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ABSTRACT

Despite the rapid shift in adopting e-banking services over the last decade, the effect of e-banking on bank performance is still being debated. The purpose of this study was to examine the effect of electronic banking on performance of commercial banks in Mombasa County, Kenya. Drawing on the positivist research philosophy, the study utilized the non-experimental quantitative research methodology. A correlational, cross-sectional survey research design was employed to test the formulated research hypotheses. The target population consisted branch managers and operations managers of the 98 branches of the 39 commercial banks in Mombasa County, Kenya. A cross-sectional survey-based approach was used to collect primary data utilizing a self-administered structured survey questionnaire. The collected data was processed and entered into the statistical package for social sciences (SPSS) version 26 to create a data sheet that was used for data analysis. The data was analyzed utilizing descriptive statistics and inferential statistics. The Pearson's correlation results indicated that automated teller machine banking, mobile banking, internet banking and smart card banking capabilities had positive and significant relationship with performance of commercial banks in Mombasa County, Kenya. The regression results showed that automated teller machine banking, mobile banking, internet banking and smart card banking had a positive and significant effect on performance of commercial banks in Mombasa County, Kenya. However, the regression results indicated that mobile banking had a negative and significant effect performance of commercial banks in Mombasa County, Kenya. The conclusion was that electronic banking significantly predict the performance of commercial banks in Mombasa County, Kenya. The study provides important managerial recommendations, policy recommendations and areas for future research. It is imperative for the managers to develop electronic banking to foster the performance of commercial banks in Mombasa County, Kenya. Policy makers should consider initiating policy review to encourage stakeholders to develop electronic banking to foster the performance of commercial banks in Mombasa County, Kenya. Future researchers should consider examining the effect of electronic banking on performance of commercial banks in other regions or contexts.

***Key terms**: Automated Teller Machine, Electronic banking, Firm Performance, Internet Banking, Mobile Banking, Electronic Fund Transfer*

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INTRODUCTION

It is widely recognized that commercial banks are crucial in determining a nation's economic growth and stability. The banking industry is thought to be the most important source of economic growth for a country (Bousrih, 2023).An efficient, stable and well-functioning banking system contributes to the economic growth of a country (Njoki & Nyamute, 2023). The banking industry is crucial to a nation's economy's ability to borrow money (Azi*zet al.*, 2022).However, the decline in financial performance of commercial banks in Kenya based on average return on assets is of high concern among various stakeholders (Mathina, 2022). The efficient performance of commercial banks creates confidence in the financial system of a country leading to sustainable development (Walowe, 2021). However, commercial banks have recorded a decline in performance evidenced by the reduction of average return on assets from 4.7% in 2013, 3.4% in 2014, 2.9% in 2015, 3.3% in 2016, 2.7% in 2017, 2.7% in 2018, 2.6% in 2019 to 1.7% in 2020 (Mathina, Jagongo, &Wamugo, 2022).The shift to electronic banking has boosted banks' ability to compete (Kimere, 2022). However, the decline in the performance of commercial banks attracts negative externalities in the economy in terms of declined savings, lending, investments and a negative contribution to the gross domestic product (Mutegi, Njeru, &Mwiti, 2023).

In the Indian context, Sharma (2023) examined the effect of e-banking services on bank performance. Using an unbalanced panel data of 20 Indian banks over the period 2010 to 2019, the study examined the effect of e-banking services on the performance of Indian banks measured in terms of return on assets, return on equity, and net interest margin. The findings indicated that e-banking services had positive and significant effect on bank performance.

In the context of Nigeria, Gbanador (2023) examined the influence of electronic banking systems on the performance of deposit money banks (DMBs).The findings indicated that, in the short-run, e-banking systems had no significant impact on performance of DMBs. However, the results showed that,in the long-run, ATM and POS had positive but insignificant influence on the performance of DMBs, while mobile banking had a positive and significant influence on the performance of DMBs. The findings indicated evidence of long-run relationship between e-banking on the performance of DMBs.

In Kenyan context, Hassan, Abuga, and Ndalilah (2023) examined the influence of e-banking on customer satisfaction in tier one commercial banksin Nairobi-City County. Specifically, the study investigated the influence of internet banking, automated teller machines banking, mobile banking and point- of sale services banking on customer satisfaction in Kenya commercial banks. The study focused on 5 tier one commercial banks, namely Equity Bank, ABSA Bank Kenya, Kenya Commercial Banks, Co-operative Bank, and Standard Chartered Bank. The findings indicated that internet banking, automated teller machines banking, mobile banking and point- of sale services banking had positive but insignificant effect on customer satisfaction in tier one commercial banks in Nairobi-City County.

As of the end of 2015, the Central Bank of Kenya was acknowledged as the industry regulator for 44 financial institutions. A mortgage financing corporation (MFC) and 43 commercial banks made up the first group. The government holds the majority of the shares in three of the forty-three commercial banks, twenty-seven of the local commercial banks are privately held, and the remaining thirteen banks are controlled by foreign entities. Thirty of the forty-three commercial banks were locally owned. According to the CBK annual report (2012), indigenous banks made up 66.6% of Kenya's banking industry while foreign-owned banks made up 33.4%. Some of the rules published by the Central of Kenya that control the financial sector in Kenya include the Central Bank Act, the Banking Act, and the Companies Act. As they make money accessible for investors to borrow, banks serve as a middleman between savers and

borrowers. The Central Bank of Kenya regulates the financial system's proper operation in the economy through its monetary policy (Mwange, 2021).

In comparison to 2014, the number and value of transactions for the Kenya Electronic Payments and Settlement System (KEPSS) and East African Payment System (EAPS) increased by 28.0 percent and 11.1 percent, respectively. Payments made through EFT transactions increased by 8.92% in 2015, from KSh 471 billion in 2014 to KSh 513 billion in 2015. The amount and volume of transactions made using ATMs did, though, waned. From 824,26 million transactions in 2014 to 1,002,25 million transactions in 2015, mobile phone money transfer transactions grew by 21.59 percent. Average liquid assets were valued KSh 970.1 billion as of June 30, 2015, while average liquid liabilities were worth KSh 2,507.3 billion. This resulted in an average liquidity ratio of 38.7%, which is the same level as in June 2014. This ratio exceeds the 20.0% regulatory requirement (CBK Annual Report).

In order to create a mobile banking platform, Kenyan banks have also teamed with telco companies. For instance, in November 2012 CBA and Safaricom unveiled Mshwari, a cutting-edge mobile banking service that enables users to borrow money using their smartphones as well as store money in their virtual accounts and earn interest. Nine banks had joined together with Safaricom by November 2015 to make real-time cash transfers possible through M-Pesa. Equitel, a mobile banking platform that enables users to access their accounts using their SIM cards and mobile phones, was launched by Equity Bank in July 2015.

Statement of the Problem

The efficient performance of commercial banks creates confidence in the financial system of a country leading to sustainable development (Walowe, 2021).An efficient, stable and well-functioning banking system contributes to the economic growth of a country (Njoki &Nyamute, 2023;Walowe, 2021). However, the decline in performance of commercial banks in Kenya based on average return on assets is of high concern among various stakeholders (Mathina, 2022).In Kenya, commercial banks have recorded a decline in performance evidenced by the reduction of average return on assets from 4.7% in 2013, 3.4% in 2014, 2.9% in 2015, 3.3% in 2016, 2.7% in 2017, 2.7% in 2018, 2.6% in 2019 to 1.7% in 2020 (Mathina*et al.*, 2022).

A growing body of literature posits that the use of e-banking can provide commercial banks a competitive advantage over competitors (Kitigin*et al.*, 2021; Nasehifar*et al.*, 2021). However, the decline in the performance of commercial banks attracts negative externalities in the economy in terms of declined savings, lending, investments and a negative contribution to the gross domestic product (Mutegi*et al.*, 2023). For banks, attracting and retaining customers is the primary goal of offering online banking services (Regin *et al.*, 2022). The shift to electronic banking has boosted banks' ability to compete (Kimere, 2022). However, the low rate of customers' adoption of electronic banking services affects retail banks' profitability (Bend, 2020).

Despite the rapid shift in adopting e-banking services over the last decade, the effect of e-banking on overall bank performance has received little attention (Kumar & Pandey, 2023).With the broad deployment of e-banking technology, there is a rising interest in understanding the influence of e-banking adoption on performance of the commercial banks. However, the effect of e-banking on bank performance is still being debated (Ritu & Pandey, 2023).Studying the link between e-banking and performance of the commercial banks has attracted the bulk of researchers' attention (Singh, 2023). However, the empirical studies have produced mixed results (Hossain, 2021;Sharma, 2023).

Majority of the empirical studies suggest that e-banking has a positive and significant effect on bank performance (Bousrih, 2023; Kumar & Pandey,

2023; Madugba*et al.*, 2022; Sharma, 2023). However, some empirical studies suggest that e-banking has an insignificant effect on bank performance (Gbanador, 2023;Hassan*et al.*, 2023).The general business problem is that commercial banks lose money when customers do not use e-banking services. The specific business problem is that some leaders of commercial banks do not understand the effect of electronic banking on the performance of commercial banks in Mombasa County in Kenya.

Research Objectives

The general objective of this study was to examine the effect of electronic banking on performance of commercial banks in Mombasa County, Kenya. The specific objectives were;

- To determine the effect of automated teller machine banking on performance of commercial banks in Mombasa County, Kenya.
- To investigate the effect of mobile banking on performance of commercial banks in Mombasa County, Kenya.
- To assess the effect of internet banking on performance of commercial banks in Mombasa County, Kenya.
- To examine the effect of smart card banking on performance of commercial banks in Mombasa County, Kenya.

