EFFECTS OF ONLINE SYSTEMS ON THE FINANCIAL PERFORMANCE OF BANKS LISTED IN NAIROBI SECURITIES EXCHANGE

BY

PATEL PARTH NILESHKUMAR

UNITED STATES INTERNATIONAL UNIVERSITY-AFRICA

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A Research Project Report Submitted to the Chandaria School of Business in Partial Fulfilment of the Requirements for the Degree Of Masters In Business Administration (MBA)

UNITED STATES INTERNATIONAL UNIVERSITY-AFRICA

SPRING 2018
STUDENT’S DECLARATION
I, the undersigned declare that this is my original work and has not been submitted to any other college, institutions or university other than the United States International University in Nairobi for academic purposes and any resemblance is purely coincidental.

Signed: ______________________  Date: ______________________
Patel Parth Nileshkumar (634645)

This proposal has been presented for examination with my approval as appointed supervisor

Signed: ______________________  Date: ______________________
Kepha Oyaro

Signed: ______________________  Date: ______________________
Dean, Chandaria School of Business
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ABSTRACT
The main purpose of this study is to analyze the effects of online systems on the financial performance of banks in Nairobi. The study will be guided by the following Research questions: What are the effects of online systems services on the financial performance of banks in Nairobi? What are the effects of online systems adoption on the financial performance of banks in Nairobi? What are the effects of online systems security on the financial performance of banks in Nairobi?

The study adopted descriptive research method of study. Descriptive research helped the researcher to answer the question of who, what, where, when or how much in determining the effects of online systems on the financial performance of banks in Nairobi. The study targets all 55 ICT and finance managers in all the 11 Commercial banks listed by the Central Bank of Kenya. The researcher employed purposive sampling in selecting two respondents in each sampled bank. Questionnaires were distributed to one senior ICT and finance in the selected banks. Using Yemane’s formulae to calculate sample size, sample size used for data collection was 49 respondents from the 11 sampled banks. Quantitative techniques used were descriptive statistics which consisted of the mean, frequency, percentages and standard deviations while Qualitative techniques to be used are content analysis using Statistical Package for Social Sciences (SPSS). Multiple regression analysis is applied to establish the relationship between the study variables to create a new single study variable.

A Pearson correlation analysis was done to establish the relationship between the dependent variable (financial performance) against online system service and the result established a weak positive relationship between the variables, which was significant. Therefore, an increase in variables of system services lead to an increase in financial performance.

A Pearson correlation analysis was done to establish the relationship between the dependent variable (financial performance) against online system adoption and the result established a strong positive relationship, which was significant. Therefore, an increase in system services adoption lead to an increase in financial performance.

A Pearson correlation analysis was done to establish the relationship between the dependent variable (financial performance) against online system security and the result
established a strong positive relationship which was significant. Therefore, an increase in system services adoption lead to an increase in financial performance.

It was concluded that online systems services are aligned to the mission of the bank and therefore encourages the use of Online Systems Services to support daily activities. The benefits of Online system justify the amount of investment and therefore makes it very easy for the bank to organize its banking activities. Secondly, employees the banking sector are in full support of the implementation of ICT strategies. This is by the mere fact that such ICT strategies at the bank have led to improved profitability. Lastly, SMS verification codes together with the normal PIN have increased customer retention. Additional capability such as use of card readers codes together with the normal PIN has increased efficiency.

It was recommended that online systems services aligned to the mission of the bank, institutions need to ensure that all employees work in synergy to ensure that the targets are met. The employees should be encouraged to support the implementation of ICT strategies based on the accrued benefits. The banks also need to utilize online systems to provide the best storage for the institutions documents. Banks need to encourage the adoption of ICT in order to guarantee improvement in the liquidity of commercial banks as well as improvement of asset quality of commercial bank.

Further studies need to be done in all the 42 registered banks in the country in order to be able to generalize the findings. There is also a need to do a comparison of technology adoption among private and public banking institutions in the country.
ACKNOWLEDGEMENT

I would like to appreciate all who have contributed to this research. Firstly, I would like to thank my God Bhagwan Swaminarayan, my spiritual Gurus Pramukh Swami Maharaj and Mahant Swami Maharaj for giving me the strength and capacity for this research, I also thank my parents who have helped me whenever I needed them.
DEDICATION

To my father Nileshkumar Bhailalbhai Patel and my mother Nimishaben Nileshkumar Patel, thank you for your support.
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ABBREVIATION AND ACRONYMS

ATM: automated teller machines

CBK: Central Bank Of Kenya

GDP: Gross domestic product

IT: Information technology (IT)

OBS: online banking systems US

SD: Standard Deviation

USIU: United States international University

USA: United States Of America
CHAPTER ONE

1.0 INTRODUCTION

1.1 Background of the Study

Information technology (IT) is considered as a major forces for change in the financial services sector. Consequently, it has increasingly transcended barriers permeating different sectors by developing new products, services, market opportunities, and developing as well as information- and systems-oriented businesses and management processes (Liao and Cheung, 2002). Moreover, in line with innovative business thinking, technology has also played a role in transforming the way personal financial services are designed and delivered (Wang et al., 2003). The development of secure and fast internet services, has contributed the growth of financial services sector especially in the retail banking sector via the introducing of online banking information systems to facilitate and complement the traditional service channels (Lin, 2006).

Internet connectivity has traversed every aspect of our society and has propagated tremendous improvements in efficiency and customer service (Sullivan & Wang, 2014). Public as well as private sectors have now turned to the use of information technology and internet as one of the means to service delivery (Pouriaei & Ardestani, 2014). Banking organizations are shifting from traditional ways of service delivery where a bank customer needs to personally visit a banking hall to access services, to new innovative platforms such as the use of internet banking. Sullivan and Wang (2014) refer internet banking as a bank that provides a website which allows customers to execute transactions on their accounts. This implies that internet banking is the use of internet as a delivery channel to communicate instructions to and receive information from a financial institution where an account is held in order to carry out banking services such as opening account, transfer of money, balance inquiry, printing of statements and paying of bills via a banks website.

Technological development and rise in innovation diffusion has over time served as a defensive measures to satisfy an increased sophisticated and highly demanding consumers, as well as increasing the competitiveness by reducing operation costs (Shah et al., 2007). Online banking has transformed and revolutionised traditional financial institutions by digitising activities and making them automatic for operational purposes (Bradley and Stewart, 2003). The potential competitive advantages of the internet and the
web 2 for banks is in the areas of cost reduction and satisfying consumer needs. However, electronic transactions through internet banking remain a fraction of what is performed through bank branches or other traditional methods such as counterteellers, automated teller machines (ATMs) or telephone banking (Bradley and Stewart, 2002).

Online banking is much cheaper and Xue et al., (2011) states that the average cost per transaction charge for different service channels is 1.07 US$ for counter-tellers, 0.54 US$ for telephone banking, 0.27 US$ for the ATM service and 0.01 US$ for internet banking. In addition, setting up a single new branch of a bank costs approximately 3.5 to 5 million US$, compared to the cost of setting up an online banking service which varies between 1.5 to 2 million US$ (Lin, 2006). Despite this, huge cost difference, the rate of acceptance and success of online banking facilities is in the hands of the potential users (account holders) (Shih & Fang, 2004).

In internet banking system the bank has a centralized database that is web-enabled. All the services that the bank has permitted on the internet are displayed in menu. Once the branch offices of bank are interconnected through terrestrial or satellite links, there would be no physical identity for any branch. It would be a borderless entity permitting anytime, anywhere and anyhow banking (Pourkiaei & Ardestani, 2014). Internet banking therefore enables customers to perform their activities in an efficient and cost effective way regardless of the location they are so long as they can be connected to the internet.

Previous studies have indicated that information system, if used properly, has the potential to increase customer satisfaction and performance of the banks (Alsajjan & Dennis, 2010; Al-Somali et al., 2009). Pikkarainen et al. (2004) asserted that electronic banking provides numerous benefits to the customers all over the world. It has been observed that the benefits and usefulness of online banking systems (OBS) play a significant role in determining customer choice, since many are attracted to those banks that offer more online banking benefits. Alsajjan and Dennis (2010) noted that there exist a variety of benefits that an OBS can offer which are however not limited to banks but customers can also benefit from them to effectively carry out their banking transactions. These benefits include 24 hours service availability, saving time and money and regular consumer update’s on new services, and special events on regular basis.
However, despite the benefits that online banking information systems can offer, it is worth noting that the technological developments alone cannot guarantee the acceptance and the use of systems by the potential customers. Despite the fact that the potential benefits of electronic services in banking have been described in detail in the research conducted (Alsajjan and Dennis, 2010; Al-Somali et al., 2009; Yiu, et al., 2007), countries which have played leading role in introducing internet banking have yet to achieve their targets in comparison to the resources invested in technology-based services. For example, according to Sarel and Marmorstein (2003) numerous US online customers are inactive, while some rarely use online banking to carry out basic transactions. It has been reported that although the 50 largest banks in the US offered online banking by 2002 only 91% of the households had a bank account (Kolodinsky, 2004), and only 17% of them had utilised online banking despite analysts at that time predicting a 37% usage rate by 2007 (Yousafzai, 2005).

However, this prediction was proved an over-estimation as new survey conducted by American Bankers Association in 2007 showed that only 23% of the USA consumers use online banking as primary method for banking transactions (Fisher, 2007). Moreover, according to (Flavian et al., 2005) when users really want to make a financial transaction which should generate revenue for the bank they choose to do it at a bricks-and-mortar branch and complex transactions are still performed manually. Therefore, if customers do not accept or fully utilise the capabilities of these information systems based banking facilities than there is a reduced return on such investments (Burton-Jones & Hubona, 2006). Thus, it is important for both researchers and practitioners to understand why customers accept or reject new information systems (Davis et al., 1989) and identify those factors that influence acceptance of online banking systems.

1.2 Problem Statement

The digitalisation of banking sectors has created very high expectations from customers pertaining efficiency on how their banks interact and satisfy their needs. This transformation requires banks to spend lot of money in technology; however, an absence of a greater degree of adoption of Internet banking services by customers impact negatively on the banks. According to Nel (2009) consumers are more likely to adopt an innovation that they are comfortable with and that is compatible with other technologies.
that they already use. The degree of compatibility can either increase the rate of adoption or slow it down and this is dependent on the efficiency, effectiveness and exposure of the service to high risk of online fraud.

Özataç and Nwobodo (2010) studied the internet banking in Northern Cyprus at a period of time 2004-2009, in a panel data of 22 retail banking. They also used ROE and ROA as dependent variables. In this case, two other ratios were included: the CA- ratio of total credit to total assets and the CD-ratio of total credit to total deposits used to test the link between Internet banking and performance. The model resulted with a low link between the variable and the absence of multicolinearity among variable. The main conclusion was that the CA and CD ratios, both resulted with negative relationship while using the internet. Despite the internet banking increases the performance in different sectors, the authors entail that in case of these two ratios they were not used wisely or properly.

Josiah and Nancy (2012) in their study intend to confirm if there is a relationship between ebanking and performance by using Pearson Product- Moment Correlation Coefficient test. They focused in a regression with ROA as dependent variable, EB (investment in electronic banking measured in Kshs) as independent variable, CDS (number of debit/cards issued by banks) and ATMS (number of systems installed by banks). The purpose was analyzing the impact of ebanking, on bank performance. The conclusion drawn was that E-banking has strong significance on ROA in the banking industry of Kenya. The relationship between e-banking and performance of banks was positive. Overall the whole study concluded that the adoption has made good points, especially the use of debit cards and ATM made the costumer access to the money for 24/7.

Henceforth, banks continuously try to adopt their business strategies to increase customer satisfaction. However, few studies have sought to investigate how the system operates to generate the benefits. On this note this study intends to analyze the effects of online systems on the financial performance of banks in Nairobi.

1.3 Purpose of the Study
The main purpose of this study is to analyze the effects of online systems on the financial performance of banks in Nairobi.
1.4 Research Questions

1.4.1. What are the effects of online systems services on the financial performance of banks in Nairobi?

1.4.2. What are the effects of online systems adoption on the financial performance of banks in Nairobi?

1.4.3. What are the effects of online systems security on the financial performance of banks in Nairobi?

1.5 Significance of the Study

1.5.1 Researchers and Academicians

The findings of this study will be of great benefit to researchers and academicians as it will add knowledge to the existing literature as well as act as a reference point for further research in related topics in the financial sector.

