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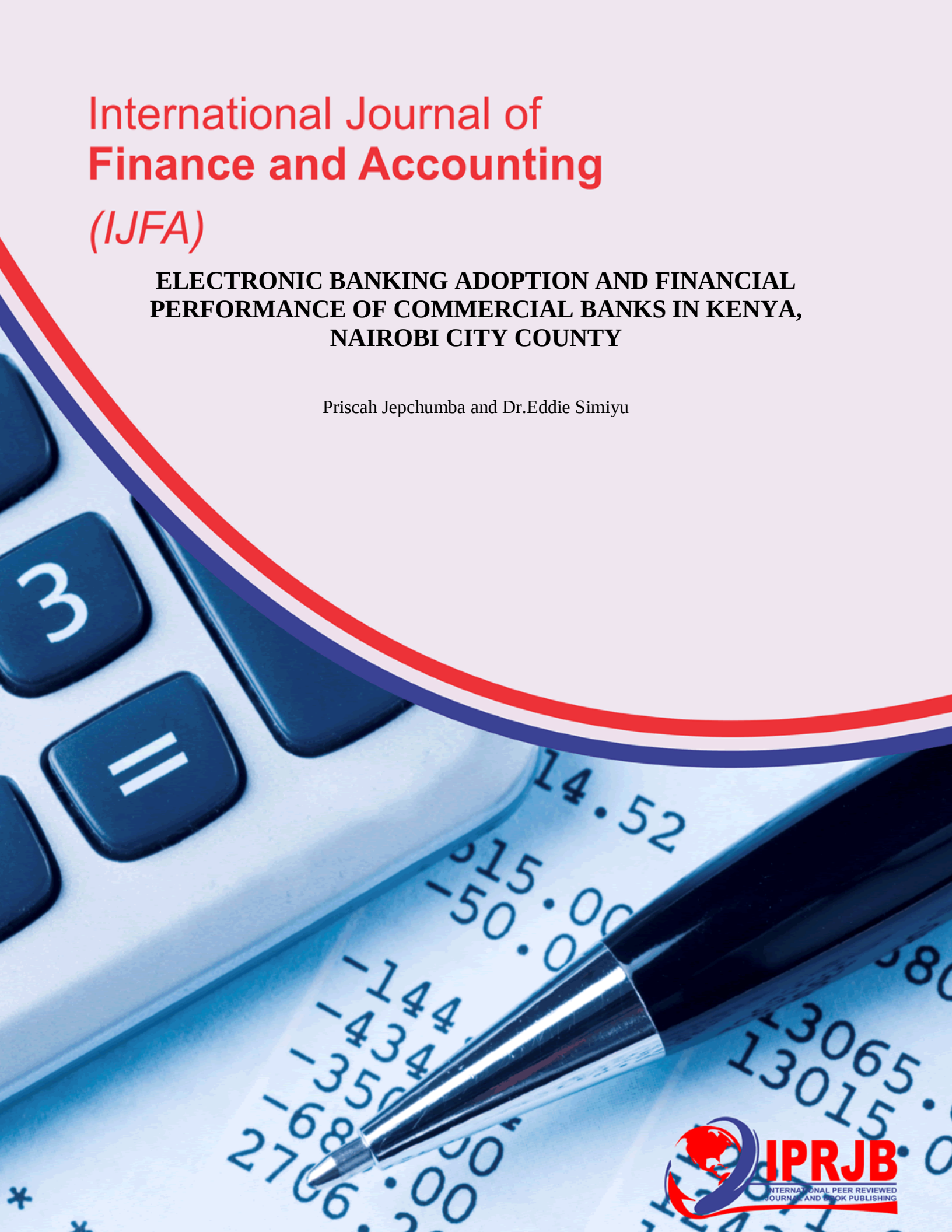
Priscah Jepchumba and Dr.Eddie Simiyu



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ELECTRONIC BANKING ADOPTION AND FINANCIAL PERFORMANCE OF COMMERCIAL BANKS IN KENYA, NAIROBI CITY COUNTY

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Abstract

Purpose: This research was done to establish how e- banking adoption has improved the financial performance of commercial banks in Kenya.

Methods: The study used descriptive research design and structured questionnaires to collect data.The target population was all the 41 commercial banks in Nairobi. The sampling design was census where general managers and credit managers were targeted in Nairobi headquarters. The source of data was primary and secondary data; Primary data was collected from source through questionnaires while secondary data was sourced from annual central bank reports, bank financial statements as well as periodical journals and reports.

Results: The findings of the study has indicated that most of the respondents had served the banking industry for a period of at least five years and education level of at least a college diploma. The study also rejected all the null hypotheses and concluded that electronic banking has positive effect on financial performance of commercial banks. The study has contributed to knowledge through provision of scholarly literature on electronic banking and financial performance of commercial banks in Kenya.

Unique Contribution to Theory, Practice and Policy: The study's recommendation to management is to implement strategies which: increase Speed in Electronic Services, increase investments in Electronic banking, promote training programs to employees and adopt suitable techniques to reduce threats to e-banking. The study's recommendation is that a similar research should be conducted with a moderating or mediating variable in the same industry.

Key Words: *E- Banking Adoption, Financial Performance, Commercial Banks*

1.0 INTRODUCTION

The banking sector enlisted enhanced performance in the end year of June 30th, 2016. During this period, assets expanded by 0.1 trillion in 2016 (from 3. 6 - KSh 3.7 trillion) same period in 2015 representing a percentage increase of 2.8 percent. Loans grew by 4.6 % to KSh 2.3 trillion in 2016 contrasted with KSh 2.2 trillion as at June 30, 2015.The deposits rose by KSh 53.4 billion or 2.3 % to KSh 2.62 trillion in 2016 against KSh 2.57 trillion reported in June 30, 2015. In terms of Profits, the sector reported an increase of 5.4 percent in profits before tax (Muturi & Arisa, 2015).

