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EFFECT OF FINANCIAL INSTITUTION INNOVATION ON FINANCIAL PERFORMANCE IN COMMERCIAL BANKS IN KENYA

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ABSTRACT

*The main objective of this study was to establish the effect of financial institution innovation on financial performance of commercial banks in Kenya. The specific objectives were: To determine the effect of agency banking, internet banking, mobile banking and branch network on the financial performance of commercial banks in Kenya. Descriptive survey was used while a questionnaire was used for the collection of primary data. Secondary data was used in verification of the communicative and pragmatic validity of primary data. The target study unit for this research was 38 randomly selected commercial bank senior management staff. Statistical analysis was carried out with the aid of the IBM SPSS Statistics for Windows, version 23. Study findings when all the stated hypotheses were tested in the regression model, were found to be significant between themselves and with financial performance of commercial banks in Kenya. The strongest relationship was observed between mobile banking and financial institution innovation (r = 0.757**). The study concluded that mobile banking positively and significantly influences the firm financial performance of commercial banks in Kenya. Internet banking also had significant impact on financial performance of commercial banks (r=0.709). Branch network, however, had logical and explainable sign but was not statistically significant (r =0.317**). The significance value of 0.000 meant that the study variables agency banking, internet banking, mobile banking and branch network if regressed together had a positive influence on financial performance of commercial banks in Kenya. The study recommended that the banking institutions should open up more branch network which will ensure services accessibility by customers and resulting in improved financial performance.*

Key Words: Agency Banking, Internet Banking, Mobile Banking, Branch Network

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INTRODUCTION

The retail marketplace is witnessing a monumental change in consumer buyer behaviors, as hundreds of millions of people now prefer to sit at home and do almost all their daily activities on the mobile phones or computers through the internet. Firms like Amazon, Apple, and E-bay among others, are building or transforming their business models to generate sales, improve loyalty and generate additional revenue. Consequently, the commercial banks have joined the bandwagon by offering flexibility with greater focus on improving performance by introducing mobile banking (Karimi and Kyalo, 2021).

The financial innovation plays an essential role in economic growth through supporting the financial presence, easing the financial operations in international trade, and improving financial proficiency (Nazir,Tan,Nazir,2020).Blach (2020) argued that financial system is highly innovative, with the continuous creation and implementation of new instruments, processes, and financial mechanisms. Financial innovation is a process, carried out by any institution, that involves the creation, promotion and adoption of new (including both incremental and radical) products, platforms, and processes or an enabler of technologies that introduce new ways or changes to the way a financial activity is carried out. (Khraisha and Arthur,2018)

According to Ravinder and Anitha (2013), financial performance is defined as the degree to which financial goals are or have been achieved. It is a method of calculating the effects of monetary policies and activities of a company. It is used to calculate the total financial well-being of the company over a given period of time and can also be used to compare comparable firms in the same sector or to compare sectors or aggregations.

CBK, Banking Survey (2020) highlighted that Kenya banking sector is renowned for its uptake of technology to meet customer expectations for "anytime anywhere" financial services, and to drive efficiency gains. While institutions have been successful in leveraging technology to achieve their objectives, primarily as a cost reduction strategy, there is a change in focus towards an alternative strategic coin, where technology is no longer perceived as a cost saver but as a revenue generator. Furthermore, with the onset of the coronavirus pandemic (COVID-19) in 2020 and the resultant disruptions to the lives and livelihoods of individuals in the economy, and the impact to businesses, including banks, it is evident that innovation will be a critical point in adapting to the new "business as usual". (CBK, 2020).

Mathenge (2020) findings showed that E-banking has a positive relationship with financial performance of commercial banks. However, the relationship between mobile transactions and financial performance was negative. This can be attributed to the low penetration of mobile banking by banks compared to service providers like Safaricom.

Relatively all institutions noted a positive impact of the Kenya Banking Sector Charter (KBSC) on their business strategy focus on innovation. The Charter, which focuses on customer centricity among other key pillars, has prompted institutions to innovate products that consider the customer first. • Application Programming Interfaces (APIs), Big Data and Data Analytics, and Cloud Computing continue to be the major innovations whose developments are considered important by financial institutions.(Central Bank Of Kenya Banking Sector Innovation Survey 2020)

Kenya has become the epicentre of branchless banking financial innovations in the last decade, effectively attracting global research interest (Chipeta and Muthinja,2018).In Kenya, the successful use of information technology [IT] has contributed to greater use of employees and organization's assets, improved sales and expanded access to financial services by the general public (Mwania & Muganda, 2011). Ndung'u (2011) agrees that in just four years (2007-2011) of the existence of mobile phone money transfer services in Kenya, four mobile phone operators have 15.4 million

customers and more than 39,449 agents in place. Branchless banking, the use of alternate distribution platforms such as cell phone banking and agent banking, is becoming increasingly common with commercial banks in Kenya and other developing countries (Gichungu & Oloko, 2015).

