

RELATIONSHIP BETWEEN BANKING TECHNOLOGIES AND FINANCIAL PERFORMANCE OF COMMERCIAL BANKS IN KENYA

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Abstract

The study sought to determine the relationship between E-Banking technologies and financial performance of commercial banks in Kenya. The specific research objectives were to assess the influence of ATMs on the financial performance of commercial banks in Kenya, to establish the effect of debit and credit cards on the financial performance of commercial banks in Kenya, to determine the effect of mobile banking on the financial performance of commercial banks in Kenya and to assess the effect of internet banking on the financial performance of commercial banks in Kenya. The study was based on Technology acceptance model (TAM), diffusion of innovations theory and resource based theory. The study population included all 44 commercial banks licensed by Central Bank of Kenya. Secondary data for a five year period was collected from financial statements of commercial banks in line with the specific variables of this study. Descriptive statistics (weighted means, standard deviation) was used to summarize the data using SPSS 21. Pearson moment correlation was conducted to establish the linear relationship between study variables. Regression analysis was conducted to establish the nature of the relationship. The study revealed that recent ATM innovations offer financial institutions the opportunity to transform the ATM from a cash dispenser to a customer relationship management tool, helping to enhance loyalty among all customers. Credit cards are being adopted by the banks so as to increase income, and to reduce credit and liquidity risks. Mobile banking is likely to have major impacts on the profitability of commercial banks as business operations get smoothen and that internet banking offers the convenience of conducting most of the banking transactions at a time that suits the customer. The study concludes that adoption of E-Banking technologies had a positive influence on the performance of commercial banks in Kenya. The study recommend that commercial banks should continue investing in ICT.

Keywords: ICT, ATMs, Mobile, Internet, Debit and Credit cards, Financial performance

INTRODUCTION

Commercial banks play an important role in the economic growth of a country. The need for efficiency and effectiveness in the running of the banks as leading players in the cohort of financial services providers of a nation thus cannot be overemphasized. The emergence of technological advancements for instance information communication technology has led to improved ways of businesses in the contemporary times (Stiroh, 2001). Ongori and Migiro (2010) argue that Information and communication technology has brought a complete paradigm shift on the banks performance and on the customer service delivery in the banking industry. In a bid to catch up with global development, improve the quality of customer service delivery, and reduce transaction cost, banks have invested heavily in ICT and have widely adopted ICT networks for delivering a wide range of value added products and services.

To cope with the dynamics of the external environment, banks are investing in ICT as a way of moving to a knowledge-based society which is a key driver towards achieving economic growth of a country (San-Jose, Ituralde, and Maseda, 2009). ICT acts as a catalyst for improved productivity and economic growth at the level of the firm (Brynjolfsson and Hitt, 1996).

ICT refers to a wide range of computerized technologies that enables communication and the electronic capturing, processing, and transmission of information. These technologies include products and services such as desktop computers, laptops, hand-held devices, wired or wireless intranet, business productivity software, data storage and security, network security (Ashrafi and Murtaza, 2008). With the use of ICT, businesses can interact more efficiently, and it enables businesses.

The use of ICT in the financial sector enables increased efficiency and accessibility of information this improves coordination of activities within organizational boundaries (Spanos et al., 2001). Considering of its services and operations, the banking sector is relatively amenable to innovate technologies for improved quality of services (Polasik and Wisniewski, 2008). Delgado and Nieto (2004) posit that the advancement of communication channels has improved tremendously on the banking industry. The electronic distribution of retail banking services for instance the use of automated teller machines (ATM's), a technology pioneered by Barclays bank in 1967 (Batiz-Lazo and Wood, 2002; Batiz-Lazo and Wardley, 2007).

One of the key improvements arising from the use of ICT in the enhancement of operations and activities of commercial banks is the reduction of overhead costs. Specifically, the costs related to the maintenance of physical branches, marketing and labor can be minimized substantially (Hernado and Nieto, 2007).

Agboola (2001) studied the impact of computer automation on the banking services in Lagos and discovered that electronic banking has tremendously improved the services of some

banks to their customers in Lagos. The study was however restricted to the commercial nerve center of Nigeria and concentrated on only six banks. He made a comparative analysis between the old and new generation banks and discovered variation in the rate of adoption of the automated devices between automated banks and those that failed to automate their services.

The Kenyan Perspective

Most financial institutions in Kenya are investing huge sums of money in information and communication technology (ICT). The rapid development of ICT has made some of the functions of the banks more efficient and cheaper; this has increased deposits, sales and performance of these firms. Most commercial banks in the developing economies are adopting internet banking; customers can now transfer money, access their accounts, online shopping, get bank statement, pay bills, and conduct other transactions that took a long time of process in the past. Adoption of ICT has brought changes that are attributable to saving costs, efficiency and convenience to customers (Muyoka, 2014).

The increased demand for information and communication technology (ICT) in banking sector has attracted attention in the banking sector in Kenya. Banks have embarked on deployment of ICT based banking products and services such as automated teller machine (ATM), internet banking, mobile banking solutions, point of sale terminals, computerized financial accounting and reporting, human resources solution among (Juma, 2012).

Statement of the Problem

The benefits of application of ICT in the enhancement of banking services is not only limited to cost reduction benefits alone, but the innovation is also found to have significant contribution to extending access to customers residing outside the branch network and create opportunities for effective cross (San-Jose, Ituralde and Maseda, 2009).

A sizeable number of studies on relationship between ICT investment and firm performance have been undertaken for example, Bitler (2001) investigated the relationship between information and communication technology investments and small firms' performance. The study revealed that firms using ICT performed better compared to firms that were reluctant to adopt ICT. In their study conducted to examine technological progress and its effects in the banking industry using relevant data, Berger et al. (2003) find that ICT investment leads to reduction in costs. This led to improved productivity which was attributable to improved quality and variety of banking services. These studies laid more emphasis on the link between ICT and cost reduction, productivity and improved quality of services.

Muyoka (2014) examined the relationship between mobile banking on the financial performance of commercial banks in Kenya. It was found that there existed a statistically significant relationship between mobile banking and profitability of commercial banks in Kenya. This was attributable to increased deposits through mobile transactions and reduced costs. A study by Juma (2012) investigated the relationship between the impacts of ICT adoption on growth of commercial banks in Kenya. The study concluded that there was a positive correlation between ICT and growth of commercial banks. Commercial banks that embraced ICT were found to have a higher growth in market share. These above studies focused on mobile banking and growth. Therefore, there is a need to further investigate on the relationship between ICT and financial performance of commercial banks in Kenya.

Research objective

The general objective of this study was to determine the relationship between ICT and financial performance of commercial banks in Kenya.

The study was guided by the following specific research objectives:

- i. To assess the influence of ATMs on the financial performance of commercial banks in Kenya.
- ii. To establish the effect of debit and credit cards on the financial performance of commercial banks in Kenya.
- iii. To determine the effect of mobile banking on the financial performance of commercial banks in Kenya.
- iv. To assess the effect of internet banking on the financial performance of commercial banks in Kenya.

Research Questions

The study sought to answer the following research questions.

- i. How does ATMs influence the financial performance of commercial banks in Kenya?
- ii. How does debit and credit cards affect the financial performance of commercial banks in Kenya?
- iii. What is the effect of mobile banking on financial performance of commercial banks in Kenya?
- iv. How does internet banking influence financial performance of commercial banks in Kenya?