The study tested four null hypotheses:

- **$H_0$1:** Automated teller machine banking has no significant effect on performance of commercial banks in Mombasa County, Kenya.
- **$H_0$2:** Mobile banking has no significant effect on performance of commercial banks in Mombasa County, Kenya.
- **$H_0$3:** Internet banking has no significant effect on performance of commercial banks in Mombasa County, Kenya.
- **$H_0$4:** Smart card banking has no significant effect on performance of commercial banks in Mombasa County, Kenya.

LITERATURE REVIEW

Theoretical Framework

The Dynamic Capability Theory

The study utilized the dynamic capabilities (DC) theory to explain the effect of electronic banking on performance of commercial banks in Mombasa County, Kenya. The DC theory has been used in past studies (Al-Dmour, Saad, Basheer Amin, Al-Dmour, & Al-Dmour, 2023). The DC theory (Eisenhardt & Martin, 2000; Teece, Pisano, &Shuen, 1990) is an expansion of the resource-based theory (Solem, Fredriksen, &Sørebø, 2023). The DC theory suggests that a firm's capacity to integrate, develop, and reconfigure internal and external skills to address and adapt with changes in the business environment constitutes dynamic capabilities (Aghimien, Aigbavboa, &Matabane, 2023).

The DC theory proposes that a firm's dynamic capabilities consist of certain activities including new product creation, industry alliance formation, and strategic decision-making that enable businesses to compete in quickly changing environments (Ramos, Patrucco, & Chavez, 2023). The dynamic capabilities can help the commercial banks to combine and transform static resources, knowledge and skills into innovative services in form of the electronic banking services. Therefore, the DC theory is appropriate in explaining the effect of automated teller machine banking, mobile banking, internet banking, and smart card banking on performance of commercial banks in Mombasa County, Kenya.

Conceptual Framework

The conceptual framework suggests that firm performance is conceptualized as the dependent variable. However, automated teller machine banking, mobile banking, internet banking and smart cards banking are conceptualized as the independent variables.

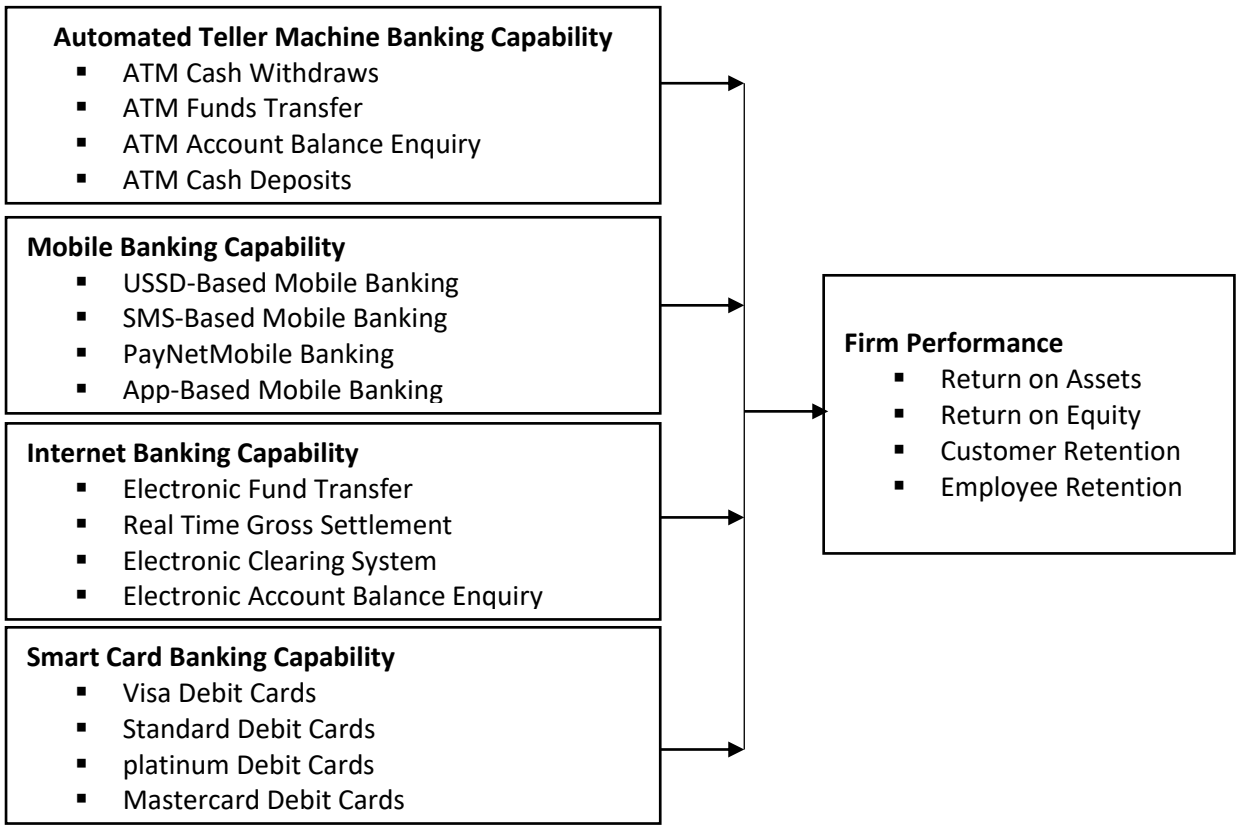

Figure 1: Conceptual Framework

Review of Literature on Study Variables

Automated Teller Machine Banking

The development of Automated teller machine (ATM) banking has been facilitated by the growth of information technology. Existent literature posits that the introduction of ATMs and their deployment across city centers have facilitated greater access to financial services for urban dwellers around the world (Mwatsika, 2021). An ATM system is an inter-organizational system that links bank and financial institutions to retail banking customer for several types of routine banking transactions such as inquires, deposits, cash withdrawals, cash transfer and payments (Pradhan *et al.*, 2021). An ATM banking is the process whereby customers use ATMs to effect various financial transactions by inserting designated credit/debit cards into the ATM machines (Ibrahim, 2022).In this regard, ATM banking is the initiation and execution of financial transactions through an ATM that enables customers to perform cash withdrawals, cash deposits, funds transfer, or accounts information enquiry, at any time without the need for direct interactions with bank staff (Pradhan*et al.* (2021).

The ATM banking enables customers have access to money, check their account balance, effect cash transfers and pay utility bills conveniently at any point in time without having to visit one's particular bank (Ajanni & Addisu, 2021). Existent literature posits that ATM banking makes it easier and faster for bank customers to perform a wide range of banking and financial transactions, including cash withdrawals, cash transfers and utility bills payment (). Therefore, ATM banking makes it easier and faster for bank customers to perform a wide range of banking and financial transactions, including cash withdrawals, cash transfers and utility bills payment (Mutiso, 2021). A growing body of literature posits that that ATM banking could significantly enhance bank customers' access to financial services (Pradhan*et al.* (2021).

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Mobile banking

Mobile banking is an e-banking service provided by a bank or other financial institution that allows its customers to conduct financial transactions remotely using a mobile device such as a smartphone or tablet (Pradhan *et al.*, 2021). In this regard, mobile banking is the provision of banking and financial services with the help of mobile telecommunication devices (Gbanador, 2023). Additionally, mobile banking is an innovative online banking channel enabling customers to carry out financial transactions using mobile devices, smartphones, or personal digital assistants (Hassan &Farmanesh, 2022). Therefore, mobile banking is the provision of banking and financial services with the help of mobile telecommunication devices.

Mobile banking involves the use of mobile devices in the provision of banking services (Ndirangu& Kimani, 2022). Existent literature posits that mobile banking involves carrying out financial activities related to a customer account using a mobile phone or tablet (Kimere, 2022).Mobile banking is one of the e-banking channels for expanding and cutting costs in the banking sector (Gbanador, 2023). Some of the mobile banking services provided include transfer of money, payment of bills, mini statement requests, among others (Pradhan *et al.*, 2021). In this regard, mobile banking applications allow customers to conduct banking transactions using mobile terminals, regardless of the nature of the network used to access such services (Obbo, 2022).Therefore, mobile banking facilitates client withdrawals, airtime purchases, utility payments, and other financial services (Hassan &Farmanesh, 2022).

A growing body of literature posits that mobile banking has a positive and significant effect on financial performance (Kimere, 2022;Obbo, 2022).Some empirical studies suggest that mobile banking has a positive and significant effect on firm performance (Ajanni & Addisu, 2021; Gbanador, 2023; Harelimana, 2021).However, other empirical studies suggest that mobile banking, e-payment and internet banking had insignificant effect confirm performance (Bosco, 2021).

Internet banking

Internet banking is the operation of accounts through internet. Extant literature posits that internet banking or online banking is a financial service that involves conducting banking transactions through the internet (Ghose & Maji, 2022). Internet banking is the banking applications that allow customers to access and conduct their financial transactions using the World Wide Web, Wi-Fi technologies and the internet, at a time and place of their choosing (Hassan &Farmanesh, 2022).Additionally, internet banking is the use of an electronic payment system that enables customers of a bank or other financial institution to conduct a range of financial transactions through the financial institution's website (Pradhan *et al.*, 2021).