On 30 June 2020, the Kenyan banking sector consisted of 42 commercial banks, 1 mortgage finance agency, 6 deposit-taking microfinance institutions, 2 credit comparison offices, 3 representative offices and 124 foreign exchange offices (CBK, 2011). The financial sector in Kenya has experienced enormous improvements over the last two decades (1990-2010). For example, Misati, Njoroge, Kamau and Ouma (2017) document that financial goods have increased, that operations and operational structures have also improved and that the overall performance of the financial sector has increased (CBK, 2011).

According to the 2011-2012 Global Competitiveness Index (GCI) survey, Kenya ranked 102 out of the 142 countries with an overall ranking of 3.8 out of a maximum of 7 making Kenya among the top 50 in terms of global competitiveness. Kenya's creative potential is ranked 52nd, with strong corporate investment on research and development (R&D) and a successful basic research institution collaborating well with the business sector in research activities. The economy is also driven by capital markets well-developed by international standards (26th position) showing the capacity for development of the Kenyan banking industry and a reasonably healthy labor market (37th position) (WEF, 2011).

Statement of the Problem

Despite the obvious value of financial innovation in describing banking performance, the effect of innovation on performance is still confused for two major reasons: first, lack of awareness of the generators of innovation; and second, the influence of innovation on bank performance remains untested (Mabrouk & Mamoghli, 2017). A research by De Young *et al*. (2017) adopts an approach to innovation performance relations that does not take into consideration the antecedents of innovation inside and outside banking institutions, both of which may affect this relationship. It is at the core of such mixed results that it has generated and necessitated the need to carry out an analysis from the Kenyan perspective in order to determine the influence of bank developments on the efficiency of commercial banks. On the basis of these studies and the varying gaps in literature, similar studies need to be conducted in Africa and more so in Kenya where bank innovations have been on the rise in the past decade.

Previous studies such as Franscesa and Claeys (2017), Batiz-Lazo and Woldesenbet (2016) and Mwania and Muganda (2018) have provided mixed findings on the effect of financial innovations on bank performance. In their report, Franscesa and Claeys (2017) concluded that financial innovation had the least impact on bank performance, while Batiz-Lazo and Woldesenbet (2016) and Mwania and Muganda (2018) concluded that financial innovation had a substantial contribution on bank results.

Mathenge (2020) noted that banking industry has experienced notable transformation especially through technology and innovation. Most banks have adopted E-banking services which have been convenient to customers in accessing financial services. It is from this influence that this study seeks to determine the effects of electronic banking on the financial performance of commercial banks. Financial innovation has continued dominate the Kenyan financial space. However, despite the continued adoption and implementation of financial innovation by various banking institutions in Kenya, evidence showing how financial innovation in banking influences financial performance of these banks remains limited. In order to invest in financial institution innovation, commercial banks need to know how it influences financial performance and how banks can take advantage of these accruing benefits. This research, therefore, aimed to bridge the existing gap by establishing the financial institution innovation banking effect on the

financial performance of commercial banks in Kenya.

Objectives of the Study

The study examined the effect of financial institution innovation on financial performance in commercial banks in Kenya. The specific objectives were;

- To determine the effect of agency banking on the financial performance in commercial banks in Kenya.
- To ascertain the effect of internet banking on the financial performance in commercial banks in Kenya.
- To assess the effect of mobile banking on the financial performance in commercial banks in Kenya.
- To evaluate the effect of branch network on the financial performance in commercial banks in Kenya.

The study was guided by the following research hypotheses

- H_{o1}: Agency banking has no significant effect on the financial performance in commercial banks in Kenya
- H_{o2}: Internet banking has no significant effect on the financial performance in commercial banks in Kenya
- H_{o3}: Mobile banking has no significant effect on the financial performance in commercial banks in Kenya
- H_{o4}: Branch network has no significant effect on the financial performance in commercial banks in Kenya

LITERATURE REVIEW

Theoretical Review

Transaction Cost Innovation Theory

Hicks and Niehans (1983) introduced the Transaction Cost Innovation Theory, which postulates that transaction cost savings and earnings gains are the primary explanation for financial innovation. The theory explores the relationship between the elimination in transaction costs and technological innovations. According to the theory, financial innovation is catalyzed by technology advancement which cause transaction cost to reduce and better financial performance. A transaction cost is a cost that is incurred in the exchange of a good or service.

Circumvention Innovation Theory

The circumvention innovation theory was pioneered by the American economist Kane in 1981. Kane (1981) argued that certain forms of government oversight and control, which have the same tacit tax assets, undermine the company's economic activity and the opportunity to make a profit. Market innovation and regulatory innovation should therefore be seen as a continuous process of struggle between independent economic strength and political strength. Because the financial sector is special, it has stricter regulations.