1.5.2 Policy Makers (Central Bank)

This study will be helpful to policy makers in the banking industry (CBK) who are the main players in charge of formulating policies that regulate the financial sector in totality. The Kenya bankers association will also borrow from the findings in order to set up the relevant guidelines that will promote growth of the industry thus enhancing profitability in the sector.

1.5.3 Management in Banks

Based on the area of saving behaviour, these findings will help the banks in product development that will appeal to a bigger audience in the banking industry. In addition, through this study, the management will better understand the customer needs and desires and thus create the necessary strategies within the institutions.

1.6 Scope of the Study

The study of saving behaviour is very important for the prosperity of the banking industry considering the fact that there are other avenues such as microfinance and Sacco’s that have also become attractive for individuals and institutions that look forward to save in a conducive financial environment. The scope of this research will be limited to selected objectives and the study will take place between September and November 2017, primary
data will be utilised to establish impact of online banking and its effect on saving behaviour of customers. The population of study will be graduate students at USIU Africa.

1.7 Definition of Terms

1.7.1 Online Banking Systems

The denotes the method of banking in which transactions are conducted electronically by the use of Internet (Sullivan & Wang, 2014).

1.7.2 Financial Performance

Measures of financial performance according to Copisarow (2000) are subjective measures of how well a firm can use assets from its primary mode of business and generate revenues. This term is also used as a general measure of a firm's overall financial health over a given period of time and can be used to compare similar firms across the same industry or to compare industries or sectors in aggregation.

1.7.3 System Security

Network security consists of the policies and practices adopted to prevent and monitor unauthorized access, misuse, modification, or denial of a computer network and network-accessible resources (Akintoye & Araoye, 2011).

1.8 Chapter Summary

This study looks at the background of online banking in reference to previous studies around the world. From where the problem statement and the purpose of the study are drawn. This chapter also specifies the specific research questions of the study and the scope as highlighted. Chapter two will analyse the literature while chapter three covers the methodology. In chapter four the results and findings from the data analysis will be presented, while in chapter five the summary, conclusion and recommendations will be drawn.
CHAPTER TWO

2.0 LITERATURE REVIEW

2.1 Introduction

This chapter seeks to review related research done by scholars, experts, analysts and authors on factors that influence online systems and how they affect banks performance and this is based on the objectives of the study which intends to establish the effects of online systems services, effects of online systems adoption and the effects of online systems security on the financial performance of banks in Nairobi. The main primary sources of literature review are thesis and reports while journal articles will be the main secondary source of literature review.

2.2 Effects of Online Systems Services and Financial Performance of Banks

2.2.1 Online Services and Performance of Banks

Measures of financial performance according to Copisarow (2000) are subjective measures of how well a firm can use assets from its primary mode of business and generate revenues. This term is also used as a general measure of a firm's overall financial health over a given period of time and can be used to compare similar firms across the same industry or to compare industries or sectors in aggregation. Financial performance is the single most important factor in assessing growth potential, earnings capacity and overall financial strength (Richardson, 2002).

In theory, product diversification should lead to reduce volatility of earnings. However, earnings arising from non-interest activities of banks are much more volatile than net interest income (European Central Bank, 2010). Most studies divide the determinants of commercial banks financial performance into two categories, namely internal and external factors. Internal determinants of profitability, which are within the control of bank management, can be broadly classified into two categories, i.e. financial statement variables and non-financial statement variables. Financial statement variables relate to the decisions which directly involve items in the balance sheet and income statement including product development. Developing new products is a major responsibility for bank product managers, which includes defining marketing needs and scanning the environment for new opportunities as additional major responsibilities. Among the internal, management controllable factors are bank specific financial ratios representing cost efficiency, liquidity, asset quality, and capital adequacy (Richardson, 2002).
Non-financial statement variables involve factors that have no direct relation to the financial statements. The examples of non-financial variables within this category are management, ownership structure, number of branches, and status of the branch, location and size of the bank. Large size is expected to promote economies of scale and reduce the cost of gathering and processing information. Ownership structure (private, public, foreign) affects the financial performance, privately owned banks are considered to be more innovative than public ones.

In general, large-sized banks have the advantage of providing a larger menu of financial services to their customers, and hence mobilize more funds (Haron & Sudin, 2004). High net interest margin and profitability tend to be associated with banks that hold a relatively high amount of capital, and with large overheads. Stronger management’s beliefs and strategic planning results in better financial performance. External factors are those factors that are considered to be beyond the control of the management of a bank. Among the widely discussed external variables are competition, regulation, market share, bank ownership and structure, monetary policy, and macroeconomic indicators including inflation, money supply, exchange rate and gross domestic product. Annual Growth Rate for Gross domestic product is considered important factor affecting bank financial performance because the high of GDP growth means the increased of investment.

Inflation is another important environmental condition which may effect on ROE and ROA as this factor represents the changes in the general price level or inflationary conditions in the economy and affects the investor’s return. Inflation affects the real value of costs and revenues although it may have a positive or negative effect on profitability depending on whether it is anticipated or unanticipated. Exchange rate stability has a direct impact on financial performance given a favorable movement and stability in the market (Haron & Sudin, 2004). The main conclusion emerging from these studies is that internal factors such as online banking explain a large proportion of banks profitability; nevertheless external factors have also had an impact on their performance (Haron, Sudin 2004).

2.2.2 Online Systems Adopted By Banks
Kenya’s electronic payment systems dates back to 2005 when Central Bank of Kenya commissioned a Kenya electronic payment and settlement system (KEPSS), a pioneer real time gross settlement (RTGS) system. RTGS supports continuous concurrent
processing and final settlement of funds transfer instructions from one bank to another, in
the accounts of participants in the Central Bank of Kenya as long as they have sufficient
covering balance or credit. The other electronic payment systems in use include Nairobi
automated clearing house (NACH), ATMs using cards, securities payment and settlement
systems (Central Depository & Settlement Corporation), cross border money transfers
including Western Union and MoneyGram, and mobile payments such as M-pesa, Yu
Cash, Orange Money and Airtel Money (CBK, 2012).

It should be noted that after safety, the efficiency of a nation’s payment system is a
primary concern of central banks (Bolt, Humphrey, & Uittenbogaarda, 2008). Banks have
used economic value added (EVA) or risk-adjusted returns on capital (RAROC) models
to weigh complex trade-offs between growth, return and risk (Kimball, 1998) as well as
return on assets (ROA) and return on equity (ROE) as indicators of their performance
(AL-Adwan, AL-Zyood, & Ishfaq, 2013). Since electronic payments are typically cheaper
than paper-based or cash payments, pricing these transactions should speed up the shift to
electronics (Bolt, Humphrey, & Uittenbogaarda, 2008). The key players in Kenya
electronic payment systems in conjunction with Central Bank of Kenya are banks,
infrastructure providers, non-bank mobile service providers, and regulatory bodies
including the government.

Electronic Payment is a financial exchange that takes place online between buyers and
sellers. The content of this exchange is usually some form of digital financial instrument
(such as encrypted credit card numbers, electronic cheques or digital cash) that is backed
by a bank or an intermediary (Ingenico, 2012). Retail payments between customers and
businesses are distinguished from wholesale payments between banks by their much
higher transaction volume and much lower average value. With demand for fast, convenient
and safe payment alternatives to cash and cheque rapidly accelerating, commerce is increasingly driven by blips on a screen, numbers punched on a keyboard,
cards swiped through electronic readers and chip-activated cell phones (UNCTAD, 2005).
To sustain these transactions performed on Internet in an electronic form, we need a
secure Internet payment system to handle the transactions.

The use of the Internet technology in banking industry now provides consumers with the
ability to bank, invest, purchase, distribute, communicate, explore from home, work,
cafes, or virtually anywhere an Internet connection can be made. Given the risk
associated with these inventions, some quarters of the banking industry seems relatively slow to adapt to the changing circumstances. However, internet based companies are quickly seizing the new opportunities. It is not a secret therefore, that the future of banking lies in “clicks and mortar” and not “bricks and mortar”. Paper based payment systems are slow, labor intensive and correspondingly expensive to maintain hence, the growth of electronic funds transfer systems (Kilonzo, 2007).

Through transmission control protocol/internet protocol (TCP/IP), banks are taking steps to expand the use of networking technology in their business operations to create consistency across all channels; the Web site, mobile Web and applications, call centers, agent kiosks and automated teller machines. This is because payment and banking go hand in hand. Electronic banking is complementary to, and a manifestation of electronic commerce, for the simple reason that electronic commerce requires a payment system that is easily and readily processed (Kilonzo, 2007). Also known as e-currency, digital cash or online cash, e-cash is a new concept in EPS because it combines computerized convenience with security and privacy that improve on paper cash (Sumanjeet, 2009). It is a method of payment that must be backed with some specified fund in the bank or with a line of credit granted to the users by the bank (Harris, Guru, & Avvari, 2011). Anonymity is one attribute of cash payment that has stood test of time.

2.2.3 Effects of Online Systems Services on the Financial Performance
A few empirical studies exist in the literature, which have examined the relative performance of banks offering Internet banking services. Egland et al. (1998) was the first important study, which estimated the number of US banks offering Internet banking and analyzed the structure and performance characteristics of these banks. It found no evidence of major differences in the performance of the group of banks offering Internet banking activities compared to those that do not offer such services in terms of profitability, efficiency or credit quality. However, transactional Internet banks differed from other banks primarily by size. In contrast to the results of Egland et al. (1998), Furst et al. (2000) found that banks in all size categories offering Internet banking were generally more profitable and tended to rely less heavily on traditional banking activities in comparison to non-Internet banks. An exception to the superior performance of Internet banks was the de novo (new start-ups) Internet banks, which were less profitable and less efficient than non-Internet de novos. The authors concluded that Internet banking was too small a factor to have affected banks’ profitability (Ngugi, 2013)
Sullivan (2000) found that click and mortar banks in the 10th Federal Reserve District incurred somewhat higher operating expenses but offset these expenses with somewhat higher fee income. On average, this study found no systematic evidence that banks were either helped or harmed by offering the Internet delivery channel. Similar to the results of Furst et al., this study also found that de novo click and mortar banks performed significantly worse than de novo brick and mortar banks. Banks may evaluate their online banking performance using the approaches in online performance measurement. The previous literature on online banking performance evaluation mainly includes the following approaches, such as linear regression (e.g. logit model in Furst et al., 2000),

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.

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

2.3 Effects of Online Systems Adoption On The Financial Performance
2.3.1 Determinants Of Online System Acceptance
Akintoye and Araoye (2011) identify features of an effective electronic payment system from four dimensions: technological, economic, social and regulatory. The technological
dimension focuses on system’s expandability, efficiency and security in handling each transaction, its compatibility with other payment systems, and its level of complexity for consumers to adapt to the system. However, security is an utmost technical importance.

Business and financial transactions require secure deposit and withdrawal of money to and from bank accounts, secure data, application programs and databases, secure transactions and payments, secure communication networks and secure network maintenance and management. Security must address authenticity, privacy, integrity and non-repudiation. The type of transaction whether online or offline should be known - the former may be associated with micro payments while the later supports large payments.

Economically an online payment system makes sense with respect to designing it, building it, running it, maintaining it, and upgrading it, besides its acceptance and widespread use by the consumers. All these are reflected in the cost of transaction, where costs incurred by seller and buyer in a transaction are kept at minimal. This includes both direct and indirect costs; atomic exchange - EPS must involve consumers paying money or something equivalent in value (tokens) in a transaction; user reach - which refers to the range of users to whom an EPS is accessible, whether countries or ages; value mobility - EPS token circulation is limited to the community authorized by the issuing company, the token may be valued by large number of parties at different places and passed along as gift or exchanged for currency in equal value; and financial risk - where concern is on level of security for online transactions, potential damages or loses that may be incurred. Thus the sharing of risks must be spelt out clearly in an EPS.

