

Digital Financial Services and Profitability of Microfinance Banks in Kenya

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ABSTRACT

This study's primary intent was to ascertain how digital financial services influenced Kenyan microfinance banks performance in terms of profitability. More precisely, mobile banking, internet banking, electronic funds transfer and credit card usage effect on profitability of microfinance banks in Kenya were the specific objectives. Transaction Cost Economics, Innovations Theory of Profits, and Technology Acceptance Model theories are the theories that guided formulation of the current study concepts used herein. The research design utilized here is causal research design. The research populace consists of 14 microfinance banks in Kenya which were surveyed in order to collect data from this small group. Drop and pick method was employed to collect data, from the senior managers (finance officers) of the Microfinance Banks. The gathered data was subjected to diagnostic testing, including tests for linearity, and multicollinearity, homoscedasticity, and normalcy. Following this, the data was evaluated using additional descriptive and inferential techniques to test the general evolution of the study variables and each hypothesis respectively. Findings portrayed that digital financial services significantly and positively affected profitability of microfinance banks in Kenya. The management of microfinance banks need to adopt less costly mobile banking approaches when meeting their digital clients' needs for this will boost the profitability thereof. With reduced cost, it will assure a direct and effective boosting of the financial performance for there is a negative link between cost and earnings of an entity. Regulators including Central Bank of Kenya should develop digital financial services policies which guide on the protection of both the producers and consumers of digital financial services.

Keywords: Digital Financial Services, Credit Card Usage Electronic Fund Transfer, Internet banking, Mobile banking, Profitability

1. INTRODUCTION

Microfinance banks are fiscal service providing institution just like commercial banks and as cited in the academic work of (Apalia, 2017). According to CBS (1999), the World Bank (WB) describes it as an organization that uses a variety of techniques to handle relatively small and medium financial interactions on behalf of individuals with low incomes, microbusinesses, small-scale agricultural producers, and other people who restrain in having access to conventional banking services. Microcredit banks are elucidated via the Microfinance Act, 2006 as follows: they are companies that receive deposits and interest on those deposits, which they can use to finance their operations or lend to others; they can also provide debenture or other provisions to micro or small businesses and engage in proportional small bank operations using a variegation of methods to assist low-income households, small businesses, micro enterprises, and various individuals who restrain in having access to traditional bank operations CBS (1999). Microfinance banks are characterized by their ease of use, savings, and modest loans offered without requiring a guarantee based on an asset. Microfinance institutions have gained global recognition since their inception, and businesses in both developed and developing nations see them as a tool for attaining economic expansion and advancement (Djath, 2019). For instance, they are associated with growth of almost all of the micro, small-scale, and medium-sized occupations worldwide. Muogbo and Tomola (2018) assert that the expansion of micro and small businesses depends on microfinance institutions. They are also seen as a way to end poverty by fostering entrepreneurship, increasing income, and creating jobs.

The manifold paramount benefits derived from the microfinance banks by many stakeholders has not been obvious for the aforementioned institutions have over the years faced profitability challenges even with the adoption of digital financial service models (Aboagye and Anong, 2020; Aljundi, 2017). The profitability of microfinance institutions can enable to the long duration viability and feasibility of the microfinance sector. However, the Micro Banking Bulletin 2010 reveals that microfinance banks in Africa have continuously reported negative profits over the past five years. Conversely, throughout the same period, microfinance institutions on other continents have reported positive profits (Muriu, 2015). As stated by Ashenafi and Kingawa, (2018), one of the main goals of most central governments has been to build profitable and long lasting microfinance banks that serve a significant number of impoverished people in idyllic and civic areas who are not apportioned by conventional financial corporates like commercial banks. Equally, most microfinance banks have gone the digital way through services that are no longer available for digitization. Reaching the last mile and staying competitive these days requires using this route. In order to promote sustainable financial inclusion, microfinance banks must adapt to emerging technology and re-evaluate their economic strategies (The Global Findex Database, 2017). DFSPs are interested in microfinance providers'

licencing, customer base, and engagement to economically disadvantaged and rural groups, which may profit from digitization (AFI special report, 2018).