Internet banking is becoming more popular in the fields of corporate and retail banking as the growth of fintech has stimulated customer acceptance towards internet banking services (Kwon, Yu, & Ahn, 2022).To enhance their competitiveness, commercial banks offer internet banking services as the online banking reduces operating costs and enables banks to charge lower fees (Hassan &Farmanesh, 2022). Internet banking allows bank customers to conduct online banking activities, such as invoices payment, online transfers, account data inquiries, financial investments, currency exchange, simple transaction verification, and global connectivity via the internet (Tahtamouni, 2022). In this regard, internet banking has become a valuable strategic tool for increasing levels of productivity in terms of controlling costs and managing operations (Malhotra & Singh, 2021).

Smart card banking

The smart cards, credit cards, point of sale, kisan cards and debit cards are just a few of the e-banking services (Singh, 2023). In this regard, smart card banking is the latest revolution in banking that seeks to make financial transactions more convenient and accessible for customers (Bellahcene&Latreche, 2023).The smart card

banking is a modern form of banking that uses technology to make it easier for customers to manage their money (Ofori-Okyere, Edghiem, &Kumah, 2023).Smart card banking uses technology to collect, store, and analyze customer data to provide the best user experience (Shaikh, Alamoudi, Alharthi, &Glavee-Geo, 2023).Commercial banks use the information to create personalized services and advice tailored to the individual's needs (Gupta, 2023).

A smart card is a physical card that has an embedded integrated chip that acts as a security token (Shaikh *et al.*, 2023).Additionally, a smart card is a physical card that has an embedded integrated chip that acts as a security token. Smart cards are typically the same size as a driver's license or credit card and can be made out of metal or plastic (Ofori-Okyere *et al.*, 2023).Point of sale is an electronic device that is used for verifying debit card and credit card transaction (Pradhan *et al.*, 2021). The debit cards initiate an electronic funds transfer procedure that speeds up customers' purchasing payments instead of managing cash and checks, saving the customers' time by removing the need to visit the bank halls (Murugun, 2023). Extant literature posits that even outside of regular business hours, debit cards may be used, which boosts bank efficiency (Shah *et al.*, 2023). As they are handy, simple, and easy to carry, credit cards have been found to be user-friendly (Singh, 2023).

Smart cards provide ways to securely identify and authenticate the holder and third parties who want access to the card (Murugun, 2023). Besides, smart cards promote users' efficiency and flexibility without requiring them to visit the bank premises (Lee, & Pan, 2023). Credit cards have been embraced by banks to enhance income, profit, and decrease credit and liquidity concerns (Shah *et al.*, 2023). Debit cards and credit cards are inexpensive for both banks and clients (Singh, 2023). Additionally, debit cards and credit cards require less maintenance during acquisition and use, making them appealing and increasing usage as well as bank profits (Ofori-Okyere *et al.*, 2023). Scholars aver that debit and credit cards improve electronic payments transfers by allowing users to access their accounts outside regular business hours, which improves bank efficiency (Ritu & Pandey, 2023). Therefore, there is an upward trend in debit and credit card fees and commission, which is related to the rise in debit and credit card use (Sharma, 2023).

Firm Performance

Firm performance is the set of financial and nonfinancial indicators which provide information on the degree of achievement of set goals and objectives (Walter, 2021).Some scholars opine that firm performance is the capability of a unit in an organization in meeting set goals through persistent dedication, proper management, and good governance (Mwachia, Kimaku, &Makungu, 2023). Nevertheless, to date, there is no universally accepted definition of firm performance (Úbeda-García *et al.*, 2021).Existent literature posits that due to the absence of any operational definition of firm performance upon which the majority of scholars consent, there would naturally be diverse interpretations suggested by various people according to their personal perceptions (Yang & Jiang, 2023). Firm performance is the set of financial and nonfinancial indicators which provide information on the degree of achievement of set goals and objectives (Walter, 2021). However,

Nowadays, firm performance has become a relevant concept in strategic management research and is frequently used as a dependent variable. However, there are different dimensions of firm performance that have been used in the literature regarding performance measurement (Yoo, 2021).The financial performance measures are quantifiable metrics used to measure how well a company is doing (Rodrigues, Ruivo, & Oliveira, 2021). Nevertheless, the non-financial measures of performance are metrics that companies use to gauge their success and performance in specific areas, without considering financial metrics (Kanoujiya, Singh, & Rastogi, 2023). The financial performance indicators include revenue, profits, and return on capital, or others such as market

share, while the non-financial indicators include customer retention, employee retention, or others such as measures (Oudgou, 2021). Although the financial indicators use monetary values to denote success or failure, the non-financial indicators measurements avoid using monetary values to denote success or failure (Shin, Lee, & Park, 2023).

METHODOLOGY

The study employed the correlational, cross-sectional survey design to examine non-causal relationships between study variables at a single point in time and to test the formulated research hypotheses. This study adopted an explanatory research design in order to assess the effect of internet banking, mobile banking, automated teller machine banking and debit/credit cards banking on the performance of commercial banks in Mombasa County. The target population consisted of 98 branch managers and 98 operations managers of the 98 branches of the 39 commercial banks in Mombasa County, Kenya. The target population was as per the Central Bank of Kenya's database as at 31stJune 2022. The unit of analysis was the branch, while the unit of observation was the branch manager and operations manager of the commercial bank.

The sampling frame for the study was the list of the 39 commercial banks in Mombasa County, Kenya as per the Central Bank of Kenya's database as at 31st June 2022. A sample is the number of elements carefully selected and included in the study sample to represent the target population (Hennink& Kaiser, 2021). The study calculated the sample size based on Yamane (1967) formula at 95% confidence level (0.05 level of significance). With a target population of 98 branch managers and 98 operations managers in 98 branches of the 39 commercial banks in Mombasa County, Kenya, the minimum recommended sample size was 132. The proportionate stratified random sampling technique was utilized to select a sample size of 66 branch managers and 66 operations managers from a target population of 98 branch managers and 98 operations managers of the commercial banks in Mombasa County, Kenya.

A structured survey questionnaire was used to collect primary data from the branch managers and operations managers of commercial banks Mombasa County, Kenya. The survey questionnaire consisted of close ended questions capturing both independent and dependent variables measured on a Likert scale of 1-5 in order to quantify data Lobe, Morgan &Hoffman (2020). The questionnaire was structured in six major sections including; demographic characteristics, internet banking, mobile banking, automated teller machine banking, debit/credit cards banking and performance of commercial banks.

Data processing and analysis were conducted with respect to the research objectives.

The standard multiple linear regressions model was specified as:

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

Where:
Y = Firm performance
β_0 = Constant
$\beta_1 - \beta_4$ = Regression Coefficients to be Estimated
X_1 = Internet Banking
X_2 = Mobile Banking
X_3 = Automated Teller Machine Banking
X_4 = Smart Card Banking
ε = Stochastic Error Term

FINDINGS AND DISCUSSIONS

Response Rate

In total 132 survey questionnaires were distributed to 66 branch managers and 66 operations managers of commercial banks in Mombasa County, Kenya. However, only 102 usable survey questionnaires were received from 51 branch managers and 51 operations managers of commercial banks in Mombasa County, Kenya. Therefore, there was valid response rate of 77.27%, which was adequate for data processing and analysis. Table 1 presents the response rate results.

Table 1: Response Rate

Strata	No. of Survey Questionnaires Distributed	No. of Usable Survey Questionnaires Returned	Response Rate
Branch Managers	66	51	77.27%
Operations Managers	66	51	77.27%
Total	**132**	**102**	**77.27%**

Face Validity Test Results

Face validity was ensured by conducting extensive literature survey on the research problem, ensuring that the constructed survey questionnaires used in this study was developed based on validated scales. To test the face validity, the researcher shared the draft survey questionnaire with an expert panel of 5 judges in the field of strategic management to judge whether, on the face of it, the questionnaire covered and measured the concepts it purported to measure. Face validity could be established by garnering comments from people with experience and expertise in the field (Saunders *et al.*, 2020).The results from the expert panel of judges suggested acceptable face validity. The feedback from the expert panel of judges helped the researcher to review the items in terms with regard to the wording of some of the statements, the structure, and the layout of the survey questionnaire.

Content Validity Test Results

Content validity was established by conducting extensive literature survey on the research problem and employing adapted instruments considered appropriate in previous studies. Scholars assert that content validity is confirmed by employing adapted instruments considered appropriate in previous studies (Hair *et al.*, 2020). To test the content validity, the researcher shared the draft survey questionnaire with an expert panel of 5 judges to judge whether, it measured the concepts it purported to measure and the relevant content domain for all the constructs had been covered. Content validity can be established through a rational analysis of the constructed data collection instrument by an expert panel of judges on the research subject to judge whether, the instrument measures the concepts it purports to measure (Khan *et al.*, 2019).The feedback provided by the expert panel of judges were analyzed to establish the percentage representation using the content validity index. The content validity test results showed that the content validity index was 0.9388 and the congruency percentage was 93.88%. Therefore, the content validity test results suggested acceptable content validity. Table 2 presents the content validity test results.

Table 2: Content Validity Test Results

Variable	No. of Items	Content Validity Index	Congruency Percentage	Decision
Automated Teller Banking Capability (X_1)	4	0.933	93.30%	Valid
Mobile banking (X_2)	4	0.940	94.00%	Valid
Internet banking (X_3)	4	0.937	93.70%	Valid
Smart Cards Banking Capability (X_4)	4	0.948	94.80%	Valid
Firm Performance (Y)	4	0.936	93.60%	Valid
Entire Scale	**20**	**0.9388**	**93.88%**	**Valid**

Construct Validity Test Results

For construct validity test, factor analysis with varimax rotation was conducted using SPSS package software version 26 for data reduction to detect the factor structure in the observed variables. However, prior to the extraction of the constructs, the Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy and the Bartlett's Test of Sphericity were conducted to determine the appropriateness of the data for factor analysis. Existent literature posits that the KMO measure of sampling adequacy and the Bartlett's Test of Sphericity should be conducted

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prior to the extraction of the constructs to determine the appropriateness of the data for factor analysis (Saunders *et al.*, 2020).