Significance of the study

Due to the increasing need to serve the growing needs of customers, this study will inform the benefits of adopting ICT as a tool to enhance efficiency and cost reduction. Central bank and other policy makers might use the findings of this study to set policies that promote adoption of ICT by commercial banks and boost performance.

This study will be useful to commercial banks, they will learn the benefits of ICT adoption and how this impacts on financial performance. They will also know the challenges faced by other commercial banks in implementing ICT and how to deal with these challenges. This will encourage commercial banks and microfinance institutions that are still reluctant in embracing ICT to implement it and reap the benefits.

This study will add to the existing body of knowledge in terms of theory, application and relevance. Students will be able to learn how the theories relate to empirical studies and how it contributes to knowledge. Researchers interested in this area of study or related disciplines might use these findings as a point of reference for further research.

Scope of the Study

The study was limited to all the 44 commercial banks licensed under central bank of Kenya as of December 2013. The study therefore focused on these commercial banks. The study made use of secondary data so as to give comprehensive information for purposes of drawing conclusions.

Limitations of the study

The study was subject to limitations because of using secondary data since it will highly rely on its accuracy. This problem was overcome by using a long period to study the data to increase accuracy.

LITERATURE REVIEW

Theoretical Review

This section discusses the theories that support the relationship between ICT and financial performance. These theories are technology acceptance model, diffusion of innovation theory and resource based theory.

Technology Acceptance Model

Technology acceptance model (TAM) was originally proposed by Davies in 1986. This model was designed to forecast the user's acceptance of information technology and usage in an

organizational setting. Cracknell (2004) posits that firms are adopting technology to cope with the dynamics of the external environment. This model has been tailored in a manner that can accommodate changes for improved costs reduction and efficiency. Technology Acceptance Model deals with perceptions as opposed to real usage, the model suggest that users , the key factors that influence their decision on how, where and when they will use it (Davis, 1989).

The factors to consider are: Perceived usefulness (PU). According to Davis, it is the degree to which a person believes that using a particular system will lead to improved performance (Britton and McGonegal, 2007). Perceived ease-of-use (PEoU) is explained as the degree to which a person believes that using a particular system would results to improved productivity. The TAM was proposed by Davis et al. (1989), this model expounds on the attitude behind the objective to use technology or a services. This theory is relevant to this study since it explains user's acceptance of information technology and usage in an organizational context. Acceptance is the first process in technology use and has a bipolar implication. First of all acceptance is a precursor to adoption and hence this theory complements the preceding theories. Secondly, acceptance dictates the attitude and perception of the users which eventually affects efficiency of use and hence performance. Strategic adoption as well as operational efficiency and hence productivity of systems are a function of acceptance of the technology. It is thus plausible to conclude that without acceptance, the rest of the theories would be redundant and invalid. Though acceptance is an initial phase, it is also an attitude shaping facet that influences adoption and effectiveness of use.

Diffusion of Innovation Theory

Rogers (1962) posit that diffusion of innovations is a theory that seeks to explain how, why, and at what rate new ideas and technology spread through cultures. Rogers (1962) explains that critical factors that determine the adoption of an innovation at the general level are the following: relative advantage, compatibility, complexity, trialability and observability.

Relative advantage refers to the degree to which an innovation is perceived as providing more benefits than its predecessor. It results in increased efficiency, economic benefits and enhanced status. Previous research has concluded that relative advantage of an innovation is positively related to the rate of adoption. When a user perceives relative advantage or usefulness of a new technology over an old one, they tend to adopt it. In the context of ICT adoption, benefits such as immediacy, convenience and affordability to customers have been reported. Thus, it is assumed that, when customers perceive distinct advantages offered by ICT, they are more likely to adopt it (Roberts and Amit, 2003).

Compatibility refers to the degree to which a service is perceived as consistent with users' existing values, beliefs, habits and present and previous experiences (Chen et al., 2004). Compatibility is an important feature of innovation as conformance with user's lifestyle can propel a rapid rate of adoption (Rogers, 2003).

Observability of an innovation describes the extent to which an innovation is visible to the members of a social system, and the benefits can be easily observed and communicated (Rogers, 2003). Moore and Benbasat (1991) simplified the original construct by redefining observability into two constructs: visibility and result demonstrability. According to Ram and Sheth (1989) trialability is defined as the capacity to experiment with new technology before adoption. Potential adopters who are allowed to experiment with an innovation will feel more comfortable with it and are more likely to adopt it. Perceived risk refers to the degree of risks in using an innovation.

Resource Based Theory

Barney (1991) posits that the possession of strategic resources provides an organization with a golden opportunity to develop competitive advantages over its rivals. These competitive advantages in turn can help the organization enjoy strong profits. In reference to Wernerfelt (1984) a strategic resource is an asset that is valuable, rare, difficult to imitate, and non substitutable. A resource is valuable to the extent that it helps a firm create strategies that capitalize on opportunities and ward off threats.

Prehalad and Gary (1990) posit that firms align their resources, skills and expertise into core competence to gain a competitive edge against their competitors. Core competencies in this case are the activities that an organization does better than its competitors (Chi, 1994). A strategy acts as an integral part of the organization's goals and objectives in a firm, strategy acts as a plan of action that links together an organization's key goals, policies and action sequences towards achieving the vision and the vision (Barney and Clark, 2009). A strategy that is well aligned to the organization's goals and objectives play an essential role of assembling and allocation of an organization's resources into a viable setting based on the organizational capabilities, external environment and contingent moves by their competitors. Mintzberg (1994) defines a strategy as a plan of actions that is designed to achieve certain goals and objectives.

Empirical Review of the Study Variables

ATM's and Financial Performance

Automated Teller Machine (ATM), also known as automated banking machine (ABM) is a computerized telecommunications device that provides the clients of a financial institution with

access to financial transactions in a public space without the need for a cashier, human clerk or bank teller. On most modern ATMs, the customer is identified by inserting a plastic ATM card with a magnetic stripe or a plastic smart card with a chip that contains a unique card number and some security information such as an expiration date. Authentication is provided by the customer entering a personal identification number (PIN).

Using an ATM, customers can access their bank accounts in order to make cash withdrawals, credit card cash advances, and check their account balances as well as purchase prepaid cellphone credit. This improves convenience since customers can withdrawal money from their point of reach without necessarily visiting the bank. This increases efficiency and mitigates the costs of transactions leading to financial performance. This is consistent with Fannie Mae Foundation report of that indicated that automated teller machine as used in banking sector serve approximately 420 million transactions annually for a total of \$3.3 billion in gross annual revenues.

Ogbuji et al. (2012) observed the Automated Teller Machines (ATMs) is one of existing replacements of the cascading labor intensive transaction system effected through what is popularly referred to as paper-based payment instruments. An automatic teller machine allows a bank customer to conduct his/her banking transactions from almost every other ATM machine in the world. The ATM, therefore, performs the traditional functions of bank cashiers and other counter staff. It is electronically operated and as such response to a request by a customer is done instantly.

The combined services of both the Automated and human tellers imply more productivity for the bank during banking hours. Also, as it saves customers time in service delivery as alternative to queuing in bank halls, customers can invest such time saved into other productive activities. ATMs are a cost-efficient way of yielding higher productivity as they achieve higher productivity per period of time than human tellers (an average of about 6,400 transactions per month for ATMs compared to 4,300 for human tellers Rose (1999). Furthermore, as the ATMs continue when human tellers stop, there is continual productivity for the banks even after banking hours.