1.1. Statement of the problem

Microfinance banks continue to be of significant assistance to Kenya's needy. It accomplishes this by offering them simple financial operations in response to their needs, voices, and concerns (Chepkorom, 2018). Microfinance banks have demonstrated financial performance shortcomings in terms of profitability, even though the fact that they have provided a deal of financial services to the underprivileged and unbanked who have been ignored by the major financial institutions. In comparison to the previous year of 2016, when ROA was -0.5%, at the end of the 2017 fiscal year, ROA was -0.9%. (2017, CBK Supervision Report). The MF Banks recorded a -2% and a -0.4% in 2018 and 2019, respectively (CBK Supervisory, Report, 2019). The ROA was reading a negative 1% at the end of 2021 and a negative 3% at the end of 2020 (CBK Supervisory, Report, 2021). The financial annual report for 2022 showed a negative profitability rate of 1% for ROA (CBK Supervisory, Report, 2022).

While the predictor factors employed for digital financial services were similar, there are contextual gaps in the research where most of the subjects were commercial banks (Aduaka and Awolusi, 2020, Alubisia et al., 2018, Sachdeva and Kumar, 2017). SMEs were questioned in other studies (Odhiambo, 2018, Astari, Rika, and Candraningrat, 2022). Once more, the methodology employed to determine profitability differed throughout studies, and concurrently, data processing differed amongst studies. Takon et al. (2019) found conceptual gaps in previous studies when profitability was not the sole dependent variable. In a similar vein, the predictor variables that were employed to account for variations in profitability were assessed in a manner specific to the context for SMEs, banks, and other business types that were included as units of analysis in those studies.

This study examined the relationship between microfinance banks' profitability and their digital financial services in Kenya. Four predictor factors were included in the study, as it focuses on the users of Fintech products that enable DFS provision. These variables included mobile banking, which was quantified via mobile banking withdrawal, mobile banking deposits, mobile banking payments internet banking which was measured using transaction frequency, transaction cost and transaction value, electronic funds transfer which was gauged using digital transfer services, peer to peer transfer services, and digital transfer costs and then credit card usage which was gauged using acceptance level, credit cards numbers and security level. Profitability was assessed for the dependent variable using ROA, which is a contextual metric utilized by all Kenyan microcredit banks.

1.2. Objectives of the Study

The study had general and specific objectives

1.2.1. General Objective

Main objective of this study was to determine how Kenyan microfinance banks' profitability was affected by digital financial services.

1.2.2. Specific Objectives

- (i) To ascertain the effect of mobile banking on profitability of microfinance banks in Kenya.
- (ii) To determine the effect of internet banking on profitability of microfinance banks in Kenya.
- (iii) To investigate the effect of electronic funds, transfer on profitability of microfinance banks in Kenya.
- (iv) To evaluate the effect of credit card usage on profitability of microfinance banks in Kenya.

1.3. Research Hypothesis

There are four research hypotheses that were used:

H₀₁: Mobile banking has no significant effect on profitability of Microfinance Banks in Kenya

H₀₂: Internet banking has no significant effect on profitability of Microfinance Banks in Kenya

H₀₃: Electronic Funds Transfer has no significant effect on profitability of Microfinance Banks in Kenya

H₀₄: Credit Card Usage has no significant effect on profitability of Microfinance Banks in Kenya

2.1. Theoretical Literature Review

The theoretical perspective aspect focuses on the three primary pertinent or supporting recommendations that are related to the many topics covered in this research. These are the Transaction Cost Economics (TCE) postulation, the Innovations hypotheses of Profits, and TAM (Technology Acceptance Model).

2.1.1. Technology Acceptance Theory

TAT (Technology Acceptance speculation) goal which was created in 1989 by Davis, Bagozzi, and Warshaw, studies users' intention or the extent to which emerging technologies or data systems are embraced. The intended usefulness of utilization of the latest innovations have a change on TAT design. According to the idea of technological advances perceived usefulness, using new or information based techniques can improve a person's productivity at work. According to Baker et al. (2015), the perceived simplicity of use refers to how simple it is for someone to develop an efficient with contemporary technology and data systems. The TAT model has increased emphasis on the link between perceived technology usefulness and perceived use of new technologies. One external element that influences the perceived value and simplicity of administration is the surroundings in which an individual lives. Thus, the cornerstones of the TAM approach are perceived usefulness and simplicity of consumption, two crucial perceptual variables. The Technological Acceptance Theories, upon which this study is based, asserts that mind sets of micro financing bank executives and members that they serve through online banking services must be addressed before achieving the goal for technological acquisition. That is, when all sides concur that new technology must be implemented based on its perceived utility and usability. In light of this, greater profitability results from the technology's general utility and adoption.