Social needs are also necessary for consumers to develop „trust and acceptance” of the e-payment system. Anonymity is a social aspect meant to protect the privacy of consumers and to prevent companies or financial institutions from tracing users purchasing preferences or behavior. The EPS should also be user friendly, i.e., it should be simple and easy to use especially in micropayment. Mobility of the system is critical so that it can be shared and used anywhere and not tied up in a PC. Again, the operational features should be such that the customer and merchant should not have a pre-existing business relationship before transacting. The system should support impulse buying (Akintoye & Araoye, 2011). Ideally, the three above dimensions are together bound by the government regulations which govern online business transactions. Some of the concerns associated with such regulations include: - digital signatures recognition, digital funds
transfers traceability and validity, electronic commerce contracts, online technical standards, customs and taxation, international agreements among others. This is because every country has its own set of policies that EPS must conform to. The issues raised above, thus, need a good attention for any form of on-line system to be quite effective.

Globlisation has helped many companies to move to the international market with one major obstacle, the geographical barrier. E-commerce provides an effective “vehicle” for companies to move to the international market because there is almost no geographical barrier in cyberspace. In other words, it is easier for a foreign company to compete with a local company under the cyber environment (Botha, Bothma, & Geldenhuys, 2008).

As we enter the information age, information becomes a valuable asset. Therefore, companies are looking for more effective ways to collect, update, and manipulate various types of information particularly for marketing purposes. E-commerce facilitates this (UNCTAD, 2011). According to Gharegozi, Faraji, & Heydari (2011), the opportunities for small enterprises to adopt E-commerce are growing due to improved access to the technical and communication infrastructure. With the advent of technologies, many business ideas can now be realized.

2.3.2 Impacts of Online systems

The investment in EPS cannot be in vain (Chan, Lee, Dillon, & Chang, 2001). The financial institutions are able to realize global reach where they are no longer limited to clients who can reach them physically. This culminates into high revenue stream. Exchange of emails and other electronic messages to customers ensure better customer service since complaints and inquiries are quickly handled. The banks are also spared office space booking and hiring shop assistants hence low capital cost.

Mass customization is also possible through online transaction systems. Frequent bank-customer communication enables banks to mass customize products or services with reduced time to market reach. It is also easy to pick on a specific target group and direct marketing towards them. Thus it is possible to have add-on services to basic services, or add-on options to products that they are supporting (Dahlberg, Mallat, Ondrus, & Zmijewska, 2007).

Customers on the other hand enjoy convenience since they do not need to visit financial institutions, whether banks or virtual financial stores, physically. This saves a lot of time.
Furthermore, the institutions would be available 24/7. The internet and World Wide Web are communication media containing a lot of financial related information. Some sites, like Amazon.com, carry product reviews and mode of payment that could help customers get a better picture of themselves and what they need.

Competitive pricing has benefited customers because many charges on online transactions were dropped. Some banks do not charge ATM transactions, like Barclays bank. Airtel money transfer does not attract charges on on-network money transfer. All these are to the benefits of customers. The various financial bouquet offered to customers can easily be customized to meet customers’ individual needs as compared to physical products. There is also freedom of settling transactions from anywhere, anytime by banks.

Nyangosi et al., (2009) argues that in Kenya, majority of banks have introduced internet banking, mobile banking and other e-banking facilities to enhance delivery channels to their customers. However it is important that the introduction of these products be accompanied with programs to educate the consumer on the new and more innovative ways of conducting banking business. For example, while internet banking is fast and convenient mode of conducting banking transactions, this is yet to gain acceptance among banking consumers due to fears of apprehension in this mode of banking. Like many other developing countries, e-banking in Kenya is at its early stages although banks are now open to other channels of delivery like mobile banking. Not many banks have embraced e-banking but majority have at least one or two technology based delivery channels. The non- adoption of e-banking by banks has been attributed to impaired non-availability of infrastructure and legislation to support e-banking.

While the benefits are outlined above the challenges are inevitable. E-commerce provides the opportunity to buy and sell products, information and services on the internet thus it requires an effective standardised online payment system. This lack of a uniform platform for operation by banks coupled with inadequate infrastructure leaves a strategic linger. The uncertainty of fully cashless society on liquidity issues slows the rate of adoption. Due to the interconnected nature of payment systems, such disturbances have the potential to transmit themselves to other financial institutions as well, leading to issues of financial instability.

Online fraud and other security issues are a menace to existence of EPS. The security challenge is on (1) Confidentiality: disclosure to unauthorized persons; (2) Operations
access control: to prevent illegal access of data; (3) Integrity: keeping message information original; (4) Data origin authentication: proving the source of data; (5) Non-repudiation: non-denial of involvement in transaction for legal purposes (Zhu, 2002). Electronic documents are difficult to discern the original from a copy hence posing a security concern. Online transaction security is addressed by two main protocols, i.e., secure electronic transaction (SET) and secure socket layer (SSL) protocols.

The two protocols secure an end to end guaranteed communication medium between parties. The other risks with e-payment lies in banks over reliance on IT that has opened doors for attacks by hackers through packet/ address spoofing, stealth diagnosis, sniffer, sweepers and backdoors. Some customers get frustrated with these incidences which result in distrust of the payment method hence low public acceptability. Fear of layoffs, retraining on system use or the challenges of a new structure by staff could complicate successful implementation of the payment method.

National, regional or international set of laws, rules and other regulations are important requirements for the successful implementation of e-payment schemes. Some of the major elements include rules on money laundering, supervision of commercial banks and e-money institutions by supervisory authorities, payment system oversight by central banks, consumer and data protection, cooperation and competition issues. A legal and regulatory framework that builds trust and confidence supporting technical efforts is an important issue to be addressed in implementing e-payments.

2.3.3 Effects of Online Systems Adoption On The Financial Performance

Banks have come a long way since the Middle Ages, when merchant banks first formed in Italy to allow commodity traders to use their excess capital to invest in foreign trade. Today's banks offer a range of other services, including credit cards, money management, bill paying and retirement planning. As a financial institution, a bank acts as an intermediary between depositors and borrowers (Heffernan, 2005).

It is evident that banks and other financial institutions in developed and emerging markets are embracing e-banking. In Kenya, a recent survey indicates that there is steady increase in use of e-banking technologies such as automated teller machine (ATM), mobile and Internet banking, electronic funds transfer (EFT), direct bill payments and credit card
(Gikandi & Bloor, 2010). According to CBK report, between 2002 and 2013, the number of ATMs and debit cards uses rose sharply.

ATMs adoption and usage has been surpassed by mobile banking (M-banking) in the last few years (CBK 2013). Currently there are over 21 million registered mobile payment users as compared to their nearest rival card based transactions which stand at 10 million only. The tremendous increase in number of people adopting M-banking has been attributed to ease of use and high number of mobile phone users. This is consistent with the theory of technology acceptance model and DeLone McLean model of information systems success as conceptualized in Kim, Mannino, and Nieschwietz (2009), Delone and McLean (2003) in relation to online payment systems.

There is also a growing partnership in financial institution and non-financial service providers where consumers through use of e-banking and other e-commerce services such as M-Kesho, M-Shwari, credit cards among others can transact and clear utility bills through shared banks” platforms. This is evidenced with partnership of, for example, Kenya Women and Finance Trust (KWFT) and Samsung geared at bridging the digital divide and facilitating mobile banking solutions for millions of unbanked women in Kenya. The KWFT mobile service has several innovative features such as funds transfers, M-pesa, ATM services and utility bill payments. Kenya Commercial Bank entered a business agreement with Safaricom to authorise M-pesa agents to access cash instantly once a cash deposit is made at the bank (KCB, 2013).

According to Sumra et al. (2011), e-banking is considered to have a substantial impact on banks performance since it has opened new horizons and scenarios for retail banking. The growth of e-banking has made institutions to automate repetitive tasks which may result into greater efficiency and effectiveness, better time usage and enhanced controls. This has helped the institutions to control their overheads and operating costs hence may become more profitable in the future.

Aduda & Kingoo (2012) argue that e-banking has produced changes in the structure of bank income. As a result of increased competition that has lowered margins in lending operations (the banks’ traditional business), banks have diversified their sources of income and rely increasingly on income from fees services rather than interest rate spreads. This change is also reflected in the increasing size of off-balance sheet items in the banks' financial accounts. Technology allows these same products -for example a loan
to a company to be traded in capital markets (securitization) instead of remaining in the bank’s balance sheet. They further noted that despite the potential benefits of Information and Communication Technology (ICT) and e-commerce, there is debate about whether and how their adoption improves bank performance.

E-Banking has also helped to reduce the institution’s paperwork and has proper documentation for their records as a whole. Banks have continued to leverage on robust ICT platforms rather than recruiting corresponding number of employees to serve the increasing number of customers hence reducing the payroll cost. This is well explained by the ratio of customer deposit accounts to employees that has increased from 60 in 1996 to 474 customers in 2011 (CBK, 2011).

2.4 Effects of Online Systems Security on the Financial Performance

2.4.1 Attacks on Online Systems

According to Pourkiaei and Ardestani (2014), there are three types of Internet banking that are being employed in the market place: information, communication and transaction. Information is the most basic level of internet banking. The bank has marketing information about its products and services on a stand-alone server. This level of internet banking service can be provided by the bank itself or by sourcing it out. Communication is the type of internet banking which allows interaction between the bank’s system and the customer. It may be limited to electronic mail, account inquiry, loan applications, or static file updates but the risk is higher with this configuration as compared to the earlier systems. Transaction is a system of internet banking where customers are allowed to execute financial operations.

The Kenyan Prime Bank, Development bank, and CFC Stanbic Bank websites which were hacked by Rwandan hacker is one example of how the system is vulnerable to hackers. Hackers have many different ways that they can try to break into the system. The problems of the systems today are inherent within the setup of the communications and also within the computers itself. The current focus of security is on session-layer protocols and the flaws in end-to-end computing. A secure end-to-end transaction requires a secure protocol to communicate over untrusted channels, and a trustee code at both endpoints. It is really important to have a secure protocol because the trusted channels really don’t exist in most of the environment.
Social Engineering is among the most common attacks does not involve knowledge of any type of computer system. Tricking consumer into revealing sensitive information by posing as a system administrator or customer service representative is known as social engineering. Social engineers use surveillance and a consumer’s limited knowledge of computer systems to their advantage by collecting information that would allow them to access private accounts. Attackers can use port scanners to ascertain entry points into a system and use various techniques to steal information. This type of software sends signals to a machine or router and records the Attackers can use port scanners to ascertain entry points into a system and use various techniques to steal information. This type of software sends signals to a machine or router and records the message the machine responds with to ascertain information and entry points (Cobb, 2007). The main purpose of a port scanner is to gather information related to hardware and software that a system is running so that a plan of attack can be developed.

Password cracking can involve different types of vulnerabilities and decrypting techniques; however, the most popular form of password cracking is a brute force attempt. Brute force password attacks are used to crack an individual’s username and password for a specific website by scanning thousands of common terms, words, activities, and names until a combination of them is granted access to a server. Brute force cracking takes advantage of systems that do not require strong passwords, thus users will often use common names and activities making it simple for a password cracker to gain access to a system. Other password cracking methods include using hash tables to decrypt password files that may divulge an entire systems user name and password list.

Denial of service attacks are used to overload a server and render it useless. The server is asked repeatedly to perform tasks that require it to use a large amount of resources until it can no longer function properly. The attacker will install virus or Trojan software onto an abundance of user PC’s and instruct them to perform the attack on a specific server. Denial of service attacks can be used by competitors to interrupt the service of another E-Commerce retailer or by attackers who want to bring down a web server for the purpose of disabling some type of security feature. Once the server is down, they may have access to other functions of a server, such as the database or a user’s system. This allows the attacker the means to install software or disable other security features.
2.4.2 Modes of Online System Security

Cyber security or (insecurity) in Kenya is the single biggest threat to business in terms of the consumption and use of Information Communication Technologies (ICT). Actually, over the recent months we have seen a rise in cases of cyber-attacks such as ransomware and data leakage, some of which have even gone undetected. One such incident that went viral on regional social media circles involved a leading Kenyan bank. A hacker was supposedly able to access through a data systems breach, more than 500,000 customers’ details, including names and phone numbers and which were then plastered on various online platforms (Aduda & Kingoo, 2012).