The banks recorded a growth in earnings from government securities held and on advances made, by 24.8 percent and 14.8 percent, respectively. Commercial banks' investment in government securities increased by 16.3 percent and lending rates rose from 15.8 percent in June 2015 to an average of 18.1 percent in June 2016. Similarly the Total income rose by 13.2% to KSh 256.2 b from KSh 226.3 b registered in 2015. Total expenses went up by 17.1% from KSh 149.4 billion in June 2015 to KSh 175.0 billion in June 2016. Interest was 61.1 percent of total income in the period ended June 2016. While interest on deposits, staff costs and other general expenses, was 35.3 percent, 23.4 percent and 20.6 percent of total expenses, in that order (CBK report, 2016). Electronic banking which includes use of ATMs has been cited as a key driver in the development witnessed in the banking industry (Muturi & Arisa, 2015).

Kenya has witnessed a rapid increase in Mobile banking, which is gradually overtaking the use of ATMs in the recent years. This turn of events has been due high penetration of mobile phone ownership (Anyango *et al.*, 2009). According to Michael zhang (2010), the emergence of internet and World Wide Web (www) in 1990s have made banks to gradually adopt the electronic banking systems in delivering their products to their consumers and in managing their businesses. Other platforms include: payment card, electronic wallet, self-service zone and mail banking. All these developments were necessitated by the need by banks to reduce both operational and administrative costs, improve on efficiency, customer base and satisfaction. Empirical evidence has shown that reduction in banking costs had served as a significant driver of delivering banking services (Yaklef, 2001). According to Muthini (2013) banks that have embraced electronic banking in Kenya have gone ahead to become the market leaders.

Financial Performance of Commercial Banks

It relates to the extent to which an organizations goals and objectives related to finance are being realized. Al-Hussein *et al (*2009) argues that it is an estimation of the results of a company's arrangements and operations in fiscal terms. It is used to measure company's general money related health over a given period of time and can be used as a comparative measure with other firms in similar Industry or to look at businesses or divisions in accumulation. Likewise, financial performance alludes to a subjective measure of how well a firm can utilize resources from its essential method of business and produce incomes. Additionally as indicated by Farlex Financial Dictionary (2012), financial performance implies use of scientific measures to assess how well an organization is utilizing its assets to generate various revenues.

A bank's financial performance can be analysed using key ratios as indicators which include Return on Equity (ROE) and Return on Assets (ROA). ROA is the ratio of net income divided by net assets and it measures how efficient is management in using its total assets or resources to

generate more income. While ROE is annual net income divided by average shareholders/ equity. This will help investors to gauge how their investments are generating income and both ratios are used in banking to measure corporate performance (Rasiah, 2010).

The benefits that banks derive from electronic banking products and services is improved efficiency and effectiveness of their operations, quality customer service and satisfaction as well as improvement on customer base. This leads to faster transaction processing and convenience whose impact on the overall performance of banks is quite significant. Previously a debate was raised on relationship between performance of commercial banks and e-banking but this phenomenon continues to receive very little attention (Ogare, 2013).

1.1 Banking Industry in Kenya

As indicated by 2016 CBK report, there are forty two commercial banks in Kenya. The sector also has 1 mortgage finance company, 8 agent workplaces of foreign banks**,** 12 microfinance banks, 79 foreign exchange bureaus**, 17** remittance providers and 3 credit reference bureaus. There has been a notable growth in Kenyan Banks in the last five years leading to expansion of banking businesses to neighbouring countries. The banking industry has also witnessed massive automation in delivery of services as it moves away from the traditional banking in its effort to supply the complex needs of their customers as well as place itself strategically to deal with the effects of globalization. According to central bank report (2016), there is an increase in use of national payment system. Real Time Gross Settlement systems (RTGS), Kenya electronic payment and settlement system (KEPSS) and east African payment system (EAPS) all recorded improved performance (CBK Report, 2016).

Competition has increased between both local and international banks. This has benefited both consumers and suppliers of the bank products with the consumers benefiting the most. The key challenges confronting the management of this sector in Kenya is high competition, loan cost topping by CBK, new constitution, worldwide emergency of preparation of stores and exchange diminishment and decrease in intrigue edges. The key challenges facing the banking industry in Kenya is high competition, interest rate capping by CBK, reduced trade and reducing interest margins (CBK legislation and guideline report, 2016).

1.2 Statement problem

According to CBK report of 2015, there was a decline in banking systems compared to 2014. In 2015 the combined market share of medium peer group banks fell from 41.7% to 32.4% in December 2015. The bottom five banks reported negative return on equity eating up into shareholders wealth while top performing banks reported increased profits thus adding up to the wealth of shareholders. This discrepancy in performance has not been investigated. (CBK report, 2015).In addition CBK, report (2016), shows a reduction on the use of ATM and an increase on the adoption of mobile banking and RTGS.

Banking tasks has been made easier, cheaper and efficient due to technological advancement but its investments are taking a large share of banks resources in terms of cost, system maintenance and skills required in operation hence the banks are faced with the problem of how to manage costs and risk associated with electronic banking (Davenport, 2003). As the commercial banks adopt e-banking there's still a debate on whether the adoption has improved financial performance of banks.

