

FINTECH BANKING AND ACCESS TO FINANCIAL SERVICES AMONG COMMERCIAL BANKS IN KENYA

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International Academic Journal of Economics and Finance (IAJEF) | ISSN 2518-2366

Received: 3rd July 2023

Published: 12th July 2023

Full Length Research

Available Online at: https://iajournals.org/articles/iajef_v3_i9_463_484.pdf

Citation: Adhing'a, D. C., Gatauwa, J. M. (2023). Fintech banking and access to financial services among commercial banks in Kenya. *International Academic Journal of Economics and Finance*, 3(9), 463-484.

ABSTRACT

The financial sector makes crucial contributions towards financial improvement of nations. Fintech firms have made it possible to have low-cost financial networking but its influence on accessing banking services remains unclear. The project aimed to scrutinize the impact of Fintech banking on financial accessibility, with a focus on Kenyan commercial banks. The purpose of this study was to ascertain the influence of cryptocurrency, FinTech lending, mobile and online banking on financial accessibility in Kenya. The research was founded on the theory of financial intermediation, technology acceptance model and diffusion of innovation theory. A descriptive research design was to be used and source data be acquired using semi-structured questionnaires from senior management of Kenyan commercial banks. The researcher targeted 39 Kenyan commercial banks which formed the study population. The researcher used semi-structured questionnaires to obtain data. Collected data was examined employing both descriptive and inferential statistics.

Findings from the study established that embracing of financial technologies in the banking sector had affirmative and momentous impact on financial accessibility among Kenyan commercial banks. Results revealed that acceptance of mobile banking, internet banking, blockchain technology and cryptocurrency significantly influenced financial accessibility with a (P-value < 0.05). Therefore, it was concluded that adoption of FinTech in the banking sector had a noteworthy influence on financial accessibility. It is vital for commercial banks to adopt the latest financial technologies if they are to meet the fast-changing demands of their clientele. Adoption of such technologies will also play key roles in the attainment and sustainability of a competitive edge in the current volatile and dynamic business environments.

Key words: Access to financial services, Fintech Banking, Mobile banking, Internet banking and Fintech lending

INTRODUCTION

Substantial strides have been made globally towards financial inclusion and it is approximated that 1.2 billion adults, which accounts to 69 percent of adults globally have access to bank accounts since 2011 (World Bank, 2019). The World Bank regards individuals' ability to obtain financial solutions as a crucial enabler in reduction of extreme poverty as well as a key ingredient for achievement of economic prosperity among nations. This realization resulted in the creation of a zealous global objective to attain Universal Financial Access by 2021. Since 2010, more than 55 nations globally have made pledges towards financial inclusion with innovative technologies playing a significant role in enhancing such financial inclusion (World Bank, 2019).

Governments within African continent have put in place key measures aimed at directly broadening access to financial services among its populace. However, such procedures have been found to be costly and risky, including the possibility of missing the targeted populations. (Abel & Bara, 2017).

In the recent past, several countries have seen improvements in their access to financial services. As the continent's financial sector develops, banks will be able to provide more financial services, particularly loans, to targeted customers. This is evidenced by the findings indicating that banks are the top investors in private equity fund (Gatauwa, 2014; Gatauwa, 2022). Novel technologies, namely mobile money, have also expanded financial accessibility, such as but not limited to savings and product payment. (IFC Report, 2020). Even though most of these nations, led by South Africa, have undertaken major financial sector reforms in the previous two decades, most of their financial systems remain underdeveloped in comparison to other developed economies. Indicators of financial product usage by people and businesses in Africa suggest that there are still many obstacles to overcome when it comes to creating a more financially accessible financial sector. (Titko & Jureviciene, 2014).

In Kenya, considerable progress has been made in expanding access to financial services since 2006 with high financial inclusion rate of about 89 percent (2019) up from 26.7 percent in 2006 (FinAccess Survey, 2019). This success can be attributed to growth of mobile money and rapid technological transformations brought about by private-sector groups in collaboration with public-sector institutions (CBK, 2020). Much of Kenya's financial innovation has focused on two essential components of commerce, online financing solutions and payments. Inequalities in access to financial services between males and females, wealthy and poor, and rural and urban environments have all significantly decreased. Such a striking decline in the proportion of adults without access to financial products is because of the policy measures and reforms put in place by the government of Kenya (*FSD Kenya Analysis, 2020*). These measures have assisted in enhancing financial inclusion by helping the populace to conquer infrastructural challenges in financial access, particularly in rural areas. Despite these gains, the use of conventional financial instruments in modern cities has persisted at approximately twice the size in rural areas over the last ten years. (FSD Kenya, 2019).