The results showed that the KMO Measure of Sampling Adequacy was 0.826, greater than 0.7, while the Bartlett's Test of Sphericity was significant (Approx. Chi-Square = 517.248; df = 6; $p \leq 0.001$), confirming the appropriateness of the data for factor analysis. Scholars assert that a KMO statistic of greater than 0.7, and an associated Bartlett's p-value of less than or equal to 0.05, and an Anti-image correlation statistic of greater than 0.6 indicates that an adequate correlation exists to justify factor analysis (Hair *et al.*, 2019).Table 3 presents the results of the Kaiser-Meyer-Olkin (KMO) test of Sampling Adequacy and Bartlett's test of Sphericity.

Table 3: KMO Test of Sampling Adequacy and Bartlett's Test of Sphericity

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.826
Bartlett's Test of Sphericity	Approx. Chi-Square	517.248
	Df	6
	Sig.	0.000

Reliability Test Results

The Cronbach Alpha coefficient was calculated to verify the internal consistency reliability. The reliability test results showed that the Cronbach alpha coefficients of the 5 variables ranged from 0.870 and 0.886 and the Cronbach alpha coefficient of the entire scale (20 items) was 0.896, greater than the threshold of 0.7, suggest in acceptable internal consistency reliability. The general rule of thumb is that a Cronbach's alpha values of 0.70 or above indicates acceptable internal consistency reliability (Hair *et al.*, 2020). Table 4 presents the reliability test results of the study variables.

Table 4: Reliability Results

Variables	No. of Items	Cronbach's Alpha	Comments
Automated Teller Banking Capability (X_1)	4	0.878	Reliable
Mobile banking (X_2)	4	0.870	Reliable
Internet banking (X_3)	4	0.884	Reliable
Debit Cards Banking Capability (X_4)	4	0.886	Reliable
Firm Performance (Y)	4	0.876	Reliable
Entire Scale	**20**	**0.896**	**Reliable**

Correlation Analysis Results

The Pearson's product moment correlations analysis was performed to confirm or deny the relationships between electronic banking and performance of commercial banks in Mombasa County, Kenya. The results showed that automated teller machine banking had a moderately strong positive and significant relationship with performance($r = 0.679$, $p \leq 0.05$) of commercial banks in Mombasa County, Kenya. The findings indicated that mobile banking had a moderately strong positive and significant relationship with performance($r = 0.587$, $p \leq 0.05$) of commercial banks in Mombasa County, Kenya. The results showed that internet banking had a moderately strong positive and significant relationship with performance($r = 0.601$, $p \leq 0.05$) of commercial banks in Mombasa County, Kenya. The findings indicated that smart card banking had a strong positive and significant relationship with performance($r = 0.771$, $p \leq 0.05$) of commercial banks in Mombasa County, Kenya. Table 5 presents the Pearson's correlations results for electronic banking and performance of commercial banks in Mombasa County, Kenya.

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Table 5: The Pearson's Correlations Analysis Results

Variable		X_1	X_2	X_3	X_4	Y
Automated teller machine banking (X_1)	Pearson Correlation	1				
	Sig. (2-tailed)					
	N	102				
Mobile banking (X_2)	Pearson Correlation	.691**	1			
	Sig. (2-tailed)	.000				
	n	102	102			
Internet banking (X_3)	Pearson Correlation	.588**	.844**	1		
	Sig. (2-tailed)	.000	.000			
	N	102	102	102		
Smart card banking (X_4)	Pearson Correlation	.453**	.640**	.586**	1	
	Sig. (2-tailed)	.000	.000	.000		
	N	102	102	102	102	
Firm Performance (Y)	Pearson Correlation	.679**	.587**	.601**	.771**	1
	Sig. (2-tailed)	.000	.000	.000	.000	
	N	102	102	102	102	102

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

Multiple Linear Regressions Analysis Results

A standard multiple linear regression analysis was performed with the performance of commercial banks as the dependent variable and automated teller machine banking, mobile banking, internet banking and smart card bankingas the predictor variables. The standard multiple linear regression analysis, $\alpha = .05$ (two-tailed), was performed to examine the extent to which, if any, of the linear combination of the automated teller machine banking, mobile banking ,internet banking and smart card banking predict the performance of commercial banks in Mombasa County, Kenya. The standard multiple linear regression results showed that the model as a whole was able to significantly predict the variance in the performance, $F(4, 101) = 78.594$, $p < 0.001$, $R^2 = 0.764$, of commercial banks in Mombasa County, Kenya.

Model Summary

From the model summary table, the value of coefficient of correlation (R) was 0.874, while the value of coefficient of determination (R^2) was 0.764, the value of the adjusted R^2 was 0.754, the Std. Error of the Estimate value of 0.26708, and the Durbin-Watson statistic was 1.702. The Rvalue of 0.874 suggests that there was a strong positive linear relationship between the and the performance of commercial banks in Mombasa County, Kenya. The R^2 value of 0.764 suggests that the linear combination of predictor variables (automated teller machine banking, mobile banking, internet banking, and smart card banking) could significantly predict and explain approximately 76.4% of the variance in the performance of commercial banks in Mombasa County, Kenya.

The Adjusted R Square value of 0.754 indicates that the model as a whole (the model involving constant, automated teller machine banking, mobile banking, internet banking, and smart card banking) significantly predicted approximately 75.4% of the variance in the performance of commercial banks in Mombasa County, Kenya. However, the model as a whole was not able to predict the remaining 24.6% of the variance in the performance of commercial banks in Mombasa County, Kenya. The Std. Error of the Estimate value of 0.26708 suggests that there are other factors not included in the model, in the current study that could also predict the remaining 24.6% of the variance in the performance of commercial banks in Mombasa County, Kenya. Therefore, future research should be conducted to discover the other variables not included in the model in the current

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study that could also predict the remaining variance in the performance of commercial banks in Mombasa County, Kenya.

From the model summary table, the Durbin-Watson test statistic had a value of 1.702, falling within the optimum range of 1.5 to 2.5, suggesting that there was no severe autocorrelation detected in the in the residual values in the datasets. Extant literature posits that the Durbin-Watson statistics falling within the optimum range of 1.5 to 2.5 indicate that there is no severe autocorrelation detected in the in the residual values in the datasets (Hair *et al.*, 2020). Table 6 presents the model summary results.

Table 6: Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.874[a]	.764	.754	.26708	1.702

a. Predictors: (Constant), Smart card banking (X_4), Automated teller machine banking (X_1), Internet banking (X_3), Mobile banking (X_2)
b. Dependent Variable: Firm Performance (Y)

Analysis of Variance

From the Analysis of Variance (ANOVA) table, the overall multiple regression model (the model involving constant, automated teller machine banking, mobile banking, internet banking, and smart card banking),achieved a high degree of fit, as reflected by R = 0.874, R^2 = 0.764, adj. R^2 = 0.754, F (4, 101) = 78.594, p< 0.001. From the results, the model as a whole was able to significantly predict the performance, F (4, 101) = 78.594, p < 0.001, R^2 = 0.764, of commercial banks in Mombasa County, Kenya. The results led to the rejection of the null hypothesis that posited that the linear combination of predictor variables (automated teller machine banking, mobile banking, internet banking, and smart card banking) does not significantly predict performance of commercial banks in Mombasa County, Kenya. Therefore, the results suggested that linear combination of predictor variables (automated teller machine banking, mobile banking, internet banking, and smart card banking) significantly predicted the performance of commercial banks in Mombasa County, Kenya. Table 7 presents the ANOVA results.

Table 7: ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	22.424	4	5.606	78.594	.000[b]
	Residual	6.919	97	.071		
	Total	29.343	101			

a. Dependent Variable: Firm Performance (Y)
b. Predictors: (Constant), Smart card banking (X_4), Automated teller machine banking (X_1), Internet banking (X_3), Mobile banking (X_2)

Regressions Coefficients

From the coefficients table, the unstandardized regression coefficients (B) were substituted to the multiple regression model specified for the study to specify the final predictive equation:

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

Where:

Y = Firm Performance

β_0 = Constant Term

X_1 = Automated teller machine banking

X_2= Mobile banking

X_3= Internet banking

X_4= Smart card banking

$\beta_1 - \beta_4$ = Regression Coefficients to be estimated

ε = Stochastic Error Term

Therefore, the final predictive equation was:

$$Y = -0.117 + 0.541X_1 + -0.301X_2 + 0.232X_3 + 0.548X_4$$

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From the results, holding all factors in to account constant (automated teller machine banking, mobile banking ,internet banking, and smart card banking, constant at zero, the performance of commercial banks in Mombasa County, Kenya would be -0.117. The multiple regression suggested that with all other factors held constant, a unit increase in automated teller machine banking would lead to 0.541 unit increase in the performance of commercial banks in Mombasa County, Kenya. The findings suggested that with all other factors held constant, a unit increase in mobile banking would lead to 0.301 unit decrease in the performance of commercial banks in Mombasa County, Kenya. The results suggested that with all other factors held constant, a unit increase in internet banking would lead to 0.232 unit increase in the performance of commercial banks in Mombasa County, Kenya. Furthermore, the findings suggested that with all other factors held constant, a unit increase in smart card banking would lead to 0.548 unit increase in the performance of commercial banks in Mombasa County, Kenya. Based on the magnitude of the unstandardized regression coefficients (B) of the independent variables, the smart card banking, was the best predictor of the variance in the performance of commercial banks in Mombasa County, Kenya.