Previous studies paid little attention to performance of banks offering electronic banking services. Sullivan (2000), found that Internet banking didn't show any significant relationship with the performance as well as with operating risk. This implied that, Internet banking neither reduced nor enhanced risk profile. Also the study done by Muhamad *et al* (2016), on cashless banking shows that point of sale and mobile banking has a positive impact on ROE while ATM and call Centre banking have negative association with profitability. However these studies does not show any empirical relationship between banks' earnings and Internet banking. It is at the centre of such mixed conclusions that necessitated the need to carry out a research from a Kenyan context to establish the effect of E-Banking adoption on commercial banks performance**.**

Maiyo (2003), Aduda (2012) , Ogare (2013) and Njogu (2014) carried out studies related to electronic banking however their studies did not focus on cost of the system, risk management, speed and quality of electronic services and skills required in using electronic services. Also a moderating factor of CBK regulation was not factored in their study. This study sought to fill this gap by factoring in all these factors in order to determine the effect of electronic banking adoption on financial performance of commercial banks in Kenya.

2.0 LITERATURE REVIEW

2.1 Theoretical Foundation

2.1.1 Theory of Information Asymmetry

Information Asymmetry Theory was developed by Akelof, Spence and Stiglitz (1970). The theory assumes that there's an imbalance in the quantity and quality of information possessed by parties in a transaction, where one party has more. This theory examines decision making in business. It argues if a disparity in information between parties (buyers and sellers) in a transaction exist, then this information asymmetry can result to inefficiency in the market with a potential of market failure. In this study the theory can be used to explain the cost of electronic system /price of technology as well as the skills required for the operation of the system. The system provider provides maintenance services and train the staff on the operation of the system. Large banks has benefited greatly from adoption of technology but small banks struggle to meet the costs which proves to be too expensive in terms of maintenance and operation.

2.1.2 Financial Intermediation Theory

Gurley and Shaw developed the theory in 1960s and it states that intermediaries reduces transaction costs and information asymmetry. According to Alexandru (2009), the theory was explained by existence of high cost of transactions, lack of complete information at the right time and the method of regulation. Financial intermediation approach of this theory is what will anchor and provide guidance for this study (Benson & Smith, 1976; Fama, 1980). It was based on differences between the technologies used by participants.

The intermediary, is the bank which specialize in evaluation of risk, (Arnold, 2007). The investor who buys securities from the intermediary looks to the past performance of the intermediary as well as to concise summaries of the risk of those securities. This theory will explain financial services and risk management in this study. Before a customer invest in a security it has to assess the security level by comparing the risk level of different banks. This means a customer will opt to go for a less risky bank. The customers will shy away from non-performing banks.

2.1.3 Risk Management and Decision Theory

DCU (2015), defines risk as an event which has a probability of happening in the future and if it happens may prevent or delay the achievement of an organization's objectives. Risk management is concerned with making decisions to manage uncertainties and their consequences. Decision theory is concerned with evaluation of choices that people make (Steele, Katie & Stefansson, 2015).DCU risk and management officer comes up with risk management cycle where the first stage is that you confirm strategy, identify and assess risk, challenge and evaluate controls, take action and finally monitor and report. It also introduces risk assessment registers and tables to monitor the risk level and chances of occurrence. The theory assist risk management professionals in determining the acceptable level of risk within an organization and thus integrate decision theory in risk management. In my study this theory applies to risk management of e-banking. It can be used to determine the risk level and how it can be managed (Steele, Katie & Stefansson, 2015).

2.2 Empirical Review

Implementing electronic banking system has substantial initial financial implication to an organization. The firm must incur costs in setting up the system plus operational costs which are met either monthly or yearly. In the long run, the organization is expected to recover its costs by charging customers and continue making profits (Octavio *et al*, 2000). This means cost of operation is transferred to the customer. Previous studies done on the cost of M-banking with an exception of Kumar (2010) have failed to dentify the net effect of the cost on the income of commercial banks. However, Kumar's work still remains unclear on whether the cost of operating m-banking services increases or reduces the net income of commercial banks (Bonface & Jagongo, 2015)

Risk management is process through which a firm uses the information available to undertake a thorough analysis in order to identify potential threats to the firm and strategies therein to prevent these threats or reduce their impact to levels that are acceptable in case of occurrence (CISA Review Manual, 2006). Online transactions creates a security risks and an increased potential for fraud hence the use of credit cards like master card and VISA card for online retail transactions is risky because the web is an unsecured medium.

The benefit that resulted from adoption e-banking for financial institutions is improved customer service to customers. The use of internet technology in banking industry has helped the customers to access banking services anywhere. Paper base payment system are slow, labour intensive and costly to maintain hence the growth of electronic payment system (Kilonzo, 2007). Most researchers have indicated that in most cases customers overate the processing time of service. A Mobile banking service allows the customers to deposit or withdraw money directly from their bank accounts, they can apply for loans and pay bills using their phones. Several studies done on the speed and convenience of m-banking services have largely dwelled on the benefits to the customers with little said about the contribution towards financial performance of commercial banks leaving a gap (Ochuma, 2007). A study by Ngumi (2013) found that use of IT reduced expenditures incurred on payroll and added onto firm's profit. These findings were consistent with Nadia, Anthony and Scholnick (2003) who found that IT innovations increased firm's revenue and thus boosted firm's profitability.

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According to Kadzo and Kimani (2015), adoption of ICT in various spheres of the economy has proved to be very significant. ICT has made it possible for customers to easily access information for them to make informed decisions. This has served to increase competition among the firms and in each case it is the consumer who benefits (Kadzo and Kimani, 2015). Rapid uptake of electronic banking services like mobile phones usage in third world countries like Kenya has played a significant role in the success of many development interventions over the last decade (Crowe, 2013). One cannot operate a personal computer without the knowledge of computers. Banks too need technical officers and professionals to operate and control servers. All these staff need to be paid well hence affecting financial performance positively and negatively. A study need to be done to determine to what extend does this affect performance (Crowe, 2013).