FinTech has had a major effect on the financial sector, particularly the banking industry. Financial institutions have been forced to embrace these technologies to enhance the effectiveness of their operations to remain competitive in the fast-changing markets (Kemboi, 2018). To cut operational costs, firms have also been compelled to make use of modern technology as a way of enhancing economic sustainability (Mbuthia & Gatauwa, 2022). The banking sector has experienced financial technology revolution, which has directly impacted how customers can access financial services and products. Mobile and internet banking, which are the most common forms of FinTech technologies, have made it possible for most people to be financially included. Most of these individuals can make most of their financial transactions without having to visit banking halls (Kalif, 2020). The use of FinTech technologies has also resulted in improved financial products and decreased costs associated with financial intermediation for customers (KPMG, 2016).

Statement of the Problem

Access to and use of formal financial solutions such as insurance, investment, savings, loans, transactional accounts, and remittances remains a significant barrier for the poor, particularly those living in rural regions. Limited access to micro-credit has been acknowledged as a key factor that

has contributed to increased cases of poverty among the citizens (Maswari, 2013). For a long time, these people have been excluded from the conventional financial sector (CBK, 2019). This is despite Kenya's financial inclusion rate increasing to around 82.9 percent (Fin Access 2019).

The fast adoption of Fintech services in Kenya has aroused a curiosity across the world on their capacity to help the disadvantaged gain access to and use different financial services using mobile phone technology (FSD Kenya, 2019). Diverse kinds of Fintech banking have been viewed as a solution to budgetary and financial incorporation, and the test is to see if using these services in the financial sector is the solution for financial inclusion for all Kenyans. Most Kenyans are still 'unbanked,' and several factors have been identified as preventing poor people and other disadvantaged groups from accessing and using financial services, including lack of understanding, prominent levels of illiteracy, complexity, and high expenses (Wandera, 2018).

Numerous research fields have investigated how access to financial services and FinTech banking are related. Misati et al. (2019) investigated the development of FinTech/digital financial services in Kenya, Huebner et al. (2019) investigated Fintechs and the novel generation of financial intermediaries, and Ndwiga (2020) investigated the impact of Fintechs on risk willingness and bank market power. These studies create contextual gap as they did not look at commercial banks, conceptually they do not link Fintech banking to financial accessibility by the consumers. There exist numerous studies looking at the role of FinTech banking on access to financial services with limited studies looking at the role of FinTech banking on access to credit facilities. Therefore, this research study attempted to fill this knowledge gap. There also exist conceptual and the contextual gaps which the study aimed to address. The research attempted to answer the following research question: What is the influence of Fintech banking on access to financial services among Kenya's commercial banks?

Study Objectives

- i. To examine the effect of mobile banking on access to financial services among Kenya's commercial banks.
- ii. To investigate the impact of internet banking on access to financial services among Kenya's commercial banks.
- iii. To assess the effect of crypto currency on the access to financial services among Kenyan commercial banks.
- iv. To explore the impact of Fintech lending on the access to financial services among Kenya's commercial banks.

Organization of the Paper

The proposal will be divided into three parts. The first part will focus on the introduction where key concepts and context are discussed. Second and last part looks at the theoretical literature review research methodology, data analysis and conclusions and recommendations.

THEORETICAL LITERATURE REVIEW

Financial Intermediation Theory

This theory was advanced by Diamond and Dybvig (1983) and argues that commercial banks are financial intermediaries which assist in facilitation of collection of savings and lending the same to borrowers. Commercial banks can also be regarded as coalitions of depositors that insure households against shocks that impact their liquidity state (Diamond & Dybvig, 1983). Financial intermediaries are key in providing solutions to three main challenges namely: transaction costs, regulatory factors and information problems. Market imperfections are generated from the existence of informational asymmetries. The theory assumes that such information asymmetries are key in comprehension and appreciation of the process of financial intermediation. Further, the theory is dependent on the assumption of resource issuance and is premised on complete and perfect markets. The creation of Fintech banking systems and applications is based on the ability to price and sell the banking services and products to the market and consumers. Allen and Santomero (1997) share that financial intermediary are developed and grow due to imperfections in the market place, similarly the growth and advancement of Fintech banking including its elements like mobile banking, internet banking and Fintech lending is based on imperfections of the financial markets and willingness of the market to price and sell these products. Those who criticize the theory argue that a substantial number of financial organizations have issued diverse types of different securities essential for the theory to stick.

According to the argument, commercial banks have a responsibility to find cash to support their lending activities. In this regard, Fintechs are utilized by commercial banks to collect money from the public in the form of savings and deposits, which then function as a reserve for lending to people in need of financial help. This is key to the accessibility of financial services to the public. Therefore, the theory exposes Fintech banking concepts by looking at mobile banking and internet banking and what makes them thrive as based on imperfections in the financial markets. By lending, Fintechs influence access to financial services by availing various banking products to targeted customers. Therefore, the theory is key in explaining the role that Fintech lending plays in easing access to various financial products from commercial banks.

Technology Acceptance Model

This theory was advanced by Fred David in the year 1989 and looks at ways in which people tend to embrace and adopt new innovations. According to Davis (2009), the theory may be used to forecast whether new innovations will be accepted or rejected by exposing the inter-relationship between beliefs, attitudes, and action purpose. It is one of the most important foundations for assessing technology utilization and performance in companies. As a result, the theory is predicated on two key assumptions: people's desire to utilise new technologies, in addition to the apparent simplicity with which technology systems and applications can be used, and the technology's perceived utility and advantages (Lu, Yu, Liu & Yao, 2003).