The regression results showed that automated teller machine banking had a positive and significant effect on the performance (β_1 = 0.508; t = 7.449; $p \leq 0.05$) of commercial banks in Mombasa County, Kenya. The research findings indicated that mobile banking had a negative and significant effect on the performance (β_2 = -0.391; t = -3.626; $p \leq 0.05$) of commercial banks in Mombasa County, Kenya. The findings revealed that internet banking had a positive and significant effect on the performance (β_3 = 0.256; t = 2.771; $p \leq 0.05$) of commercial banks in Mombasa County, Kenya. The results indicated that smart card banking had a positive and significant effect on the performance (β_4 = 0.641; t = 9.922; $p \leq 0.05$) of commercial banks in Mombasa County, Kenya. From the coefficients table, the tolerance values were greater than 0.1, while the variance inflation factors (VIF) values were less than 10, suggesting that there was no multicollinearity among the predicator variables (Hair *et al.*, 2020). Table 8 presents the standard multiple regression coefficients results.

Table 8: Regressions Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
		B	Std. Error	Beta	t	Sig.	Tolerance	VIF
1	(Constant)	-.117	.243		-.481	.632		
	Automated teller machine banking (X_1)	.541	.073	.508	7.449	.000	.522	1.917
	Mobile banking (X_2)	-.301	.083	-.391	-3.626	.000	.210	4.773
	Internet banking (X_3)	.232	.084	.256	2.771	.007	.284	3.519
	Smart card banking (X_4)	.548	.055	.641	9.922	.000	.583	1.715

a. Dependent Variable: Firm Performance (Y)

Hypotheses Test Results

In total, 4 null hypotheses were tested to examine the direct effect of electronic banking on performance of commercial banks in Mombasa County, Kenya. A standard multiple linear regression analysis was performed with the performance of commercial banks as the dependent variable and automated teller machine banking, mobile banking, internet banking, and smart card bankingas the predictor variables. The standardized regression coefficient (β), the corresponding t-values, and P-values were used to

test the $H_0$1, $H_0$2, $H_0$3 and $H_0$4 at 95% confidence level, $\alpha = 0.05$, and $t = 1.960$ to statistically help draw acceptable and realistic inferences. Therefore, the decision rule was to reject the null hypothesis H_0iif the $P \leq 0.05$, and otherwise fail to reject the null hypothesis H_0iif the $P > 0.05$. Extant literature suggests that in hypotheses testing at 5% level of significance ($\alpha = 0.05$) and 95% confidence level, the decision rule is to reject the null hypothesis H_0iif the $P \leq 0.05$, and otherwise fail to reject the null hypothesis H_0iif the $P > 0.05$ (Hair *et al.*, 2020).

Hypothesis One Test Results

The first null hypothesis ($H_0$1) predicted that showed that automated teller machine banking has no significant effect on performance of commercial banks in Mombasa County, Kenya. The Pearson's product correlation results indicated that automated teller machine banking had a moderately strong positive and significant relationship with performance ($r = 0.679$, $p \leq 0.05$) of commercial banks in Mombasa County, Kenya. The standard multiple regression results showed that automated teller machine banking had a positive and significant effect on the performance($\beta_1 = 0.508$; $t = 7.449$; $p \leq 0.05$) of commercial banks in Mombasa County, Kenya. Therefore, the $H_0$1 was rejected, providing the empirical support for $H_1$1. Subsequently, conclusion was made that automated teller machine banking has a significant effect on performance of commercial banks in Mombasa County, Kenya.

Hypothesis Two Test Results

The second null hypothesis ($H_0$2) predicted that showed that mobile banking has no significant effect on performance of commercial banks in Mombasa County, Kenya. The Pearson's product correlation results indicated that mobile banking had a moderately strong positive and significant relationship with performance($r = 0.587$, $p \leq 0.05$) of commercial banks in Mombasa County, Kenya. The standard multiple regression results showed that mobile banking had a negative and significant effect on the performance ($\beta_2 = -0.391$; $t = -3.626$; $p \leq 0.05$) of commercial banks in Mombasa County, Kenya. Therefore, the $H_0$2 was rejected, providing the empirical support for $H_1$2. Subsequently, conclusion was made that mobile banking has a significant effect on performance of commercial banks in Mombasa County, Kenya.

Hypothesis Three Test Results

The third null hypothesis ($H_0$3) predicted that showed that internet banking has no significant effect on performance of commercial banks in Mombasa County, Kenya. The Pearson's product correlation results indicated that internet banking had a moderately strong positive and significant relationship with performance($r = 0.601$, $p \leq 0.05$) of commercial banks in Mombasa County, Kenya. The standard multiple regression results showed that internet banking had a positive and significant effect on the performance($\beta_3 = 0.256$; $t = 2.771$; $p \leq 0.05$) of commercial banks in Mombasa County, Kenya. Therefore, the $H_0$3 was rejected, providing the empirical support for $H_1$3. Subsequently, conclusion was made that internet banking has a significant effect on performance of commercial banks in Mombasa County, Kenya.

Hypothesis Four Test Results

The fourth null hypothesis ($H_0$3) predicted that showed that internet banking has no significant effect on performance of commercial banks in Mombasa County, Kenya. The Pearson's product correlation results indicated that smart card banking had a strong positive and significant relationship with performance ($r = 0.771$, $p \leq 0.05$) of commercial banks in Mombasa County, Kenya. The standard multiple regression results showed that smart card banking had a positive and significant effect on the performance($\beta_4 = 0.641$; $t = 9.922$; $p \leq 0.05$) of commercial banks in Mombasa County, Kenya. Therefore, the $H_0$3 was rejected, providing the empirical support for $H_1$3. Subsequently, conclusion was made that smart card banking has a significant effect on performance of commercial banks in Mombasa County, Kenya. Table 9 presents the hypotheses test results.

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Table 9: Hypotheses Test Results

Hypothesis		β	t	Sig.	Decision
$H_0$1:	Automated teller machine banking has no significant effect on performance of commercial banks in Mombasa County, Kenya.	.508	7.449	.000	Reject the $H_0$1
$H_0$2:	Mobile banking has no significant effect on performance of commercial banks in Mombasa County, Kenya.	-.391	-3.626	.000	Reject the $H_0$2
$H_0$3:	Internet banking has no significant effect on performance of commercial banks in Mombasa County, Kenya.	.256	2.771	.007	Reject the $H_0$3
$H_0$4:	Smart card banking has no significant effect on performance of commercial banks in Mombasa County, Kenya.	.641	9.922	.000	Reject the $H_0$4

Discussions of Key Findings

This section presents a discussion of the key findings of the study. The purpose of this quantitative non-experimental correlational study was to examine the effect of electronic banking on performance of commercial banks in Mombasa County, Kenya. Specifically, the study examined the effect of automated teller machine banking, mobile banking, internet banking, and smart card banking on performance of commercial banks in Mombasa County, Kenya. The Pearson's product moment correlations analysis was performed to confirm or deny the relationships between electronic banking and performance of commercial banks in Mombasa County, Kenya. The correlation results showed that the electronic banking had positive and significant relationship with performance of commercial banks in Mombasa County, Kenya.

A standard multiple linear regression analysis was performed with the performance of commercial banks as the dependent variable and automated teller machine banking, mobile banking, internet banking and smart card bankingas the predictor variables. The regression results indicated that the electronic banking had significant effect on the performance of commercial banks in Mombasa County, Kenya. The results are consistent to the findings of previous studies (Bosco, 2021; Kimere, 2022; Kumar & Pandey, 2023; Sharma, 2023; Obbo, 2022). However, the findings are inconsistent with the results of Hossain (2021) which indicated that e-banking adoption had a negative and significant effect on banks' profitability in terms of return on assets, return on equity, and net interest margin in the year of adoption instate-owned commercial banks in Bangladesh. The results are also inconsistent with the findings of Gbanador (2023) which showed that in the short-run, e-banking had no significant effect on the performance of deposit money banks in Nigeria.

Effect of Automated teller machine banking on Firm Performance

The first specific objective was to determine the effect of automated teller machine banking on performance of commercial banks in Mombasa County, Kenya. The first null hypothesis ($H_0$1) predicted that showed that automated teller machine banking has no significant effect on performance of commercial banks in Mombasa County, Kenya. The Pearson's product correlation results indicated that automated teller machine banking had a moderately strong positive and significant relationship with performance of commercial banks in Mombasa County, Kenya. The standard multiple regression results showed that automated teller machine banking had a positive and significant effect on the performance of commercial banks in Mombasa County, Kenya.

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Therefore, the $H_0$1 was rejected, providing the empirical support for $H_1$1. Consequently, conclusion was made that automated teller machine banking has a significant effect on performance of commercial banks in Mombasa County, Kenya. The results are consistent to the findings of previous studies (Barasa, 2021; Ibrahim, 2022; Madugba*et al.*, 2021; Obbo, 2022). However, the findings are inconsistent with the results of some prior studies (Gbanador, 2023).