2.2 Conceptual Framework

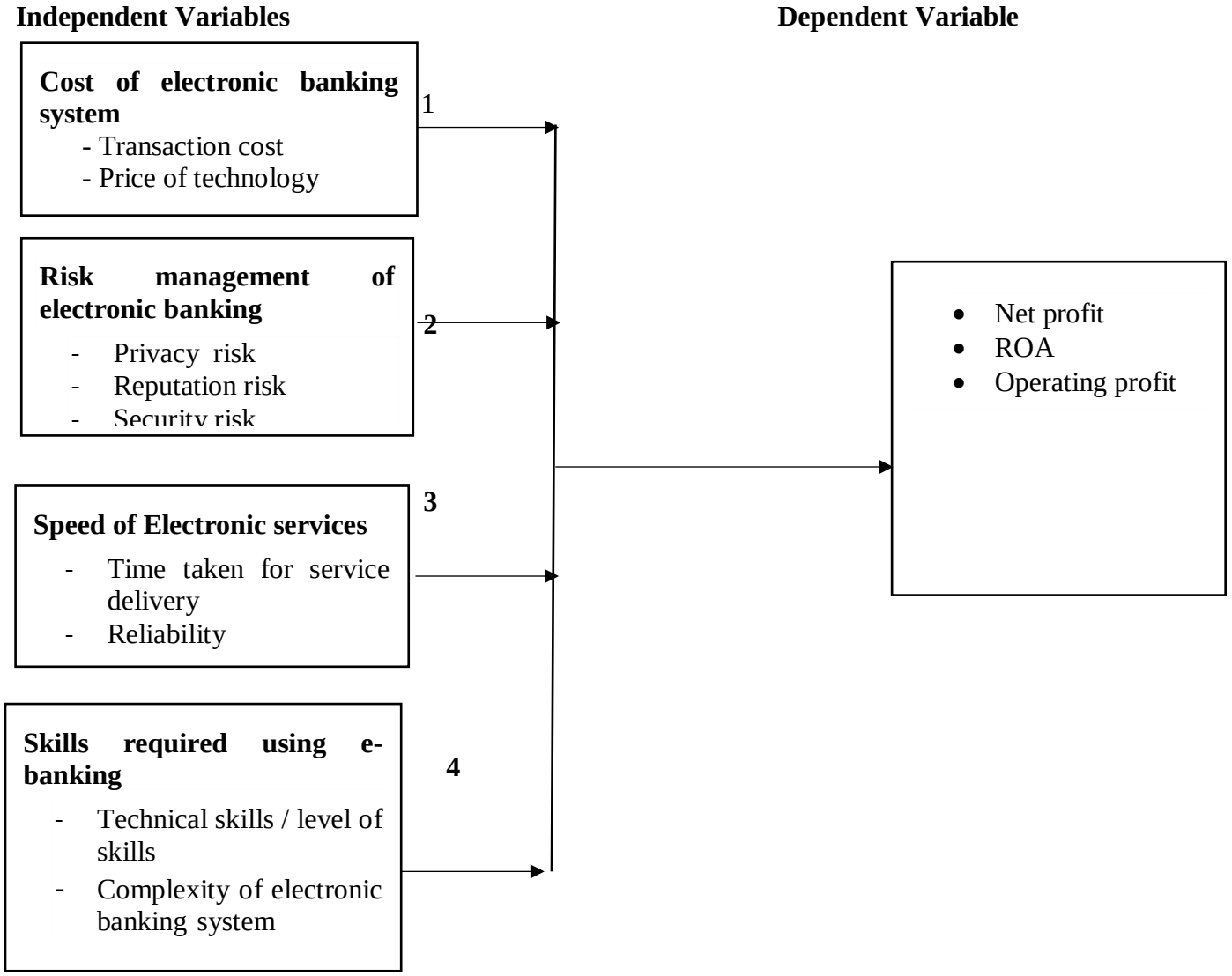

Figure 1: The Conceptual Framework

3.0 METHODOLOGY

This study adopted a descriptive research design. The target population was all the forty one commercial banks in Nairobi utilizing electronic banking. The study used census to select the respondents; this means the target population was equal to the sample size where the questionnaires were administered to forty one bank managers. The type of data collected was secondary and primary data. In this study, data analysis employed both descriptive and inferential methods. After data cleaning and coding, descriptive statistics of mean and standard deviation was used to summarize and describe data. Multiple regression analysis, under inferential statistics was used for hypothesis testing.

4.0 RESULTS

4.1 Demographics of Respondents

This section shows the demographic characteristics of respondents, based on gender, age and level of education.

4.1.1 Gender of Respondents

The study sought to determine the gender of respondents and find out the distribution of each gender in the managerial positions. The results are shown in the table below.

Table 1: Gender of Respondents

Gender		Frequency	Percent	Valid Percent
Valid	Male	15	57.7	57.7
	Female	11	42.3	42.3
	Total	**26**	**100.0**	**100.0**

Source: Researcher, 2018

Table 2 shows that about fifty eight percent of the respondents were male and forty two percent were female. This shows that neither gender occupies more than two thirds of the managerial positions in the banking industry in Kenya

4.1.2 Age of Respondents

The respondents were asked to indicate their age brackets and the results are as shown in the table below.