The theory exposes the growth of Fintech as the consumers and public see the usefulness and value in using these technologies in performing banking services. It is not just enough for Fintechs and financial institutions to develop innovative financial technologies, such technologies need to be accepted and utilized by targeted customers if value is to be generated from them. Fintech adopted by commercial banks needs to be easy to use if they are to play their rightful role in enhancing access to financial services offered to customers. Therefore, the theory supports the research on how Fintech banking influences financial accessibility since commercial banks have a responsibility to capitalize on available technological capacities in the enhancement of access to the various financial services that they offer.

Diffusion of Innovation Theory

Everett Rogers proposed Diffusion Innovation Theory in 1962 as a way of explaining how, why, and at what pace novel inventions proliferate over different societal groupings. The theory also attempts to give explanation on the adoption process of novel ideas by employees as well as customers. The theory argues that new ideas do not always have equal chances of adoption; some are easily acceded to; others take longer, while still others are outright denied. The innovation process has two stages namely initiation and implementation. According to Rogers (1996), there are four key elements that influence the diffusion and application of novel concepts namely: the innovation characteristics, social systems, channels of communications and time involved. The theory assumes that adoption of new ideas, products and behaviors can never occur simultaneously. Some people will be slow in adopting new ideas as they monitor the behaviors of those who are fast in adopting new ideas (Wami & Ali, 2015).

The theory will be applicable to this research since it is key in explaining the adoption process of newly generated innovative ideas developed by Fintech firms. The adoption process has an influence on access and utilization of banking products among targeted customers. Therefore, the theory will guide research into how Fintechs' new technology, such as mobile and online banking, affect access to financial services. If commercial banks observe the role of technological adoption and are in good partnerships with Fintech firms, it will ease their ability to enhance access of their financial services by targeted customers thereby boosting their overall performances.

EMPIRICAL LITERATURE REVIEW

Mobile Banking and Access to Financial Services

Many countries have seen an increase in financial inclusion because of mobile banking by lowering operating and transaction expenses, such as the time spent physically moving between banking rooms to complete transactions. Most mobile transactions are presently cost-effective for users (Tuesta et al., 2014).

Nyandika (2015) studied online banking as a tool for financial inclusion in Kenya. The research goal was to determine how effective an m-banking strategy is in promoting financial inclusion in Kenya. The primary data was acquired from 30 commercial banks that had implemented mobile

banking using a questionnaire as the study instrument, and analysis was done using averages and standard deviations. Customers' ability to obtain and use financial solutions has improved because of an increased comprehension of bank products and 24/7 account accessibility, according to the findings. Because the services are affordable, there has been a surge in the number of consumers who have informal accounts that are administered using mobile devices. Methodologically, the study covered only a small population -30 commercial banks that adopted mobile banking and left out other commercial banks. There is need to expand literature to other commercial banks that do not conclusively understand the extent of access to financial services.

Rosengard (2016) conducted research on a massive leap forward in financial inclusion: Kenya's mobile banking revolution. It was discovered that mobile banking is a valuable tool for achieving equitable development by promoting economic empowerment for underprivileged persons by boosting individuals' ability to obtain and use formal financial solutions. Mobile banking cut the constraints in terms of geography, demography and institutional to financial inclusion. This is particularly the case in Kenya, where Safaricom's M-Pesa service, a mobile phone-based payment, money transfer, and banking service, is popularly used. Financial inclusion is nevertheless beset by issues such as increased competition, the migration of non-digital microfinance companies, and consumer protection legislation. Because the study only looks at one mobile banking product, M-pesa, it is necessary to expand the literature to include all mobile banking products to definitively address the subject of access to financial solutions.

Internet Banking and Access to Financial Services

Internet banking, which is one of the digital banking platforms, enables users to conduct financial transactions electronically via the internet using their personal computers at any time that is convenient for them, rather than being limited to traditional bank operation hours. Lin, Wang, and Hung (2020) investigated the elements that drove internet banking adoption intentions, with the goal of proposing a research paradigm to investigate the important determinants influencing consumers' propensity to utilize internet banking. The study findings show the main factors under consideration for intention to use internet banking are trust both on the company side and the consumers' side. Organizations must strengthen their liquidity monitoring, information security, and compliance with financial legislation to reduce risks and gain consumer trust. Conceptual and empirical gaps are created since internet banking is not linked to financial inclusion and consumers' access to financial solutions. Expansion of literature in the Kenyan market space and on internet banking and access to financial services by the consumers would cover the gaps.