The ATM transactions are done through over the phone line via internet connection (lease line). All the ATM machines are globally interconnected with each other with the financial institutions through the global ATM network like Master Card, Maestro, Cirrus, Visa, etc. In back side of every ATM card some logos are printed which refers to the ATM network. So the ATM machine connects to ATM network through processing center and the card holder's bank.

Credit Cards Usage and Financial Performance

A credit card is a payment card issued to users as a system of payment. It allows the cardholder to pay for goods and services based on the holder's promise to pay for them. The issuer of the card creates a revolving account and grants a line of credit to the cardholder, from which the user can borrow money for payment to a merchant or as a cash advance (Cohen, 2005).

Given the increased competition for lending, banks expand their retail networks which have led to increased risks and this has made banks to be reluctant in their credit approval and appraisal procedures, thereby increasing risk. Credit risk is largely attributed to customer default, inconsistent credit stress test standards across the industry. Portfolio risk from loans skewed in favor of particular industry sectors also contribute to increased credit risk. The performance of credit cards portfolio is influenced by complex interaction between several factors like credit risk, credit limit utilization, customer satisfaction and revenue generation. Cohen (2005) stated that the force that affects the economy in the developed countries is the purchases done with credit cards when compared to individual saving which can also be true for developing countries.

A number of studies like Nash (1993) found out that credit card lending specialization gives higher and more volatile returns than achieved by banks with conventional product mixes. Odhiambo and Memba (2012) studied the relationship between adoption of credit cards and credit card holders' satisfaction, and to establish whether the adoption of credit cards improved commercial banks revenue. The results showed that credit cards contributed positively to satisfaction of credit card holders and adoption of credit cards improved commercial banks revenue.

Debit Cards Usage and Financial Performance

Debit card also recognized as bank card or check card, it is a plastic card through which its holder can access electronically to his or her account of bank. The usage of credit card as an alternative form of making payments and obtaining cash has gained prominence in the banking sector today however this has led to increased credit risks which are a major threat towards the bank's performance.

Debit card improves efficiency and flexibility to customers. Customers can still access their bank accounts and other details without necessarily visiting the banking halls. This has attracted more customers since they enjoy banking services that are convenient and flexible. Fu-Qiang and Sajid (2014) investigated effect of debit card usage on profitability of banking industry in form of ROA over the period of 2004 to 2013 quarterly in the banking sector in

Pakistan. The results showed that increased in debit card usage enhance the profitability of banking industry in form of ROA over the period of 2004 to 2013 quarterly.

Polatoglu and Ekin (2001) identified that users of debt cards were more satisfied with the cost saving factor of electronic banking including train reservations, energy bills, taxes and investment in stocks (Wise, 1995). The increased usage of debit cards has significantly reduced transaction costs and enhanced convenience among credit and debit card users. This has attracted prospective customers leading to increased sales and profitability.

Mobile Banking and Financial Performance

According to Rose (1999) mobile banking is a service provided by financial institutions in cooperation with mobile phone operators. It allows customers with busy lives to conveniently do their banking using their phones anytime. It is about getting banking services to the unbanked, those who do not have bank access or bank accounts, and those who are at the bottom of the economic pyramid, often living in remote areas. They receive the benefits of banking services such as being able to save and borrow in a cost-efficient and secure way. The services include opening bank accounts, viewing account balances, making cash transfers between accounts, or paying bills via a mobile device. In recent time mobile banking is most often performed via SMS or the Mobile Internet but can also use special programs downloaded to the mobile device (Hicks and Niehans, 1998).

According to the German mobile operator Mobilcom, mobile devices, especially smart phones, are the most promising way to reach the masses and to create “stickiness” among current customers, due to their ability to provide services anytime, anywhere, high rate of penetration and potential to grow. According to Gartner, shipment of smart phones is growing fast, and should top 20 million units (of over 800 million sold) in 2006 alone. A study was conducted by Hernando and Nieto (2007) on the effect of mobile banking and financial performance of Spanish commercial banks. It was concluded that banks that implemented mobile banking were able to attract more customers and this led to increased access to customer deposits leading to financial performance.

Internet Banking and Financial Performance

Internet banking (e-banking) is the use of internet and telecommunication networks to deliver a wide range of value added products and services to bank customers. Mols (1999) argue that through the use of a system that allows individuals to perform banking activities at home or from their offices or over the internet. Some online banks are traditional banks which also offer online banking, while others are online only and have no physical presence (Bradley and Stewart,

2003). Online banking through traditional banks enables customers to perform all routine transactions, such as account transfers, balance inquiries, bill payments, and stop-payment requests, and some even offer online loan applications (Kannabira and Narayan, 2005).

Internet banking refers to a bank making its services accessible to clients using the internet as its delivery channel. Using internet banking, registered customers are able to log on to the bank's website and carry out banking dealings on their accounts. It is also referred to as online banking (Gerrard and Cunningham, 2003). Internet Banking is beneficial to banks as well as consumers, whereby there is an improvement of efficiency in services rendered to customers. Internet banking is convenient and cost-efficient. Moreover, the development of Internet banking has transformed the distribution channel structure in bank sector (Giannakoudi, 1999).

Customers can access account information at any time, day or night, and this can be done from anywhere. Internet banking has improved banking efficiency in rendering services to customers. Financial institutions in Kenya cannot ignore information systems since they play an important role in their operations because customers are conscious of technological advancements and demand higher quality services this leads to financial performance. In a study on the impact of mobile and internet banking on performance of financial institutions in Kenya, it was concluded that the adoption of internet banking has enhanced financial performance of the banking industry due to increased customers' deposits. This is attributable to improved efficiency, effectiveness and financial performance (Oruro and Ndungu, 2013).

Other Factors

The other determinant of financial performance in a microfinance bank setting is Asset quality. The bank asset includes: current asset, credit portfolio, fixed asset, and other investments. The growth of the bank is related to its age. The loan of the bank is a key asset that generates most of the bank's income. Loan is a key asset of commercial banks from which they generate income. The quality of loans portfolio determines the financial performance of the bank.

The highest risk facing banks is the losses derived from loans (Dang, 2011). Different types of financial ratios are used to determine the performance of banks by various scholars. It is a major concern for all commercial banks to maintain minimum levels of nonperforming loans. This is because high levels of nonperforming loans have a negative impact on the financial performance of the banks. Low level of nonperforming loans is a strong indicator of a sound financial health of a bank's portfolio. Sangmi and Nazir (2010) emphasize that the lower the ratio the better the bank performs.

Empirical Review

In his study on analysis of the values of return on asset (ROA) arising from ICT investment in the US, Kozak (2005) finds that the value of the return on asset for the US banking sector has increased by 51% thereby suggesting that improvement in ICT investment, associated with extensive office networks and range of offered services have helped to generate additional revenues for banks thus pointing to the fact that a huge number of diverse operations require higher ICT investment.

Osei and Harvey (2011) in their study (covering fifteen banks over a period of ten years) on investments in ICT and bank business performance in Ghana found that investment in ICT increased profitability (ROA and ROE) for high ICT level banks than for lower ICT level banks.

Studies by Abdullah (1985); Katagiri (1989) and Shawkey (1995) investigated on the contribution of automated teller machines (ATMs) on banks' profitability. It was revealed that investment in ATMs increases both the volume and value of deposit accounts, reduces banking transaction costs, reduces the number of staff and the number of branches and consequently improves banks' profitability.

