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E-PAYMENT SYSTEM AND FINANCIAL PERFORMANCE OF COMMERCIAL BANKS IN NAIROBI COUNTY, KENYA

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ABSTRACT

The business environmental dynamics in the market have made it imperative for organizations to adopt new and efficient technologies to compete and probably gain superior financial performance. The proposed study endeavours to test the relationship between electronic payment system and financial performance of commercial banks in Kenya. Specifically, it analysed the relationships between electronic cards issued and bank agents and financial performance. The research adopted the Agency theory by Fama (1980), Bank-Focused Theory, and the theory of financial intermediation model. Employing a cross-sectional study design, the study targeted the Information Technology, Operations, and Finance Management Staff of the 24 domestic (fully Kenyan owned) commercial banks in Kenya. Purposive sampling was utilized at the Head offices of these banks, with at least 5 respondents from each of the three targeted departments, totalling approximately 120 sample respondents. Descriptive statistics, including frequencies, means, and standard deviation, were used for data analysis. Quantitative data were presented in tables and graphs, while inferential statistics included tests for multiple regression assumptions, model fit, ANOVA, and coefficients. Multiple regression analysis was employed to analyze data collected from a sample of domestic commercial banks. The findings revealed a significant relationship between electronic payment systems and financial performance. Specifically, electronic cards usage and bank agents were found to positively influence financial performance, while the impact of automated teller machines (ATMs) was statistically significant. These findings underscore the importance of embracing electronic payment systems as strategic tools for improving financial performance in the banking sector.

Key Words: Electronic Payment System, Electronic Cards Usage and Bank Agents

Background of the Study

Today's business environment is undergoing rapid and profound changes due to technological advancements, heightened consumer awareness, and increasing demands for electronic banking services (Joseph, Mcclure, & Joseph, 2019). Globally, banks have been pioneers in adopting and integrating technology to enhance their offerings and improve customer experiences. With the advent of Information and Communication Technology (ICT), electronic payments systems have become central to the evolution of the banking sector worldwide.

In the African context, electronic banking has emerged as a transformative force, revolutionizing traditional banking practices (Ojlari, 2019). The introduction of Automated Teller Machines (ATMs) and point-of-sale (POS) terminals has significantly enhanced banking accessibility and convenience for customers across the region. Moreover, ICT solutions have streamlined operations, ensuring faster transaction processing, increased accuracy, and enhanced security. These advancements have not only transformed the banking landscape but have also propelled financial inclusion initiatives, enabling broader access to banking services among previously underserved populations.

These developments align with the findings of Jenevive and Anyanwaokoro (2020), who emphasize the pivotal role of ICT in driving global trends in electronic banking. As African nations embrace digitalization, the banking sector has witnessed a paradigm shift towards modern computer-based systems capable of delivering a wide range of services over internet, intranet, and extranet platforms. Consequently, banks have been able to cater to evolving customer needs more effectively while leveraging technology to optimize internal processes and improve overall efficiency.

In Kenya, the evolution of the payment industry has been particularly notable in recent years, propelled by rapid technological advancements (Central Bank of Kenya, 2019). The transition from cash-based transactions to digital payments has been remarkable, marking a significant milestone in the country's financial landscape. According to the Central Bank of Kenya (2020), Kenya's payment ecosystem has progressed to the fourth stage of evolution, characterized by the widespread adoption of digital cash and digital wallets, following the stages of barter, currency, and paper money (cheques).

Furthermore, Ojlari (2019) underscores the impact of retail payments on banks' lending capacity, highlighting the role of efficient payment systems in attracting deposits and facilitating lending activities. By offering seamless payment solutions, banks can enhance their liquidity positions and improve their ability to extend credit to customers, thereby stimulating economic growth and development.

Overall, the convergence of global trends, regional advancements, and local initiatives underscores the importance of electronic payment systems in shaping the future of banking in Kenya and beyond.

Statement of the problem

Just like other sectors, the banking sector in Kenya is gearing towards spending big some of money in ICT especially in credit provision which is a core business activity for banks world over. Payment services is a core activity and extremely essential in the banking industry account for a significant portion operation revenue and costs which in turn forms the market share of the firm especially in credit provision (Misati, Njoroge, Kamau, & Ouma, 2020). CBK, (2020) report

highlighted that, initially bank clients in Kenya encounter lengthy lines, transaction problems, insecurity, and network failures as a result of the banking sector's propensity to satisfy customer requirements with little regard to their interests.