Constraint Induced Financial Innovation Theory

This theory was advanced by an American Economist Silber. Silber (1983) attributes financial innovations to attempts by profit maximizing firms to reduce the impact of various types of constraints that reduces profitability. He defines a constraint as something that limits or restricts progress. According to Silber (1983), the main reason for financial innovation is profit maximization. However, in the process of pursuing profit maximization, financial institutions tend to face some restrictions which are either external or internal. These constraints can either be self-imposed, market imposed or government imposed.

Market Efficiency Theory of Innovation

The market efficiency theory of innovation was pioneered by Robert Merton. The theory is based on the notion that financial innovations are motivated by forces designed to increase market efficiency and improve social welfare. Merton (1992) argued that the market is not perfect hence financial institutions must innovate to improve market efficiency. According to Dabrowski (2017) financial economists generally view the flow of funds to take advantage of investment opportunities and financial innovations as

positive forces that makes markets more efficient, facilitate risk sharing and increase growth.

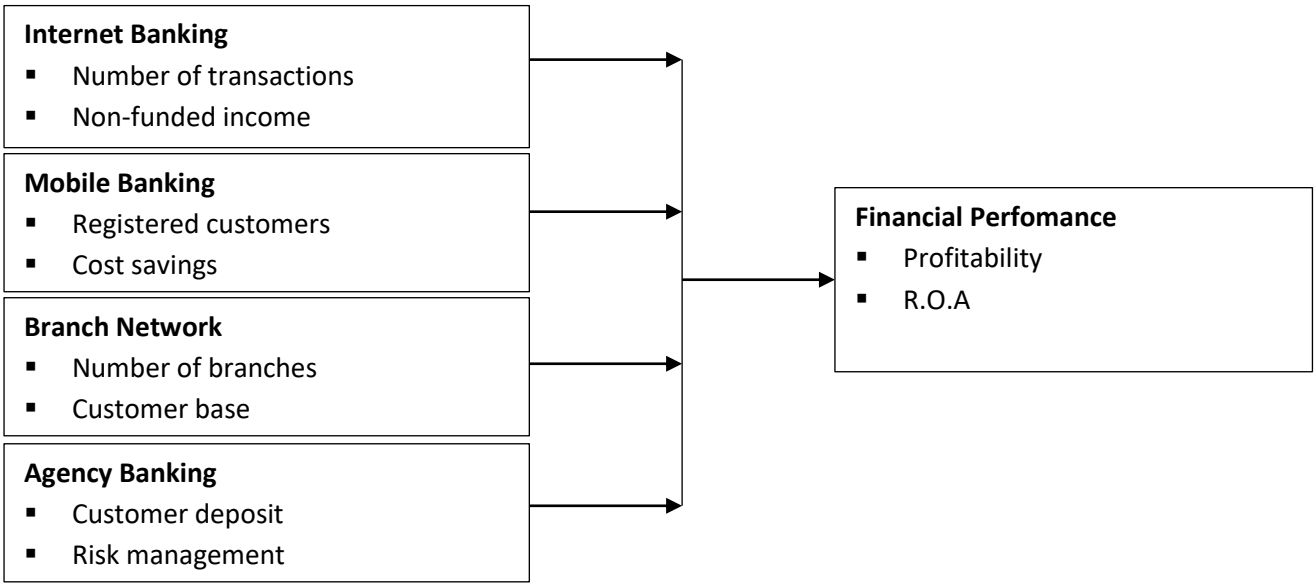

Figure 1: Conceptual Framework

Review of Variables of Financial Innovation

Agency banking: Technology has therefore created greater opportunities to service providers to offer great flexibility to the customers. Agent banking involves a number of technologies in order for the financial institutions to keep track of the transactions done by the retail outlet (Wawira, 2013).

Argamo (2015) study concluded that there is a positive and significant relationship between accessibility of banking services, low cost of service and customer transactions as a result of agency banking and financial performance of Chase Bank. Banking using agency banking excels in service quality and service delivery. Agency banking has low infrastructural cost and hence reduction in cost. Efficiency and convenience in operation in agency banking have increased the banks customers' transactions.

Branch Network: Kenya has become the epicentre of branchless banking financial innovations in the last decade, effectively attracting global research interest (Chipeta and Muthinja, 2018).Traditionally, physical bank branches have served as the primary point of contact for facilitating retail banking and customer transactions. As technology improves, customers are switching from in-person to digital transactions through a complementary effect delivered by the enhanced access to digital banking services, and an enhanced experience of new digital access products, services, and functionality. For example, many banks now allow for physical checks to be deposited through a mobile application on a smartphone with a camera. The transition has also opened up the market for nonbank firms to offer financial services. Millennials are particularly susceptible to new entrants as 84 percent now would consider obtaining their banking services from a major tech company.