Kombe and Wafula (2015) evaluated the effect of internet banking on Kenyan bank's financial performance. According to the report, financial institutions have undergone significant changes, such as the type and extent of digital banking. However, there exists a dearth of research comparing the effects of internet banking operations in organizations that have implemented them to those who have not. The study used descriptive design and targeted 31 employees and collected data using questionnaires. According to the study, rather than cost reductions, internet usage has a greater effect on banking sector performance in terms of time savings and quality enhancements. This research was a case study in terms of methodology, and the conclusions may not apply to other

commercial banks. Because the study failed to create a link between online banking and access to financial solutions, and it was conducted on a single branch of the KCB network, there are empirical and conceptual limitations. Therefore, there is a need to fill these gaps by looking at the entire commercial banks and linking internet banking to financial services access.

Cryptocurrency and Access to Financial Services

As a medium to promote the economic process in emerging nations, crypto currencies can perform a crucial function in improving individuals' ability to obtain and use financial solutions by overcoming a lack of societal trust. In the study on blockchain technology and remittances in terms of financial inclusion, Rella (2019) determined that the introduction of blockchain technology had a high probability to increase individuals' ability to obtain and use financial services, and formalize remittances; additionally, it could simplify technologies and replace infrastructure that underpins payments between different countries and remittances, such as correspondent banking. The infrastructure has also undergone de-risking after the 2008 financial crisis in the globe shown through reduced correspondent accounts.

Much of the literature has focused on point-of-sale remittances while ignoring correspondent banking; however, this research study will connect remittances, blockchain technologies, and correspondent banking with critical social science's growing popularity in the importance of payment frameworks in the formation and operation of money, finance, and markets. Conceptually, the study concentrated on blockchain technologies and operations in the correspondent banking accounts and did not cover financial services access and financial inclusion per se.

FinTech Lending and Access to Financial Services

Greenacre (2020) in a study on the research question: 'When Fintech Lending Expands into Emerging Credit Markets, What Regulatory Issues Arise?' argues that FinTech lending can have large negative economic effects for the public and create huge regulatory gaps if it shifts to the embryonic credit markets where the populace has at no time had the ability to obtain formal consumer loans. The study examines the expansion of FinTech lending in Kenya since 2012, along with the beginning points for establishing FinTech lending regulatory frameworks. Empirical and conceptual gaps are created since FinTech lending is not linked to access to financial services. Methodologically, there is no unit of study that is mentioned. Expansion of research will fill the gap by linking FinTech lending to access to financial services and state clearly the study methods that will be adopted.

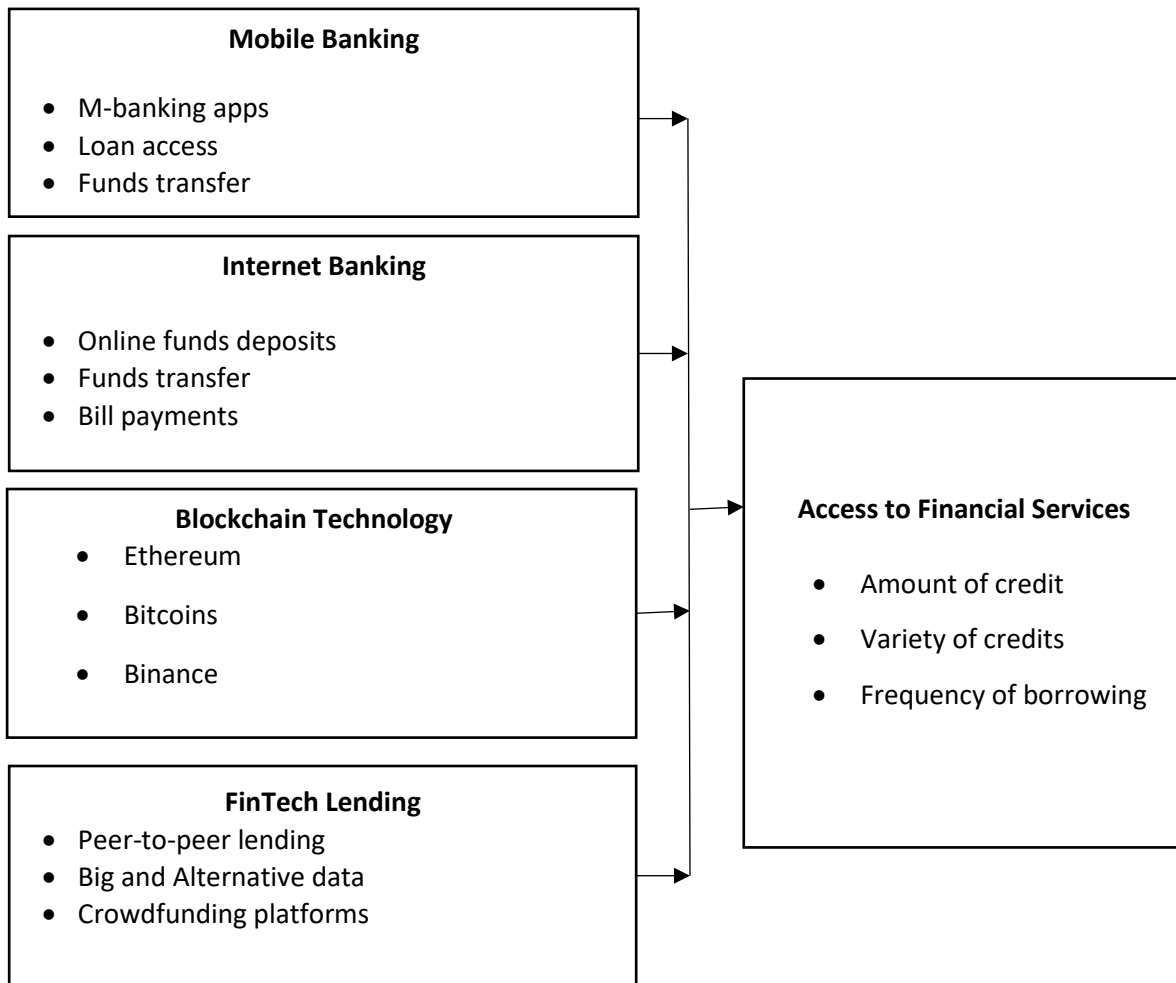
Bharadwaj et al. (2019) investigated FinTech and household resilience to shocks in Kenya, with an emphasis on digital loans. The research was based on survey data and focused on M-Shwari, a popular digital loan product. According to the research, 34% of individuals who qualify for credit facilities take them, however, the loans do not replace other forms of credit. Country lenders are using Fintech tools to make fully digitalized lending on mobile devices. Digital loans also improved household resilience, with 6.3 percent of families being less likely to skip out on costs owing to negative shocks. It was observed that, although digital loans increase individuals' ability to obtain