Within this research, TAM was function as a basis for examining how various stakeholders, such as MF Bank personnel and the Kenyan populace, who comprise the company's customer base, view and engage with digital financial services. This study measures the degree of acceptability and implementation of these technologies inside MF Banks by evaluating its PEOU and utility (Sajan and Joseph, 2022). This in turn helps to clarify the degree to which these services are incorporated into regular operations and the possible obstacles to their adoption. The study used the TAM framework to investigate the human variables that contribute to the effective deployment of digital financial services in Kenyan MF Banks (Kimere, 2022). Gaining insight into employee acceptance and perceptions can help determine how prepared an organization is overall for digital transformation. In turn, this may have an impact on MF Banks' financial results as they work to give their customers effective and convenient financial services. Thus, TAM provides a strong lens through which the nuances of technology adoption are examined in this particular organizational setting.

2.1.2. Transaction Cost Economics (TCE) Theory

Williamson first presented the idea of Transaction Cost Economics (TCE) in 1979. TCE studies the relationship between three important features of transactions: Device features, frequency changes and uncertainties. Two essential principles of human behavior are pragmatism and

rational constraint. TCE explains the transactional subject's preference for a specific transaction. Contributing to the body of literature on TCE, Steinfield and Whitten (1979) indicated that TCE can be used as good behaviour in online business for customers and organizations. Given that brick-and-mortar stores can be replaced by online shopping sites; it makes sense to assume that customers will select the channel at the lowest price. According to transfer pricing theory, the best design reduces transaction costs while creating the best financial results. According to the speculation, coordinated expenses for organizing, leading, and overseeing transactions are generated by all kinds of interactions. TCE therefore appears as a tenable theory to explain why consumers are adopting Fintech for payments and online transactions. In economics and related subjects, transaction costs include expenditures linked to searching for and obtaining information, negotiating, monitoring, and enforcing agreements. (Wang, et al. 2012). Transaction cost theorists propose that a company's overall costs can be separated into two categories: costs associated with transactions and costs linked to output. The expenses related to "all of the handling of knowledge necessary to carry out the responsibilities of individuals and technologies performing the essential phases" are known as transaction costs, also sometimes called expenses for coordination. On the other hand, materials and other processes required for manufacturing and marketing the goods or services are considered production costs (Tadelis and Williamson, 2012).

Organizations are not merely substitutes for markets in the event that they are unable to arrange efficient transactions; they offer unique benefits for managing specific economic activities through a logic that is essentially distinct from that of a market. However, academics have used TCE to solve problems in e-commerce that occur at the individual and business levels, as suggested by Liu et al. (2018). Certain financial users, such as web ATM customers, must purchase or own a reader for cards and upload a Web ATM driver in order to utilize financial technology for Web ATMs. User adoption may be impacted by Web ATM cost factors such as asset concentration (Takata, 2022). The internet banking element of the present concept is based on this theory, which also forecasts changes in the economic viability of microfinance organizations by examining transaction frequency range, transaction expenses, and value of transactions.

2.1.3. Innovations Theory of Profits

The core of Schumpeter's (1934) original concept of creative profits was the importance of venture capital (or what he called entrepreneurial profits) and the search for novel chances to create value that had the potential to both grow and alter the recurrent cycle of income. But it achieved this by making a differentiation between inventiveness, marketing, and enterprise and conception or discoveries. The old organisational framework for innovation, which dates back to the seventeenth century, was typified by this division between creativity and innovation. Under

this paradigm, autonomous inventors usually provided results as possible inputs to entrepreneurial businesses. Following his early research on entrepreneurship, Joseph Schumpeter highlighted and emphasized the importance of innovation. Innovative and brave business owners never give up trying new ideas. Maintaining their competitive advantage and making a healthy profit. Schumpeter believed that the first task of an entrepreneur was to create innovation, and the reward for fulfilling this important task was profit. Schumpeter is credited with establishing a rather broad definition of innovation. Innovation is discovery of novel material or manufacturing method that reduces production costs or improves product quality. Schumpeter defines innovation as any new initiative or policy launched by an entrepreneur.

More importantly, because there is no limit to the number of possible inventions, a great inventor is always looking to create fresh disequilibrium profits. Profits are a cause of innovations since they provide the essential incentive for creating new things. However, since innovations lead to profits, innovations have an effect on earnings. This theory backs up the current study's finding that the profitability levels of microfinance banks are a dependent variable that requires an explanation for variations.