Effect of Mobile banking on Firm Performance

The second specific objective was to investigate the effect of mobile banking on performance of commercial banks in Mombasa County, Kenya. The second null hypothesis ($H_0$2) predicted that showed that mobile banking has no significant effect on performance of commercial banks in Mombasa County, Kenya. The Pearson's product correlation results indicated that mobile banking had a moderately strong positive and significant relationship with performance of commercial banks in Mombasa County, Kenya. The standard multiple regression results showed that mobile banking had a negative and significant effect on the performance of commercial banks in Mombasa County, Kenya. Therefore, the $H_0$2 was rejected, providing the empirical support for $H_1$2. Consequently, conclusion was made that mobile banking has a significant effect on performance of commercial banks in Mombasa County, Kenya. The results are consistent to the findings of previous studies (Barasa, 2021; Gbanador, 2023;Kimere, 2022;Ndirangu& Kimani, 2022;Obbo, 2022).

Effect of Internet banking on Firm Performance

The third specific objective was to assess the effect of internet banking on performance of commercial banks in Mombasa County, Kenya. The third null hypothesis ($H_0$3) predicted that showed that internet banking has no significant effect on performance of commercial banks in Mombasa County, Kenya. The Pearson's product correlation results indicated that internet banking had a moderately strong positive and significant relationship with performance of commercial banks in Mombasa County, Kenya. The standard multiple regression results showed that internet banking had a positive and significant effect on the performance of commercial banks in Mombasa County, Kenya. Therefore, the $H_0$3 was rejected, providing the empirical support for $H_1$3. Consequently, conclusion was made that internet banking has a significant effect on performance of commercial banks in Mombasa County, Kenya. The results are consistent to the findings of previous studies (Barasa, 2021; Ghose & Maji, 2022). However, the findings are inconsistent with the results of some prior studies (Kimere, 2022; Madugba*et al.*, 2021).

Effect of Smart card banking on Firm Performance

The fourth specific objective was to examine the effect of smart card banking on performance of commercial banks in Mombasa County, Kenya. The fourth null hypothesis ($H_0$3) predicted that showed that internet banking has no significant effect on performance of commercial banks in Mombasa County, Kenya. The Pearson's product correlation results indicated that smart card banking had a strong positive and significant relationship with performance of commercial banks in Mombasa County, Kenya. The standard multiple regression results showed that smart card banking had a positive and significant effect on the performance of commercial banks in Mombasa County, Kenya. Therefore, the $H_0$3 was rejected, providing the empirical support for $H_1$3. Consequently, conclusion was made that smart card banking has a significant effect on performance of commercial banks in Mombasa County, Kenya. The results are consistent to the findings of previous studies (Shaikh & Anwar, 2023; Sharma, 2023).

CONCLUSIONS AND RECOMMENDATIONS

The purpose of this quantitative non-experimental correlational study was to examine the effect of electronic banking on performance of commercial banks in Mombasa County, Kenya. Specifically, the study examined the effect of automated teller machine banking, mobile banking, internet banking, and smart card banking on performance of commercial banks in Mombasa County, Kenya. The

Pearson's product moment correlations analysis was performed to confirm or deny the relationships between electronic banking and performance of commercial banks in Mombasa County, Kenya. The correlation results showed that the electronic banking had positive and significant relationship with performance of commercial banks in Mombasa County, Kenya. A standard multiple linear regression analysis was performed with the performance of commercial banks as the dependent variable and automated teller machine banking, mobile banking, internet banking and smart card bankingas the predictor variables. The regression results indicated that the electronic banking had significant effect on the performance of commercial banks in Mombasa County, Kenya. Therefore, the conclusion was that electronic banking significantly predict the performance of commercial banks in Mombasa County, Kenya.

The study provides valuable managerial recommendations. The study recommends that it is imperative for the managers to develop electronic banking to foster the performance of commercial banks in Mombasa County, Kenya. First, the study recommends that it is imperative for the managers to develop automated teller machine banking to foster the performance of commercial banks in Mombasa County, Kenya. Second, the study recommends that it is imperative for the managers to improve on the mobile banking to foster the performance of commercial banks in Mombasa County, Kenya. Third, the study recommends that it is imperative for the managers to develop internet banking to foster the performance of commercial banks in Mombasa County, Kenya. Fourth, the study recommends that it is imperative for the managers to develop smart card banking to foster the performance of commercial banks in Mombasa County, Kenya.

Policy Recommendations

The study provides important policy recommendations. The study recommends that policy makers should consider initiating policy review to encourage stakeholders to develop electronic banking to foster the performance of commercial banks in Mombasa County, Kenya. First, the study recommends that it is imperative for the policy makers should consider initiating policy review to encourage stakeholders to develop automated teller machine banking to foster the performance of commercial banks in Mombasa County, Kenya. Second, the study recommends that it is imperative for the policy makers should consider initiating policy review to encourage stakeholders to improve on the mobile banking to foster the performance of commercial banks in Mombasa County, Kenya. Third, the study recommends that it is imperative for the policy makers should consider initiating policy review to encourage stakeholders to develop internet banking to foster the performance of commercial banks in Mombasa County, Kenya. Fourth, the study recommends that it is imperative for the policy makers should consider initiating policy review to encourage stakeholders to develop smart card banking to foster the performance of commercial banks in Mombasa County, Kenya.

Areas for Future Research

The study provides important areas for future research. First, future researchers should consider examining the effect of electronic banking on performance of commercial banks in other regions or contexts. Second, future researchers should consider investigating the moderating effect of environmental dynamism on the relationship between electronic banking and performance of commercial banks in other regions, sectors or contexts.

REFERENCES

Aghimien, D., Aigbavboa, C., &Matabane, K. (2023). Dynamic capabilities for construction organizations in the fourth industrial revolution era. *International Journal of Construction Management*, *23*(5), 855-864.

Ajanni, B. &Addisu, P. (2021). Enhancing financial inclusion in rural Ethiopia through e-banking technologies. *International Journal of Marketing & Business Communication*, *2*(3),36-51.

Albort-Morant, G., Sanchís-Pedregosa, C., & Paredes Paredes, J. R. (2022). Online banking adoption in Spanish cities and towns. Finding differences through TAM application. *Economic Research-EkonomskaIstraživanja*, *35*(1), 854-872.

Al-Dmour, H., Saad, N., Basheer Amin, E., Al-Dmour, R., & Al-Dmour, A. (2023). The influence of the practices of big data analytics applications on bank performance: Filed study. *VINE Journal of Information and Knowledge Management Systems*, *53*(1), 119-141.

Alqudah, O., Jarah, B., Alshehadeh, A., Almatarneh, Z., Soda, M., & Al-Khawaja, H. (2023). Data processing related to the impact of performance expectation, effort expectation, and perceived usefulness on the use of electronic banking services for customers of Jordanian banks. *International Journal of Data and Network Science*, *7*(2), 657-666.

Asiimwe, E. (2019). *Effect of mobile banking on the financial performance of commercial banks in Hoima district* (Bachelor's dissertation, Kampala International University, College of Economics and Management).

Aziz, M. R. A., Noor, M. N. M., Sulaiman, S., Harun, M. S., Mustafar, M. Z. I., &Jali, M. Z. (2022). The perception of Malaysian community on the reliability of the adoption ofIslamic digital banking in mobilizing financial sector.*Islamic Banking, Accounting and Finance International Conference-The 10th iBAF 2022* (465-472).

Bandiera, O., Prat, A., Hansen, S., &Sadun, R. (2020). CEO behavior and firm performance. *Journal of Political Economy*, *128* (4), 1325-1369.

Barasa, C. (2021). *Effect of electronic banking on the financial performance of commercial banks in Kenya* (Masters research project, University of Nairobi).

Basajji, F. (2021). *Mobile banking and financial performance of banks in Uganda*. Nkumba university press Entebbe.

Bellahcene, M., &Latreche, H. (2023). E-banking adoption by Algerian bank customers: Towards an integrated model. *International Journal of E-Services and Mobile Applications (IJESMA)*, *15*(1), 1-20.

Bend, J. D. (2020). *Factors affecting electronic banking adoption in Barbados* (Doctoral dissertation, Walden University).

Bosco, I. B. (2021). *E-Banking and Performance of Financial Institutions in Uganda: A Case of Kabale District* (Masters dissertation, Kabale University).

Bousrih, J. (2023). The impact of digitalization on the banking sector: Evidence from fintech countries. *Asian Economic and Financial Review*, *13*(4), 269-278.

DaneshvarKakhki, M., Rea, A., &Deiranlou, M. (2023). Data analytics dynamic capabilities for Triple-A supply chains. *Industrial Management & Data Systems*, *123*(2), 534-555.

Daulay, U. D., Lubis, R., & Gautama, B. (2023). The influence of fintech usage and financial literacy on the performance of MSME with digital marketing as the moderating variable. *International Journal of Economics, Business and Accounting Research (IJEBAR)*, *7*(1), 184-194.

Etim, G. S., Ada, J. A., Eyo, I. E., Ndem, S. E., & James, E. E. (2023). Electronic banking and customers' access to banking services in rural settlements. *Resmilitaris*, *13*(3),1161-1177.

Fairchild, A.J., & Mackinnon, D.P. (2009). A general Model for testing Mediation and Moderation effects. *Prevention science, 10*(2), 87-99.

Fathy, D., Elsharnouby, M. H., &AbouAish, E. (2021). Fans behave as buyers? Assimilate fan-based and team-based drivers of fan engagement. *Journal of Research in Interactive Marketing*.

Gabrieli, G., Ng, S., & Esposito, G. (2021). Hacking trust: The presence of faces on automated teller machines (ATMs) affects trustworthiness. *Behavioral Sciences*, *11*(6), 91.