Table 2: Age of Respondents

	Age in Years	Frequency	Percent	Cumulative Percent
Valid	18-30	7	26.9	26.9
	31-40	15	57.7	84.6
	41-50	3	11.5	96.2
	Above 51	1	3.8	100.0
	Total	**26**	**100.0**	

Source: Researcher, 2018

Table 3 above shows that about twenty five percent of the bank managers were between eighteen and thirty years, about fifty percent were between thirty one and forty years and about eighty five percent were between eighteen and forty years.

4.1.3 Education Level of Respondents

The study determined the highest education level of the respondents which are shown in table 3 below.

Table 4: Education Level of Respondents

Highest Level of Education		Frequency	Percent	Cumulative Percent
Valid	Diploma	2	7.7	7.7
	Degree	16	61.5	69.2
	Post Graduate Degree	8	30.8	100.0
	Total	**26**	**100.0**	

Source: Researcher, 2018

Table 4 shows that about 7.7 percent of the respondents have diploma, sixty two percent had degree and thirty one percent had post graduate degree. About 93 percent of mangers of commercial banks have at least a bachelor's degree. This therefore indicates the banks are managed by competent personnel who understood the contents of the questionnaire and gave correct answerers.

4.1.4 Work Experience

The study determined the education level of the respondents and results are as shown in the table below.

Table 5: Work Experience

Experience in Years		Frequency	Percent	Cumulative Percent
Valid	1-5	10	38.5	38.5
	5-10	7	26.9	65.4
	10-15	4	15.4	80.8
	Above 15	5	19.2	100.0
	Total	**26**	**100.0**	

Source: Researcher, 2018

Table 5 shows that about 38.5% of the bank managers had work experience of between one and five years, 15.4% had work experience of between five and ten years and 19.2 had experience of above fifteen years. This therefore implies that the managers have adequate experience in the banking sector and were capable of providing valid information for this study.

4.2 Financial Performance of Commercial Banks

The responses were on the level of 1 to 5. The results are given in Table 6.

For Net Profit and Operating Profit:

1 – Less than 200 million; 2 – 200 million – 400 million; 3 – 401 million – 600 million; 4 – 601 million – 800 million; 5 – above 800 million

For Return on Assets:

1 = Negative; 2 = 0%; 3 = 1% - 5%; 4 = 6% - 10%; 5 = Above 10%

Table 6: Banks' Net Profit, Return on Assets and Operating Profit

Description	**Three Years Before Adoption of Electronic Banking System**			**Three Years after Adoption of Electronic Banking System**	
	N	Aggregate Mean Score	Std. Deviation	Mean	Std. Deviation
Net Profit	26	3.35	1.74	4.58	0.58
Operating Profit	26	3.08	1.26	4.27	1.08
Return on Assets	26	3.08	0.74	2.92	0.84

Source: Researcher, 2018

The findings in table 6 show that the aggregate mean score for net profit for the twenty six banks three years before and after adoption of electronic banking system is 3.35 and 4.58 with standard deviation of 1.74 and 0.58 respectively. This means that the average net profit for the twenty six banks three years before the adoption of electronic banking was between 401 million and 600 million. The findings further showed that the net profit for three years after they adopted electronic banking was above 800 million. These results indicates a positive effect of electronic banking on banks' net profit.

Same results were obtained for operating profits where operating profit for three years before adoption of electronic banking was between 401 million and 600 million. After adoption of electronic banking, the average operating profit was between 601 million and 800 million pointing to an increase in operating profit after adoption of electronic banking. The study further examined return on assets for the banks three years before and after electronic banking. The results in table 4.6 showed that the average return on assets for three years before electronic banking was between 1% and 5% and similar results were obtained three years after the banks adopted electronic banking.

These findings are consistent with early related studies, Muturi *et al.*, (2015) found that internet banking improved efficiency by reducing costs incurred in carrying out banking services. E-banking cut down the operational costs thus increasing company's profitability. A report by KPMG (1998) indicated a positive relationship between banks' financial performance and e-banking. This increase in performance was attributed to improved responsiveness, efficiency and effectiveness that came with internet banking (Lee and Lee, 2000). Similarly, a study by Maiyo (2003) on effects of electronic banking on financial performance showed that charges on debit cards, credit cards and transaction charges on mobile banking plus investments by commercial banks in electronic banking had no significant effect on return on assets.

4.3 Cost of E-Banking and Financial Performance of Commercial Banks

The responses were on the level of 1 to 5 based on agreement or disagreement on statements on Cost of E-Banking. The results are given in Table 7 below

1 = Strongly Agree; 2 = Agree; 3 = Neutral; 4 = Disagree; 5 = Strongly Disagree

Table 7: Cost of E-Banking and Financial Performance of Commercial Banks

Description	N	Mean	Std. Deviation
The system is cheaper in terms of maintenance than a fully operational office	26	2.00	0.98
Cost of investment in technology does not exceed the banks' earnings	26	1.65	0.89
It saves in terms of transaction cost	26	1.96	1.15
It saves on operation cost	26	1.65	0.69
Aggregate Score		**1.82**	**0.93**

Source: Researcher, 2018

Table 7 indicates that the aggregate mean is M = 1.82; SD = .93, meaning that the respondents agree that the cost of electronic banking is cheaper in terms of maintenance than a fully operational office. This is supported by a low standard deviation which indicates higher levels of agreement on the effect of E-Banking on financial performance of commercial banks. The respondents also agreed with a mean of 1.65 and Std. Deviation of 0.89 that Cost of investment in technology does not exceed the banks' earnings. The respondents further agreed that E-banking saves transactional and operational cost with a mean of 1.96 and 1.65 respectively. Similar findings were reported by Aduda and Kingoo (2012) and Ongare (2013); the studies focused on ATMS, debit and credit cards issued to customers and profit after tax of commercial banks. The findings indicated a strong and significant relationship between these factors and profitability. The studies also found that expenditure by commercial banks on electronic banking went down in the long run thus leaving more unspent revenue for the banks.