Misati *et al.,* (2020) study however discovered that some of these concerns have significantly lowered the quality of the service rendered by the banks, hence reducing their service delivery quality, which in turn impacts on financial performance. Consequently, commercial banks, under such immense pressure from globalization and competition from non-banking operations, must develop innovative methods to add value to their services without visiting a brick-and-mortar institution (Joseph *et al.,* 2019). Conversely, despite the potential benefits of e-commerce, there is however a debate about their efficacy and how their adoption improves bank performance.
Kariuki (2015) study on the impact of electronic banking on bank performance for instance showed that, the positive impacts of ICT on their banking performance that those banks with high profit growth are more likely to be using greater numbers of advanced ICTs. Elsewhere, Oshikoya (2017) study established that while the rapid development of information technology has made some banking tasks more efficient Challenges such as security concerns, technological integration, and varying levels of customer adoption persist, leading to discrepancies in performance outcomes across different banks. As commercial banks strive to remain competitive in an increasingly digital landscape, it is crucial to investigate how e-payment systems influence key performance indicators, including transaction volume, customer retention, and profitability Return on investment

This study aims to explore the relationship between the adoption of e-payment systems and the overall performance of commercial banks in Kenya. The varying levels of e-payment adoption across different regions and demographic segments further complicate the assessment of their impact on financial performance.

Grounded on the above the core problem lies in the lack of comprehensive understanding of the relationship between e-payment system implementation and the financial performance of commercial banks in Nairobi County Kenya. Addressing this gap is crucial for banks to strategically position themselves in the evolving digital economy and ensure sustainable growth. The proposed study endeavours to test the efficacy of electronic payment system on financial performance of domestic commercial banks in Kenya.

General Objectives of the study

The general objective was to establish the influence of electronic payment systems on the financial performance of domestic commercial banks in Kenya.

Specific Objectives of the study

i. To investigate the influence of quantity of electronic cards issued on the financial performance of domestic commercial banks in Kenya.

ii. To examine the influence of bank agents on the financial performance of domestic commercial banks in Kenya.

Theoretical Review

The study adopts the Schumpeter's Theory of Innovation, Agency theory by Fama (1980), and Bank-Focused Theory, agency as discussed below;

Agency Theory

Agency theory was developed by Jensen and Meckling, (1976). For the purposes of the proposed study, Fama (1980) hypothesis of agency theory will be adopted. The theory proposes that Agency theory is a principle that is used to explain and resolve issues in the relationship between business principals and their agents. The theory describes how one can frame the engagement in which a principal decides on the responsibilities while the agent executes them. In the association, the principal engages a hired person or entity to perform duties on behalf of the principle, if he is unable or unwilling to perform to a third party. The theory acts to address the principal-agent relationship.

According to Jensen and Murphy (1990), the agent relationship in the context of banking involves three key parties: the principal (the bank), the agent (retail outlets offering bank services), and the third party (bank customers). The agents act on behalf of the bank to provide financial services to customers. These agents are strategically located close to customers, which offers convenience and lowers the cost of accessing bank services for customers. Additionally, the presence of agents can help promote a savings culture among customers.

This agent-bank-customer relationship benefits both parties. Customers gain convenient access to bank services, experience cost savings, and are encouraged to engage in banking activities. As a result, banks can enhance their financial performance through increased market share, higher customer engagement with their services, and lower operational costs. This agent-based model in banking is seen as a way to improve financial inclusion by extending the reach of banking services to underserved areas and populations. It creates a win-win situation, where customers gain access to financial services, and banks can expand their customer base and improve their overall performance.

Bank-Focused Theory

Bank-Focused Theory, as described by Kapoor (2010), revolves around the adoption of non-traditional and cost-effective delivery channels by traditional banks to provide banking services to their existing customers. This includes the use of ATMs, internet banking, and mobile phone banking.