Unfortunately, innovation has meant that hacking tools are now cheaper and simpler to use in marking out vulnerable targets. Serianu Limited, the publishers of the Kenya Cybersecurity report, notes that Kenyan companies lost over Sh15 billion in 2015 through Cybercrime. On top of this pile of victim losses sits the public sector at Sh5 billion followed by the financial services sector at Sh4 billion. Sadly, this scenario is not unique to Kenya; cybercrime has been on a steady rise globally. Another study by consulting house PwC, notes that the number of cyber security incidents across all industries grew by 38% in 2015, which is the biggest increase in the 12 years since the global study was first published. No doubt the mobile phone is the universal communication device of choice for many. The Communications Authority of Kenya notes that we have 39 million mobile phone subscribers in Kenya, 22 million who access and are constantly on the Internet. A huge proportion of this fraction estimated at about 95% does not have mobile security in place (Sumra et al. 2011).

Some key principles of safer online banking and payments to consider include using trustworthy devices and Internet connections, while keeping the operating systems and software up-to-date. Not every Internet connection such as public Wi-Fi at the coffee shop or a random network at any office is secure to be used for online banking or making payments. It is advisable instead to use a virtual private network (VPN) to keep your communications encrypted (unreadable) to anyone who may try to intercept them.

But having a strong password is perhaps the first step in proactively securing your device and online banking access. One easy technique in developing a strong but simple password regime is ‘pass phrasing’ which simply means using a sequence of words or other text to control access to a computer system, program or data. However, it is doubly
important never to reuse your password e.g. for your bank, social media and other accounts which can mean a total hack into each account in case it leaks from any one of them. To manage this, one can use a password manager that will store all of them and allow you to remember just one master password (Gikandi & Bloor, 2010).

Similarly, to enjoy the Internet and maximize protection while connecting to an online banking account, one should install a trusted security solution on their devices. This will preferably be a reliable, multilayered and updated security solution. For example, ESET Smart Security offers protection from multiple types of malware as well as malicious tricks that might be disguised as harmless emails or websites. Cybercriminals will try anything to access your sensitive data. They will pretend to be your banker, pose as an innocuous notification in your email, or ask to change the password via a link added to that email you just received (Nyangosi et al., 2009).

### 2.4.3 Effects of Online Systems Security on the Financial Performance

Internet banking is a new concept in developing countries (Safeena et al., 2011 & Berndt et al., 2010). Trust comes from factors such as perceived privacy and security, and is a major factor in electronic channels that may influence consumers attitudes and intentions to adopt and use internet banking services (Ezzi, 2014). Lack of trust has been identified as one of the hindrances to the adoption and use of internet banking (Kesharwani & Bisht 2012 & Farzianpour et al., 2014). This means that trust is needed more when customers process more sensitive personal information including financial information.

In addition, the perceived ease of use is the degree to which a person believes that using a particular system would be free of effort (Davis, 1989). Ezzi (2014) reveals that an application that is perceived to be easier to use than another is more likely to be accepted by users, as it will positively influence attitudes and subsequently intention to use. Thus the more a system is perceived to be used easily the more chances for that system to be accepted by users. Most users want a system that gives them less physical stress and little mental exercise while using it as this will determine their level of satisfaction with the usage (Odumeru, 2012).

Privacy and security of information is an asset to an individual. According to Ezzi (2014), many applications require individuals to give personal information such as social security numbers, bank account numbers, account information like balances, and identifying transactions and thus people of from walks of life tend to be concerned for their privacy.
and security. With respect to the attitude toward and adoption of internet banking many experts has acknowledged consumers’ concerns regarding security, privacy, and trust (Zanoon & Gharaibeh 2013; Nasri 2011; Zahid 2010). Changchit (2008) observed that in today’s digital age, internet users are concerned with many privacy issues as this digital age continue to affect a daily personal financial information. Saeednia and Abdollahi (2012) studied privacy and found that privacy directly and significantly influences trust as a mediator variable to promote affective commitment of the clients of online banking.

A research study by Virk (2013) revealed that majority of customers considered that privacy had always been their major concern amidst news of fake websites asking for login details which makes a customer think twice before opting for Internet banking. The findings of Ramseook-Munhurrun and Naidoo (2011) reveal that reliability and security are perceived as the most important dimensions in internet banking transactions that influences satisfaction and behavioral intentions. The more people feel secure, the more they will adopt and use internet banking services.

Nasri (2011) researched on factors influencing the adoption of internet banking in Tunisia and findings of the study reveal that internet banking usage is much 39 persuaded by factors such as risk, convenience, security and also prior internet knowledge. Demographic factors show significant impact on the behavior to use internet banking. Banks should take some steps to upgrade their security, low risk and prior internet knowledge for making good marketing strategies. Further research by Safeena et al., (2011) on internet banking adoption in India revealed that perceived usefulness, perceived ease of use and perceived risk were the most important factors that influence the adoption of online banking and also help to make strategy formulation process. Findings from the research study suggested longitudinal study in the future which will help to identify the research model in different time periods and make comparisons and thus provide more views into the phenomenon of the adoption of online banking.

Malhotra and Singh (2010) conducted an investigation on the most impacting factors of internet banking service in India. The results showed that private and foreign banks have performed well in offering wider services of internet banking in comparison to public sector banks. Further findings showed that size of the bank, experience of the bank in offering internet banking, financing pattern and ownership of the bank are found to be significant determinants affecting the extent of internet banking services.
2.5 Chapter Summary

This chapter reviewed related literature in relation to the effects of online systems on the financial performance of banks in Nairobi. The literature was classified into the three research questions. The first section looked at effects of online systems services on the financial performance of banks. The second section looked at literature related effects of online systems adoption on the financial performance of banks. The third section looked at literature related to effects of online systems security on the financial performance of banks. The next chapter will cover the proposed research methodology to be used for the study.
CHAPTER THREE

3.0 RESEARCH METHODOLOGY

3.1 Introduction

This chapter presents the methodology used to conduct out the study. It describes the research design, the population and sampling design of the study, data collection methods as well as the research procedures and data analysis methods used in the research study.

3.2 Research Design

Research design is the blueprint for the collection, measurement and analysis of data, but warns that it is a wide-ranging concept (Cooper and Schindler, 2014). The study adopted descriptive research method of study. Descriptive research helped the researcher to answer the question of who, what, where, when or how much in determining the effects of online systems on the financial performance of banks in Nairobi (Cooper & Schindler, 2014). This was done to establish the effects of online systems on the financial performance of banks in Nairobi securities exchange. The dependent variable being performance of listed banks in the NSE.

3.3 Population and Sampling Design

3.3.1 Population

A researcher has to have a specific population as their research population target upon which they use to make all inferences regarding validity of their research topic (Kothari, 2004). Mugenda and Mugenda (2003) refers to population frame as a comprehensive itemized list of all subjects, which comprise the study population, from which a sample will be taken. The study targets all 55 ICT and finance managers in all the 11 Commercial banks listed by the Central Bank of Kenya.

3.3.2 Sampling Design and Sample Size

3.3.2.1 Sampling Frame

A sampling frame is the list of elements from which a sample is drawn. In essence, this is a complete and correct list of population members only (Cooper and Schindler, 2014).
The sampling frame for this study is 11 Commercial banks listed by the Central Bank of Kenya and take part in the Nairobi securities exchange.

### 3.3.2.2 Sampling Technique

Sampling is the process of selecting a number of individuals for a study (Kothari, 2004). The researcher employed simple random technique in selection of sampled banks. Simple random is a probability sample in which each element has a known an equal chance to be selected (Cooper and Schindler, 2014). The researcher used this method since it is an unbiased surveying method.

Purposive sample is a non-probability sample that is selected based on characteristics of a population and the objective of the study. It is useful in situations when you need to reach a targeted sample quickly, and where sampling for proportionality is not the main concern (Crossman, 2017). The researcher will employ purposive sampling in selecting two respondents in each sampled bank. Questionnaires are distributed to one senior ICT and finance in the selected banks.

### 3.3.2.3 Sampling Size

A Sample size denotes the exact number of participants who will be physically approached by the researcher to answer certain question using research collection instruments (Saunders, 2012). Sample size should neither be too large or small but realistic enough to give a confidence interval of desired width (Kothari & Garg, 2014). At a margin of error $(e)$ of 5%, confidence level of 95% and a population $(N)$ of 55 the sample size $(n)$ is determined using the equation below.

\[
 n = \frac{N}{1 + N(e)^2}
\]

\[
 n = \frac{55}{1 + 55(0.05)^2}
\]

\[
 n = 49.42
\]
Using the above formulae to calculate sample size, sample size used for data collection is 49 respondents from the 11 sampled banks.

3.4 Data Collection

Mugenda and Mugenda (2008) defined data collection as instruments used to collect the necessary information needed to serve or prove some facts. In this study, data is collected from both the primary and secondary sources. Primary data is collected by the use of structured questionnaires for both qualitative and quantitative information. The questionnaire is developed by the researcher based on the research objectives and literature review. Section A will seek to establish the respondent demographic information, Section B on the effects of online systems services on the financial performance of banks in Nairobi, Section C effects of online systems adoption on the financial performance of banks in Nairobi. Option D effects of online systems security on the financial performance of banks in Nairobi.

The questionnaires is structured based on a 5 Likert scale questions which is close ended to give the respondents limited and pre-determined responses to choose from. Secondary data is gathered from USIU library from manuals, text write up and other reference materials including: electronic journals, magazines and internet sites. Each of the sampled banks got 2 questionnaires. The questionnaires are administered through drop and pick method to reduce disruptions on the respondents’ routines. The questions was designed to be answered by one senior one senior ICT and finance in the selected banks.

3.5 Research Procedures

The questionnaires are designed by the researcher based on the research questions which is pre-tested to ascertain the suitability of research tool. According to Cooper and Schindler (2014), the reason for pilot testing is to detect weaknesses in design and instrumentation and to provide proxy data for selection of a probability sample. The pilot study is conducted to 10 respondents in 5 sampled banks which were included in the actual study. This enabled the researcher to fine tune the questionnaire for effectiveness
and efficiency of the process to ensure simplicity and clarity on each question which will enhance the speedy acceptance of respondents.

The researcher obtained an introductory letter from the university to enhance obtaining permission from both the university and bank which sped up the data collection process. The questionnaires had a cover letter introducing the researcher and the research topic study attached to it. The questionnaires were circulated using a drop and pick later method to the targeted respondents followed up by calls to remind the respondents to fill and return the questionnaires. In addition, unstructured interviews are conducted to provide more generalized information.

### 3.6 Data Analysis Methods

Data analysis refers to all the statistical methods that simultaneously analyze multiple measurements on each individual or object under investigation (Straub and Gefen 2005). This study used both quantitative and qualitative method of data analysis. The data collected from the questionnaires is checked to ascertain completeness and accuracy. The questionnaires were coded according to each variable of the study to ensure the margin of error is minimized and assure accuracy during analysis. The coded data is then analyzed using quantitative and qualitative techniques.

Quantitative techniques to be used are descriptive statistics which consisted of the mean, frequency, percentages and standard deviations while Qualitative techniques to be used are content analysis using Statistical Package for Social Sciences (SPSS). Multiple regression analysis is applied to establish the relationship between the study variables to create a new single study variable.

The multiple regression equation to be used by the researcher is as shown below:
\[ Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \epsilon \]

\[ Y = 0.960 + 0.089X_1 + 0.343X_2 + 0.375X_3 + 0.36077 \]

Where:

- \( Y \) is the dependent variable (financial performance of banks in Nairobi);
- \( \beta_0 \) is the regression constant;
- \( \beta_1, \beta_2, \beta_3 \) and \( \beta_4 \) are the coefficients of independent variables;
- \( X_1 \) is effects of online systems services;
- \( X_2 \) is effects of online systems adoption;
- \( X_3 \) is effects of online systems security;
- \( \epsilon \) is the error term.