4.4 Risks associated with E-Banking and Financial Performance of Commercial Banks

The responses were sought on the Company's top risk. The results are given in Table 8 below

4.4.1 Company's Top Risk

Table 8: Company's Top Risk

Description	Frequency	Percent
Strategic Risk	6	23.1
Operational Risk	15	57.7
Legal Risk	1	3.8
Reputation Risk	4	15.4
Total	26	100.0

Source: Researcher, 2018

Table 8 above shows that more than half of the banks identified operational risk and the company's top risk. This was followed by strategic risk which was identified by a fifth of the respondents. Fifteen percent of the respondents pointed at reputation risk as their top most risk while only 3.8 percent identified legal risk to be the company's top most risk.

4.4.2 Severity of the Risk in case it occurs

The responses were sought on the level of 1 to 4 based on severity of the risk as either very severe, severe, neutral or not severe. The results are given in Table 9 below.

Table 9: Severity of the Risk in case it occurs

Description	Frequency	Percent	Cumulative Percent
Very Severe	11	42.3	42.3
Severe	7	26.9	69.2
Neutral	4	15.4	84.6
Not Severe	4	15.4	100.0
Total	**26**	**100.0**	

Source: Researcher, 2018

Table 9 shows that majority of the respondents ((42%) described their top most risk as very severe in case it occurs. About a quarter of the respondents described their top most risk as severe, fifteen percent as not severe and another fifteen percent were neutral.

4.4.3 Occurrence of Risk

Risk occurrence was assessed on two level; often or not often and the results are shown in table 10 below.

Table 10: Risk Occurrence

Description	Frequency	Percent
Often	6	23.1
Not Often	20	76.9
Total	**26**	**100.0**

Source: Researcher, 2018

Table 10 shows that three quarters of the respondents said the top most risk in their companies does not often occur while about a fifth said the top most risk often occur.

4.4.4 Risk Assessment

Risk assessment was assessed on two level; often or not often and the results are shown in table 11 below.

Table 11: Risk Assessment

Description	Frequency	Percent
Very Often	13	50.0
Often	13	50.0
Total	**26**	**100.0**

Source: Researcher, 2018

The findings in Table 11 above shows the management carried out risk assessment very often and in the other half, risk assessment is often carried.

4.4.5 Risk Management

The responses were on the level of 1 to 5. The results are given in Table 12 below. 1 = Strongly Agree; 2 = Agree; 3 = Neutral; 4 = Disagree; 5 = Strongly Disagree

Table 12: Risk Management

Description	N	Mean	Std. Deviation
The bank use transaction authorization methods that promote non-repudiation and establish accountability for e-banking transaction	26	1.500	0.707
The bank has a clear audit trails for all e-banking transaction	26	1.346	0.629
The bank has appropriate techniques to mitigate external threats to e-banking system i.e. virus scanning software, intrusion detection software and penetration testing of internal and external networks	26	1.423	0.504
The bank is effective in managing its risk	26	1.539	0.582
Aggregate Score		**1.452**	**0.605**

Source: Researcher, 2018

Table 12 shows that the aggregate mean; M = 1.45 and std. deviation 0.605 meaning the respondents agreed that their respective banks have established strategies for managing risks associated with E-banking. The respondents agreed with a mean score of 1.5 and std. Deviation of 0.707 that the banks use transaction authorization methods that promote non-repudiation and establish accountability for e-banking transaction. The respondents further strongly agreed with a mean of 1.34 and std. deviation 0.629 that the banks have a clear audit trails for all e-banking transaction. The respondents also strongly agreed with a mean score of 1.423 and std. deviation of 0.504 that the bank has appropriate techniques to mitigate external threats to e-banking system i.e. virus scanning software, intrusion detection software and penetration testing of internal and external networks.

4.5 Speed of Electronic Services Financial Performance of Commercial Banks

The responses were on the level of 1 to 5: 1 = Strongly Agree; 2 = Agree; 3 = Neutral; 4 = Disagree; 5 = Strongly Disagree. The results are given in Table 13 below.

Table 13: Speed of Electronic Services and Financial Performance

Description	N	Mean	Std. Deviation
Online banking provides more reach and frequency than traditional banking	26	1.423	0.703
E-banking failure will result to losses	26	2.077	1.164
Electronic banking saves on time	26	1.346	0.485
Aggregate score		**1.615**	**0.784**

Source: Researcher, 2018

Table 13 above shows that the aggregate mean score is 1.615 and SD is 0.784 implying that the respondents strongly agreed that E-banking failure will result to losses, this is supported by a low SD indicating that the responses were closely related. The respondents also agreed with a mean of 1.4 and SD of 0.703 that online banking provides more reach and frequency than traditional banking. The respondents further agreed with a mean of 1.346 and SD of 0.485 that electronic banking saves on time.

4.6 Technical Skills in Electronic Banking and Performance of Commercial Banks

The responses were on the level of 1 to 5: 1 = Strongly Agree; 2 = Agree; 3 = Neutral; 4 = Disagree; 5 = Strongly Disagree. The results are given in Table 14 below.