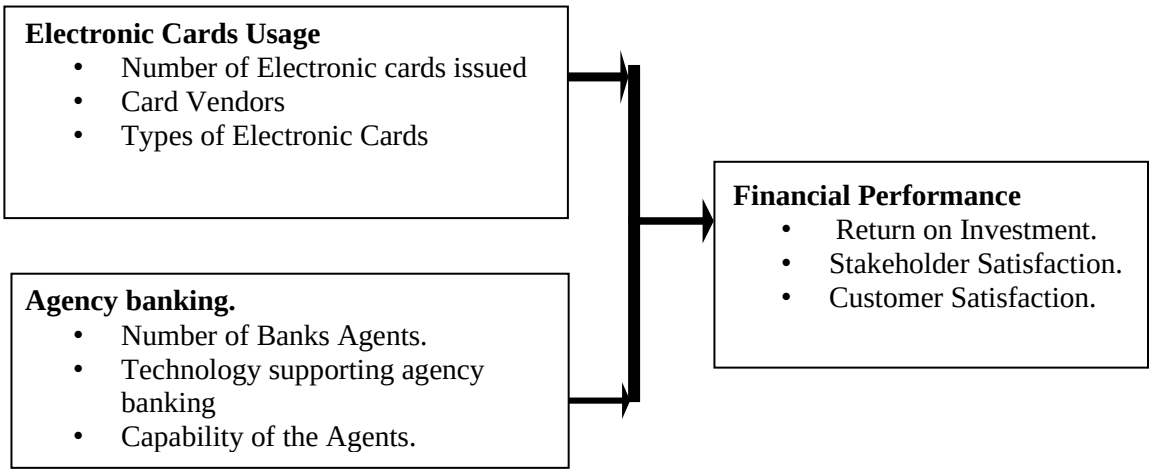
According to Kapoor (2010), the implementation of these channels allows banks to have greater control over their service offerings and enhances their brand visibility. By offering these alternative channels, banks can increase customer convenience and accessibility to their services, thereby improving customer satisfaction and loyalty.

However, it is important to note that there are also drawbacks associated with the bank-focused strategy, as mentioned by Veniard (2010). These drawbacks may include challenges in ensuring the security and privacy of customer information in the digital space, managing the complexity of multiple delivery channels, and addressing customer resistance or reluctance to adopt new technologies. Additionally, there may be costs associated with implementing and maintaining these channels, including technology infrastructure and staff training.
The Bank-Focused Theory is based on instances where conventional financial institutions used conventional low-cost delivery techniques to provide financial products and services to their respective consumers, claim Meihami, Varmaghani, and Meihami (2013). Employee usage of automated teller machines (ATMs) to access internet banking or mobile banking, for instance, varies depending on the clientele of the financial institutions that are accessible.

Conceptual Framework

A conceptual framework provides a concise yet thorough depiction of the phenomenon under study, typically presenting the main variables in a visual format (Mugenda, 2013). As described by Young (2019), it illustrates the relationship between independent and dependent variables through a diagrammatic representation.

Conceptual Framework



Empirical Review

Electronic Cards Usage

A Debit Card is a plastic money which typically, the banks issues to Savings Account holders while a credit card is a payment card issued to users (cardholders) to enable the cardholder to pay a merchant for goods and services based on the cardholder's accrued debt (Schneider and Gary, 2010). Basically, credit cards give customers access to a line of credit issued by a bank, while debit cards deduct money directly from their bank account.

Musa and David, (2019) study which investigated the effect of electronic payment systems on financial performance of microfinance banks in Niger state employed cross-sectional survey research design, descriptive and Ordinary Least Square Regressions established the presence of e-payment systems in the bank, which enjoys impressive acceptability, due to its ease of use and convenience. Additionally, the COE-Minna microfinance bank's financial performance has been significantly benefited by ATM facilities, Internet payment alternatives, e-payment cards, and mobile banking platforms. In essence, it was advised to strengthen and assess the security of e-payment platforms in order to draw in more users, as well as to lower the costs associated with using the platforms and educate potential customers.

According to Simiyu, Momanyi and Odondo, (2018) study which analyzed the relationship between credit and debit card usage and cash flow management control by customers used structured questionnaire to collect data and employed descriptive research design revealed that both debit and credit cards usage increases cash outflows compared to cash inflows and that use of these cards has increased consumption levels as opposed to investments. Kyalo, (2016) study on the effect of credit card usage on the financial performance of commercial banks in Kenya Used OLS regression method, inferential tests including the Pearson product moment correlation coefficient revealed that, credit card usage accounted for about sixty one percent of financial performance of the commercial banks. For that reason, study recommended that commercial

banks should revise the interest rate charged on the credit cards. This has the end effect of encouraging consumers to increase the usage of credit cards.