### 3.7 Chapter Summary

This chapter covers the research design, population and sampling design, data collection, research procedures and data analysis to be applied to study the effects of online systems on the financial performance of banks in Nairobi. The research is based on simple random on selecting the banks. A sample frame is identified from internal auditors for the selected banks using purposive sampling technique where a structured questionnaire is used for data collection. The analysis of the data is done using the SPSS data analysis tool. Chapter four presents the research findings and results in relation to the research objectives.
CHAPTER FOUR

4.0 RESULTS AND FINDINGS

4.1 Introduction

This chapter presents the results established from the data analysis done. This included results relating to the demography and specific research objectives aimed at establishing the effects of online systems on the financial performance of banks in Nairobi.

4.1.1 Response rate

The research issued a total of 49 questionnaires and a total of 45 were filled and returned giving a response rate of 92%. This was sufficient for the study as indicated in table 4.1.

Table 4.1: Response Rate

<table>
<thead>
<tr>
<th>Variable</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Filled and returned</td>
<td>45</td>
<td>92</td>
</tr>
<tr>
<td>Non-response</td>
<td>4</td>
<td>8</td>
</tr>
<tr>
<td>Total</td>
<td>49</td>
<td>100</td>
</tr>
</tbody>
</table>

4.2 General Information

4.2.1 Gender

Analysis of the respondents gender was done and the result established that majority of respondents were male accounting for 55.55% while female were 45.45% as shown in figure 4.1 below. This implied almost a 50-50 ratio thus there is an existence of gender balance in the banking sector.

Figure 4.1: Gender
4.2.2 Age of respondents
Analysis of the respondents age was done and the result established that majority of respondents were aged between 30-37 years accounting for 40% while those aged 38-46 years represented 29%. On the other hand, 22-29 year olds were 16%, while those of over 46 years were 9% and those below 22 accounted for 7% as shown in figure 4.2 below. This implied that the sector has a diverse age group therefore good for the continuity of the banks.

![Age of respondents chart](image)

**Figure 4.2: Age of respondents**

4.2.3 Education Levels
To analyse the literacy levels the result established that majority of respondents accounting for 66.7% were degree holders while 26.7% had a Masters degree, only 6.7% were diploma holders and no response was recorded for primary and secondary education as shown in figure 4.3 below. This implies that the data received that the response received was precise as the respondents were very literate to comprehend the questions asked.
Figure 4.3: Education Levels

4.2.4 Work Experience

To establish the duration the respondents have worked in the firm, the findings revealed that majority of the respondents have worked for 0-5 years representing 20.20%, those of between 5-10 years were 55.55%, and those of over 10 years were 25.25% as shown in Figure 4.4. This implies that the respondents have adequate knowledge of the industry.

Figure 4.4: Work Experience
4.3 Effects Of Online Systems Services On The Financial Performance

The first objective set to establish effects of online systems services on the financial performance. Respondents were asked a set of questions to indicate to what extent they agree or disagreed with the statement. Using a five point Likert scale where 1 - Strongly Disagree 2 - Disagree 3 - Neutral 4 - Agree 5 - Strongly Agree

4.3.1 Descriptive of Online Systems Services On The Financial Performance

The finding revealed that online systems services are aligned to the mission of the Bank (m=4.51, sd=.626). The results also show that bank encourages the use of Online Systems Services to support daily activities (m=4.58, sd= .499). The benefits of Online system justify the amount of investment (m=4.69, sd=.514). It was also revealed that online system makes it easy to organize banking activities (m=3.98, sd=.892).

Online system has improved content delivery within departments (m=4.73, sd=.447). On the other hand, majority were uncertain if online system supports additional peer learning among bankers (m=3.27, sd=1.031). Online system has however simplified assessment of performance outcomes (m=4.80, sd=.405). Assessment on Online system allows employees to monitor their own progress and make them accountable for their own learning (m=4.00, sd=1.066).

Table 4.2: Descriptive of Online Systems Services

<table>
<thead>
<tr>
<th>Variable</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>Mean</th>
<th>Sd</th>
</tr>
</thead>
<tbody>
<tr>
<td>Online Systems Services are aligned to the mission of the Bank.</td>
<td>0</td>
<td>2.2</td>
<td>0</td>
<td>42.2</td>
<td>55.6</td>
<td>4.51</td>
<td>.626</td>
</tr>
<tr>
<td>The bank encourages the use of Online Systems Services to support daily activities</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>42.2</td>
<td>57.8</td>
<td>4.58</td>
<td>.499</td>
</tr>
<tr>
<td>The benefits of Online system justify the amount of investment.</td>
<td>0</td>
<td>0</td>
<td>2.2</td>
<td>26.7</td>
<td>71.1</td>
<td>4.69</td>
<td>.514</td>
</tr>
<tr>
<td>Online system makes it easy to organize banking activities.</td>
<td>0</td>
<td>8.9</td>
<td>13.3</td>
<td>48.9</td>
<td>28.9</td>
<td>3.98</td>
<td>.892</td>
</tr>
<tr>
<td>Online system has improved content delivery within departments</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>26.7</td>
<td>73.3</td>
<td>4.73</td>
<td>.447</td>
</tr>
<tr>
<td>Online system supports additional peer learning among bankers</td>
<td>4.4</td>
<td>17.8</td>
<td>35.6</td>
<td>31.1</td>
<td>11.1</td>
<td>3.27</td>
<td>1.031</td>
</tr>
</tbody>
</table>
Online system has simplified assessment of performance outcomes.

| Assessment on Online system allows employees to monitor their own progress and make them accountable for their own learning |
|---|---|---|---|---|---|---|
| 0 | 13.3 | 15.6 | 28.9 | 42.2 | 4.00 | 1.066 |

4.3.2 Correlation of Online Systems Services On The Financial Performance

A Pearson correlation analysis was done to establish the relationship between the dependent variable (financial performance) against online system service and the result established a weak positive relationship between the variables, which was significant as indicated in table 4.3. Therefore, an increase in variables of system services lead to an increase in financial performance.

**Table 4.3: Correlation of Online Systems Services On Financial Performance**

<table>
<thead>
<tr>
<th>Variable</th>
<th>System Services</th>
</tr>
</thead>
<tbody>
<tr>
<td>Financial Performance</td>
<td>Pearson Correlation: .381**</td>
</tr>
<tr>
<td></td>
<td>Sig. (2-Tailed): .010</td>
</tr>
<tr>
<td></td>
<td>N: 45</td>
</tr>
</tbody>
</table>

**Correlation is significant at the 0.01 Level (2-Tailed).**

4.3.3 Regression of Online Systems Services On Financial Performance

The research analyzed relationship between online systems services on financial performance. The results showed that the R² value was 0.145 hence 14.5% of the variation in performance was explained by the variations in online systems as illustrated in table 4.4

**Table 4.4: Model Summary of Online Systems Services On Financial Performance**

<table>
<thead>
<tr>
<th>Model</th>
<th>R</th>
<th>R² Square</th>
<th>Adjusted R² Square</th>
<th>Std. Error of the Estimate</th>
<th>Change Statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>R Square Change</td>
</tr>
<tr>
<td>1</td>
<td>.381**</td>
<td>.145</td>
<td>.125</td>
<td>.43569</td>
<td>.145</td>
</tr>
</tbody>
</table>

a. Predictors: (Constant), system services

4.3.4 Anova of Online Systems Services On Financial Performance

ANOVA analysis result of the regression between online systems services on financial performance at 95% confidence level, the F critical was 7.305 and the P value was (0.010) therefore significant the results are illustrated below in table 4.5
Table 4.5: Anova of Online Systems Services On Financial Performance

<table>
<thead>
<tr>
<th>Model</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>9.549</td>
<td>44</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Regression</td>
<td>1.387</td>
<td>1</td>
<td>1.387</td>
<td>7.305</td>
</tr>
<tr>
<td></td>
<td>Residual</td>
<td>8.163</td>
<td>43</td>
<td>.190</td>
<td></td>
</tr>
</tbody>
</table>

a. Dependent Variable: financial performance  
b. Predictors: (Constant), system services

4.3.5 Coefficients of Online Systems Services On Financial Performance

The regression equation illustrated in Table 4.6 established that taking online systems into account and other factors held constant financial performance improved by 3.323 units and both variables were significant.

\[ Y = \beta_0 + \beta_1 X_1 + \epsilon \]

\[ Y = 3.323 + 0.474X_1 + 0.43569 \]

Where:

Y is the dependent variable (financial performance)

\( \beta_0 \) is the regression constant;

\( \beta_1 \) coefficients of independent variables;

\( X_1 \) online systems and \( \epsilon \) is the error term.

Table 4.6: Coefficients of Online Systems Services On Financial Performance

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>Std. Error</td>
<td>Beta</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>(Constant)</td>
<td>2.323</td>
<td>.760</td>
<td>3.056</td>
</tr>
<tr>
<td></td>
<td>system services</td>
<td>.474</td>
<td>.175</td>
<td>.381</td>
</tr>
</tbody>
</table>

a. Dependent Variable: financial performance  
b. Predictors: (Constant), system services
The second objective set to establish effects of online systems services adoption on the financial performance. Respondents were asked a set of questions to indicate to what extent they agree or disagreed with the statement. Using a five point Likert scale where 1 - Strongly Disagree 2 - Disagree 3 - Neutral 4 - Agree 5 - Strongly Agree

4.4.1 Descriptive Of Online Systems Adoption On The Financial Performance

The study established that employees support the implementation of ICT strategies (m=4.29, sd=.626). ICT strategies at the bank has improved profitability (m=3.71, sd=1.100). Online systems offer provides the best storage for the institutions documents (m=4.38, sd=.960). It was also revealed that the online systems has features that are easy to use (m=3.71, sd=1.014). Majority also agreed that online systems has have contributed to efficiency at the firm (m=4.40, sd=.751).

The online systems has improved the institutions ranking the banking sector (m=3.62, sd=.912). Enterprise system integration has contributed to a reduction in labor costs due to streamlined operations (m=3.84, sd=1.043). Integrated systems reduce the orientation and training effort and enable specialized know-how of the application used (m=4.31, sd=.793).

Table 4.7: Descriptive Of Online Systems Adoption On The Financial Performance

<table>
<thead>
<tr>
<th>Variable</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Employees of support the implementation of ICT strategies.</td>
<td>0</td>
<td>0</td>
<td>8.9</td>
<td>53.3</td>
<td>37.8</td>
<td>4.29</td>
<td>.626</td>
</tr>
<tr>
<td>ICT strategies at the bank has improved profitability</td>
<td>4.4</td>
<td>11.1</td>
<td>17.8</td>
<td>42.2</td>
<td>24.4</td>
<td>3.71</td>
<td>1.100</td>
</tr>
<tr>
<td>Online systems offer provides the best storage for the institutions documents</td>
<td>2.2</td>
<td>4.4</td>
<td>6.7</td>
<td>26.7</td>
<td>60</td>
<td>4.38</td>
<td>.960</td>
</tr>
<tr>
<td>The Online systems has features that are easy to use.</td>
<td>4.4</td>
<td>2.2</td>
<td>35.6</td>
<td>33.3</td>
<td>24.4</td>
<td>3.71</td>
<td>1.014</td>
</tr>
<tr>
<td>Online systems has have contributed to efficiency at the firm</td>
<td>0</td>
<td>2.2</td>
<td>8.9</td>
<td>35.6</td>
<td>53.3</td>
<td>4.40</td>
<td>.751</td>
</tr>
<tr>
<td>The online systems has improved the institutions ranking the banking sector</td>
<td>0</td>
<td>17.8</td>
<td>13.3</td>
<td>57.8</td>
<td>11.1</td>
<td>3.62</td>
<td>.912</td>
</tr>
<tr>
<td>Enterprise system integration has contributed to a reduction in labor costs due to streamlined operations</td>
<td>2.2</td>
<td>8.9</td>
<td>22.2</td>
<td>35.6</td>
<td>31.1</td>
<td>3.84</td>
<td>1.043</td>
</tr>
</tbody>
</table>
Integrated systems reduce the orientation and training effort and enable specialized know-how of the application used

<table>
<thead>
<tr>
<th>Variable</th>
<th>System Adoption</th>
</tr>
</thead>
<tbody>
<tr>
<td>Financial Performance</td>
<td>Pearson Correlation</td>
</tr>
<tr>
<td></td>
<td>Sig. (2-Tailed)</td>
</tr>
<tr>
<td></td>
<td>N</td>
</tr>
</tbody>
</table>

**. Correlation is significant at the 0.01 Level (2-Tailed).

### 4.4.2 Correlation of Online Systems Adoption On Financial Performance

A Pearson correlation analysis was done to establish the relationship between the dependent variable (financial performance) against online system adoption and the result established a strong positive relationship ($r=0.573$, $p<0.01$), which was significant as indicated in table 4.8. Therefore, an increase in system services adoption lead to an increase in financial performance.