Bitler (2001) explored on the relationship between information and communication technology and performance of small firms. It was found out that there was a significant relationship between ICT and performance on small firms that adopted ICT as opposed to firms that were reluctant to invest in ICT.

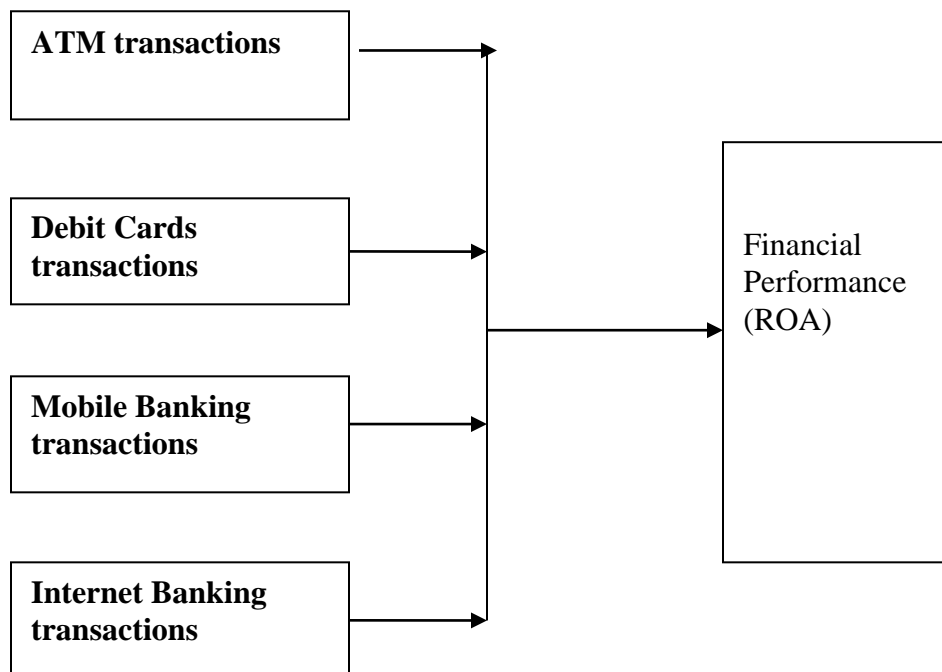
In their study conducted to examine technological progress and its effects in the banking industry using relevant data, Berger et al. (2003) found that ICT investment leads to improvements in costs. The improvement was led to productivity increase in form of improved "back-office" technologies which is in form of organization-related benefits such as reduced costs of operation as well as improved "front-office" technologies which is in form of benefits to customers such as improved quality and variety of banking services.

Critique of the Existing Literature Relevant To the Study

Although some studies have demonstrated that there exists a positive relationship between ICT and financial performance some studies have however show that there is a negative relationship or no relationship between the variables. A study by Wang et al. (2006) reported findings that IT investment in virtual integration of supply chain is unlikely to contribute to manufacturers' cost advantage directly. Similarly, Ray et al. (2005) also found that there were no direct effects of three different IT resources (technical skills of IT unit, managers' technology knowledge, and IT spending) on the performance of the customer service process. Going by

these findings, it is unclear whether a direct relationship exists between ICT and financial performance (Liang and Lu, 2010).

Figure 1. Conceptual Framework



Research Gaps

From the literature reviewed, it is evident that more focus has been laid on the mobile banking, internet banking, ATMs, debit and credit cards and their relationship to either growth in deposits or sales. None of the study known to the researcher either locally or in the African region has investigated on the impact of ICT on financial performance of commercial banks focusing on all the four variables discussed above. Most studies have not conclusively explored all the factors affecting ICT on commercial banks. Most of the available research findings are based on generalization from either a one or two factors investigated.

RESEARCH METHODOLOGY

Research design

Creswell (2009) defines research design as an outline of how data was collected and analyzed in pursuit of obtaining specific answers to research questions. This study adopted a descriptive research design this is because it highlights a characteristic behavior on one variable because of another variable (Kothari, 2005). This kind of design was appropriate in establishing the relationship between ICT and financial performance of commercial banks in Kenya.

The study adopted a cross-sectional study since it seeks to observe data once over a five year period. According to Kothari (2005) a cross sectional study is used to describe the characteristics that exist in a group, but it cannot be used to determine any relationship that may exist. This method is used to gather information only. The information may then be used to develop other methods to investigate the relationship that is observed.

Population

Kothari (2004) notes that population is a total collection of elements with apparent characteristics which can be used make inferences. The study population included all 44 commercial banks licensed by the Central Bank of Kenya, as at 31st December, 2013 (See appendix I).

The study was conducted through a census survey targeting all the commercial banks in Kenya. Other studies such as Ongore (2008) used this approach to study among others board effectiveness. Further, Dennis (1989) when the sample is small it is important to take the whole population to determine the needs of an organization.

Data Collection

The study used secondary data since the nature of the data to be collected was quantitative in nature. In order to achieve the objective of this study, secondary data for a five year period was collected from financial statements of commercial banks in line with the specific variables of this study. According to Kieso, et al., (2007) having a period of five years provides a better way to determine trends. Further, other empirical studies done previously uses the five year period for financial analysis.

To achieve an adequate representation, the study reviewed secondary data for a period of five years (2010-2014). The period was chosen with the understanding that ICT adoption by financial sector players has been on rise in the last five years with many organisations changing from paper work to digital mode of operation. This data collected was specifically related to the number of customers who transact using debit and credit cards among other ICT sources from commercial banks. The volume of transactions that commercial banks handle based on internet banking, ATM, Mobile and Debit and credit cards and the deposits mobilized through internet transactions for example electronic fund transfers.

Data Processing and Analysis

To analyze the data collected, explains that the researcher should find out the statistical data analysis tools. This includes descriptive statistics, inferential statistics and tests of significance.

Data collected was cleaned, sorted and coded using Statistical Package for Social Sciences (V. 22.0) and MS Excel. The research findings were presented in form of tables and charts. Percentages, tabulations, mean and standard deviation were used to present the data. Percentages mean and standard deviation was used to determining the trend between the variables. Regression analysis was used in establishing the relationship between the variables under investigation.

Regression Model

The study adopted a regression model to establish the relationship between ICT and financial performance of commercial banks in Kenya.

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + e$$

Y = is the financial performance which was measured using net income divided by total assets.

X_1 = represents ATMs transactions which was measured using the number of transactions per day divided by total number of transactions per year.

X_2 = is the amount of money transacted per day using debit cards divided by the total amount transacted in a year.

X_3 = Mobile banking which was measured using the amount of money borrowed using mobile transactions.

X_4 = is internet banking which be determined by the amount of money transferred using internet banking.