Mugo, Muchangi, Muathe, and Waithaka. (2019) study which conducted a performance analysis of debit card services on deposit-taking SACCOs' financial performance and adopted both agency and information systems success models to explain financial performance, established a positive effect of Sacco link debit card services on the financial performance of Deposit-Taking SACCOs in Kenya. The study therefore recommended continued utilization of SACCO link debit cards and an enhancement of their features within the Deposit-Taking SACCOs in Kenya.

According to Chelangat, Kiprop & Mutai, (2022) study on the effects of payment cards on financial performance of commercial banks in Kenya employed a cross-sectional descriptive survey research design on secondary data guided by Coase Theorem, Constraint Induced Financial Innovation Theory, Circumvention Innovation Theory and Innovation Diffusion Theory. The study findings showed that Debit card on ATM had a positive significant relationship with ROA. The Credit Cards on ATM and POS Machines were also positively related to ROA but were not statistically significant while Prepaid Cards ATM was negatively related to ROA and non-significant.

Another study by Oboke, Kibati, and Jeptepkeny, (2020) which analyzed the effect of debit cards on financial performance of listed commercial banks in Kenya adopted descriptive research design utilizing panel data covering the period from 2009-2019. The study adopted the use of secondary data and adopted descriptive and inferential statistics where Regression statistics was used to determine the significance of the relationship between variables. The study results showed that increased in debit card usage enhance the profitability of banking industry in form of ROA over the period of 2009 to 2019 quarterly. The results also showed that increased usage of debit cards significantly reduced transaction costs and enhanced convenience among credit and debit card users.

Bank Agents

A banking agent is a retail or postal outlet contracted by a financial institution or a mobile network operator to process clients' transactions (Leland & Pyle, 2017). However, according to Kanyore (2017), agent banks are retail firms that have been hired by banks and approved by central banks to provide services for banks. They do this using technology and commercial agreements with retailers like supermarkets, grocery stores, drugstores, petrol stations, the postal service, and the chain of lottery outlets. Basically, agency banking offer services including savings deposits, credit withdrawals, bill payments, new account openings, money transfers, insurance, and government benefits including pension receipts to provide access to financial services people active in informal economy.

Bahaa, Sobhi and Awwad (2021) investigated the role of E-payments in enhancing financial performance of Palestine Bank where descriptive and analytical approach was employed. The multiple regression model analysis results showed that electronic payment methods have an important impact on the bank's financial performance, through the return on assets and equity indicators, which helps to reduce costs and thus increase profits. However, there was no statistically significant effect on the earnings per share. What is more, the Bank of Palestine uses a wide variety of electronic payment methods. Thus, the study suggests the necessity to increase the effectiveness of the information security from fraud risks, in addition to activating supervisory and regulatory authorities to strengthen the application of electronic payment tools. there is a need to employ an up-to-date technology and strengthen electronic payment mechanisms.

According to Irene, (2016) research work which investigated the effect of electronic retail payment services on financial performance of commercial banks in Kenya using secondary data showed that the adoption/use of electronic retail payment services has improved the performance in the banking industry through ensuring its productivity and efficiency is greatly improved. Furthermore, the study findings revealed that, electronic retail payment services have brought about a positive effect on the overall operations within the banking industry through making work easier for the management as well as the employees since it has been found to be the most effective and efficient service.

Elsewhere, Mimano (2019) study on the effect of agency banking on the growth of profits of commercial banks in Kenya that had adopted the use of agency banking to roll out financial services to their customers research findings revealed that agency banking had a statistically significant effect on the growth of profit of commercial banks in Kenya. Consequently, the study concluded that that agency banking has resulted in greater uptake of financial services which has resulted in more revenues for the banks. Lucy, (2018) study on the effects of agency banking on bank performance: A case of equity bank Meru branch, Kenya findings established that, the general cost such as operations and transactions cost were still high even for agency banking, security measures were in place that is physical security though it needed strengthening, transaction security and customer security were not good and needed improvement and the regulations that were in place for agency banking also needed to be improved.