Mobile Banking: Kigen (2010) described m-banking as the use of a mobile phone or another mobile device to undertake financial transaction linked to a client account. While, Kingoo (2011) refers mobile banking as provision and of banking and financial service with the help of mobile telecommunication device. Services offered by mobile banking include performing balance checks, account transactions, payments, credit applications and other banking transactions through a mobile device such as a

mobile phone which is most used in developing countries or Personal Digital Assistant (PDA).

Internet Banking: Emergence of the standardized teller machine (ATM), agency banking and mobile banking are some of innovations in ICT which have major impact in banking sector and results to novel delivery of daily services (Ahmad, 2006). The ATMs for instance, has been conducting much of duties than personnel in the counter and has been one of the major improvement and success of innovation in banking sector with a high benefit. Some components of electronic commerce which have been higher in banking sector is e- commerce which is greatly leveraged by the use of ICT. E-banking has played a major role since it has been helping in improving the performance of the service in banks (Beck et al., 2007). There is high increase in branchless banks and other alternative delivery of channels which include agent and mobile banking have increased in popularity among customers of banks in global world. This is an opportunity to reach the rural and other customers indifferent areas of the country who live in marginalized areas (Consultative Group to Assist the Poor, 2009). Agency banking refers to a partnership with non – banks, typically retail commercial outlets ranging from lottery kiosks, pharmacies, post office, construction good stores and so forth, to provide distribution outlets for financial services (Kumar et al; 2006). The owner of the retail is able to conduct some duties such as allowing clients to withdraw, pay their bills, and receive government benefits direct to their accounts or deposit money to the account rather than having a branch teller (CBK, 2014). The number of agents, number of cash deposit and withdrawal transactions through agents have increased significantly (Kambua, 2015).

Financial Performance: Performance measurement and reporting is now common in the private sector as well as in the public sector in many developed and developing countries. The main instrument used for this method, Key Performance Indicators (KPIs), was argued to provide insight in the form of valuable information on the success of the public and private institutions. The introduction of output assessment schemes has major symbolic significance (Micheli & Mari, 2013).

Empirical review

Ogutu and Fatoki (2019) in their study found that there was strong positive relationship between mobile banking, agency banking, ATM banking and online banking and financial performance of listed commercial banks in Kenya. Financial performance of commercial banks and m-banking were strongly and positively correlated. There was a strong positive correlation between financial performance of individual commercial bank and agency banking.

Financial performance as the ability to operate efficiently, profitably, survive, grow and react to the environmental opportunities and threats. Financial performance is measured by how efficient the enterprise is in use of resources in achieving its objectives. Financial performance of commercial banks dwells entirely on generated returns of assets from operations; loan portfolio falls as a critically valuable asset that unfortunately exposes the institution to financial risks (credit risk, market risk and liquidity risks). As performance is majorly pinned on loan returns, credit risk begins when these loans are extended to the borrowers since the possibility of defaulting with interest is considered (Mwale, Jagongo and Ndede, 2019).

Mabwai (2016) determined the effects of mobile banking on the financial performance of commercial banks using a descriptive research design of the registered commercial banks in Kenya. Purposive sampling was employed to select the main commercial banks engaging in mobile banking and thus focused on 8 commercial banks in Kenya. The results reveal that the number of mobile banking transactions, capital adequacy, markets share and the size of the assets had a positive influence on the financial performance of commercial banks. The above studies suggest the increasing adoption and use of mobile banking in the local banking institutions. As a result, there is need to understand the role of M banking on the performance of these banks. The reason to

understand these factors and the subsequent influence of mobile banking on banks' performance is important issue of research and it will be the undertaking of this study.

Financial intermediaries, commercial banks are critical in development and growth of economies. The banks must have adequate level of performance to play the intermediation role. Indicators of financial performance are return on equity, liquidity ratios, asset management ratios, profitability ratios, leverage ratios and market value ratios. Financial performance among commercial banks in the recent times has shown a general decline in performance. (Mwale, Jagongo and Ndede ,2019).

Karimi and Kyalo (2021) argued that M-banking has been fostered by competition from telecommunication industry mainly safaricom with their Mpesa services to their customers and Zain (formerly Airtel) with Zap services. These services facilitated the customers to deposit money into their account, transfer money to other user for instance sellers of goods and services, relatives and friend; this brought convenience. The banking sector has had to adopt technological change to remain competitive. In search of competitive advantages in the technological financial service industry, banks have acknowledged value to differentiate themselves from other financial institution through new service distribution channels.

El-Chaarani and El-Abiad (2018) examined the impact of technological innovation factors on the performance of Lebanese banks during an eight-year period from 2010 to 2017. The study employed return on assets (ROA) and return on equity (ROE) as proxies to measure performance level. The technological innovation factors included internet banking, mobile banking, automated teller machines and investment in computer software. The findings indicated that investment in automated teller machines (ATMs) and internet banking had significant positive impact on the performance of Lebanese banks. The results also revealed non-significant impact of mobile banking and investments in computer software on the performance of Lebanese banks.