β_0 = gradient of the regression measuring the amount of the change in Y associated with a unit change in X

e = Error term within a confidence interval of 5%

EMPIRICAL RESULTS AND DISCUSSION

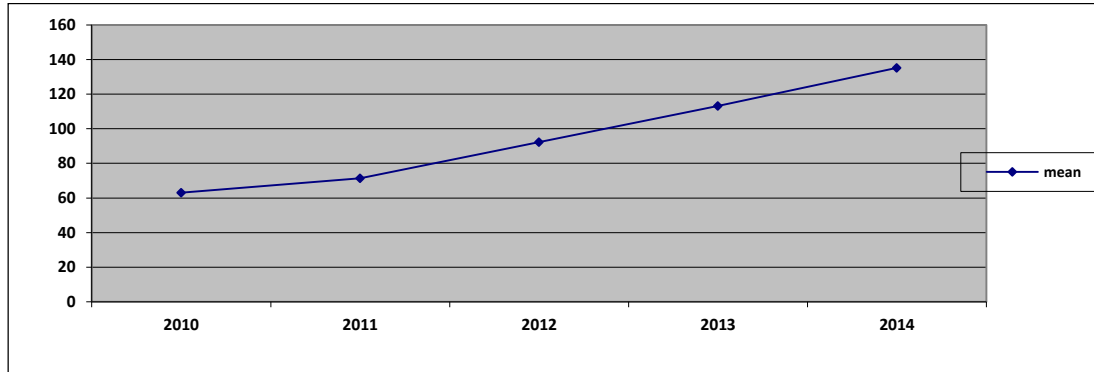
Descriptive Statistics

ATMs

Table 1: Descriptive Statistics on Number of ATM Transactions

Year	Median (000)	Minimum (000)	Maximum (000)	Mean (000)	Std deviation
2010	62.28	61.27	65.41	63.12	0.34
2011	71.15	69.23	72.17	71.43	0.36
2012	92.44	90.21	95.23	92.37	0.37
2013	112.13	109.15	114.41	113.23	0.41
2014	135.41	134.31	136.23	135.27	0.17

Figure 2: Relationship between ATM usage and financial performance



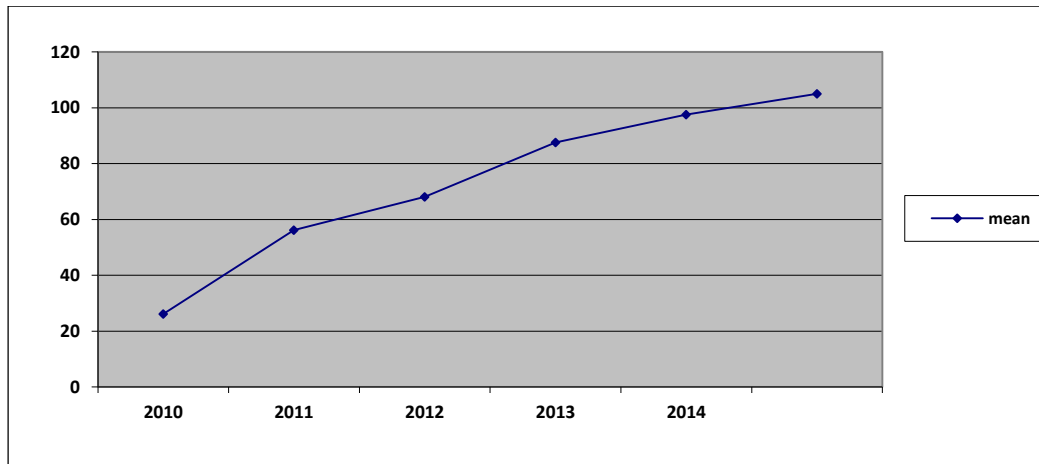
The study sought to establish the relationship between ATM usage and financial performance of financial institutions, over a five-year period. From the findings as shown in table 1 and figure 2 above, the research noted that the year 2010 recorded the lowest value for number of transactions made through ATMS by commercial banks as shown by a mean of value of 63.12 while the year 2014 recorded the highest value for number of transactions made through ATMS 135.27. In addition, values for standard deviation depicts variability in number of transactions made through ATMS during the five-year period with the highest deviation of 0.41 in the year 2013 and the lowest at 0.17 in the year 2014. The findings revealed a significant increase in number of transactions made through ATMS during the five-year period, the research also noted that there were high number of withdrawals via ATM which were charged at fair rates compared to withdrawals over the counter and thus luring more customers to opt for ATM usage, it was also noted that adoption of the ATMs had also led to automation of services thus leading to downsizing in the organisation and thus positive performance. The findings support Simpson (2002) suggestion that ATM is driven largely by the prospects of operating costs minimization and operating revenues maximization.

Number of Debit and credit Cards

Table 2: Descriptive Statistics on number of transaction made through Debit and credit

Year	Median (000)	Minimum (000)	Maximum (000)	Mean (000)	Std deviation
2010	25.31	21.21	28.44	26.17	1.11
2011	54.21	52.31	61.37	56.22	1.23
2012	67.31	64.21	70.56	68.13	1.14
2013	85.21	75.13	89.15	87.63	1.17
2014	95.42	88.12	109.12	97.55	1.18

Figure 3: Transaction Made Through Debit and credit



The study investigated the trend on transaction made through Debit and credit by financial institutions in Kenya. From the findings as shown in table 2 and figure 3 above, it can be noted that the year 2010 recorded the lowest value for number of transactions made via Debit and credit Cards issued as shown by commercial banks with a mean value of 26.17 while the year 2014 recorded the highest value for number for transactions made via Debit and credit Cards with a mean value of 97.55. In addition, values for standard deviation depicts variability in number of transactions made via Debit and credit Cards during the five –year period with the highest deviation of 1.23 in the year 2013 and the lowest at 1.11 in the year 2010.

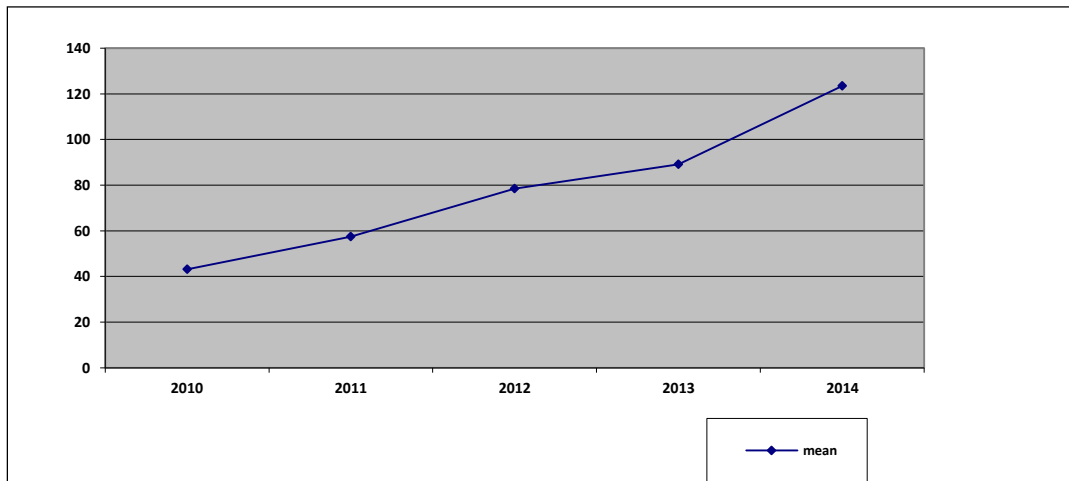
The findings revealed that there have been a significant increase in transactions made through Debit and credit Cards. Further the study noted that Debit card improves efficiency and flexibility to customers an attribute which lured customers to adopting this use of Debit and credit Cards. The research also noted that some of the financial institution offered rewards at point of sales to encourage this mode of payment. According to Fu-Qiang and Sajid (2014) increased in debit card usage enhance the profitability of banking industry in form of ROA. The use of Debit and credit Cards at E-POS was found to encourage consumer spending, which is advantage to the bank. The findings supports argument by (Wise, 1995) that of debt cards users was more satisfied with the cost saving factor of electronic banking including airline reservations, energy bills, taxes and investment in stocks.