Table 14: Technical Skills in E-Banking and Performance of Commercial Banks

Description	N	Mean	Std. Deviation
The bank provides training Programme to employees so that they promote more online banking	26	1.539	0.508
Electronic system is complex	26	3.154	1.255
Aggregate Score		**2.346**	**0.882**

Source: Researcher, 2018

Table 15 above shows that the aggregate mean score is 2.346 and SD is 0.882 implying that the respondents strongly agreed that the banks provides training Programmes aimed at equipping employees with the needed skills in order to promote online banking

The study also sought the respondents' views on the complexity of the electronic banking system. The results in table 15 show that the mean score was 3.154 and SD was 1.255 implying that the respondents were neutral regarding electronic banking systems complexity.

4.6 Regression Analysis

Regression analysis was used to test all the hypotheses. However, before the test was carried out, diagnostic tests (multicolliniarity and linearity) were conducted to confirm whether the data fitted the model. The findings are shown below.

4.6.1 Linearity Test

Pearson's Correlation Coefficient was used to test for linearity between performance and speed of electronic services, investment cost, skills required and risk management. The results are shown in table below.

Table 16: Linearity Test

		Performance
Speed of Electronic Services	Pearson Correlation	0.310
	Sig. (2-tailed)	.000
	N	26
Investment Cost	Pearson Correlation	0.213
	Sig. (2-tailed)	.000
	N	26
Skills Required	Pearson Correlation	0.271
	Sig. (2-tailed)	.000
	N	26
Risk Management	Pearson Correlation	0.202
	Sig. (2-tailed)	.000
	N	26

The table above shows that there is a significant positive linear relationship between performance and speed of electronic services, investment cost, skills required and risk management.at 5%. The results indicates that there is co-movement in the variables and in the same direction.

4.6.2 Multicollinearity Test

Variation Inflation Factor (VIF) was used to test for multicollinearity and the results presented in table below

Table 1: Multicollinearity Test Results

Variable	**Multicollinearity Mean VIF**
Speed of Electronic Services	1.46
Investment Cost	1.73
Skills Required	1.62
Risk Management	1.39

The Speed of Electronic Services mean VIF for the regression is 1.46, Investment Cost mean VIF is 1.73, and Skills required mean VIF 1.63, while Risk Management mean VIF is 1.39 which is less than 2. This means that the level of multicollinearity can be tolerated and does not have influence on the validity of the results.

Table 18: Regression Results

SUMMARY UTPUT

Regression Statistics	
Multiple R	0.856
R Square	0.734
Adjusted R Square	0.683
Standard Error	0.502
Observations	26

ANOVA

	df	SS	MS	F	Significance F
Regression	4	14.558	3.639	14.451	0.000
Residual	21	5.289	0.252		
Total	25	19.847			

	Coefficients	Standard Error	t Stat	P-Value	Lower 95%
Intercept	-0.069	0.562	0.124	0.903	-1.237
Speed of Electronic Services	0.465	0.141	3.300	0.003	0.172
Investment Cost	0.261	0.177	1.477	0.015	-0.107
Skills Required	0.134	0.155	0.860	0.039	-0.189
Risk Management	0.121	0.152	0.796	0.043	-0.195

Table 18 shows that the adjusted R-squared is 68 percent, which means that independent variables jointly explain approximately 68 percent of variations in the dependent variable, the rest are explained by other variables not incorporated in the model. This means that the model can be reliable in testing the influence of E-banking on financial performance. The F statistic is 15, with a P-value of 0.000, which implies that the independent variables are jointly significant in explaining variations in commercial banks' performance.

4.10 Testing of Hypotheses

H_{01} There is no effect of speed in terms of time taken for service delivery and reliability on financial performance of commercial banks

Speed of Electronic Services coefficient is positive and significant at 0.465 and P value = 0.003 < 0.05. At five percent level of significance, the study rejected the null hypothesis. The regression results further indicated that increase of Speed of Electronic Services by one unit would have a corresponding increase in financial performance of commercial banks by 0.465 unit. This implies that online banking provides more reach and frequency than traditional banking, electronic banking saves on time and E-banking failure will result into banks incurring losses. These findings are consistent with (Kilonzo, 2007) that e-banking improved customer service to existing customers.

H_{02} There is no relationship between investment cost in e-banking adoption and financial performance of commercial banks

Results in table 4.15 above shows that Investment Cost coefficient is positive and significant at 0.261 and P value = 0.015 < 0.05 therefore at five percent level of significance, the study rejected the null hypothesis. The regression results also indicated that increase in investment in Electronic banking Services by one unit would have a corresponding increase in financial performance of commercial banks by 0.261unit. This implies that an efficient e-banking system is cheaper in terms of maintenance than a fully operational office, the cost of investment in technology does not exceed the banks' earnings, e-banking saves in terms of transaction cost and operation cost. These findings are in line with Bonface and Jagongo (2015) and Aduda and Kingoo (2012) that increase investment in m-banking services raises the net income of commercial banks (Bonface and Jagongo, 2015).

H_{03} There is no effect of skills required in terms of technical skills needed and complexity of the system on financial performance of commercial banks

The skills coefficient is positive and significant at 0.134 and P value = 0.039 < 0.05, then at five percent level of significance, the null hypothesis is rejected. This means an increase in skills required in terms of technical skills needed and complexity of the system by one unit would have a corresponding increase in financial performance of commercial banks by 0.134 unit. This implies that provision of training programs to employees on electronic banking will add to the performance of the bank. Training further simplify electronic system to the employees which in case of any complexity and this is in turn transmitted to improved customer service and satisfaction. A study by Kyte (2013) also noted e-banking has aspects of advanced technological skills necessary to get more opportunities through accessibility of information, making cash payments and job creations through mobile banking services. The study concluded that it is important to improve the skills in order to tap fully from the electronic banking services availability in the market.