Ndwiga and Maina (2018) assessed the effect of product innovation and process innovation on financial performance of listed commercial banks in Kenya. The findings indicated that process innovation had a significant positive effect on financial performance of listed commercial banks. However, product innovation showed no significant relationship with financial performance.

Nekesa and Olweny (2018) investigated the effects of financial innovation on financial performance of deposit-taking SACCOs in Kajiado County. In particular, the study evaluated the effect of product, process and organizational innovations on financial performance of deposit-taking SACCOs. The study concluded that financial innovation significantly influences the performance of the financial status of deposit-taking SACCOs in Kajiado County.

Ngari and Muiruri (2014) examined the effect of financial innovations on financial performance of commercial banks in Kenya. In particular, the study sought to establish the effect of credit cards, mobile banking, internet banking, and agency banking on profitability of commercial banks. The study found that credit cards, mobile banking, internet banking, and agency banking had significant positive effect on profitability of the commercial banks. The study concluded that financial innovations had a significant effect on financial performance of commercial banks in Kenya.

METHODOLOGY

This study used descriptive survey research design. The target population for this study was senior management staff of 42 licensed commercial banks in service in Kenya as of 30 June 2020. The study used questionnaires and secondary data to obtain data for analysis which was further validated from analysis results from secondary data quantitative analysis. Secondary data was obtained from the

Central Bank of Kenya, Kenya National Bureau of Statistics and the Banking survey manuals. Statistical Package for Social Sciences (SPSS v24) was used for analysis. Analysis of Variance and multiple linear regression analysis was computed to determine the statistical relationship between the independent variable and the dependent variables. The regression model was as follows:

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \varepsilon$$

Where:

Y = Financial performance

α = Constant Term

β_1, β_2, β_3 and β_4 = Coefficients of the independent variables

X_1= Agency Banking

X_2= Internet banking

X_3= Mobile banking

X_4= Branch Network

ε = Error term

FINDINGS AND DISCUSSIONS

Descriptive Analysis

Descriptive analysis used 5 point likert scale tool in data analysis, in a scale of 1-5. It implied the scale ratings were as follows 5 was the highest and 1 the lowest. Opinions given by the respondents were rated as follows, 5= Strongly Agree, 4= Agree, 3= Neutral, 2= Disagree and 1= Strongly Disagree. The analyses for mean, standard deviation was based on this rating scale.

Agency Banking

The study sought to establish effect of agency banking on financial performance of commercial banks in Kenya. The means and standard deviations generated from the responses were provided in table 1 below .Using a five-point Likert scale (1 = Strongly disagree, 2 = Disagree 3 =Neutral, 4 = Agree 5 = Strongly disagree.

Table 1: Agency Banking

Statement	N	Min	Max	Mean	Std. Dev.
Agency banking improves efficiency	34	1	5	3.54	1.527
Agency banking results in reduction of transaction cost of commercial banks	34	1	5	3.76	1.314
Agency banking results in increase in Annual volume of transactions to commercial banks	34	1	5	3.91	1.424
Agency banking increases customer deposits	34	1	5	3.45	1.499

High score from the findings were recorded to statement that Agency banking results in increase in Annual volume of transactions to commercial banks with a mean of 3.91 and standard deviation of 1.424.Followed by Agency banking results in reduction of transaction cost of commercial banks with a mean of 3.76 and standard deviation 1.314, then Agency banking improves efficiency with a mean of 3.54 and standard deviation of 1.527, lastly Agency banking increases customer deposits with a mean 3.45 and standard deviation of 1.499.

Internet Banking

The study sought to establish effect of internet banking on financial performance of commercial banks in Kenya. The means and standard deviations generated from the responses are provided in table 2 below .Using a five-point Likert scale (1 = Strongly disagree, 2 = Disagree 3 =Neutral, 4 = Agree 5 = Strongly disagree .High score from the findings were recorded to statement that agency banking results in increase in Annual volume of transactions to commercial banks with a mean of 3.91 and standard deviation of 1.424.Followed by Agency banking results in reduction of transaction cost of commercial banks with a mean of 3.76 and standard deviation 1.314, then Agency banking improves efficiency with a mean of 3.54 and standard deviation of 1.527, lastly Agency banking increases customer deposits with a mean 3.45 and standard deviation of 1.499. The outcome is shown in Table 2.