Mobile banking

Table 3: Descriptive statistics on Mobile Banking

Year	Median (000)	Minimum (000)	Maximum (000)	Mean (000)	Std deviation
2010	42.03	33.22	45.43	43.16	0.18
2011	57.13	46.27	59.13	57.41	1.32
2012	78.15	74.24	79.61	78.42	1.44
2013	89.10	78.72	89.54	89.11	0.24
2014	123.13	119.23	126.71	123.42	0.52

Figure 4: Mobile Banking



The study assessed the relationship between mobile banking and financial performance of commercial banks. From the findings as shown by figure 4 and table 3 above, it can be noted that the year 2010 recorded the lowest value for customer registration for Mobile banking service as shown by a mean of value of 43.16 while the year 2014 recorded the highest value for customer registration in Mobile banking service at 123.42. In addition, values for standard deviation depicts variability in customer registration in Mobile banking service during the five – year period with the highest deviation of 1.44 in the year 2012 and the lowest at 0.18 in the year 2010.

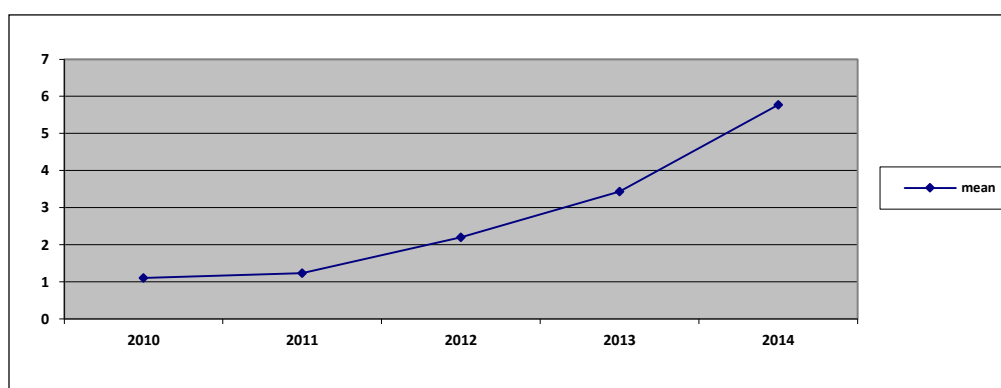
The findings revealed that there have been a significant increase in customer registration in Mobile banking service during the five-year period. This improved financial performance as more and more customers were transacting using their mobile phones, a gadget which is almost owned by every individual with a bank account.

Internet banking

Table 4: Transactions Made Through Internet Banking

Year	Median	Minimum	Maximum	Mean	Std deviation
2010	1.25	1.26	2.46	1.10	0.25
2011	1.16	1.23	2.57	1.23	0.63
2012	2.45	2.26	3.63	2.20	0.24
2013	2.23	3.85	4.21	3.43	0.12
2014	5.43	4.21	6.13	5.77	0.22

Figure 5: Transactions Made Through Internet Banking



The study assessed the relationship between mobile banking and financial performance of commercial banks. From the findings as shown by figure 5 and table 4 above, it can be noted that the year 2010 recorded the lowest value for transactions made through internet banking service as shown by a mean of value of 1.10 while the year 2014 recorded the highest value for transactions made through internet banking at 5.77. In addition, values for standard deviation depicts variability in transactions made through internet banking service during the five – year period with the highest deviation of 0.63 in the year 2011 and the lowest at 0.12 in the year 2013. deviation of 1.54 in the year 2012 and the lowest at 0.72 in the year 2014.

The findings revealed that there have been a significant increase in transactions made through internet banking during the five-year period, further the research noted that transaction made through internet banking almost doubled every year. The embracement of this mode of transaction led to acquisition of competitive edge in financial sector as it increased accuracy and efficiency, reliability and speed thereby enhancing financial performance. The findings are in line

with the literature by Siam (2006) banks that adopted internet banking increased their competitiveness and service quality and ultimately their financial performance.

Financial performance

Table 5: Descriptive Statistics on Financial performance (ROA)

Year	Median	Minimum	Maximum	Mean	Std deviation
2010	.0223	.0112	.0225	.0221	.0071
2011	.0339	.0231	0336	.0344	.0153
2012	.0540	.0427	.0577	.0545	.0174
2013	.0630	.0513	.0692	.0627	.0183
2014	.0769	.0615	.0784	.0771	.0192

From the summary 2010 recorded the lowest ROA at 0.0221 while 2014 recorded the highest ROA at 0.0771. In addition, values for standard deviation depicts variability in Financial performance during the five –year period with the highest deviation of 0.0192 in the year 2014 and the lowest at 0.0071 in the year 2010.

The findings revealed that there have been a significant increase in ROA by commercial banks during the five-year period, further the study revealed that In order to minimize their operational costs and maximize profit, commercial banks have embraced ICT. The platforms include ATMs, internet banking where customers can access their accounts on their personal computers. This enhanced managerial and scale efficiency and lead to higher concentration and ultimately to higher profitability. The findings support the findings by Grier (2007) who found a significant positive correlation between ICT adoption and return on investment.

Correlation Analysis

On the correlation of the study variable, the researcher conducted a Pearson moment correlation. from the finding in the table above, the study found that there was strong positive correlation coefficient between financial performance of commercial banks in Kenya and ATMS usage, as shown by correlation factor of 0.517, this strong relationship was found to be statistically significant as the significant value was 0.002 which is less than 0.05, the study found strong positive correlation between financial performance of commercial banks in Kenya rate and Debit and credit Cards usage as shown by correlation coefficient of 0.711, the significant value was 0.001 which is less than 0.05.

Table 6: Correlations

		financial performance of commercial banks	ATMS usage	debit and credit cards usage	Mobile banking	Internet banking
Financial performance of commercial banks	Correlation Coefficient	1.000	.517	.622	.773	.571
	Sig. (1-tailed)	.	.436	.429	.315	.858
	N	44	44	44	44	44
ATMS usage	Correlation Coefficient	.517	1.000	.142	.037	.001
	Sig. (1-tailed)	.002	.	.000	.003	.002
	N	44	44	44	44	44
Debit and credit Cards usage	Correlation Coefficient	.622	.142	1.000	.046	.008
	Sig. (1-tailed)	.001	.002	.	.000	.000
	N	44	44	44	44	44
Mobile banking	Correlation Coefficient	.773	.037	.046	1.000	.124
	Sig. (1-tailed)	.000	.000	.001	.	.002
	N	44	44	44	44	44
Internet banking	Correlation Coefficient	.571	.001	.008	.124	1.000
	Sig. (1-tailed)	.004	.001	.003	.000	.
	N	44	44	44	44	44

The study further found strong positive correlation between financial performance of commercial banks in Kenya and adoption of mobile banking strategy as shown by correlation coefficient of 0.672, this too was also found to be significant at 0.000, and finally the study found strong positive correlation between financial performance of commercial banks in Kenya and adoption of internet banking strategy of funds as shown by correlation coefficient of 0.571 at 0.004 levels of confidence. The findings concur with Agboola (2006) in, (2003) who found out that strong positive correlation between Mobile banking and performance of financial institutions it further concurs with Porter and Millar, (1985) who established a strong positive correlation between ICT adoption and performance of financial institutions.