According to Wawira, (2017) analysis on the contributions of agency banking on financial performance of commercial banks in Kenya which adopted content analysis findings showed that the move by the central bank to regulate agency banking had a positive influence on the financial performance of commercial banks in Kenya. The study also discovered that agency banking's reduced transaction costs had a favorable effect on the financial health of Kenya's commercial banks. The study discovered that clients' ability to receive financial services through baking agencies has a favorable effect on the financial health of Kenya's commercial banks. According to many banking institutions, rising market share allowed a corporation to acquire larger scale in its operations, which generally boosted its profitability. The study indicated that increased market share had a beneficial effect on the financial performance of commercial banks.

Finally, a study by Ondara, (2019) on the effect of agency banking features on the financial performance of commercial banks in Kenya: A case of Equity Bank, Kisii, Nyamira and Keroka Branches – Kenya which adopted descriptive and inferential statistics established that financial performance has strong correlation with agency banking factors that include: accessibility cost of offering financial services and market share. Agency banking significantly accounts for the variance in financial performance of Equity bank. Financial performance increases with the introduction of agency banking which increases access for financial services, reduce cost of offering the service and increased markets share.

RESEARCH METHODOLOGY

Research Design

The study adopted a cross-sectional study design. A cross-sectional study design was used by researchers to collect data from various variables at a single point in time, typically through a single survey, questionnaire, or observation (Cooper Schindler, 2010). The adopted research design was considered suitable for conducting quantitative methodology with multiple variables at the time of the data snapshot. The data collected could be used for various types of research parameters, such as Likert and ratio scale, to analyze the direction, degree, magnitude, and strength of relationships or associations (Mugenda & Mugenda, 2010).

Target Population

For this study Target Population of 120 majorly in Information Technology resources, Bank Operations, and Finance Management Staff of the 24 domestic commercial banks in Kenya. The selection of this target population includes IT, bank operations and finance department head of department and Mid-level managers of customer experience .By focusing on these departments, the study aims to gather insights into the impact of electronic payment systems on the financial performance of banks from the perspectives of those responsible for their operation and oversight.

Sample size and Sampling Technique

For this study, a purposive sampling technique, also known as judgment, selective, or subjective sampling, was utilized. This sampling technique relies on the researcher's judgment when selecting members of the population to participate in the study (Mugenda & Mugenda, 2010). In line with Cooper & Schindler (2010), purposive sampling is a non-probability sampling method where elements for the sample are chosen based on the researcher's judgment.

In determining the sample size for this study, the researcher employed Cochran's formula, a widely recognized method for sample size determination in finite populations.

The formula is expressed as:

$$n=(N-1)\times E_2+Z_2\times p\times(1-p)N\times Z_2\times p\times(1-p)$$

Where:

n = Sample size required

N = Total population size (24 domestic commercial banks)

Z = Z-score corresponding to the desired level of confidence (e.g., 1.96 for a 95% confidence level)

p = Estimated proportion of the population with the attribute of interest (assumed to be 0.5 for maximum variability)

E = Margin of error (the maximum expected difference between the sample mean and the population mean)

Given the target sample size of approximately 120 respondents, and assuming a 95% confidence level and a margin of error of 5%, the formula was applied to estimate the required sample size per bank.

By plugging in the values:

$N=24$

$Z=1.96$ (for a 95% confidence level)

$p=0.5$

$E=0.05$ (5% margin of error)

The estimated sample size per bank was calculated to be approximately 13 respondents. This sample size is adequate for capturing the perspectives of IT, Operations, and Finance Management Staff within each bank, ensuring comprehensive coverage of the target population. Therefore, a homogeneous purposive sampling technique was adopted, focusing on selecting at least 5 respondents from each of the three departments across all 24 domestic commercial banks in Kenya, resulting in a total sample size of approximately 120 respondents. This approach ensures representation from key departments involved in electronic payment system implementation and management, thereby enhancing the validity and reliability of the study findings.

Pilot Study

For the conducted research, a pilot study was conducted through a group focus at ABSA Bank Thika Road Mall (TRM) Branch, located on the 2nd Floor of Thika Road Mall, Off Thika Road in Nairobi, Kenya. This choice was made randomly from many branches in Nairobi county.

Approximately 10 respondents were engaged in the pilot study to ensure that the questionnaire framing was well understood before the main study commenced. During the pilot study, participants were encouraged to provide feedback on the questionnaire instructions, question precision, and the order or sequence of questions.