Table 2: Internet Banking

Statement	N	Min	Max	Mean	Std. Dev.
Internet banking results in increase in average volume of internet banking transactions	34	1	5	3.33	1.557
Internet banking increases customer satisfaction	34	1	5	3.54	1.327
Internet banking lowers operation costs	34	1	5	3.96	1.519
Internet banking increases returns on investment	34	1	5	3.13	1.444

Using a five-point Likert scale (1 = Not Important, 2 = Important 3 =Somewhat Important, 4 = Important 5 = Very Important), the study sought to determine the importance of different forms hedging among respondents. The means and standard deviations generated from the responses are provided in table 2 above. Overall, respondents registered high agreement levels on the questions posed. High score from the findings were recorded to Internet banking lowers operation costs with mean of 3.96 and standard deviation of 1.519, followed by Internet banking increases customer satisfaction with means of 3.54 and standard deviation of 1.327, Internet banking results in increase in average volume of internet banking transactions with mean of 3.33 and standard deviation of 1.557. Finally, Internet banking increases returns on investment with a mean of 3.13 and standard deviation of 1.444.

Mobile Banking

The study sought to establish effect of mobile banking on financial performance of commercial banks in Kenya. The means and standard deviations generated from the responses are provided in table 3 below .Using a five-point Likert scale (1 = Strongly disagree, 2 = Disagree 3 =Neutral, 4 = Agree 5 = Strongly disagree .High score from the findings were recorded to statement that M- banking leads in cost saving with a mean of 4.21 and standard deviation of 1.519, M- banking results in increase in profitability to commercial banks with a mean of 3.72 and standard deviation of 1.571. Followed by Banking application agility improves efficiency of commercial banks with a mean of 3.34 and standard deviation 1.569, then Mobile banking improves customer deposits with a mean of 3.25 and standard deviation of 1.675, lastly M- banking results in increase Annual total mobile money transfers Agency banking increases customer deposits with a mean 3.2.4 and standard deviation of 1.528.

Table 3: Mobile Banking

Statement	N	Min	Max	Mean	Std. Dev.
M- banking results in increase Annual total mobile money transfers	34	1	5	3.24	1.528
M- banking leads in cost saving	34	1	5	4.21	1.519
Banking application agility improves efficiency	34	1	5	3.34	1.569
M- banking results in increase in profitability	34	1	5	3.72	1.571
Mobile banking improves customer deposits	34	1	5	3.25	1.675

Branch Network

The study sought to establish effect of branch network on financial performance of commercial banks in Kenya, the following was reported. The means and standard deviations generated from the responses were provided in table 4 below .Using a five-point Likert scale (1 = Strongly disagree, 2 = Disagree 3 =Neutral, 4 = Agree 5 = Strongly

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disagree. High score from the findings were recorded to statement that Branch network improves accessibility of banking services with a mean of 4.17 and standard deviation of 1.7490, followed by Branch network increases customer base with a mean of 3.76 and standard deviation of 1.519, branch network improves profitability with a mean of 3.54 and finally, Branch network improves commercial banks efficiency standard deviation of 1.787.

Table 4: Branch Network

Statement	N	Min	Max	Mean	Std. Dev.
Branch network improves profitability	34	1	5	3.54	1.787
Branch network increases customer base	34	1	5	3.76	1.557
Branch network improves accessibility of banking services	34	1	5	4.17	1.749
Branch network improves commercial banks efficiency	34	1	5	3.14	1.674

Firm Financial Performance

The study analyzed firm financial performance of commercial banks and the following results were reported. High score from the findings were recorded to statement that Financial institution innovation results in lowering of financial risks of commercial banks with a mean of 3.77 and standard deviation of 1.544, followed by Financial institution innovations results in cost advantages of commercial banks with a mean of 3.627 with standard deviation of 1.444, then Financial institutions innovations results in customer satisfaction with a mean of 3.40 and standard deviation of 1.657, lastly Financial institution innovation results in competitive advantages with a mean of 3,31 and standard deviation of 1.1629.

Table 5: Firm Financial Performance

Statement	N	Min	Max	Mean	Std. Dev.
Financial institutions innovations results in customer satisfaction	34	1	5	3.40	1.657
Financial institution innovations results in cost advantages of commercial banks	34	1	5	3.62	1.444
Financial institution innovation results in lowering of financial risks of commercial banks	34	1	5	3.77	1.554
Financial institution innovation results in competitive advantages	34	1	5	3.31	1.1629

Normality Test

Table 6: Skewness and Kurtosis Test

		AG	INT	MOB	BNET		
N	Valid	34	34	34	34		
	Missing	0	0	0	0		
Skewness		-.525	-.768	-.674	-1.000		
Std. Error of Skewness		.223	.223	.223	.223	.	
Kurtosis		.382	.443	.691	1.811		
Std. Error of Kurtosis		.422	.4651	.421	.420		

Correlation analysis

Correlation analysis is usually used in determining relationship among the study variables. This study undertook correlation analysis in order to determine the relationship between the independent variables and the dependent variable. This study used Pearson Bivariate Correlation Coefficient as a measure of measuring association

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between the dependent variable (Financial Performance) and the independent variables (agency banking, internet banking, mobile banking and branch network). Sekaran and Bougie (2016) argued that for a relationship to be considered, correlation coefficient should vary from -1.0 (perfect negative correlation) to +1.0 (perfect positive relationship).