2.2. Empirical Literature Review

2.2.1. Mobile Banking and profitability

Alkhalwaldeh, Alhawamdeh, Al-Afeef, Al-Smadi, Almarshad, Fraihat, and Alaa (2023) examined the association between financial outcomes, financial success, and consumer financial use (Fintech) in Jordan. Data obtained from a representative group of 500 SMEs in Jordan were assessed with PLS statistical modeling. Fintech adoption improves financial management according to findings, and financial happiness serves as a mediator between Fintech adoption and company performance. This study shows a positive association between income and financial satisfaction; it shows people who are happy with their financial situation will see an improvement in their financial situation.

George's (2022) evaluated the impact of online banking services on the profitability of Industrial Bank of Kenya. More specifically, this study aims to determine how payment cards, ATMs, online banking and mobile banking services affect the mentioned companies results. The research problem was developed through a descriptive research approach. The ideal sample was found using the purposeful sampling technique. Use linear regression to analyse data and provide additional information. The findings show that the revenues of banking institutions in Kenya are significantly affected by three independent factors: debit and credit card online banking, smart mobile banking and automated banking devices.

Astari, Rika, and Canraningrat (2022) use financial literacy as a variable to investigate the influence of Fintech on MSMEs welfare. All MSMEs in the Balinese cooking industry in Sarbagita region were the subject of this study. MSMEs in Sarbagita district responded providing vital information for this study. Non-probability sampling was employed. The data was analyzed using Comparative Modeling (SEM) which is based on the PLS. According to the data, the new technology sector (or Fintech) participates in research and financial activities infrequently, and financial literacy has a direct impact on financial outcomes. Traditional cookery SMEs in the Sarbagita region have improved their financial situation as a result of Fintech revolution.

2.2.2. Internet Banking and Profitability

Di Febo and Angelini (2022) studied how banks and their customers' relationship has changed in recent years as result of online banking's impact on community banking in Italy. Understanding how its use affects those banks' operations is crucial. The study is innovative since it takes into account user demographics like gender and age in addition to the proportion of people who use online banking. 216 banks with 1296 observations between 2011 and 2016 were included in the dataset. A fixed effect model was the methodology employed. The findings demonstrate how online banking jeopardized Italian banks' profitability. The age distribution of Internet banking users is attractive, nonetheless, as only the 65 to 74 year old cohort has a substantial and detrimental effect on Italian banks. However, the gender of Internet banking customers has no bearing on the banks' decision to close branches.

Aduaka and Awolusi (2020) analysed how electronic banking affects the profitability of Nigeria's banking industry. Influential survey research design was used. Primary data were obtained from the surveyed bank's staff and customers via surveys. It was supplemented with secondary data from the organisations certified accounting records for the years 2010 through 2017. Data was evaluated using inferential and descriptive statistics. Multiple regression approach was used to measure hypotheses. Card usage is significantly more crucial than other ways, compared to the poll, with ATM usage coming in second. Additionally, the usage of the internet for banking improved profitability of financial institutions that the effectiveness, dependability, security, and general quality of the service all had a direct bearing on the frequency with which customers used e-banking services, and that digital banking services affected customer loyalty and retention.

Mosoti, Wafula, and Nyang'au (2022) examined the impact of Mobile banking technologies on the financial performance of Kenyan deposit taking microfinance organizations in Kenya.. All Kenyan deposit-taking microfinance institutions operating from 2016 to 2020 were the focus of the investigation. The study target group was 387 employees from twelve microfinance firms that operated in Kenya between 2016 and 2020. These personnel worked in several departments,

including management and operations, finance and credit control, internal and risk, external audit, information and communications technology, and litigation. There were 281 people in the sample. When there was only one unit of observation, the researcher employed stratified random and purposive sampling to include complete study population. The findings showed how microfinance institutions used mobile banking technologies to gather data, hence reducing the incidence of fraud. Additionally, findings revealed that the microfinance subsector profited considerably from mobile banking technology and that the use of cybercrime risk identification tools reduced fraud rates. Conclusions reveal a beneficial relationship between Kenyan financial institutions, financial success and mobile banking.

2.2.3. Electronic Fund Transfer and Profitability

Kawimbe, Sishumba, Sikazwe and Saidi (2022) assessed the influence of electronic banking on the profitability of commercial banks using traditional systematic literature review methodology. Many databases were searched with pre-set parameters. After the literature search was conducted with inclusion and exclusion criteria applied, thirteen publications were discovered. The results of the literature indicate that, in part because fewer tellers and front-line staff are required, computerized banking has significantly boosted the profitability of the banking sector in Africa. On the other hand, the number of fraud instances has increased. The study concludes that electronic banking positively affects African banks' profitability since technology has improved the efficiency of banking operations.