H_{04} There is no relationship between managing risk associated with e-banking and financial performance of commercial banks.

Risk Management coefficient is positive and significant at 0.121 and P value = 0.043< 0.05 thus at five percent significance level, the study rejected the null hypothesis. The regression results further indicates that an increase in risk management by 1 unit would have a corresponding increase in financial performance of commercial banks by 0.121 unit. This implies that when banks use transaction authorization methods that promote non-repudiation and establish accountability for e-banking transaction, a clear audit trails for all e-banking transaction, appropriate techniques to mitigate external threats to e-banking system will result to improved financial performance. Joaquin (2009) noted that online transactions create security risks and an increased potential for fraud. The study found security risk to be associated with loss of personal data, money and errors in transactions while privacy risk is associated with violations of customers' private rights such as dissemination of customers' information to third parties without their consent. Similarly Luis (2007) recommendation is that, banks should incorporate security measures such as encryption and verification in the security features of e-banking sites in order to secure customers.

5.0 SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Summary

The first objective was to determine the effect of speed in terms of time taken for service delivery and reliability on financial performance of commercial banks. The null hypothesis for this objective was rejected with an implication that an increase in Speed of Electronic Services by one unit would have a corresponding increase in financial performance of commercial banks by 0.465 unit. Online banking provides more reach and frequency than traditional banking, electronic banking saves on time and E-banking failure will result into banks incurring losses.

The second objective was to establish the effect of cost of investing in e-banking adoption on financial performance of commercial banks as explained in terms of transaction cost and cost of technology. The null hypothesis was rejected based on the fact that an increase in investment in Electronic banking Services by one unit would have a corresponding increase in financial performance of commercial banks by 0.261 unit. This implies that an efficient e-banking system is cheaper in terms of maintenance than a fully operational office, the cost of investment in technology does not exceed the banks' earnings, e-banking saves in terms of transaction cost and operation cost.

The third objective was to determine the effect of skills required in terms of technical skills needed and complexity of the system on financial performance of commercial banks. The null hypothesis was rejected based on the fact that an increase in skills required in terms of technical skills needed and complexity of the system by one unit would have a corresponding increase in financial performance of commercial banks by 0.134 unit. This implies that provision of training programs to employees on electronic banking will add to the performance of the bank. Training further simplify electronic system to the employees which in case of any complexity and this is in turn transmitted to improved customer service and satisfaction.

The fourth objective sought to determine the effect of risk in terms of privacy risk, reputation risk and security risk on financial performance of commercial banks. The results of a multiple linear regression showed Risk Management with a positive and significant coefficient at 0.121 and P value = 0.043< 0.05 thus at 5% significance level, the study rejected the null hypothesis. An increase in risk management by one unit would have a corresponding increase in financial performance of commercial banks by 0.121 unit. This implies that when banks use transaction authorization methods that promote non-repudiation and establish accountability for e-banking transaction, a clear audit trails for all e-banking transaction, appropriate techniques to mitigate external threats to e-banking system will result to improved financial performance.

5.2 Conclusion

Commercial banks play a great role in economic growth and development of every country. To maximize their performance, they drive on innovations aimed at enhancing efficiency and effectiveness in service delivery. In this study, the researcher examined how electronic banking adoption affects financial performance of commercial banks in Nairobi County and the following conclusions were made.

Speed in terms of time taken for service delivery and reliability was found to be statistically significant in influencing financial performance of commercial banks. Therefore, bank managers

should look for ways that increase Speed in Electronic Services that are consistent and stable since results showed that e-banking saves on time and its failure would result into banks incurring losses.

The findings showed that investing in e-banking was statistically significant in influencing financial performance of commercial banks as explained in terms of transaction cost and cost of technology. The study therefore concludes that increasing investments in Electronic banking Services would have a corresponding increase in financial performance of commercial banks. An efficient e-banking system is cheaper in terms of maintenance than a fully operational office, the cost of investment in technology does not exceed the banks' earnings, e-banking saves in terms of transaction cost and operation cost.

Training programs for new and innovative e-banking skills was found to have a statistically significant effect on financial performance of commercial banks. The study then concludes that provision of training programs to employees on electronic banking will add to the performance of the bank.

Risk Management had a positive and significant effect on financial performance of commercial banks. Commercial banks should use transaction authorization methods that promote non-repudiation and establish accountability for e-banking transaction, a clear audit trails for all e-banking transaction, appropriate techniques to mitigate external threats to

E-banking system will result to improved financial performance.

5.3 Recommendations

From the findings, the study makes the following recommendations for policy and practice:

First, the findings indicated that speed in terms of time taken for service delivery and reliability had a significant influence on financial performance of commercial banks. The study therefore recommends that managers of commercial banks should look for ways that increase Speed in Electronic Services that are consistent and stable since results showed that e-banking saves on time and its failure would result into banks incurring losses. Secondly; the study findings showed that investing in e-banking promoted financial performance of commercial banks as explained in terms of transaction cost and cost of technology. The study therefore recommends that managers of commercial banks should increase investments in Electronic banking Services since an efficient e-banking system is cheaper in terms of maintenance than a fully operational office

Thirdly; the study found that employee training on digital banking improved performance of commercial banks. The study therefore recommends that the bank management should provide training programs to their employees for them to gain more skills on e-banking. Fourthly; the study found that managing risks associated with e-banking had a positive effect on the banks financial performance. The study therefore recommends that Commercial banks should use transaction authorization methods that promote non-repudiation and establish accountability for e-banking transaction, a clear audit trails for all e-banking transaction, appropriate techniques to mitigate external threats to e-banking system will result to improved financial performance.

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