In order to establish the relationship among financial performance and independent variables for commercial banks in Kenya a correlation matrix was generated by SPPS. Table 7 showed the correlation matrix. The Pearson correlation coefficients were generated at a significant level of 5 percent (2-tailed). The output indicates a strong positive relationship between financial performance and financial institution innovation of commercial banks in Kenya. The variables with positive coefficient indicate that financial performance increases with increase in magnitude of these variables and vice versa. Agency Banking and financial institution innovation were found to have moderate correlation(r=0.428) in commercial banks in Kenya since they were statistically significant at 5% level. The strongest relationship was observed between mobile banking and financial institution innovation (r = 0.757*). The study therefore concluded that mobile banking positively and significantly influences the firm financial performance of commercial banks in Kenya. Internet banking also had significant impact on financial performance of commercial banks (r=0.709*). It had significant correlation. Branch network, however, had logical and explainable sign but was not statistically significant (r =0.317). With significant coefficients at the 1%-level, the results in a positive correlation between the branch network and financial performance of commercial banks.

Table 7: Pearson Correlation

	Financial Performance	Agency Banking	Internet Banking	Mobile Banking	Branch Network
Financial Performance	1				
	34				
Agency Banking	.428**	1			
	.000				
	34	34			
Internet Banking	.709	.734**	1		
	.009	.001			
	34	34	34		
Mobile Banking	.757**	.694**	.868	1	
	.000	.000	.100		
	34	34	34	34	
Branch Network	.317**	.698**	.0.782**	.757**	1
	.001	.000	.000	.000	
	34	34	34	34	34

**. Correlation is significant at the 0.01 level (2-tailed).

Financial performance had implications to the financial institution innovation in commercial banks in Kenya. Similarly, the independent variables correlated positively with each other. For example agency banking correlated strongly and positively with internet banking (r=0.734). Internet banking correlated strongly and positively with mobile banking (r=0.868). Mobile banking correlated strongly and positively with branch network (r =0.757). Branch network correlated strongly and positively with internet banking (r =0.782). These findings showed that all the financial institution innovation had significance in financial performance of commercial banks in Kenya.

Regression Analysis

The four independent variables (agency banking, internet banking, mobile banking and branch network) and dependent variable (financial performance) were analyzed using linear regression analysis in order to measure significance of the model and predict the causal relationship between them.

Model Summary

The coefficient of variables denoted by R^2, is a measure of proportion of the variations of the regress and explained by the corresponding explanatory variables. The values of R^2 lie between zero and unity, $0 \leq R^2 \geq 1$. A value of unity implies that 100 per cent of the variations of Y have been explained by the explanatory variables. Ithaka (2013) advised that a value of zero implies that no variations have been explained at all. The overall goodness of fit was obtained through regressing the goodness of fit for all the independent variables and the results were shown below depicted in Table 8.

Table 8: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.743[a]	.552	.535	2.40073

a. Predictors: (Constant), Agency banking, Internet banking, Mobile banking, Branch network

R Square of the study is .552, which implies that 55.2 per cent of the variations of the dependent variable have been explained by the independent variables; only 44.8 variations cannot be explained by the model. Hence, it was concluded that regression model is significant has a good fit.

ANOVA

Analysis of Variance (ANOVA) was used in establishing significance of regression model. It analyzed significance level of independent and dependent variables of the study. Significance level considered to be important if the p-value is less than or equal to 0.05. The study findings found a p-value of 0.00 which was less than 0.05. It was concluded that the regression model is statistically significant in determining independent variables and dependent relationship. The overall results of ANOVA suggest that the model was significant at F = 16,442, p = 0.000. The findings are described in Table 9.

Table 9: ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	46.565	5	9.313	11.641	.000[b]
	Residual	23.22	29	0.800		
	Total	69.785	34			

a. Dependent Variable: Financial Performance

a. Predictors: (Constant), Agency banking, Internet banking, Mobile banking, Branch network

The findings of ANOVA as shown in figure above was F-value regression model was 11.641, df = (5, 29) at $p < 0.05$ and the significance value of the model was 0.000. The significance value of 0.000 meant that the study variables agency banking, internet banking, mobile banking and branch network if regressed together had a positive influence on financial performance of commercial banks in Kenya.

Regression Coefficients

Multi-regression analysis was performed to determine relationship establish the between dependent variable (financial performance) and independent variables (agency banking, internet banking, mobile banking and branch network) of commercial banks in Kenya. Significance level was set at level of $p < 0.05$ such that if p-value is more than the significance level, the model will considered insignificant and vice versa. Table 10 presents the results of the analysis.