and use financial solutions and financial durability, they do not address the shortcomings of the credit market. Simultaneously, digital loans accessible and supplied via mobile phones offer promise since they significantly cut some of the expenses connected with credit availability on the household side, as well as the administrative costs of loans from the lender's standpoint. The study did not look at how mobile banking affects access to financial services from a conceptual standpoint.

Conceptual Framework

Independent Variables

Dependent Variable



The link between research variables was investigated using a causal research design. According to Creswell and Poth (2016), researchers typically utilize a causality approach within their study designs as they seek to identify information that would help them explain and anticipate relationships. All 39 commercial banks operating within Kenya (as shown in Appendix III) formed the population of the study and unit of analysis was a commercial bank. Researcher targeted senior managers such as departmental heads or senior managers from each of the commercial banks to answer the research questions. As a result of small population size, researcher adopted census survey to study the whole population.

The researcher used semi-structured questionnaires to source data. The questionnaire was designed and focused on the study's major goals; to determine the part that FinTech banking plays on individual's ability to obtain and use financial solutions. The questionnaire comprised of two sections: the initial section covered demographic data, while the last section the independent variables (mobile banking, online banking, cryptocurrency, and FinTech loans) as well as the dependent variable (access to financial services).

DATA ANALYSIS

The research surveyed a representative sample of 39 participants, of which 31 completed and submitted questionnaires, yielding an 83.78% response rate. According to Mugenda and Mugenda (1999), this response rate was more than sufficient when drawing inferences for the study.

Descriptive Statistics and Trend Analysis

Standard deviation and mean were used in the analysis of the research objectives. To interpret the average scale, three representative categories were developed: an average score of 1 - 2.4 signals disagreement, 2.5 - 3.5 signals neutrality, and 3.6 – 5 signals agreement.

The Effects of Mobile Banking on Access to Financial Services

The survey participants were requested to designate a mark showing the degree to which they concurred with the statement: mobile banking influences access to financial services among Kenya's commercial banks. The five-point Likert scale was used to rate the key components of the statements as displayed in the table below.

Table 1: Effects of Mobile Banking on Access of Financial Services

	Mean	Std dev
Mobile banking has improved the level of access to financial services to rural based customers	3.71	1.21
The number of customers accessing financial services through mobile banking has improved over the years	4.12	.93
The amount of money transacted through mobile banking has increased over the years	3.93	.98
Our customers are satisfied with our mobile banking services	3.89	1.01
Our customers can access a variety of banking services through our mobile banking platforms	3.56	1.12
Our mobile banking services are easily accessible through different networks and handsets	3.58	1.23
Our mobile banking services has attracted low-income earners	3.53	1.34
Our mobile banking services are reliable, secure and cost effective	3.74	1.13
Composite mean and std dev	3.76	1.12

Source: Research data, (2022)

The findings agree with previous studies discussed within the literature review section. The survey found that mobile banking has enhanced financial accessibility by customers and improved the quality of services provided by Kenya’s commercial banks.

The Effects of Internet Banking on Access to Financial Services

The survey participants were requested to designate a mark showing the degree to which they concurred with the statement: internet banking influences access to financial services among the commercial banks in Kenya as displayed in the Table below.