### Table 4.8: Correlation of Online Systems Services On Financial Performance

<table>
<thead>
<tr>
<th>Variable</th>
<th>System Adoption</th>
</tr>
</thead>
<tbody>
<tr>
<td>Financial Performance</td>
<td>Pearson Correlation</td>
</tr>
<tr>
<td></td>
<td>Sig. (2-Tailed)</td>
</tr>
<tr>
<td></td>
<td>N</td>
</tr>
</tbody>
</table>

**. Correlation is significant at the 0.01 Level (2-Tailed).

### 4.4.3 Regression of Online Systems Adoption On Financial Performance

The research analyzed relationship between online systems adoption and financial performance. The results showed that the $R^2$ value was 0.329 hence 32.9% of the variation in performance was explained by the variations in online systems adoption as illustrated in table 4.9

### Table 4.9: Model Summary of Online Systems Adoption On Financial Performance

<table>
<thead>
<tr>
<th>Model</th>
<th>R</th>
<th>R Square</th>
<th>Adjusted R Square</th>
<th>Std. Error of the Estimate</th>
<th>Change Statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>.573*</td>
<td>.329</td>
<td>.313</td>
<td>.38611</td>
<td>.329</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>21.056</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>43</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.000</td>
</tr>
</tbody>
</table>

* Predictors: (Constant), system Adoption

### 4.4.4 Anova of Online Systems Adoption On Financial Performance

ANOVA analysis result of the regression between online systems adoption on financial performance at 95% confidence level, the F critical was 21.056 and the P value was (0.000) therefore significant the results are illustrated below in table 4.10

### Table 4.10: Anova of Online Systems Adoption On Financial Performance

<table>
<thead>
<tr>
<th>ANOVAa</th>
<th>Model</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### 4.4.5 Coefficients of Online Systems Adoption On Financial Performance

The regression equation illustrated in Table 4.11 established that taking online systems adoption into account and other factors held constant financial performance improved by 2.270 units and both variables were significant.

\[ Y = \beta_0 + \beta_1 X_1 + \varepsilon \]

\[ Y = 2.270 + 0.521X_1 + 0.38611 \]

Where:

- Y is the dependent variable (financial performance)
- \( \beta_0 \) is the regression constant;
- \( \beta_1 \) coefficients of independent variables;
- \( X_1 \) online systems adoption and \( \varepsilon \) is the error term.

#### Table 4.11: Coefficients of Online Systems Services On Financial Performance

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>(Constant)</td>
<td>2.270</td>
<td>.461</td>
<td>4.920</td>
</tr>
<tr>
<td></td>
<td>system adoption</td>
<td>.521</td>
<td>.113</td>
<td>.573</td>
</tr>
</tbody>
</table>

a. Dependent Variable: financial performance  
b. Predictors: (Constant), system Adoption

### 4.5. Effects Of Online Systems Security On The Financial Performance

The third objective set to establish effects of online systems services security on the financial performance. Respondents were asked a set of questions to indicate to what extent they agree or disagreed with the statement. Using a five point Likert scale where 1 - Strongly Disagree 2 - Disagree 3 - Neutral 4 - Agree 5 - Strongly Agree
4.5.1 Descriptive of Online Systems Security On Financial Performance

SMS verification codes together with the normal PIN have increased customer retention (m=3.98, sd=.783). The findings also indicated that the Use of card readers codes together with the normal PIN has increased efficiency (m=4.71, sd=.506). The findings also revealed that radical programmers who steal mobile banking PINs and codes have affected profitability (m=4.33, sd=.798). Use of bank’s issued SIM CARDS to enhance security has improved performance (m=4.73, sd=.495).

The study also revealed that the use of firewall to block network access has saved cost (m=4.31, sd=.821). Trust of the website influences usage intentions (m=4.02, sd=.839). The findings also showed that there is refrain from using online services because of privacy concerns (m=4.49, sd=.661). It was also revealed that threat of internet banking fraud has become a great concern for the bank (m=4.29, sd=.661). It was also established that perceived web security is a significant determinant of banks acceptance of Online Systems (m=4.51, sd=.626).

Table 4.12: Descriptive of Online Systems Security On Financial Performance

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>SMS verification codes together with the normal PIN have increased customer retention</td>
<td>2.2</td>
<td>0</td>
<td>17.8</td>
<td>57.8</td>
<td>22.2</td>
<td>3.98</td>
<td>.783</td>
</tr>
<tr>
<td>Use of card readers codes together with the normal PIN has increased efficiency</td>
<td>0</td>
<td>0</td>
<td>2.2</td>
<td>24.4</td>
<td>73.3</td>
<td>4.71</td>
<td>.506</td>
</tr>
<tr>
<td>radical programmers who steal mobile banking PINs and codes have affected profitability</td>
<td>0</td>
<td>6.7</td>
<td>0</td>
<td>46.7</td>
<td>46.7</td>
<td>4.33</td>
<td>.798</td>
</tr>
<tr>
<td>Use of bank’s issued SIM CARDS to enhance security has improved performance</td>
<td>0</td>
<td>0</td>
<td>2.2</td>
<td>22.2</td>
<td>75.6</td>
<td>4.73</td>
<td>.495</td>
</tr>
<tr>
<td>Use of firewall to block network access has saved cost</td>
<td>0</td>
<td>4.4</td>
<td>8.9</td>
<td>37.8</td>
<td>48.9</td>
<td>4.31</td>
<td>.821</td>
</tr>
<tr>
<td>Trust of the website influences usage intentions</td>
<td>0</td>
<td>4.4</td>
<td>20</td>
<td>44.4</td>
<td>31.1</td>
<td>4.02</td>
<td>.839</td>
</tr>
<tr>
<td>There is refrain from using online services because of privacy concerns</td>
<td>0</td>
<td>2.2</td>
<td>2.2</td>
<td>40</td>
<td>55.6</td>
<td>4.49</td>
<td>.661</td>
</tr>
<tr>
<td>Threat of internet banking fraud has become a great concern for the bank.</td>
<td>0</td>
<td>2.2</td>
<td>4.4</td>
<td>55.6</td>
<td>37.8</td>
<td>4.29</td>
<td>.661</td>
</tr>
</tbody>
</table>
Perceived web security is a significant determinant of banks acceptance of Online Systems

<table>
<thead>
<tr>
<th>Variable</th>
<th>System Security</th>
</tr>
</thead>
<tbody>
<tr>
<td>Financial Performance</td>
<td>Pearson Correlation 0.589*</td>
</tr>
<tr>
<td></td>
<td>Sig. (2-Tailed) 0.000</td>
</tr>
<tr>
<td></td>
<td>N 45</td>
</tr>
</tbody>
</table>

**. Correlation is significant at the 0.01 Level (2-Tailed).

### 4.5.2 Correlation of Online Systems Security On Financial Performance

A Pearson correlation analysis was done to establish the relationship between the dependent variable (financial performance) against online system security and the result established a strong positive relationship (r=0.589, p<0.01), which was significant as indicated in table 4.13. Therefore, an increase in system services adoption lead to an increase in financial performance.

### Table 4.13: Correlation of Online Systems Services On Financial Performance

<table>
<thead>
<tr>
<th>Variable</th>
<th>System Security</th>
</tr>
</thead>
<tbody>
<tr>
<td>Financial Performance</td>
<td>Pearson Correlation 0.589*</td>
</tr>
<tr>
<td></td>
<td>Sig. (2-Tailed) 0.000</td>
</tr>
<tr>
<td></td>
<td>N 45</td>
</tr>
</tbody>
</table>

### 4.5.3 Regression of Online Systems Adoption On Financial Performance

The research analyzed relationship between online systems adoption and financial performance. The results showed that the R² value was 0.347 hence 34.7% of the variation in performance was explained by the variations in online systems security as illustrated in table 4.14

### Table 4.14: Model Summary of Online Systems Security on Financial Performance

<table>
<thead>
<tr>
<th>Model</th>
<th>R</th>
<th>R Square</th>
<th>Adjusted R Square</th>
<th>Std. Error of the Estimate</th>
<th>R Square Change</th>
<th>F Change</th>
<th>df1</th>
<th>df2</th>
<th>Sig. F Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>.589*</td>
<td>.347</td>
<td>.332</td>
<td>.38080</td>
<td>.347</td>
<td>22.854</td>
<td>1</td>
<td>43</td>
<td>.000</td>
</tr>
</tbody>
</table>

a. Predictors: (Constant), system Adoption

### 4.5.4 Anova of Online Systems Security on Financial Performance

ANOVA analysis result of the regression between online systems adoption on financial performance at 95% confidence level, the F critical was 22.854 and the P value was (0.000) therefore significant the results are illustrated below in table 4.15
Table 4.15: Anova of Online Systems Adoption On Financial Performance

<table>
<thead>
<tr>
<th>Model</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regression</td>
<td>3.314</td>
<td>1</td>
<td>3.314</td>
<td>22.854</td>
<td>.000^2</td>
</tr>
<tr>
<td>Residual</td>
<td>6.235</td>
<td>43</td>
<td>.145</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>9.549</td>
<td>44</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

a. Dependent Variable: financial performance  
b. Predictors: (Constant), system Security

4.4.5 Coefficients of Online Systems Security on Financial Performance

The regression equation illustrated in Table 4.16 established that taking online systems systems into account and other factors held constant financial performance improved by 1.483 units and both variables were significant.

\[ Y = \beta_0 + \beta_1 X_1 + \epsilon \]

\[ Y = 1.483 + 0.660X_1 + 0.38080 \]

Where:

- \( Y \) is the dependent variable (financial performance)
- \( \beta_0 \) is the regression constant;
- \( \beta_1 \) coefficients of independent variables;
- \( X_1 \) online systems system and \( \epsilon \) is the error term.

Table 4.16: Coefficients of Online Systems Security on Financial Performance

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>Std. Error</td>
<td>Beta</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>(Constant)</td>
<td>1.483</td>
<td>.607</td>
<td>2.446</td>
</tr>
<tr>
<td></td>
<td>system adoption</td>
<td>.660</td>
<td>.138</td>
<td>.589</td>
</tr>
</tbody>
</table>

a. Dependent Variable: financial performance  
b. Predictors: (Constant), system Security

4.6 Financial Performance

The analysis of the dependent variable was set to determine the factors affecting financial performance. Respondents were asked a set of questions to indicate to what extent they
agree or disagreed with the statement. Using a five point Likert scale where 1 - Strongly Disagree 2 - Disagree 3 - Neutral 4 - Agree 5 - Strongly Agree

4.6.1 Descriptive of Financial Performance
The findings revealed that adoption of ICT has led to an improvement in the liquidity of commercial banks (m=4.38, sd=.684). Adoption of ICT had contributed to the improvement of asset quality of commercial bank (m=4.36, sd=.645). It was also revealed that adoption of ICT is very important in the improvement of earnings of commercial banks (m=4.56, sd=.586). Commercial banks are adopting ICT to improve their operations (m=4.18, sd=.535). It was also revealed that financial innovations has led to improvement of the capital adequacy in the organization (m=4.20, sd=.842). ICT is very important in the improvement of capital adequacy of commercial banks (m=4.56, sd=.586).