Regression analysis

Model Summary

The study used coefficient of determination to evaluate the model fit. The model summary are presented in the table below

Table 7: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.875 ^a	.766	.723	.37290

The adjusted R^2 , also called the coefficient of multiple determinations, is the percent of the variance in the dependent explained uniquely or jointly by the independent variables. The model had an average coefficient of determination (R^2) of 0.723 and which implied that 72.3% of the variations in financial performance of commercial banks in Kenya are caused by the independent variables under study (ATMS usage, debit and credit cards usage, mobile banking and internet banking).

ANOVA

Table 8: Analysis of Variance

Model		Sum of Squares	df	Mean Square	F	Sig.
	Regression	2.908	4	.727	5.508	.002 ^b
1	Residual	5.148	39	.132		
	Total	2.846	43			

Critical value = 2.59

From the ANOVA statics, the study established the regression model had a significance level of 0.2% which is an indication that the data was ideal for making a conclusion on the population parameters as the value of significance (p-value) was less than 5%. The calculated value was greater than the critical value ($5.509 > 2.59$) an indication that adoption ATMS, usage of debit and credit cards, adoption of mobile banking and internet banking services, all have a significant affects on financial performance of commercial banks in Kenya. The significance value was less than 0.05 indicating that the model was significant.

Regression Coefficients

The following tables gives the coefficients which helps in establishing the regression line

Table 9: Table of Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	.538	.132		4.076	.001
ATMs usage	.259	.052	.243	4.981	.000
Debit and credit Cards	.293	.049	.232	5.980	.012
Mobile banking service	.333	.102	.231	3.265	.004
Internet banking service	.522	.122	.433	4.279	.000

The established regression equation was

$$Y = 0.538 + 0.259 X_1 + 0.293 X_2 + 0.333 X_3 + 0.522 X_4$$

From the regression model, it is can be deduced that, holding ATMS adoption , investment in debit and credit cards, mobile banking and internet banking, the financial performance of commercial banks in Kenya would be 0. 538 (53.8%), it's was also established that a unit increase in ATMs usage while holding other factors at constant would cause an increase in financial performance of commercial banks in Kenya by a factor of 0. 259 (25.9%), a unit increase in Debit and credit Cards usage, while holding other factors at constant would cause an increase in financial performance of commercial banks in Kenya by a factor of 0.293, (29.3%), a unit increase in mobile banking service would cause increase in financial performance of commercial banks in Kenya by a factor of 0. 333 (33.3%) and that a unit increase in internet banking service would cause increase in financial performance of commercial banks in Kenya by a factor of 0.522 (52.2%).

This clearly shows that there is a positive relationship between financial performance of commercial banks and investment in ATMS, investment in debit and credit cards, mobile banking service and internet banking service. The analysis was undertaken at 5% significance level. The criteria for comparing whether the predictor variables were significant in the model was through comparing the obtained probability value and $\alpha=0.05$. If the probability value was less than α , then the predictor variable was significant otherwise it wasn't. All the predictor variables were significant in the model as their probability values were less than $\alpha=0.05$.

SUMMARY OF FINDINGS

ATMs Usage

In relation to effect of ATM on financial performance of commercial banks, the study also found strong positive correlation coefficient between financial performance of commercial banks in Kenya and ATMS usage, (Pearson correlation coefficient $r = .517$ Sig. = p - value.02). The study also revealed that Recent ATM innovations offer financial institutions the opportunity to transform the ATM from a cash dispenser to a customer relationship management tool, helping to enhance loyalty among all customers, particularly those who almost exclusively use the ATM. the findings support Simpson (2002) suggestion that ATM is driven largely by the prospects of operating costs minimization and operating revenues maximization.

From transaction personalization to customized, one-to-one marketing capabilities, the future of ATMs is in their value as customer relationship and marketing vehicles, allowing financial institutions to mitigate the trend of declining ATM profitability while maximizing the potential of their ATM programs The findings concur with (Porterand Millar, 1985) that IT has led to changes in industry structure and competition and many firms have used IT to support the creation of new businesses. The study also noted that ATMs are a cost-efficient way of yielding higher productivity as they achieve higher productivity per period of time than human teller, ATMs have eliminated the need to enter a bank for basic transactions and allow access to accounts at machines, The use of ATMs has cut service staff in traditional banks, as the ATMs continue when human tellers stop, there is continual productivity for the banks even after banking hours.

Debit and credit Cards

The study revealed that debit card and credit card usage affects financial performance of commercial banks in Kenya, the study also found strong positive correlation between financial performance of commercial banks in Kenya rate and Debit and credit Cards usage (Pearson correlation coefficient $r = .711$ Sig. = p - value.001). Further the study revealed that Debit card improves efficiency and flexibility to customers. Customers can still access their bank accounts and other details without necessarily visiting the banking halls. This has attracted more customers since they enjoy banking services that are convenient and flexible. The findings concurs with Fu-Qiang and Sajid (2014) increased in debit card usage enhance the profitability of banking industry in form of ROA. The study established that financial innovations like investment in Debit and credit Cards by MFIs acts as formidable strategic variables to outstrip the competition and have become an essential means for the bank to improve its performance and to maintain its effectiveness on the market. The study revealed that credit card facilities

encouraged reckless spending behaviors which were to the advantage of the MFIs the study therefore concludes that Investment in Debit and credit Cards had a positive impact of banks financial performance.

The research also revealed that users of debt cards were more satisfied with the cost saving factor of electronic banking including airline reservations, energy bills, taxes and investment in stocks (Wise, 1995). The increased usage of debit cards has significantly reduced transaction costs and enhanced convenience among credit and debit card users. This has attracted prospective customers leading to increased sales and profitability.

Mobile banking service

Relating to mobile banking the study revealed, an increase in mobile banking will lead to increase in the financial performance of commercial banks the study also found a strong positive correlation between financial performance of commercial banks in Kenya and adoption of mobile banking strategy of funds as shown by correlation coefficient of 0.773at 0.000 levels of confidence, that mobile phone banking has the potential to be transformational owing to various fact it is able to reach to the un bankable, mobile phone banking allows bank customers to check their account balances which increase the banks customer, mobile phone banking will be the mobile phone which is easily accessible to large number of customers, mobile banking is convenient to customer as they can perform transaction at their seat which increase the market penetration. The study also established that with mobile banking, users of mobile phones can perform several financial functions conveniently and securely from their mobile. Customers could check their account balance, review recent transaction, transfer funds, pay bills, locate ATMs, deposit cheques, manage investments, mobile banking was available round the clock 24/7/365, it is easy and convenient and an ideal choice for accessing financial services for most mobile phone owners in the rural areas. Mobile banking was more secure than online/internet banking.

Internet Banking Service

The study also established that internet banking affects the financial performance of commercial banks in Kenya. The study also found strong positive correlation coefficient between financial performance of commercial banks in Kenya and internet banking, (Pearson correlation coefficient $r = .571$ Sig. = p - value.004). Study revealed Internet technology holds the potential to fundamentally change banks and the banking industry. Internet banking provides alternatives for faster delivery of banking services to a wider range of customers. Internet banking refers to the use of internet as a remote delivery channel for banking services. To cope with the pressure

of growing competition, commercial banks have adopted several initiatives and E-banking is one of them. The competition has been especially tough for the public sector banks, as the newly established private sector and foreign banks are leader in the adoption of E-banking. The study established that the use of internet banking increased accuracy and efficiency, reliability and speed which give them competitive advantage over the rest of the banks. It is recommended that banks adopt internet banking to increase their competitiveness and service quality. According to (Siam 2006) the evolution of E-banking has fundamentally transformed the traditional way of operating their activities and also changed the customer's way of performing banking activities the Electronic 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 as well as 7 days a week.