Table 2: Effects of Internet Banking on Access to Financial Services

	Mean	Std dev
Majority of our clients are registered on internet banking	3.79	1.18
Our internet banking services are not affordable, reliable and secure	1.43	1.23
Our internet banking services have attracted non-account holders and unbanked low-income earners to our bank	3.87	1.10
We offer training to our clients on the usage of our internet banking services	3.96	.95
The amount of money transacted through internet banking has increased over the years	3.82	1.13
Our internet banking services makes the lifestyle of our clients more convenient	3.92	.99
Our clients can comfortably use our internet banking services to access a variety of banking services	3.77	1.19
Composite mean and std dev	3.51	1.11

Source: Research data, (2022)

Notably, most respondents disagreed with the statement: Our internet banking services are not affordable, reliable and secure. The negative form of the statement required our respondents to be attentive and ensure they gave a low rating to imply that their services were affordable, reliable and secure. Overall, the findings agree with previous studies discussed within the literature review section. This study found that online banking has enhanced access to financial services by customers and consequently increased the customer base for commercial banks in Kenya.

The Effects of Cryptocurrency on Access of Financial Services

The survey participants were asked to designate a mark showing the degree to which they concurred with the statement: cryptocurrency influences access to financial services among the commercial banks in Kenya. The research findings are displayed in the Table below.

Table 3: Effects of Cryptocurrency on Access of Financial Services

	Mean	Std dev
Do you plan to embrace cryptocurrency once CBK approves its usage	3.81	1.09
To what extent do you think cryptocurrency will enhance access to financial services	3.98	1.01
We believe that introduction of cryptocurrency will help in reduction of cases of fraud within our bank	3.74	
We believe that introduction of cryptocurrency has enhanced integrity of every online purchase carried by our customers	3.63	1.14
We believe that introduction of cryptocurrency will play key role in protection of customers' valuable information thereby cultivating trust among our customers	3.59	1.19
Composite mean and std dev	3.75	1.11

Source: Research data, (2022)

The Effects of Fintech Lending on Access to Financial Services

The survey participants were asked to designate a mark showing the degree to which they concurred with the statement: FinTech lending influences access to financial services among the commercial banks in Kenya as indicated in the Table next.

Table 4: Effects of Fintech Lending on Access to Financial Services

	Mean	Std dev
Our institution has fully automated our lending processes	4.01	1.00
Our institution has friendly lending rates and repayment times	3.82	1.10
Fintech has expanded access to information such as investment advice to low-income earners	3.71	1.12
Fintech has played key role in delivery of financial products to customers who were previously unbanked	3.54	1.25
Fintech has played key role in access of affordable banking products to low-income earners	3.78	1.09
We offer affordable credit facilities that meet personal and business needs of our clients	3.58	1.14
Our institutions have utilized various Fintech lending platforms to offer financial services to customers	4.01	1.00
Fintech lending has positively impacted the overall performance of our bank	3.91	1.03
Composite mean and std dev	3.80	1.09

Source: Research data, (2022)

FinTech financing operations have infiltrated different financial zones, including places without bank branches that could benefit from more credit availability. The findings agree with previous

studies discussed within the literature review section. This study found that FinTech has enhanced access to financial services and has consequently led to an increase in financial inclusion in Kenya.

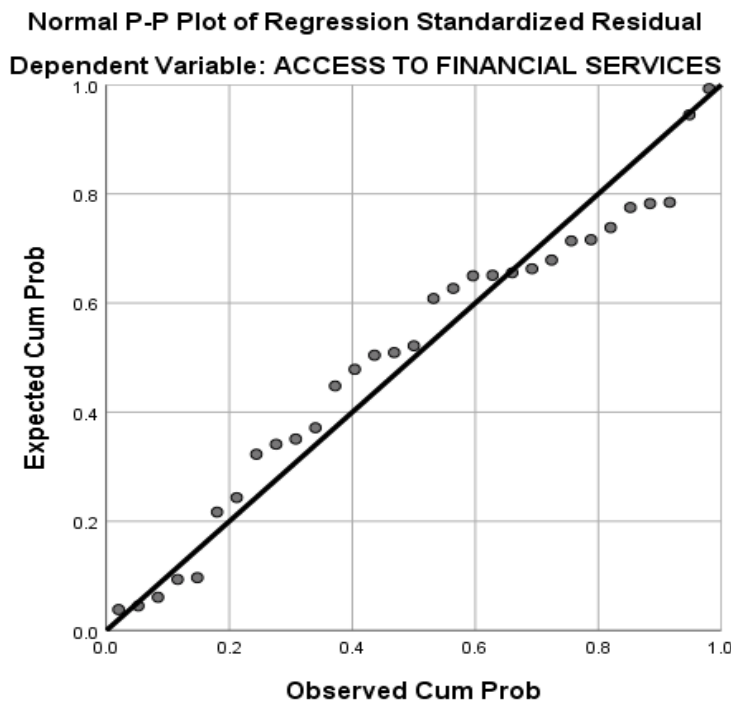
Diagnostic Tests

Diagnostic tests were run to ascertain the appropriateness of data for inferential statistics.