Table 4.17: Descriptive of Financial Performance

<table>
<thead>
<tr>
<th>Variable</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adoption of ICT has led to an improvement in the liquidity of commercial banks?</td>
<td>0</td>
<td>2.2</td>
<td>4.4</td>
<td>46.7</td>
<td>46.7</td>
<td>4.38</td>
<td>.684</td>
</tr>
<tr>
<td>Adoption of ICT had contributed to the improvement of asset quality of commercial bank?</td>
<td>0</td>
<td>0</td>
<td>8.9</td>
<td>46.7</td>
<td>44.4</td>
<td>4.36</td>
<td>.645</td>
</tr>
<tr>
<td>Adoption of ICT is very important in the improvement of earnings of commercial banks?</td>
<td>0</td>
<td>0</td>
<td>4.4</td>
<td>35.6</td>
<td>60</td>
<td>4.56</td>
<td>.586</td>
</tr>
<tr>
<td>Commercial banks are adopting ICT to improve their operations</td>
<td>0</td>
<td>0</td>
<td>6.7</td>
<td>68.9</td>
<td>24.4</td>
<td>4.18</td>
<td>.535</td>
</tr>
<tr>
<td>Financial innovations has led to improvement of the capital adequacy in the organization</td>
<td>2.2</td>
<td>0</td>
<td>13.3</td>
<td>44.4</td>
<td>40</td>
<td>4.20</td>
<td>.842</td>
</tr>
<tr>
<td>ICT is very important in the improvement of capital adequacy of commercial banks</td>
<td>0</td>
<td>0</td>
<td>4.4</td>
<td>35.6</td>
<td>60</td>
<td>4.56</td>
<td>.586</td>
</tr>
</tbody>
</table>
4.6.2 Multiple Regression

The research analyzed the relationship between the dependent variable (financial performance) against other core factors. The results showed that the R^2 value was 0.441 hence 41.1% of the variation in bank financial performance was explained by the variations in system security, system adoption, system services as illustrated in Table 4.18.

**Table 4.18: Model Summary of Financial Performance against Other Core Factors**

<table>
<thead>
<tr>
<th>Model</th>
<th>R</th>
<th>R Square</th>
<th>Adjusted R Square</th>
<th>Std. Error of the Estimate</th>
<th>Change Statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>.664²</td>
<td>.441</td>
<td>.400</td>
<td>.36077</td>
<td></td>
</tr>
</tbody>
</table>

a. Predictors: (Constant), system security, system adoption, system services

4.6.3 ANOVA Analysis of Financial Performance against Other Core Factors

An ANOVA analysis was done between financial performance against other core factors at 95% confidence level, the F critical was 10.790 and the P value was (0.000) therefore significant the results are illustrated below in Table 4.19.

**Table 4.19: Anova of Financial Performance against Other Core Factors**

<table>
<thead>
<tr>
<th>Model</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Regression</td>
<td>4.213</td>
<td>3</td>
<td>1.404</td>
<td>10.790</td>
</tr>
<tr>
<td></td>
<td>Residual</td>
<td>5.336</td>
<td>41</td>
<td>.130</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>9.549</td>
<td>44</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

a. Dependent Variable: financial performance

b. Predictors: (Constant), system security, system adoption, system services

4.6.4 Coefficient of Financial Performance against Other Core Factors

The regression equation illustrated in Table 4.20 has established that taking all factors into account (system security, system adoption, system services) all other factors held constant bank performance increases by 0.960.

\[ Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \varepsilon \]

\[ Y = 0.960 + 0.089X_1 + 0.343X_2 + 0.375X_3 + 0.36077 \]

Where:

Y is the dependent variable (bank sector performance);

β₀ is the regression constant;
β1, β2, β3 and β4 are the coefficients of independent variables;  
X₁ is system services;  
X₂ is system adoption;  
X₃ is system security; and  
ε is the error term.

Table 4.20: Coefficient of Financial Performance against Other Core Factors

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>Std. Error</td>
<td>Beta</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>(Constant)</td>
<td>.960</td>
<td>.701</td>
<td>1.371</td>
</tr>
<tr>
<td></td>
<td>system services</td>
<td>.089</td>
<td>.211</td>
<td>.071</td>
</tr>
<tr>
<td></td>
<td>system adoption</td>
<td>.343</td>
<td>.132</td>
<td>.378</td>
</tr>
<tr>
<td></td>
<td>system security</td>
<td>.375</td>
<td>.221</td>
<td>.335</td>
</tr>
</tbody>
</table>

a. Dependent Variable: financial performance  
b. Predictors: (Constant), system security, system adoption, system services

4.7 Chapter Summary

This chapter has presented the results and findings. The first section provided an analysis of demographic data, the second section dealt with the system services, third section looked at the system adoption, the fourth section covered issues on system security and the last section illustrates financial performance. In chapter five this results are discussed and relevant conclusions and recommendations made with regard to bank performance in Kenya.
CHAPTER FIVE

5.0 DISCUSSION CONCLUSION AND RECOMMENDATION

5.1 Introduction

This section will seek to analyse the findings and this will be done by comparing and contrasting with previous literature related to bank performance. This will be organized based on the specific research questions which sought to establish how shareholding concentration, shareholding risk, financial determinants, shareholding structure affects bank performance.

5.2 Summary of the Study

The main purpose of this study is to analyze the effects of online systems on the financial performance of banks in Nairobi. This was guided by the specific research questions which were aimed at determining the effects of online systems services on the financial performance of banks in Nairobi, the effects of online systems adoption on the financial performance of banks in Nairobi, and the effects of online systems security on the financial performance of banks in Nairobi.

The study adopted descriptive research method of study. Descriptive research helped the researcher to answer the question of who, what, where, when or how much in determining the effects of online systems on the financial performance of banks in Nairobi. The study targets all 55 ICT and finance managers in all the 11 Commercial banks listed by the Central Bank of Kenya. The researcher employed purposive sampling in selecting two respondents in each sampled bank. Questionnaires were distributed to one senior ICT and finance in the selected banks.

Using the above formulae to calculate sample size, sample size used for data collection is 49 respondents from the 11 sampled banks. The questionnaires are administered through drop and pick method to reduce disruptions on the respondents’ routines. The questionnaires was structured based on a 5 Likert scale questions which is close ended to give the respondents limited and pre-determined responses to choose from. The data collected from the questionnaires is checked to ascertain completeness and accuracy. The questionnaires were coded according to each variable of the study to ensure the margin of error is minimized and assure accuracy during analysis. The coded data is then analyzed using quantitative and qualitative techniques.
Quantitative techniques to be used are descriptive statistics which consisted of the mean, frequency, percentages and standard deviations while Qualitative techniques to be used are content analysis using Statistical Package for Social Sciences (SPSS). Multiple regression analysis is applied to establish the relationship between the study variables to create a new single study variable.

A Pearson correlation analysis was done to establish the relationship between the dependent variable (financial performance) against online system service and the result established a weak positive relationship between the variables, which was significant. Therefore, an increase in variables of system services lead to an increase in financial performance. The research analyzed relationship between online systems services on financial performance. The results showed that the R² value was 0.145 hence 14.5% of the variation in performance was explained by the variations in online systems. ANOVA analysis result of the regression between online systems services on financial performance at 95% confidence level, the F critical was 7.305 and the P value was (0.010) therefore significant the results.

A Pearson correlation analysis was done to establish the relationship between the dependent variable (financial performance) against online system adoption and the result established a strong positive relationship (r=0.573, p<0.01), which was significant. Therefore, an increase in system services adoption lead to an increase in financial performance. The research analyzed relationship between online systems adoption and financial performance. The results showed that the R² value was 0.329 hence 32.9% of the variation in performance was explained by the variations in online systems adoption. ANOVA analysis result of the regression between online systems adoption on financial performance at 95% confidence level, the F critical was 21.056 and the P value was (0.000) therefore significant.

A Pearson correlation analysis was done to establish the relationship between the dependent variable (financial performance) against online system security and the result established a strong positive relationship (r=0.589, p<0.01), which was significant. Therefore, an increase in system services adoption lead to an increase in financial performance. The research analyzed relationship between online systems adoption and financial performance. The results showed that the R² value was 0.347 hence 34.7% of the variation in performance was explained by the variations in online systems security.
ANOVA analysis result of the regression between online systems adoption on financial performance at 95% confidence level, the F critical was 22.854 and the P value was (0.000) therefore significant.

5.3 Discussion

5.3.1 Effects of Online Systems Services on the Financial Performance

The results also show that bank encourages the use of Online Systems Services to support daily activities. Sullivan (2000) found that click and mortar banks in the 10th Federal Reserve District incurred somewhat higher operating expenses but offset these expenses with somewhat higher fee income. On average, this study found no systematic evidence that banks were either helped or harmed by offering the Internet delivery channel. Similar to the results of Furst et al., this study also found that de novo click and mortar banks performed significantly worse than de novo brick and mortar banks. Banks may evaluate their online banking performance using the approaches in online performance measurement. The previous literature on online banking performance evaluation mainly includes the following approaches, such as linear regression (e.g. logit model in Furst et al., 2000).

The finding also revealed that benefits of online system justify the amount of investment. Furst et al. (2000) found that banks in all size categories offering internet banking were generally more profitable and tended to rely less heavily on traditional banking activities in comparison to non-Internet banks. An exception to the superior performance of Internet banks was the de novo (new start-ups) Internet banks, which were less profitable and less efficient than non-Internet de novos. The authors concluded that Internet banking was too small a factor to have affected banks’ profitability (Ngugi, 2013).

It was also revealed that online system makes it easy to organize banking activities. 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.

The study revealed that online system has improved content delivery within departments. Cheruiyot (2010) did a study on impact of internet banking on financial performance of commercial banks in Kenya. He measured the internet variable using banking intensity as derived from a web feature data collected from bank websites. He measured performance using ROA and ROE variables. He observed from the multiple regression results that the profitability and offering of Internet banking does have a small significant association. This study seeks to measure performance using four variables, return on average equity, return on average assets, cost to income ratio and the overheads/profit before tax ratio.

It was revealed that online system has however simplified assessment of performance outcomes. In general, large-sized banks have the advantage of providing a larger menu of financial services to their customers, and hence mobilize more funds (Haron, Sudin 2004). High net interest margin and profitability tend to be associated with banks that hold a relatively high amount of capital, and with large overheads. Stronger management’s beliefs and strategic planning results in better financial performance. External factors are those factors that are considered to be beyond the control of the management of a bank. Among the widely discussed external variables are competition, regulation, market share, bank ownership and structure, monetary policy, and macroeconomic indicators including inflation, money supply, exchange rate and gross domestic product.

5.3.2 Effects of Online Systems Adoption on the Financial Performance

ICT strategies at the bank has improved profitability that banks have come a long way since the Middle Ages, when merchant banks first formed in Italy to allow commodity traders to use their excess capital to invest in foreign trade. Today's banks offer a range of other services, including credit cards, money management, bill paying and retirement planning. As a financial institution, a bank acts as an intermediary between depositors and borrowers (Heffernan, 2005).
Online systems offer provides the best storage for the institutions documents. E-Banking has also helped to reduce the institution’s paperwork and has proper documentation for their records as a whole. Banks have continued to leverage on robust ICT platforms rather than recruiting corresponding number of employees to serve the increasing number of customers hence reducing the payroll cost. This is well explained by the ratio of customer deposit accounts to employees that has increased from 60in 1996 to 474 customers in 2011 (CBK, 2011). It was also revealed that the online systems has features that are easy to use. Aduda and Kingoo (2012) argue that e-banking has produced changes in the structure of bank income. As a result of increased competition that has lowered margins in lending operations (the banks' traditional business), banks have diversified their sources of income and rely increasingly on income from fees services rather than interest rate spreads.

Majority also agreed that online systems has have contributed to efficiency at the firm. It is evident that banks and other financial institutions in developed and emerging markets are embracing e-banking. In Kenya, a recent survey indicates that there is steady increase in use of e-banking technologies such as automated teller machine (ATM), mobile and Internet banking, electronic funds transfer (EFT), direct bill payments and credit card (Gikandi & Bloor, 2010). According to CBK report, between 2002 and 2013, the number of ATMs and debit cards uses rose sharply.

The online systems has improved the institutions ranking the banking sector. The tremendous increase in number of people adopting M-banking has been attributed to ease of use and high number of mobile phone users. This is consistent with the theory of technology acceptance model and DeLone McLean model of information systems success as conceptualized in Kim, Mannino, and Nieszwietz (2009), Delone and McLean (2003) in relation to online payment systems.