Data Analysis and Interpretation

Statistical Package for the Social Sciences was used to analyze the data collected via questionnaire. Both descriptive and inferential statistics was used to evaluate research data obtained from the selected respondents for the proposed analysis. For the analysis, descriptive statistics refers to statistical methods that do not falsify relationships but help in the interpretation of the results (Kothari, 2008). As a result, descriptive statistics aided the researcher in effectively organizing data in the proposed analysis. The existence of an interaction in the wider population from which the sample was drawn was determined using inferential statistics. The existence of an interaction in the wider population from which the sample was drawn and determined using inferential statistics. Correlation analysis was used to determine the course, strength, and significance of relationships between variables.

The degree to which a change in the independent variable induced a change in the dependent variable was determined using regression analysis. When there are several variables, as in the current research, that may cause variations in the causal relationship, hierarchical regression analysis will be used. The inferential statistics included a linear regression model which will establish the relationship between variables. Data is presented in tables and graphs. Statistical coefficients was measured in order to establish the relationship between strategic options elements tested and firm performance. The multiple linear regression equation took the following form:

RESEARCH FINDINGS AND DISCUSSIONS

Descriptive Statistics

Electronic Cards Usage (ECU) (X_1) and Financial Performance (Y)

Table 4.1 presents the respondents' agreement levels with statements regarding the correlation between Electronic Cards usage and Financial Performance within the framework of the selected 24 domestic commercial banks in Kenya. The assessment was conducted using a Likert scale

ranging from 1 to 5, with the following interpretations: 5 = Strongly Agree, 4 = Agree, 3 = Neutral, 2 = Disagree, and 1 = Strongly Disagree. The descriptive statistics outlining these agreement levels are as follows:

Table 4.1 Electronic Cards Usage and Financial Performance

	N	Minimum	Maximum	Mean	Std. Deviation
It is true that shift from checks to debit cards for instance has lowered the transaction costs of processing and accelerated the clearing process hence more profitability to the bank	91	2.00	5.00	4.5604	.68652
The options available and potential through; Card Vendors and Types of Electronic Cards offers significant opportunities for growth	91	3.00	5.00	4.2527	.69271
Electronic Cards have improved the rapidity of transporting payment between parties who are undertaking business	91	3.00	5.00	4.2418	.75042
Electronic Cards permits customers with wide variety of choices to execute different banking transactions on the Internet via bank's web site	91	2.00	5.00	3.9890	.99437
Through the Electronic Cards customers can pay bills, transfer the funds from one account to other and make purchases 24/7.	91	1.00	5.00	3.5165	1.18662
In your opinion, how significant is the impact of electronic cards on the overall profitability of domestic commercial banks in Kenya	91	1.00	5.00	4.2198	1.01983
Valid N (listwise)	91	**Grand**	**Mean**	**4.1300**	**0.8884**

Source: Research data, (2024)

Table 4.1 illustrates the respondents' assessments of the degree to which various Electronic Cards Usage parameters influence on financial performance within the framework of the selected 24 domestic commercial banks in Kenya. Descriptive statistics provided in Table 4.06 offer insights into the respondents' perceptions of the relationship between Electronic Cards Usage and financial performance. A grand mean below 3 generally indicates disagreement, while a mean exceeding 2.9 suggests agreement. In this context,

Given that the grand mean for the impact of Electronic Cards Usage on financial performance exceeds both thresholds (3 and 2.9), it can be concluded that there is a strong agreement among respondents regarding the positive influence of electronic cards on financial performance. With a grand mean well above 3, it indicates a high level of agreement among respondents that the issuance of electronic cards contributes positively to financial performance in the domestic commercial banks of Kenya. Additionally, the relatively low standard deviation suggests a consistent perception among respondents regarding this matter. Therefore, the findings support the notion that electronic cards have a significant and favorable impact on the financial performance of domestic commercial banks in Kenya. The findings are in harmony with those of Kyalo, (2016) study on the effect of credit card usage on the financial performance of commercial banks in Kenya which established that, credit card usage accounted for about sixty one percent of financial performance of the commercial banks. For that reason, study recommended that commercial banks should revise the interest rate charged on the credit cards. This has the end effect of encouraging consumers to increase the usage of credit cards.