Wangui and Nzuki's (2021) examined how the different electronic money transfer systems affected the financial institutions' business net worth, profitability, and liquidity in Kenya. Sumac DT-MFI was examined in this study since it is a financial institution. Surveys and secondary data were methods used to collect data. The many respondents, who were important personnel in the organization being studied, received questionnaires that included both open and closed ended questions. Tables, pie charts, and graphs were used to analyse and show data. The research found several advantages, such as ease, profitability, and speed, of utilizing EMT services. Security concerns including identity theft and money laundering were determined to be the biggest obstacle, particularly in light of more advanced technology.

Chindudzi, Maradze and Nyoni's (2020) ascertained how digital banking affected Zimbabwe's commercial banking sector's financial results. Using yearly supplementary information from the institutions' financial statements and brochures for the years 2013 through 2017. Study focuses on 40 commercial banks located in Zimbabwe. Online customer deposits, online shopping habits, online fees and payments, and number of online transactions are four digit variables but are not valid. The final performance measure used ROA. Statistical methods used for data analysis include Pearson correlation test and panel data analysis (parametric regression model). The study

found that the banking sector in Zimbabwe can be improved by increasing online banking and banking services. The study found that ROA, a metric used to measure business's top performance, is significantly and negatively affected by internet spending.

2.2.4. Credit Card Usage and Profitability

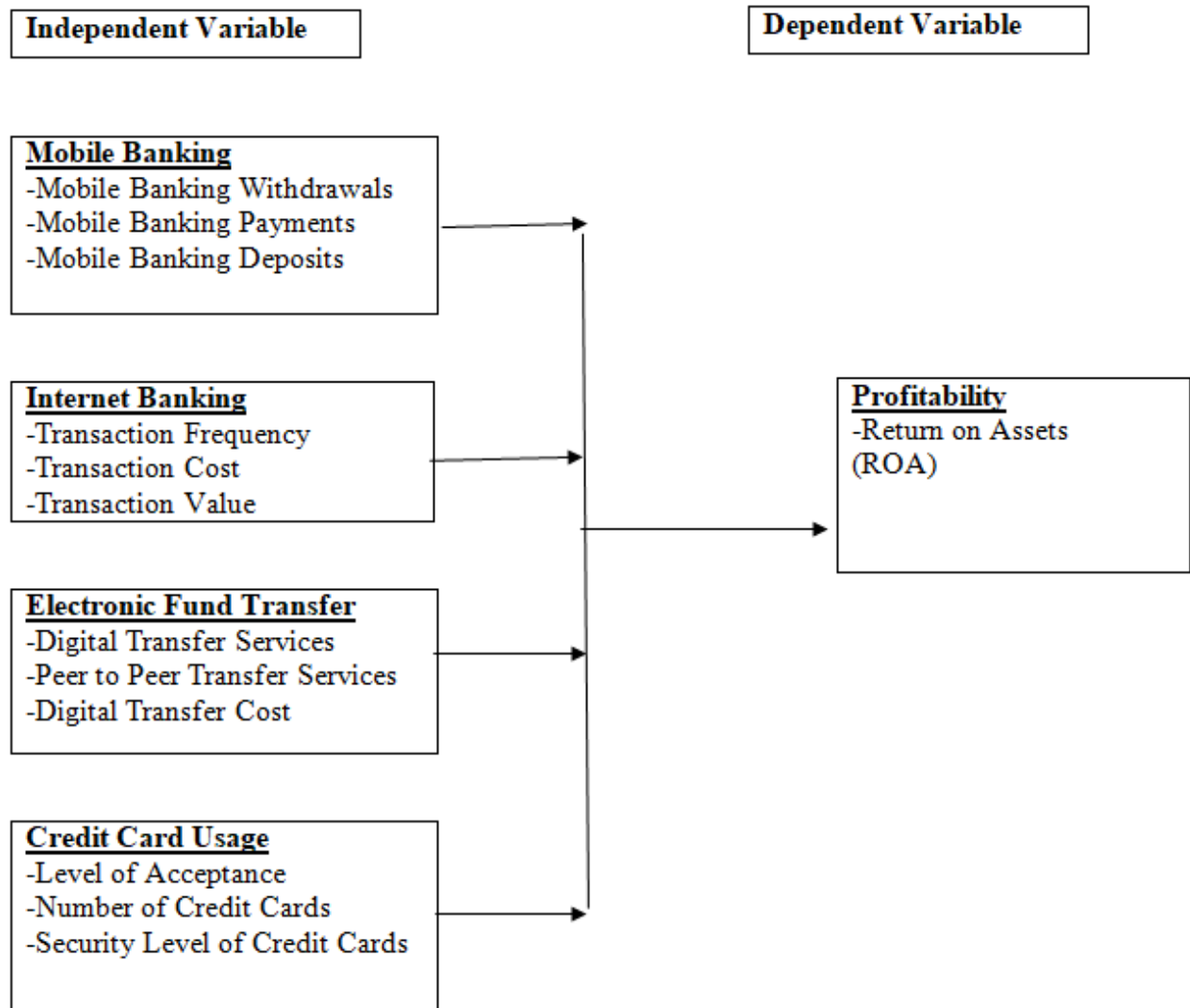
Nwakoby, Okoye, Ezejior, Anukwu and Ihediwa (2020) investigated the relationship between the calculation of revenue of the Nigerian government from Nigerian organizations and its dependency. In this study, we first performed lysis. Of the 15 exchanges of the Nigerian Stock Exchange, 9 national institutions were selected as the largest. In our study, we conducted a retrospective analysis using E-Viw 9.0 to identify previous needs. However, the impact is not considered severe or significant. ATM is robust and non-destructive. He advised Nigerians to immediately stop using ADM to promote their clients.