Enterprise system integration has contributed to a reduction in labor costs due to streamlined operations. According to Sumra et al. (2011), e-banking is considered to have a substantial impact on banks performance since it has opened new horizons and scenarios for retail banking. The growth of e-banking has made institutions to automate repetitive tasks which may result into greater efficiency and effectiveness, better time usage and enhanced controls. This has helped the institutions to control their overheads and operating costs hence may become more profitable in the future.
5.3.3 Effects of Online Systems Security on the Financial Performance

SMS verification codes together with the normal PIN have increased customer retention. Privacy and security of information is an asset to an individual. According to Ezzi (2014), many applications require individuals to give personal information such as social security numbers, bank account numbers, account information like balances, and identifying transactions and thus people of from walks of life tend to be concerned for their privacy and security. With respect to the attitude toward and adoption of internet banking many experts has acknowledged consumers” concerns regarding security, privacy, and trust (Zanoon & Gharaibeh 2013; Nasri 2011; Zahid 2010). Changchit (2008) observed that in today”s digital age, internet users are concerned with many privacy issues as this digital age continue to affect a daily personal financial information. Saeednia and Abdollahi (2012) studied privacy and found that privacy directly and significantly influences trust as a mediator variable to promote affective commitment of the clients of online banking.

The findings also indicated that the Use of card readers codes together with the normal PIN has increased efficiency. A research study by Virk (2013) revealed that majority of customers considered that privacy had always been their major concern amidst news of fake websites asking for login details which makes a customer think twice before opting for Internet banking. The findings of Ramseook-Munhurrung and Naidoo (2011) reveal that reliability and security are perceived as the most important dimensions in internet banking transactions that influences satisfaction and behavioral intentions. The more people feel secure, the more they will adopt and use internet banking services.

Use of bank’s issued SIM CARDS to enhance security has improved performance. Nasri (2011) researched on factors influencing the adoption of internet banking in Tunisia and findings of the study reveal that internet banking usage is much persuaded by factors such as risk, convenience, security and also prior internet knowledge. Demographic factors show significant impact on the behavior to use internet banking. Banks should take some steps to upgrade their security, low risk and prior internet knowledge for making good marketing strategies. Further research by Safeena et al., (2011) on internet banking adoption in India revealed that perceived usefulness, perceived ease of use and perceived risk were the most important factors that influence the adoption of online banking and also help to make strategy formulation process. Findings from the research study suggested longitudinal study in the future which will help to identify the research model.
in different time periods and make comparisons and thus provide more views into the phenomenon of the adoption of online banking.

The study also revealed that the use of firewall to block network access has saved cost. Internet banking is a new concept in developing countries (Safeena et al., 2011 & Berndt et al., 2010). Trust comes from factors such as perceived privacy and security, and is a major factor in electronic channels that may influence consumers attitudes and intentions to adopt and use internet banking services (Ezzi, 2014). The findings also revealed that trust of the website influences usage intentions. Lack of trust has been identified as one of the hindrances to the adoption and use of internet banking (Kesharwani & Bisht 2012 & Farzianpour et al., 2014). This means that trust is needed more when customers process more sensitive personal information including financial information.

The findings also showed that there is refrain from using online services because of privacy concerns. According to Cobb (2007), attackers can use port scanners to ascertain entry points into a system and use various techniques to steal information. This type of software sends signals to a machine or router and records the Attackers can use port scanners to ascertain entry points into a system and use various techniques to steal information. This type of software sends signals to a machine or router and records the message the machine responds with to ascertain information and entry points.

5.4 Conclusion

5.4.1 Effects of Online Systems Services on the Financial Performance

The online systems services are aligned to the mission of the bank and therefore encourages the use of Online Systems Services to support daily activities. The benefits of Online system justify the amount of investment and therefore makes it very easy for the bank to organize its banking activities. Online system has improved content delivery within departments and therefore simplified assessment of performance outcomes by allowing employees to monitor their own progress and make them accountable for their own learning.

5.4.2 Effects of Online Systems Adoption on the Financial Performance

Employees the banking sector are in full support of the implementation of ICT strategies. This is by the mere fact that such ICT strategies at the bank have led to improved profitability. Among the benefits accrued from use of online systems includes the provision for the best storage for the institutions documents and its features are easy to
use and this has led to increased efficiency at the firm. The online systems have improved the institutions ranking the banking sector and use of enterprise system integration has also contributed to a reduction in labor costs due to streamlined operations as well as the reduction on the orientation and training effort and enable specialized know-how of the application used.

5.4.3 Effects of Online Systems Security on the Financial Performance
SMS verification codes together with the normal PIN have increased customer retention. Additional capability such as use of card readers codes together with the normal PIN has increased efficiency. Use of bank’s issued SIM CARDS to enhance security has improved performance and the use of firewall to block network access has enabled the bank to save on cost. Other issues that affect the users have been issues of trust of the website, this has a high influence on the usage intentions. Privacy concerns is still an issue to customers although threat of internet banking fraud has become a great concern and perceived web security is a significant determinant of banks acceptance of Online Systems.

5.5 Recommendations
5.5.1 Recommendation for Improvement

5.5.1.1 Effects of Online Systems Services on the Financial Performance
With online systems services aligned to the mission of the bank, institutions need to ensure that all employees work in synergy to ensure that the targets are met. Online system justify the amount of investment and therefore banks need to ensure that they fully utilize the online systems. Online system used should enable the banks improve content delivery within departments as well as supports additional peer learning among bankers to minimize training costs.

5.5.1.2 Effects of Online Systems Adoption on the Financial Performance
Employees should be encouraged to support the implementation of ICT strategies based on the accrued benefits. The banks also need to utilize online systems to provide the best storage for the institutions documents. Although online systems has features that are easy to use there should be held training and seminars to encourage the employees to take part in its usage. Banks should encourage more use of Enterprise system integration to reduce in labor costs due to streamlined operations.
5.5.1.3 Effects of Online Systems Security on the Financial Performance

Banks need to encourage the adoption of ICT in order to guarantee improvement in the liquidity of commercial banks as well as improvement of asset quality of commercial bank. This also need to be encouraged to ensure improvement of earnings of commercial banks and general operations. ICT should be considered very important especially for firms that need to improvement their capital adequacy.

5.5.2 Recommendation for Further Research

Further studies need to be done in all the 42 registered banks in the country in order to be able to generalize the findings. There is also a need to do a comparison of technology adoption among private and public banking institutions in the country.
REFERENCES


Ezzi, S. W (2014). A theoretical Model for Internet Banking: Beyond perceived usefulness and ease of use; Archives of Business Research, 2(2): pp. 31-46


Nel (2009)


APPENDICES

APPENDIX I: SAMPLE FRAME

Licensed Commercial Banks in Kenya

1. African Banking Corporation Limited
2. Bank of Africa Kenya Limited
3. Bank of Baroda (K) Limited
4. Bank of India
5. Barclays Bank of Kenya Limited
6. CFC Stanbic Bank Limited
7. Charterhouse Bank Limited
8. Chase Bank (K) Limited
10. Citibank N.A Kenya
11. Commercial Bank of Africa Limited
12. Consolidated Bank of Kenya Limited
13. Credit Bank Limited
15. Diamond Trust Bank Kenya Limited
16. Ecobank Kenya Limited
17. Spire Bank Ltd
18. Equity Bank Kenya Limited
19. Family Bank Limited
20. Fidelity Commercial Bank Limited
21. First Community Bank Limited
22. Guaranty Trust Bank (K) Ltd
23. Giro Commercial Bank Limited
24. Guardian Bank Limited
25. Gulf African Bank Limited
26. Habib Bank A.G Zurich
27. Habib Bank Limited
28. Imperial Bank Limited
29. I & M Bank Limited
30. Jamii Bora Bank Limited
31. KCB Bank Kenya Limited
32. Middle East Bank (K) Limited
33. National Bank of Kenya Limited
34. NIC Bank Limited
35. M-Oriental Bank Limited
36. Paramount Bank Limited
37. Prime Bank Limited
38. Sidian Bank Limited
39. Standard Chartered Bank Kenya Limited
40. Trans-National Bank Limited
41. UBA Kenya Bank Limited
42. Victoria Commercial Bank Limited (Source: Central bank of Kenya)
APPENDIX II: QUESTIONNAIRE

Please answer all questions

SECTION A: Background Information

1. Your gender:
   - Male
   - Female

2. You age bracket (Tick whichever appropriate)
   - Below 22
   - 22-29 years
   - 30-37 years
   - 38-46 Years
   - Over 46 years

3. What is your highest level of education? (Tick as applicable)
   - Primary Certificate
   - Secondary Certificate
   - Diploma/Certificate
   - Bachelors’ degree
   - Postgraduate degree
   
   If others, specify ……………………………………………………………………………

4. Working experience in the Organization
   - 0 – 5 years
   - 5– 10 years
   - Over 10 years
**SECTION B: Effects of Online Systems Services On The Financial Performance**

State by ticking the appropriate box, your level of agreement with the following statements on a scale of 1 to 5, Where 1= Strongly Disagree, 2= Disagree, 3= Neutral, 4= Agree and 5= Strongly Agree)

<p>| | | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>Online Systems Services are aligned to the mission of the university.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>The bank encourages the use of Online Systems Services to support daily activities</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>The benefits of Online system justify the amount of investment.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Online system makes it easy to organize banking activities.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Online system has improved content delivery within departments</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Online system supports additional peer learning among bankers</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Online system has simplified assessment of performance outcomes.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Assessment on Online system allows employees to monitor their own progress and make them accountable for their own learning</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
13. Do you think that there are other ways in which Online system influences the banks effectiveness?

________________________________________________________________________
________________________________________________________________________

SECTION C: Effects of Online Systems Adoption on the Financial Performance
State by ticking the appropriate box, your level of agreement with the following statements on a scale of 1 to 5, Where 1= Strongly Disagree, 2= Disagree, 3= Neutral, 4= Agree and 5= Strongly Agree)

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>14</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Employees of support the implementation of ICT strategies.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ICT strategies at the bank has improved profitability</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Online systems offer provides the best storage for the institutions documents</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>17</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The Online systems has features that are easy to use.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Online systems has have contributed to efficiency at the firm</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>19</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The online systems has improved the institutions ranking the banking sector</td>
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<td>Enterprise system integration has contributed to a reduction in labor costs due to streamlined operations</td>
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<td>21</td>
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<td>Integrated systems reduce the orientation and training effort and enable specialized know-how of the application used</td>
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22. Are there other ways in which Online Systems Adoption have improved the performance of the institution? Please give details

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63
SECTION D: Effects of Online Systems Security on the Financial Performance

State by ticking the appropriate box, your level of agreement with the following statements on a scale of 1 to 5, Where 1= Strongly Disagree, 2= Disagree, 3= Neutral, 4= Agree and 5= Strongly Agree)

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<tr>
<td>23</td>
<td>SMS verification codes together with the normal PIN have increased customer retention</td>
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<td>24</td>
<td>Use of card readers codes together with the normal PIN has increased efficiency</td>
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<td>25</td>
<td>Radical programmers who steal mobile banking PINs and codes have affected profitability</td>
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<td>26</td>
<td>Use of bank’s issued SIM CARDS to enhance security has improved performance</td>
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<td>27</td>
<td>Use of firewall to block network access has saved cost</td>
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<td>28</td>
<td>Trust of the website influences usage intentions</td>
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<td>29</td>
<td>There is refrain from using online services because of privacy concerns</td>
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<td>30</td>
<td>Threat of internet banking fraud has become a great concern for the bank.</td>
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<td>31</td>
<td>Perceived web security is a significant determinant of banks acceptance of Online Systems</td>
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32. Are there other ways in which Online Systems Security affect Financial Performance? Please give details

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**SECTION E: Financial Performance**

State by ticking the appropriate box, your level of agreement with the following statements on a scale of 1 to 5, Where 1= Strongly Disagree, 2= Disagree, 3= Neutral, 4= Agree and 5= Strongly Agree)

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<tr>
<td>33. Adoption of ICT has led to an improvement in the liquidity of commercial banks?</td>
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<td>34. Adoption of ICT had contributed to the improvement of asset quality of commercial bank?</td>
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<td>35. Adoption of ICT is very important in the improvement of earnings of commercial banks?</td>
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<td>36. Commercial banks are adopting ICT to improve their operations</td>
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<td>37. Financial innovations has led to improvement of the capital adequacy in the organization</td>
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<td>38. ICT is very important in the improvement of capital adequacy of commercial banks</td>
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