Normality Test

Haire et al., (2010) assert the importance of normally distributed data in statistical methods, and that non-normally distributed data can inflate errors in the measurement of significance. The figure above shows the Normal Predicted Probability (Normal P-P) Plot for predictor variables (Fintech Lending, Cryptocurrency, Internet Banking, and Mobile Banking) and Access to Financial Services, which is dependent variable. The Normal P-P plot indicates that the predictor variables have a straight-line relationship with the dependent variable. Hence, the assumption of normality is affirmed.

Figure 1: The Normal P-P plot Regression Standardized Residual



Source: Research data, (2022)

The normality of data was also assessed using Skewness and Kurtosis indicators. Kline (2005) asserts that a variable that returns an absolute skewness that is higher than three (3) is considered to be highly skewed, while data that returns a kurtosis that is higher than eight (8) reflects abnormally high kurtosis. The below table shows the results of the absolute values of Skewness and Kurtosis measures of the variables Fintech Lending (0.376, 0.727), Cryptocurrency (0.379, 0.796), Internet Banking (0.869, 0.641), Mobile Banking (0.714, 0.140), and Access to Financial Services (1.129,

0.491) respectively. The findings reveal that none of the variables violate the assumption of normality as the skewness and kurtosis of the variables are within a range of 0.376 – 1.129 and 0.140 – 0.796.

Table 5: Analysis of Skewness and Kurtosis

Variables	Skewness	Kurtosis
Mobile Banking	0.714	0.140
Internet Banking	0.869	0.641
Cryptocurrency	0.379	0.796
Fintech Lending	0.376	0.727
Access to Financial Services	1.129	0.491

Source: Research data, (2022)

The findings indicate that the null hypothesis that the data associated with the variables deviates from a normally distributed data is not significant ($p > 0.05$) for all the variables at the 0.05 significance level. Thus, further affirmation that the distribution of the data associated with all the variables is not significantly different from a normal distribution.

Table 6: Shapiro-Wilk Test of Normality

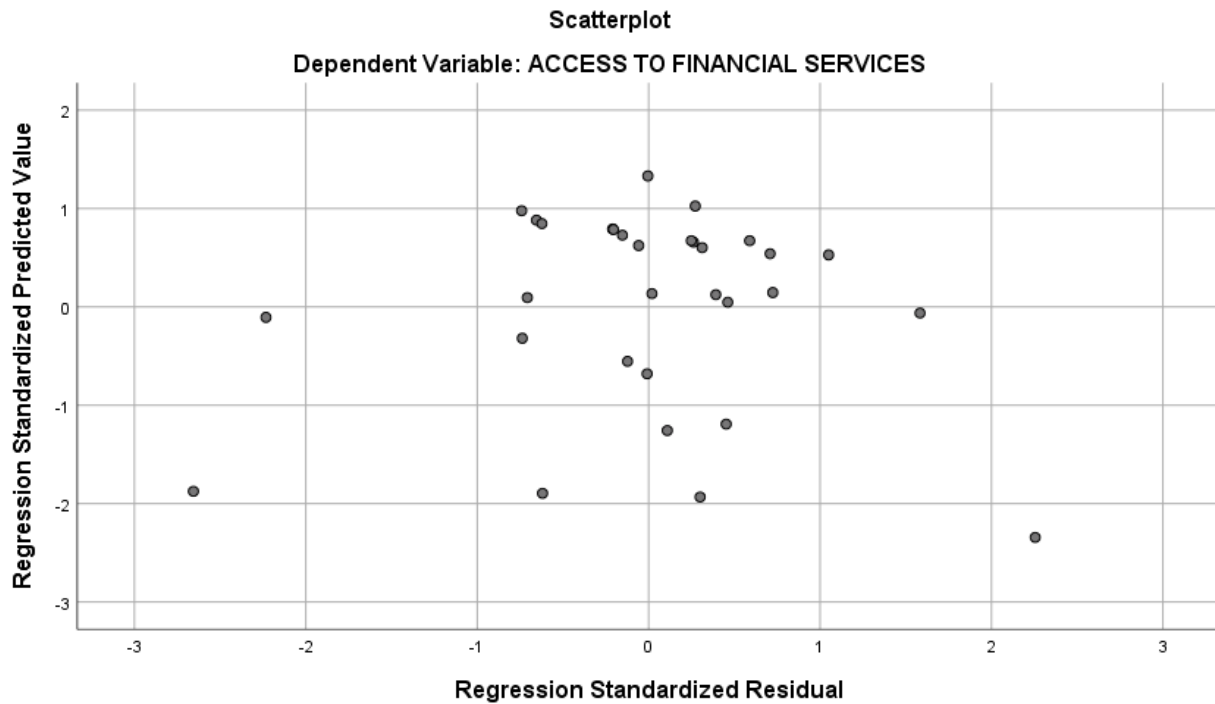
Variable	Shapiro-Wilk^a		
	Statistic	Df	Sig.
Access to Financial Services	.232	31	.000
Fintech Lending	.139	31	.247
Mobile Banking	.135	31	.101
Internet Banking	.198	31	.450
Cryptocurrency	.159	31	.400

Source: Research data, (2022)

Heteroscedasticity Test

Heteroscedasticity test is performed to check whether the regression model can predict the dependent variable in a consistent manner for all values of the independent variables (Wooldridge, 2002). The test of heteroscedasticity in scatter plot is premised on whether a clear pattern results upon generation of a scatter plot graph, if so, then it can be surmised that heteroscedasticity issues exist. The findings indicate that the data plots in a diffuse form and as such it can be inferred that there is no heteroscedasticity in the data.