Akani and Obiosa (2020) examined the impact of financial innovation on profitability of deposit money banks in Nigeria. ATM, EFT, internet banking, mobile banking, and ICT investment impact on ROE of deposit cash institutions formed the particular objectives. Panel data regression was used to evaluate secondary data gathered from the accounting records and yearly reports of 14 organizations from 2009 to 2017. ROE was the dependent variable. ATM and EFT had a negative link with ROE, online banking, mobile banking, and investment in ICT hold a favourable association with ROE.

Wright (2020) assessed three different credit card payment systems, two digital currency systems, and an e-check system from the perspectives of transaction cost, privacy, traceability, and the capacity to increase client spending patterns. It also assesses the benefits and drawbacks for the financial institution, the merchant, the customer, and the e-payment service provider. Although many customers are still hesitant to make purchases online due to their concerns about hackers obtaining their financial information, these systems use encryption to offer security. The paper's explanation of a new method that allows payments for goods made via the Internet to be done over the phone network allays that worry in the concluding section.

2.3: Conceptual Framework

Figure 1: Conceptual Framework



Source, Researcher 2024

3. RESEARCH METHODOLOGY

Causal research design was utilized in this study. This is due to the method's ability to take into account changes made to the research constructs (Kothari, 2009). With the use of this research methodology, the investigator looked into problems pertaining to Digital Financial Services and how they affect profitability. The study was also able to gather and evaluate relevant data in order to produce an explanation that accurately depicted the phenomenon as it exists right now.

The ethnic group selected for this study was the entire study population. The 14 MF banks that are under Kenya's Central Bank's regulation was the target group. One trait that unites them as a population qualifier is that, in contrast to other micro financial organizations, they are governed by the CBK (CBK, Report, 2023). Both a structured questionnaire and a secondary data collection plan was used to obtain the necessary data in a scientific manner. The researcher applied for a research permit and requested approval from the institution. After approval, the researcher contacted each of the respondents through a phone call or email thereafter dropping of the questionnaires accompanied with a cover letter

4. RESULTS AND DISCUSSIONS

4.1 Correlation Analysis

Pearson Product-Moment correlation coefficient is the model that was accepted by the researcher to launch the direction and the strength of the correlation between different sets of variable quantity. The consequences were as designated in Table 4.1

Table 4.1: Results of Correlation Analysis

		Prof.	M/Banking	I/Banking	EFT	CCU
Prof.	Pearson Correlation	1.000	0.534**	0.621**	0.512**	0.716**
	Sig. (2-tailed)		.005	.007	.0025	.004
M/Banking	Pearson Correlation		1.000	.647	.225*	.405*
	Sig. (2-tailed)			.000	.047	.027
I/Banking	Pearson Correlation			1.000	0.552*	0.662*
	Sig. (2-tailed)				.003	.003
EFT	Pearson Correlation				1.000	.455**
	Sig. (2-tailed)					.000
CCU						.1.000

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

* . Correlation is significant at the 0.05 level (2-tailed).