Bank Agents (BA) (X_3) and Financial Performance (Y)

This section focused on examining the relationship between Bank Agents and Financial Performance within the framework of the selected 24 domestic commercial banks in Kenya. Participants were asked to rate their agreement with statements regarding Bank Agents using a Likert scale ranging from 1 to 5, with 5 indicating "Strongly Agree" and 1 indicating "Strongly Disagree". The responses provided insights into participants' perceptions of the impact of Bank Agents on financial performance. Table 4.08 below presents a summary of the results.

Table 4.2 Bank Agents and financial Performance

	N	Minimum	Maximum	Mean	Std. Deviation
Agency banking has led to accessibility of financial service to many customers in remote areas	91	3.00	5.00	4.4725	.62076
Accessibility of banking service through agency banking has led to profitability of commercial banks	91	2.00	5.00	4.3297	.74617
There is great potential of an increase and adoption of agency banking for provision of banking services to unbanked community	91	3.00	5.00	4.6484	.58450
Through the agency banking, the number of cash deposits and withdrawals has greatly increased over time	91	1.00	5.00	4.1758	1.02841
Through the agency banking, the number of agents and new accounts opened has greatly increased over time	91	1.00	5.00	3.7692	1.04432
Please rate the extent to which you believe bank agents have contributed to the financial performance of domestic commercial banks in Kenya.	91	3.00	5.00	4.4505	.68741
Valid N (listwise)	91	**Grand**	**Mean**	**4.3077**	**0.78526**

Source: Research data, (2024)

According to the responses given in Table 4.2, The grand mean for the impact of Bank Agents on Financial Performance is 4.3077, with a standard deviation of 0.78526. According to the provided threshold, a grand mean below 3 generally indicates agreement, while a mean exceeding 2.9 suggests disagreement.

Given that the grand mean for the impact of Bank Agents on Financial Performance exceeds both thresholds (3 and 2.9), it can be concluded that there is strong agreement among respondents regarding the positive influence of Bank Agents on financial performance. With a grand mean well above 3, it indicates a high level of agreement among respondents that Bank Agents contribute positively to financial performance in the domestic commercial banks of Kenya. Although there is some variability in responses as indicated by the standard deviation, the overall consensus leans towards agreement. Therefore, the findings suggest that Bank Agents have a significant and favorable impact on the financial performance of domestic commercial banks in Kenya. This finding resonates well with those of Bahaa, Sobhi and Awwad (2021) study which investigated the role of E-payments in enhancing financial performance of Palestine Bank where the multiple regression model analysis results showed that bank agents have an important impact

on the bank's financial performance, through the return on assets and equity indicators, which helps to reduce costs and thus increase profits.

Inferential Statistics

Statistical inference involves using data analysis to draw conclusions about characteristics of a fundamental probability distribution. This process typically includes actions such as hypothesis testing and estimating parameters (Mugenda & Mugenda, 2013). In the context of this study, the initial steps entail conducting diagnostic assessments on an Ordinary Least Squares (OLS) model. Once these assessments are confirmed, the researcher proceeds to hypothesis testing and the computation of estimates.

Multiple Regression Results

Multiple regression analysis was conducted after verifying that all Ordinary Least Squares (OLS) assumptions were met, including normality, linearity, homoscedasticity, and collinearity diagnostics. The purpose of this analysis was to accept or reject the null hypotheses based on the empirical test results. Multiple regression analysis was essential to evaluate the significance, size, and postulated connections between the variables.

The hypotheses were tested at a 95% level of confidence, ensuring reliable inferences. Table 4.3 presents the results, offering an overview of the model's

outputs. This analysis elucidates how the four elements of the electronic payment system—Electronic Cards Usage (X_1), Bank Agents (X_2)—explained variation in the financial performance of the 24 domestic commercial banks in Kenya. Table 4.3 provides a comprehensive summary of the models and regression findings.

Table 4.3: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.673[a]	.453	.427	.30731	.453	17.799	2	86	.000

a. Predictors: (Constant), Bank Agents and Electronic Cards Usage

Source: Research data, (2024)

The multiple regression model produced an R^2 value of 0.453, indicating that approximately 45.3% of the variance in financial performance can be explained by the independent variables—Bank Agents and Automated Teller Machines. The adjusted R^2 value, which considers the number of predictors and sample size, was 0.427. This adjusted value suggests that the model accounts for about 42.7% of the variability in financial performance while adjusting for the number of predictors.

