limited to the effects of electronic banking on profitability of commercial banks in Kenya, where size of the bank was used as the control variable, other aspects that influence performance of the banks were not considered in this study. Other factors include; other products offered by the bank for example the different types of accounts, loans and advances, investments for example in government securities among others. The study was also limited to the degree of precision of the data obtained from the secondary source. While the data was verifiable since it came from the Central Banks website and from the

commercial banks, the data could still have some shortcomings as to precision. The study was limited by the availability of data relating to revenue generated from mobile phone banking. These data is not reported as a line item in the financial statements of commercial Banks and was thus difficult to get the data.

The study was also limited to 43 Commercial banks in Kenya; the finding of this study will be generalized to the entire banking industry. The study was based on 5 years period from year 2009 to 2013 years. A longer duration of the study would have captured periods of various economic significances such as booms and recessions. This may have probably given a longer time focus hence given a broader dimension to the problem. The size of the bank has been held constant across the period. Revenue generated from electronic banking has been projected backwards for the banks which had not adopted electronic banking by year 2009.

### **5.5 Areas of Further Research**

The study sought to determine the effects of electronic banking on profitability of commercial banks in Kenya. There is need for a study to be conducted to determine the relationship between internet banking and financial performance of commercial banks in Kenya. There are various factors that influence financial institutions to adopt technology in the banking sector; there is need for a study to be done to determine factors influencing adoption of electronic banking by commercial banks in Kenya. From the findings the study recommends that an in-depth study should be conducted on the effects of electronic banking on the market share of commercial banks in Kenya. There is also need for a study to be conducted on the impact of legislation on adoption of electronic banking among commercial banks in Kenya.

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## **APPENDICES**

### **Appendix I : Authorization Letter**

**Appendix II: Data Collection sheet**

Name of the Bank						
Years	Revenue generated from					
	ROA	Internet banking	Point of sale	ATM	Mobile Banking	Total Assets
2009						
2010						
2011						
2012						
2013						

### **Appendix III: Licensed Commercial Banks in Kenya as at 31<sup>st</sup> Dec 2013**

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

38. Paramount Universal Bank
  39. Prime Bank (Kenya)
  40. Standard Chartered Kenya
  41. Trans National Bank Kenya
  42. United Bank for Africa
  43. Victoria Commercial Bank
- Source, CBK (2013)**