Source: Researcher, 2024

As per Table 4.1, mobile banking had a direct significant link with profitability (with $r=.534$ $p<.01$) which was statistically significant. Further, internet banking had positive and statistically significant relationship with profitability with ($r=.621$, $p<.01$). It was further established that the association between Electronic Funds Transfer (EFT) and profitability was direct and statistically significant with ($r=.512$, $p<.01$). In addition, Credit Card Usage (CCU) had a positive significant association with profitability with ($r=.716$ and $p<.01$).

Table 4.1, further portrayed that Electronic Funds Transfer (EFT) had a direct significant link with mobile banking (with $r=.225$ and $p<.05$) which was statistically significant. Further, Credit Card Usage (CCU) had positive and statistically significant relationship with mobile banking with ($r=.405$, $p<.05$). It was further established that the association between Electronic Funds Transfer (EFT) and internet banking was direct and statistically significant with ($r=.552$, $p<.05$). In addition, Credit Card Usage (CCU) had a positive significant association with internet banking with ($r=.662$ and $p<.05$). Lastly, the correlation between CCU and EFT was direct and statistically significant with ($r=.455$ and $p<.05$).

In connection to the aforementioned associations, the study by Siasulingana & Haabazoka (2024) studied the implications of m-banking on the profitability of Zambian commercial banks, with Atlas Mara as a case study. Mobile banking connectivity and loans have enhanced the profitability of commercial banks. Sayari (2024) investigated the effect of Internet Banking on profitability in Saudi Arabia using a sample of traditional and Islamic banks. It was revealed that internet banking significantly improves profitability of both traditional and Islamic banks.

4.2 Regression Analysis

The study conducted inferential statistics to establish the extent to which digital financial services influenced profitability of Micro finance banks in Kenya. The findings of Model Summary, ANOVA and Regression Coefficients are indicated in subsequent sections below.

The findings of coefficient of determination and coefficient of adjusted determination are as Shown in Table 4.2.1.

Table 4.2.1: Model Summary

Model Summary			
R	R Square	Adjusted R Square	Std. Error of the Estimate
.817 ^a	.801	.767	1.312

The coefficient of determination (Adjusted $R^2 = 0.767$), for model 1 portrays that all the predictor variables describing digital financial services namely; mobile banking, internet banking, electronic funds transfer and credit card usage when taken together, explained 76.7% of changes in profitability of MFBs in Kenya, whereas, 23.3% of changes on profitability of those profitability of MFBs in Kenya was predicted by other variable quantity which were not unified in this experiential model.

The study carried out an ANOVA at 95% level of significance. The findings of F Calculated and F Critical are as shown in Table 2.

Table 4.2.2: ANOVA

Model	ANOVA					
		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	108.934	3	37.325	21.448	0.000
	Residual	14.537	8	1.742		
	Total	123.471	11			

It is depicted that the F statistics value as indicated in model 1 on the extent to which digital financial services affect profitability of microfinance banks in Kenya is concerned is 21.448 with $p=0.000$ which is less than the critical value of (0.05) implies that there was statistically significant influence of the independent variable to the dependent variable at 95% confidence level. Therefore, as per the NOVA results, the overall model was proved to be a well-fitting estimator of the variances detected on profitability of microfinance banks in Kenya

The study used coefficient of regression to establish the individual influence of the variables to project performance. The findings are indicated in Table 3.

Table 4.2.3: Coefficients of Regression

	Coefficients				
	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t	Sig.
(Constant)	5.133	0.267		11.626	0.000
Mobile Banking	0.606	0.244	0.534	2.854	0.005
Internet Banking	0.786	0.2346	0.621	2.767	0.007
Electronic Fund Transfer	0.523	0.222	0.512	2.474	0.025
Credit Card Usage	0.637	0.211	0.716	2.335	0.004

a. Dependent Variable: Profitability

The resultant equation was **Prof= 5.133+ 0.534MB + 0.621IB+ 0.512EFT + 0.716CCU** Where; Prof is Profitability, MB is Mobile Banking, IB is Internet Banking, EFT is Electronic Funds Transfer and CCU is Credit Card Usage

Based on the set objectives, the study tested the hypotheses emanating from the aforementioned specific aims and the outcome was as discussed herein. The first specific objective was to ascertain the effect of mobile banking on profitability of microfinance banks in Kenya. The corresponding null hypothesis was “Mobile banking has no significant effect on profitability of MFBs in Kenya”. On testing the respective claim, it was established that mobile banking had statistically significant effect on profitability of MFBs in Kenya which was direct in nature with ($\beta=.534$ and $p=0.005$). This resulted to rejection of the null hypothesis and adopted the alternative one which state that “Mobile banking has significant effect on profitability of MFBs in Kenya”. Hence the objective one was achieved.