Table 10: Regression Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	T	Sig.
1	(Constant)	18.657	3.583		5.20	.000
	Agency Banking	.163	.0938	.214	1.738	.063
	Internet Banking	.176	.098	.447	1.795	.039
	Mobile Banking	.732	.133	.771	5.504	.000
	Branch Network	.413	.547	.092	.755	.033

a. Dependent Variable: Financial Performance

Multi linear regression model results show that agency banking, internet banking, mobile banking and branch network are significant to financial performance of commercial banks with p-values of 0.000, 0.063, 0.039, and 0.00 and 0.033 respectively. The research therefore results in acceptance of the null hypothesis of these variables because ($p > 0.05$).

The regression equation was:

$$\mathbf{Y = 18.657 + 0.163X_1 + 0.176X_2 + 0.732X_3 + 0.413X_4}$$

Where;

Y = Financial Performance

X_1 = Agency Banking

X_2 = Internet Banking

X_3 = Mobile Banking

X_4 =Branch Network

The results showed that taking into account all considerations Financial Performance of Commercial Banks constant zero financial performance of commercial banks in Kenya was 18.657. The regression results showed that a unit change in firm agency banking resulted in 16.3 percent (β=0.163) change in financial performance of commercial banks while a unit change in internet banking resulted in 17.6 percent (β=0.176) change in financial performance. Also, a unit change in mobile banking resulted in increase in 73.2 percent (β=0.732) change in financial performance of commercial banks, branch network affected financial performance by 41.3 percent (β=0.413).

Summary Hypotheses Test

Hypotheses was tested at a significance level of alpha = 0.05. Table below report the results.

Table11: Test of Hypotheses

Hypotheses Statement	B	T	p-value	Decision
H_{01}: Agency Banking has no significant effect on the financial performance of commercial banks in Kenya.	.163	1.738	.063	Accept H_{01}
H_{02}: Internet Banking has no significant effect on the financial performance of commercial banks in Kenya.	0.176	1.795	0.039	Reject H_{02}
H_{03}: Mobile Banking has no significant effect on the financial performance of commercial banks in Kenya.	.732	5.504	0.000	Reject H_{03}
H_{04}: Branch Network has no significant effect on the financial performance of commercial banks in Kenya.	0.413	0.755	0.033	Reject H_{04}

CONCLUSIONS AND RECOMMENDATIONS

The purpose of the study was to determine the effect of financial institution innovation on financial performance of commercial banks in Kenya which in this study had a sample size of 34 commercial banks. The conclusions were based on specific objectives of the study that financial institutions innovation had significance influence on financial

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performance of commercial banks in Kenya. When all the stated hypotheses were tested in the regression model they were found to be significant between themselves and with financial performance of commercial banks in Kenya. The strongest relationship was observed between internet banking and financial institution innovation (r = 0.709*). The study therefore concluded that internet banking positively and significantly influences the firm financial performance of commercial banks in Kenya.

Agency Banking and financial institution innovation were found to have moderate correlation(r=0.428) in commercial banks in Kenya since they were statistically significant at 5% level. The study therefore concluded that agency banking positively and significantly influences the firm financial performance of commercial banks in Kenya. Mobile banking also had significant impact on financial performance of commercial banks (r=0.495*). It had significant correlation. Branch network, however, had logical and explainable sign but was not statistically significant (r =0.317). With significant coefficients at the 1%-level, the results in a positive correlation between the branch network and financial performance of commercial banks.

Based on findings of ANOVA F-value regression model was 11.641, df = (5, 29) at $p < 0.05$ and the significance value of the model was 0.000. The significance value of 0.000 meant that the study variables agency banking, internet banking, mobile banking and branch network if regressed together had a positive influence on financial performance of commercial banks in Kenya.

The study results support the view that financial institution innovation affects financial performance of commercial banks in Kenya. To improve the use of agency banking, commercial banks in Kenya should improve customer's perception by making more advertisements and increase promotion activities. Study recommends that Central Bank should come up with agency banking regulatory policy which creates a universal platform for all commercial banking institutions. Commercial banks should form collaboration with internet providers so that to ensure access and internet coverage in the entire country.

The study recommended that commercial banks should invest in consumer awareness with regard to emerging products and services tailored to mobile banking and develop consumer friendly mobile banking model which can help save costs of mobile banking users. The study recommends that the banking institutions should open up more branch network which will ensure services accessibility by customers and resulting in improved financial performance.

Suggestions for Future Research

The findings of this study need to be further developed in future research. The study researched on four variables which affect commercial banks financial performance which were agency banking, internet banking, mobile banking and branch network , hence, future studies should consider other factors. Other studies can explore effect of credit scoring on mobile lending of commercial banks in Kenya.

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