Gbanador, M. A. (2023). Electronic banking systems and the performance of deposit money banks in Nigeria. *Nigerian Journal of Management Sciences*, *24*(1a), 360-371.

Ghaleb, E. A., Dominic, P. D. D., Fati, S. M., Muneer, A., & Ali, R. F. (2021). The assessment of big data adoption readiness with a technology–organization - environment framework: A perspective towards healthcare employees. *Sustainability*, *13*(15), 8379.

Ghose, B., & Maji, S. G. (2022). Internet banking intensity and bank profitability: evidence from emerging Indian economy. *Managerial Finance*, (ahead-of-print).

Gupta, R. (2023). Industry 4.0 adaption in Indian banking sector - A review and agenda for future research. *Vision*, *27*(1), 24-32.

Hailat, K., Jarah, B., Al-Jarrah, M., &Almatarneh, Z. (2023). The impact of electronic banking services on the use of technology by customers of conventional and Islamic banks in Jordan. *International Journal of Data and Network Science*, *7*(2), 737-744.

Hakizimana, S., Wairimu, M. M. C., & Stephen, M. (2023). Digital banking transformation and performance-Where do we stand?. *International Journal of Management Research and Emerging Sciences*, *13*(1).

Hassan, H. A., Abuga, I. M., &Ndalilah, J. W. (2023). The influence of e-banking on customer satisfaction in Kenya commercial banks.*The American Journal of Humanities and Social Sciences Research*, *5*(5), 88-99.

Hassan, H., &Farmanesh, P. (2022). Customer adoption of self-service technologies in Jordan: Factors influencing the use of Internet banking, mobile banking, and telebanking. *Management Science Letters*, *12*(3), 193-206.

Hennink, M., & Kaiser, B. N. (2021). Sample sizes for saturation in qualitative research: A systematic review of empirical tests. *Social Science & Medicine*, 114523.

Heredia, J., Castillo-Vergara, M., Geldes, C., Gamarra, F. M. C., Flores, A., & Heredia, W. (2022). How do digital capabilities affect firm performance? The mediating role of technological capabilities in the “new normal”. *Journal of Innovation & Knowledge*, *7*(2), 100171.

Hossain, M. I. (2021). Effects of e-banking adoption on the financial performance of state-owned commercial banks in Bangladesh. *Information Resources Management Journal (IRMJ)*, *34*(4), 93-112.

Howard, M. C., & Hair Jr, J. F. (2023). Integrating the Expanded Task-technology Fit Theory and the Technology Acceptance Model: A Multi-wave Empirical Analysis. *AIS Transactions on Human-Computer Interaction*, *15*(1), 83-110.

Hua, Y., Kang, F., Zhang, S., & Li, J. (2023). Impacts of task interdependence and equivocality on ICT adoption in the construction industry: a task-technology fit view. *Architectural Engineering and Design Management*, *19*(1), 92-109.

Ibrahim, S. S. (2022). Customer satisfaction with electronic banking services in the Iraqi banking sector: A case of Duhok city banks. *Academic Journal of Nawroz University*, *11*(3), 12-19.

Iliyasu, R., &Etikan, I. (2021). Comparison of quota sampling and stratified random sampling. *Biom. Biostat. Int. J. Rev*, *10*, 24-27.

Kanoujiya, J., Singh, K., & Rastogi, S. (2023). Does promoters' ownership reduce the firm's financial distress? Evidence from non-financial firms listed in India. *Managerial Finance*, *49*(4),643-660.

Kimere, V. W. (2022). *Effect of electronic banking on financial performance of microfinance institutions in Kenya* (Masters research project, University of Nairobi).

Kimiagari, S., &Baei, F. (2022). Promoting e-banking actual usage: mix of technology acceptance model and technology-organization-environment framework. *Enterprise Information Systems*, *16*(8-9), 1894356.

Kitigin, B., Korir, M., &Chepkwony, K. (2021). E-banking technology characteristics and performance of micro and small enterprise in Kenya: A moderated mediation model of adoption and innovative behavior. *SEISENSE Journal of Management*, *4*(1), 13-30.

Kombe, V. (2023). Effects of financial innovations on performance of commercial banks in Kenya. *African Journal of Commercial Studies*, *2*(1), 12-26.

Kothani, C.R., & Garg, G. (2014). Research Methodology, 3rd Ed, *New Age International Publishes, New Delhi.*

Kumar, H., & Pandey, D. C. (2023). Role of e-banking on banks performance: A quantitative investigation of bank executives. *European Economic Letters (EEL)*, *13*(1), 324-328.

Kwon, J., Yu, H., & Ahn, J. (2022). Multidimensional value of customers' mobile service experiences in the food service context. *Journal of Hospitality and Tourism Insights*, (ahead-of-print).

Leal, G. C., Bandeira, I. D., Correia-Melo, F. S., Telles, M., Mello, R. P., Vieira, F., ... & Quarantini, L. C. (2021). Intravenous arketamine for treatment-resistant depression: Open-label pilot study. *European Archives of Psychiatry and Clinical Neuroscience*, *271*(3), 577-582.

Lee, C. T., & Pan, L. Y. (2023). Smile to pay: predicting continuous usage intention toward contactless payment services in the post-COVID-19 era. *International Journal of Bank Marketing*, *41*(2), 312-332.

Lobe, B., Morgan, D., & Hoffman, K. A. (2020). Qualitative data collection in an era of social distancing. *International journal of qualitative methods*, *19*, 1609406920937875.

Madugba, J., Egbide, B. C., Jossy, D. W., Agburuga, U. T., &Chibunna, O. O. (2021). Effect of electronic banking on financial performance of deposit money banks in Nigeria. *Banks and Bank Systems*, *16*(3), 71-83.

Malhotra, N., Sahadev, S., Leeflang, P. S. H., &Purani, K. (2021). New insights into e-loyalty of internet banking users in an emerging market context: a multilevel analysis. *Information Systems Frontiers*, *23*, 1521-1536.

Malik, S., Chadhar, M., Vatanasakdakul, S., & Chetty, M. (2021). Factors affecting the organizational adoption of blockchain technology: Extending the technology–organization–environment(TOE) framework in the Australian context. *Sustainability*, *13*(16), 9404-9417.

Marchiori, D. M., Rodrigues, R. G., Popadiuk, S., &Mainardes, E. W. (2022). The relationship between human capital, information technology capability, innovativeness and organizational performance: An integrated approach. *Technological Forecasting and Social Change*, *177*, 121526.

Mathina (2022). *Basel accord requirements and financial performance of commercial banks in Kenya* (Doctoral thesis, Kenyatta University).

Mathina, R., Jagongo, A., &Wamugo, L. (2022). Basel accord requirements and financial performance of commercial banks in Kenya.*International Journal of Research in Education Humanities and Commerce*, *3*(4), 113-128.

Misati, R., Osoro, J., Odongo, M., & Abdul, F. (2022). Does digital financial innovation enhance financial deepening and growth in Kenya?. *International Journal of Emerging Markets*, (ahead-of-print).

Mosa, R. A. (2022). The influence of e-customer relationship management on customer experience in e-banking service. *Soc. Sci*, *12*, 193-215.

Mtebe, K. (2020). The influence of firm size on Technology Adoption and Firm Performance. *Journal of information Systems 16(1), 219-233.*

Muchenje, G., &Seppänen, M. (2023). Unpacking task-technology fit to explore the business value of big data analytics. *International Journal of Information Management*, *69*, 102619.

Mugambi, S. W. (2022). *Influence of alternate banking channels on customer satisfaction at Kenya Commercial Bank in Nairobi, Kenya* (Doctoral dissertation, Africa Nazarene University).

Muller, B. (2017). Electronic banking Challenges in Africa. *Journal of Bank Marketing, 2*(2), 271-292.

Murugun, D. (2023). Technology Adoption in Indian Banking Sectors–2023. *East Asian Journal of Multidisciplinary Research*, *2*(2), 569-580.

Mutegi, H. K., Njeru, P., &Mwiti, E. (2023). The influence of consular strategy on performance of commercial banks' diaspora remittances in Kenya. *European Journal of Business and Management Research*, *8*(2), 78-84.

Mutesa, P. (2021). The growth of Electronic banking in Uganda. The influence of Technological advancement. *Journal of Business Management, 3*(1), 148-162.

Mwachia, J. K., Kimaku, P., &Makungu, M. T. (2023). Influence of organizational agility dimensions on performance of hotel industry in Kenyan coast counties. *International Journal of Social Sciences Management and Entrepreneurship (IJSSME)*, *7*(1), 172-187.

Mwakalalile, A. C. (2020). *Assessment of Impact of Mobile Banking on Financial Performance: A Case Study: CRDB Bank Plc In Tanzania* (Doctoral dissertation, Mzumbe University).

Naeem, M., Ozuem, W., & Ward, P. (2022). Understanding the accessibility of retail mobile banking during the Covid-19 pandemic. *International Journal of Retail & Distribution Management*.

Nasehifar, V., DehdashtiShahrokh, Z., Mohammadian, M., &Allahverdi, M. (2021). Testing the customer experience management model in E-banking. *Journal of Business Management*, *13*(4), 974-1000.

Ndirangu, E. W., Kiragu, D., Ngunyi, A., Shano, M., & Kimani, J. G. (2022). Effect of online banking on performance of microfinance banking in Kenya.

Ndirangu, E., & Kimani, J. (2022). Effect of mobile banking on performance of microfinance banks in Kenya. *European Journal of Business and Strategic Management*, *7*(3), 24-38.