The second specific objective was to determine the effect of internet banking on profitability of microfinance banks in Kenya. The corresponding null hypothesis was “Internet banking has no significant effect on profitability of MFBs in Kenya”. On testing the respective supposition, it was established that internet banking had statistically significant effect on profitability of MFBs in Kenya which was direct in nature with ($\beta=.621$ and $p=0.007$). This resulted to rejection of the null hypothesis and adopted the alternative one which state that “Internet banking has significant effect on profitability of MFBs in Kenya”. Hence the objective two was achieved. Past studies by Sachdeva and Kumar (2017) carried out an analysis in India in order to find out the way Indian commercial bank profitability was impacted by electronic banking between 2009 and 2015. The findings show that the above features of e-banking affect the performance results of public financial institutions. It has been found that the features of e-banking have a good relationship with private banks and foreign banks profitability.

The third specific objective was to investigate the effect of electronic funds transfer on profitability of MFBs in Kenya. The corresponding null hypothesis was “Electronic Funds Transfer has no significant effect on profitability of MFBs in Kenya”. On testing the respective hypothesis, it was revealed that electronic funds transfer had statistically significant effect on profitability of MFBs in Kenya which was direct in nature with ($\beta=.512$ and $p=0.025$). This resulted to rejection of the null hypothesis and adopted the alternative one which state that “electronic funds transfer has significant effect on profitability of MFBs in Kenya”. Hence the objective one was achieved. Past studies similar to the current one have been found to be in harmony. The study by George's (2022) evaluated the impact of online banking services on the profitability of Industrial Bank of Kenya. More specifically, this study aimed at determining how payment cards, automatic teller machines, online banking and mobile banking services affected the results of the aforementioned companies. The findings showed that the revenues of banking

institutions in Kenya were significantly affected by three independent factors, that is; debit and credit card online banking, smart mobile banking and automated banking devices.

The fourth specific objective was to evaluate the effect of credit card usage on profitability of MFBs in Kenya. The corresponding null hypothesis was “Credit Card Usage has no significant effect on profitability of MFBs in Kenya”. On testing the respective philosophy, it was portrayed that credit card usage had statistically significant effect on profitability of MFBs in Kenya which was direct in nature with ($\beta=.716$ and $p=0.004$). This resulted to rejection of the null hypothesis and adopted the alternative one which state that “credit card usage has significant effect on profitability of MFBs in Kenya”. Hence the objective one was achieved. Past study by Jimoh (2019) investigated how Nigerian deposit money banks’ profitability was impacted by electronic banking. The analysis indicates that profitability for both ATM and mobile banking is positively correlated. Further, the goal of Chindudzi, Maradza and Nyoni’s (2020) study was to ascertain how digital banking affected Zimbabwe’s commercial banking sector’s financial results. The study found that ROA, a metric used to measure a business's top performance, is significantly and negatively affected by internet spending.

5. CONCLUSIONS AND RECOMMENDATIONS

5.1 Conclusions

It was concluded that digital financial services significantly and positively affected profitability of microfinance banks in Kenya. The study concluded that mobile banking services the microfinance banks offer to their clients such as mobile banking withdrawals, mobile banking deposits and mobile banking payments significantly affect profitability of MFBs in Kenya. Internet banking services, namely transaction frequency, transaction cost and transaction value offered by the microfinance bank had statistically significant effect on profitability of the same institutions. Adoption of digital transfers’ services, peer to peer transfer services and digital transfer costs which are electronic fund transfer services offered by microfinance banks in Kenya has significant effect on the level of their profitability. Finally, there is statistically significant effect of credit card usage approaches used by microfinance banks such as level of acceptance, number of credit cards and security level of the card(s) in promoting their respective profitability levels. Therefore, the suggestion in question was assimilated by this study.

5.2 Recommendations

The management of MFBs need to adopt less costly mobile banking approaches when meeting their digital clients’ needs for this will boost the profitability thereof. With reduced cost, it will assure a direct and effective boosting of the financial performance for there is an inverse relationship between cost and profitability of a firm. Policy makers, including government

agencies like the CBK should develop digital financial services policies which guide on the protection of both the producers and consumers of digital financial services. This will aid in promoting the sustainability of microfinance banks and further improvement of both existing and new digital finance products. In return, the aforementioned firms will promote profitability thereof.

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