The standard error of the estimate, a measure of the accuracy of the predictions made by the model, was approximately 0.30731. This value indicates the average distance between the observed values and the predicted values by the model. The change statistics reveal that the addition of the predictor variables significantly improved the model's explanatory power ($F=17.799$, $df1=4$, $df2=86$, $p<0.001$). The significant F value suggests that the regression model as a whole is statistically significant in predicting financial performance based on the included predictors.

Table 4.4: Analysis of Variance (ANOVA[a])

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regressin	6.724	2	1.681	17.799	.000[b]
	Residual	8.122	88	.094		
	Total	14.845	90			

a. Dependent Variable: Financial Performance

b. Predictors: (Constant), Bank Agents and Electronic Cards Usage

Source: Research data, (2024)

The analysis of variance (ANOVA) table reveals that the regression model as a whole is statistically significant ($F=17.799$, $p<0.001$). This indicates that at least one of the independent variables—Bank Agents and Electronic Cards Usage—has a significant linear relationship with the dependent variable, Financial Performance.

The regression model accounts for a significant portion of the total variation in financial performance, as evidenced by the relatively large regression sum of squares (6.724) compared to the residual sum of squares (8.122). This suggests that the predictors collectively contribute to explaining the variability in financial performance among the domestic commercial banks in Kenya.

The mean square for the regression (1.681) indicates the average amount of variance explained by each predictor variable in the model. The F statistic tests whether this amount of explained variance is significantly greater than what would be expected by chance alone. In this case, the F statistic of 17.799 indicates that the amount of explained variance is significantly greater than expected by chance, supporting the overall significance of the regression model.

Regression Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.978	.399		2.449	.016
	Electronic Cards Usage	.252	.084	.269	2.998	.004
	Bank Agents	.266	.074	.373	3.587	.001

a. Dependent Variable: Financial Performance

The regression coefficients provide insights into the magnitude and direction of the relationship between each predictor variable and the dependent variable, Financial Performance. For Electronic Cards Usage, the unstandardized coefficient ($\boldsymbol{B}$=0.252) indicates that for every one-unit increase in the number of electronic cards issued, the financial performance of domestic commercial banks in Kenya is expected to increase by approximately 0.252 units, holding all other variables constant. This effect is statistically significant (t=2.998, p=0.004).

Bank Agents exhibit a stronger influence on financial performance, as indicated by the relatively higher unstandardized coefficient (B=0.266) and significant positive beta value ($\boldsymbol{\beta}$=0.373). This suggests that an increase in the number of bank agents is associated with a significant improvement in financial performance (t=3.587, p=0.001).

$$\boldsymbol{Y = 0.978 + 0.252X_1 + 0.266X_2 + \varepsilon}$$

Electronic Card usage

The coefficient for electronic cards usage (Beta = 0.269, p = 0.004) was statistically significant, suggesting that an increase in electronic card usage is associated with higher financial performance in commercial banks. Shows Electric cards supported financial performance of

banks by indicating a significant relationship between Electronic Cards Issued and Financial Performance ($p<0.05$).

Banking Agents:
The coefficient for bank agents (Beta = 0.373, $p < 0.001$) was statistically significant, indicating that the utilization of bank agents positively influences financial performance demonstrating a significant relationship between Bank Agents and Financial Performance ($p<0.05$).

Conclusions

The utilization of electronic cards, such as debit and credit cards, was positively associated with higher financial performance. This suggests that the adoption of electronic payment methods can contribute to increased revenue and profitability for commercial banks.
The presence of bank agents, who act as intermediaries for banking services in remote areas, was found to positively influence financial performance. This underscores the importance of expanding banking services to underserved regions through alternative channels like bank agents.

Recommendations

Government and regulatory bodies should implement policies aimed at promoting the adoption of electronic payment systems, including incentives for banks and customers to use electronic cards and mobile banking platforms. This may include tax incentives, subsidies for infrastructure development, and awareness campaigns to educate the public about the benefits of electronic payments.
Regulatory authorities should establish clear guidelines and regulations governing the operation of bank agents to ensure the provision of safe, reliable, and affordable banking services in underserved areas. This may involve licensing requirements, periodic audits, and consumer protection measures to safeguard the interests of customers.

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