Ndung'u, N. (2022). *Fintech in sub-Saharan Africa* (No. wp-2022-101). World Institute for Development Economic Research (UNU-WIDER).

Ng, P. M., Lit, K. K., & Cheung, C. T. (2022). Remote work as a new normal? The technology-organization-environment (TOE) context. *Technology in Society*, *70*, 102022.

Njiru, A. (2020). Mobile money systems in East Africa: Issues and challenges. *International Journal of Bank Marketing, 2*(2), 167-179.

Njoki, N. M., &Nyamute, W. (2023). Factors affecting financial performance of commercial banks in Kenya. *Journal of Finance and Accounting*, *7*(1), 100-115.

Nwekpa, K. C., Djobissie, I. C., Chukwuma, N. N., &Ezezue, B. O. (2020). Influence of electronic banking on customer satisfaction in a Fidelity Bank Plc in Nigeria. *IOSR Journal of Business and Management*, *22*, 49-58.

Obbo, A. (2022). *Electronic banking and financial performance of commercial banks in Uganda* (Bachelors dissertation, Busitema University).

Odindo, T. A. (2021). An investigation of management information system agility and performance of commercial banks in Nairobi Metropolitan.*EAS Journal of Humanities and Cultural Studies*, *3*(6), 266-273.

Ofori-Okyere, I., Edghiem, F., &Kumah, S. P. (2023). Marketing inclusive banking services to financially vulnerable consumers: A service design approach. *Journal of Services Marketing*, *37*(2), 232-247.

Ogendo, R. O. (2021). *Effect of quality management practices and corporate culture on the operational performance of commercial banks in Nairobi City County* (Masters research project, Strathmore University).

Olsson, P. (2020). The Role of Organizational culture in the Technology-firm performance relationship. *Journal of Business and Management, 3(2), 162-17.*

Oluwafemi, O. O., Yusuf, A. A., &Shuaibu, H. (2022). Impact of internet banking on profitability of Fidelity Bank Plc. *International Journal of Management, Social Sciences, Peace and Conflict Studies*, *5*(2), 385-395.

Olwande, O.S., &Ngaba, D. (2019). E-banking services and financial performance of commercial bank Kenya. *International Academic Journal of Economics and Finance, 3*(4), 132-153.

Omoto, S. G. (2021). *Mobile Banking and Its Effect on the Financial Performance of Commercial Banks: A Case Study of Selected Banks in Narok Town, Kenya* (Doctoral dissertation, Maasai Mara University).

Ongaga, H. N. (2022). *Effect of financial technology on financial deepening in kenya* (Masters dissertation, University of Nairobi).

Onyina, E., Owusu Kwateng, K., &Dzidzah, E. (2022). E-Banking Continuance: An Integration of Network Externalities and Flow Theory. *Journal of Information & Knowledge Management*, *21*(03), 2250035.

Pallant, J. (2020). SPSS survival manual: A step by step guide to data analysis using IBM SPSS.

Pambudi, Widayanti, &Edastama (2021). Trust and Acceptance of E-Banking Technology Effect of Mediation on Customer Relationship Management Performance. *ADI Journal on Recent Innovation*, *3*(1), 87-96.

Pandey, P., & Pandey, M. M. (2021). *Research methodology tools and techniques*. Bridge Center.

Pradhan, P., Shyam, R., &Dahal, P. (2021). Effect of e-banking on financial inclusion in Nepal. *International Journal of Finance, Entrepreneurship & Sustainability (IJFES)*, *1*.

Rahi, S., Mansour, M. M. O., Alharafsheh, M., &Alghizzawi, M. (2021). The post-adoption behavior of internet banking users through the eyes of self-determination theory and expectation confirmation model. *Journal of Enterprise Information Management*.

Ramos, E., Patrucco, A. S., & Chavez, M. (2023). Dynamic capabilities in the "new normal": a study of organizational flexibility, integration and agility in the Peruvian coffee supply chain. *Supply Chain Management: An International Journal*, *28*(1), 55-73.

Rasli, S., Aris, A. A. N., & Razak, N. H. A. (2022). Does e-banking services quality affect e- customer loyalty of Islamic banks?. *Selangor Business Review*, 46-59.

Regin, R., Rajest, S. S., Shynu,T, S., &Steffi,R. (2022). Impact of internet banking on the efficiency of traditional banks. *Central Asian Journal of Innovations on Tourism Management and Finance*, *3*(11), 85-102.

Ritu, H. K., & Pandey, D. C. (2023). Role of e-banking on banks performance: A quantitative investigation of bank executives. *European Economic Letters (EEL)*, *13*(1), 324-328.

Roth, T., Stohr, A., Amend, J., Fridgen, G., & Rieger, A. (2023). Blockchain as a driving force for federalism: A theory of cross-organizational task-technology fit. *International Journal of Information Management*, *68*, 102476.

Saetang, W., Tangwannawit, S., &Jensuttiwetchakul, T. (2020). The effect of technology- organization-environment on adoption decision of big data technology in Thailand. *Int J ElectrComput*, *10*(6), 6412.

Shah, S. S. H., Gherghina, Ș. C., Dantas, R. M., Rafaqat, S., Correia, A. B., & Mata, M. N. (2023). The Impact of COVID-19 Pandemic on Islamic and Conventional Banks' Profitability. *Economies*, *11*(4), 104.

Shahid, A. (2019). The influence of the Dynamic Environment on Technology Adoption, Information Systems Research*, 2(3), 199-218.*

Shahzad, K., Zhang, Q., Zafar, A. U., Ashfaq, M., & Rehman, S. U. (2023). The role of blockchain-enabled traceability, task technology fit, and user self-efficacy in mobile food delivery applications. *Journal of Retailing and Consumer Services*, *73*, 103331.

Shaikh, A. A., Alamoudi, H., Alharthi, M., &Glavee-Geo, R. (2023). Advances in mobile financial services: a review of the literature and future research directions. *International Journal of Bank Marketing*, *41*(1), 1-33.

Shaikh, I., & Anwar, M. (2023). Digital bank transactions and performance of the Indian banking sector. *Applied Economics*, *55*(8), 839-852.

Sharma, P. (2011). Electronic banking practices I Indian banking industry. *Journal of Management, 1*(2), 421-436.

Sharma, S. (2023). E-banking services and bank performance: perspective from India. *International Journal of Electronic Finance*, *12*(2), 176-191.

Shin, Y. Z., Lee, Y. G., & Park, M. S. (2023). The use of non-financial performance measures in CEO compensation contracts and stock price crash risk. *Asia-Pacific Journal of Accounting & Economics*, *30*(2), 531-552.

Singh, N. (2023). Impact of e-banking: Prior and after effects on banking activities. *Journal of Pharmaceutical Negative Results*, 310-317.

Solem, B. A. A., Fredriksen, J. I., &Sørebø, Ø. (2023). Dynamic capabilities in the realisation of omnichannel retailing. *Journal of Retail & Distribution Management*, *51*(1), 21-38.

Ssekamanya, A. (2021). Mobile banking and performance of financial institutions in Uganda. Nkumba university press Entebbe.

Switbert, S., &Baleche, A. (2022). Perceived benefits of E-Banking and its Relationship on Banking Performance in Tanzania. *International journal of Engineering, Business and Management*, *6* (2).

Tahtamouni, A. (2022). E-banking services and the satisfaction of customers in the Jordanian banks. *Journal of Science and Technology Policy Management*, (ahead-of-print).

Traore, K., &Loang, O. K. (2023). The factors that influence e-banking service quality in Guinea's commercial banks. *International Journal of Accounting*, *8*(46), 153-167.

Usman, M. (2020). Effect of Mobile Banking on Financial Performance of Deposit Money Banks in Maiduguri Borno State {A Case of United Bank of Africa (Uba) PLC, Maiduguri Main Branch}. *Available at SSRN 3612701*.

Valdez-Juárez, L. E., & Castillo-Vergara, M. (2020). Technological capabilities, open innovation, and eco-innovation: Dynamic capabilities to increase corporate performance of SMEs. *Journal of Open Innovation: Technology, Market, and Complexity*, *7*(1), 8.

Varpio, Uijtdehaage& Young (2020). The distinctions between theory, theoretical framework, and conceptual framework. *Academic Medicine*, *95*(7), 989-994.

Walowe, K. B. (2021). *Strategic intelligence and performance of commercial banks in Kenya* (Doctoral thesis, Kenyatta University).

Wang, Yang, Chen, Bai, & Yu (2020). Global, regional, and national estimates of target population sizes for covid-19 vaccination: descriptive study. *bmj*, *371*.

Wanjiru, P. W., Mutiso, A. N., & Maina, M. (2022). Internet Banking and Sustainability of Registered Commercial Banks in Kenya.

Yang, Y., & Jiang, Y. (2023). Buyer-supplier CSR alignment and firm performance: A contingency theory perspective. *Journal of Business Research*, *154*, 113340.

Zeleke, S., & Chauhan, S. (2022). The Effect of Electronic banking Service On Customer Satisfaction: Evidence from Commercial Banks of Ethiopia Operating in Hawassa City Administration. *Journal of Positive School Psychology*, *6*(8), 3228-3246.

Zeller, P. (2019). Reliability and Validity issues in Social Sciences. *International Journal of BUSS Management, 2*(1), 100-119.

Zhu, K., Kroemer, K.L., & Xu, S. (2020). A Cross-County study of Electronic B Adoption Using the Technology-Organization-Environment Framework. *International Journal of Computing and Information, 2(1), 167-189.*