Figure 2: Heteroscedasticity Test



Source: Research data, (2022)

Regression Results

Table 8: Regression Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.75	.56	.55	.33

Source: Research data, (2022)

The analysis was undertaken to determine the degree to which the independent variables affected the dependent variable. This was accomplished by calculating the coefficient of determination shown in table 4.10. The model summary was statistically significant ($p=0.004$), indicating that the model was useable. The "R Square" (coefficient of determination) is a measure of good fit and shows how well the model explains the variance in the dependent variable. The model had an R square value of 0.56 indicating that the percentage of the dependent variable that was explained by the independent variables was 56%. The percentage denotes a fair degree of fit; that is, changes in mobile banking, internet banking, cryptocurrency, and FinTech lending could explain 56% of the variations in access to financial services. 44% remained unexplained and could be explained by the addition of relevant independent variables.

Table 8: ANOVA

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	10.71	4	2.68	7.66	.004 ^a
	Residual	8.81	26	.35		
	Total	19.52	30			

a. Predictors: (Constant), mobile banking, internet banking, cryptocurrency, FinTech lending

b. Dependent Variable: Access to financial services

Source: Research data, (2022)

Table 8 ANOVA results (P-value of 0.04) reveal that there exists a correlation between the independent variables and the dependent variable. It implies that the model is a good fit for the data.

Table 9: Regression Coefficients

Model	Un-standardized Coefficients		Standardized Coefficients		Sig.
	B	Std. Error	Beta	T	
1(Constant)	.880	.416		.192	.847
Mobile banking	.308	.100	.383	3.08	.002
Internet banking	.140	.214	.171	.82	.045
Cryptocurrency	.202	.086	.112	1.80	.037
Fintech Lending	.455	.107	.396	1.15	.049

a. Dependent Variable: Access to financial services

Source: Research data, (2022)

The Table 4.12 regression model results summarize the effect of fintech services on access to financial services. Thus, the equation form of the model is as follows;

$$AFS = 0.88 + 0.308X_1 + 0.140X_2 + 0.202X_3 + 0.455X_4 + \epsilon_t$$

The prediction model was acquired from the Coefficients table (Unstandardized coefficients), as displayed above. When all other independent variables are held constant, the unstandardized coefficients show how much the dependent variable changes with an independent variable. Within the predictor model: $\beta_0 = 0.88$ indicates that if independent variable levels are taken at constant zero, access to financial services would be 0.88, $\beta_1 = 0.308$ displays that a change in one unit in mobile banking would result in 0.308 units increase in access to financial services, $\beta_2 = 0.140$ displays that change in one unit in internet banking would result in 0.140 units increase in access to financial services, $\beta_3 = 0.202$ shows that a change in one unit in cryptocurrency would result in 0.202 units rise in access to financial services, $\beta_4 = 0.455$, shows that one unit change in FinTech lending would result in 0.455 units rise in access to financial services. The associated p-value indicates that the degree of relation between FinTech banking and access to financial services is statistically vital. The findings agree with previous studies discussed within the literature review section which concluded that FinTech banking influenced access to financial services.

CONCLUSION AND RECOMMENDATIONS

Conclusions

The research objectives were to pinpoint FinTech banking methods typically utilised by Kenyan commercial banks and to assess the link between Fintech banking and access to financial services among Kenyan commercial banks. As evidenced by the study's findings and the preceding discussions, there are strong FinTech banking practices and strategies in place, which have resulted in improved market performance and access to financial services. Furthermore, it has had an impact on FinTech organizations' overall performance and competitiveness in a difficult business environment.

According to the conclusions of the study, the use of FinTech banking enhances access to financial services. The improved access to financial service is reflected in customer loyalty. This demonstrates that Fintech banking was a custom-tailored process to meet the changing demands of Fintech firms, since Fintech organisations had extremely well-defined banking practices and strategies. These approaches would provide FinTech firms with a better percentage of effectiveness in the change process, resulting in a competitive advantage and increased access to financial services.

Recommendations

Fintech must be utilized for the executive team to understand the immediate effect of these activities. Adopting flexible FinTech governance techniques via suitable research can assist in quickly and successfully meeting the firm's various yet rapidly changing demands, as well as addressing issues posed by a dynamic global business environment. Executive leaders should consider both qualitative and quantitative factors when making decisions, because sustainable FinTech governance techniques and strategy integration across the firm will result in synergies.

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