CONCLUSIONS

The study also found strong positive correlation coefficient between financial performance of commercial banks in Kenya and ATMS usage, The study also revealed that Recent ATM innovations offer financial institutions the opportunity to transform the ATM from a cash dispenser to a customer relationship management tool, helping to enhance loyalty among all customers, particularly those who almost exclusively use the ATM. the study concludes that ATM adoption had a positive influence on the financial performance of commercial banks in Kenya.

The study established that banks have been motivated by the different interests to pursue different financial innovations. Credit cards are being adopted by the banks so as increase income, profits, and to reduce credit and liquidity risks therefore the study concludes that Debit and credit Cards usage had a positive influence on the financial performance of commercial banks in Kenya.

Mobile banking is being used to improve financial operations in commercial banks. The banks have put in place measures to become more competitive by training its staff, investing in research and development of technology. In the long run, mobile banking is likely to have major impacts on the profitability of commercial banks as it smoothens the business operations. Thus the study concludes that Mobile banking had a positive influence on the financial performance of commercial banks in Kenya.

The study revealed that Electronic banking offers the convenience of conducting most of the banking transactions at a time that suits the customer, customer can access funds and transfer funds between accounts, pay bills and make purchases 24 hours a day as well as 7

days a week the study also found the study also found strong positive correlation coefficient between financial performance of commercial banks in Kenya and internet banking. Thus the study concludes that internet banking had a positive influence on the financial performance of commercial banks in Kenya.

RECOMMENDATIONS

Based on the study findings, the study recommend that commercial banks should continue investing in ATMs as this was found to have positive influence on financial performance. It is also vital that financial institutions intensify to ensure equity in distribution of ATM machine in order to ensure better customer service. The study recommends that the baking institutions should considered intensifying the internet banking as this will ensure services accessibility by customers and thus improving financial performance. The study further recommends that commercial banks keep adopting and using mobile banking in their operations because the number of people with access to a mobile hand set is increasing every day. In addition, the convergence of mobile phones and commercial banks has revolutionized the banking operations. For example, Safaricom limited in conjunction with Commercial Bank of Africa launched M-Shwari services which provide registered members an opportunity to borrow money from the bank and repay conveniently. This has introduced another perspective that is likely to revolutionize the banking operations for increased profitability. The study recommends that financial institutions should continue in convincing their customers to embrace the use of Debit and credit Cards as this strategy was found to be positive related with financial performance.

AREAS FOR FURTHER RESEARCH

The study sought to determine the relationship between E-banking technologies and financial performance of commercial banks in Kenya. The study recommends that a further study should be done on the challenge facing the adoption of agency banks by commercial banks in Kenya.

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APPENDICES

APPENDIX I: COMMERCIAL BANKS IN KENYA

a). Foreign owned institutions

i). Foreign owned not locally incorporated

- Bank of India
- Citibank N.A. Kenya
- Habib Bank A.G. Zurich
- Habib Bank Ltd.

ii). Foreign owned but locally incorporated institutions (Partly owned by locals)

- Bank of Baroda (K) Ltd.
- Barclays Bank of Kenya Ltd.
- Diamond Trust Bank Kenya Ltd.
- K-Rep Bank Ltd.
- Standard Chartered Bank (K) Ltd.
- Ecobank Ltd
- Gulf Africa Bank (K) Ltd
- First Community Bank

iii). Foreign owned but locally incorporated institutions

- Bank of Africa (K) Ltd.
- UBA Kenya Bank Limited

b). Institutions with Government participation

- Consolidated Bank of Kenya Ltd.
- Development Bank of Kenya Ltd.
- Housing Finance Ltd.
- Kenya Commercial Bank Ltd.
- National Bank of Kenya Ltd.
- CFC Stanbic Bank Ltd.

c). Institutions locally owned

- African Banking Corporation Ltd.
- Jamii Bora Bank Ltd.
- Commercial Bank of Africa Ltd.
- Co-operative Bank of Kenya Ltd.
- Credit Bank Ltd.
- Charterhouse Bank Ltd.
- Chase Bank (K) Ltd.
- Dubai Bank Kenya Ltd

- Equatorial Commercial Bank Ltd.
- Equity Bank Ltd.
- Family Bank Ltd.
- Fidelity Commercial Bank Ltd.
- Fina Bank Ltd.
- Giro Commercial Bank Ltd.
- Guardian Bank Ltd.
- Imperial Bank Ltd.
- Investment & Mortgages Bank Ltd.
- Middle East Bank (K) Ltd.
- NIC Bank Ltd.
- Oriental Commercial Bank Ltd.
- Paramount Universal Bank Ltd.
- Prime Bank Ltd.
- Trans-National Bank Ltd.
- Victoria Commercial Bank Ltd.

II. Institutions listed on the NSE

- Barclays Bank of Kenya Ltd.
- CFC Stanbic Bank Ltd.
- Equity Bank Ltd.
- Housing Finance Ltd.
- Kenya Commercial Bank Ltd.
- NIC Bank Ltd.
- Standard Chartered Bank (K) Ltd.
- Diamond Trust Bank Kenya Ltd
- National Bank of Kenya
- Co-operative Bank of kenya Ltd

Appendix II: SPSS OUTPUT

Regression_ Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.875 ^a	.766	.723	.37290

a. Predictors: (Constant), ATMS usage, debit and credit cards usage, mobile banking, internet banking

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2.908	4	.727	5.508	.002 ^b
	Residual	5.148	39	.132		
	Total	2.846	43			

a. Dependent Variable: performance of commercial banks

b. Predictors: (Constant), ATMS usage, debit and credit cards usage, mobile banking and internet banking

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.538	.132		4.076	.001
	ATMs usage	.259	.052	.243	4.981	.000
	Debit and credit Cards	.293	.049	.232	5.980	.012
	Mobile banking	.333	.102	.231	3.265	.004
	Internet banking	.522	.122	.433	4.279	.000

a. Dependent Variable: performance of commercial banks

APPENDIX III: DATA COLLECTION SCHEDULE

The student will obtain a letter from the University that will grant her the permission to collect data. Data will be collected from Central Bank of Kenya. The study will collect secondary data in one day based on the availability and accessibility of the data. Below is the data collection schedule that will guide the researcher on important variables during data collection and the period upon which data will be collected.

Company	Sampled Commercial banks (44)
Parameter	Data on the Amount of Transactions Using ATMS
year	
2010	
2011	
2012	
2013	
2014	
Parameter	Data on the Amount of Transactions Using Debit/Credit Cards
year	
2010	

2011	
2012	
2013	
2014	
Parameter	Data on the Amount of Transactions Using Mobile Phones
year	
2010	
2011	
2012	
2013	
2014	
Parameter	Data on the Amount of Internet Transactions
year	
2010	
2011	
2012	
2013	
2014	
Parameter	Financial Performance (Return on Assets=net income/total assets)
year	
2010	
2011	
2012	
2013	
2014	