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Effect of Online Banking on Performance of Microfinance Banking in Kenya

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Abstract

Purpose: The purpose of this study was to establish the effect of online banking on performance of microfinance banks in Kenya.

Methodology: The study adopted positivism philosophy approach and descriptive research design was used. The study used census survey and the target population was the thirteen Microfinance Banks regulated by the Central Bank of Kenya. Primary data was collected using self-administered questionnaires. Data was analysed using the Statistical Package for Social Science. Descriptive and inferential statistics were used for preliminary analysis. Factor analysis was conducted to reduce the number of factors and Kaiser Meyer Olkin and Barlett's test of Sphericity were tested, total variance explained, scree plot and rotated component matrix were drawn.

Findings: The descriptive statistics findings disclosed that online banking has a positive effect on performance of MFBs. The overall standard deviation was 1.47, an indication of reasonably high deviation from the mean. This shows that the respondents had fairly varied view on online banking. The relationship between online banking and performance was positive with a p value of 0.018 showing that the model was statistically significant for the data set. Online banking explains 22.6% of the variation in performance of MFBs.

Unique Contribution to Theory, Practice and Policy: The MFBs needs to invest more on online banking to improve performance. Partnership with government institutions and telecommunication companies would provide the network connections and training to the population on the use of online banking services.

Keywords: *Online Banking, Performance, Microfinance Banks*

INTRODUCTION

Online banking is an innovative service in the banking industry which allows the individuals to carry out financial transactions through internet. Online banking has brought services near to the customers which used to be offered only in the banks. These transactions are deposits, transferring money, paying bills and accessing account information. It has changed how the financial services were offered by bringing these services to the customers premises (Malaquias & Hwang, 2019). Additionally, online banking has helped the financial institutions to maintain competitive advantage and satisfying customers expectation. Okiro and Ndungu (2013), delved in a study to determine how internet banking impact the performance of financial institutions. They conducted an assessment research design of Nairobi based financial institutions. Contemporary and Information Production banking concepts and diffusion of innovation were applicable. Additionally, bits of qualitative and descriptive were applied. Stratified sampling was used in the collection of data. Questionnaires were administered to 30 different financial institutions across the country. The study concluded that online banking has increased productivity due to its efficiency and effectiveness. A similar study was carried out by Hussein (2013), and investigated the impacts of internet banking on operational productivity commercial bank. The study involved the use of the theory bank-led and technological acceptance model, and the population was 93. Correlation and Regression analysis were essential tools in the interpretation of data. The research revealed that internet banking of commercial banks affects the operational performance.

Miran and Rasha (2014), did a study on the internet banking quality dimension that affects customer satisfaction. The study investigated how the user perceives E-banking and how the bankers perceive and provide e-banking quality services. The survey distributed 500 questionnaires were randomly distributed. The data was analyzed through SPSS, and the results depicted that online banking offers quality services and affect customer satisfaction. Halili (2014), study was carried on the use of the online banking on performance of banks in UK. The target population was 22 national banks. The study concluded that online banking does not have effect on the performance of the banking industry. Van and Uyen (2015), researched on how Vietnam's banks' performance gets affected by internet banking. In other words, the study enveloped assessment of how internet banking impacted the performance of banks. Random effect as well as fixed effect models were used in this study to gauge the interrelation between bank performance and internet indicators. A sample of 20 commercial banks with accounts of 70% of total asset. OLS regression model for data analysis. The results reveal that 61% of Commercial banks use internet banking.

Mateka, Gogo and Omagwa (2016), the study was centered on the effect that internet has on specific commercial banks that are listed on the Stock Exchange market of Nairobi. Unified acceptance and Technology Acceptance models facilitated the success of this study. The research design used was a descriptive one. A total of 182 employees of the banks on the stock Exchange market were involved in the research. Data collection was through open-ended questionnaires. The collected data was then analyzed by the aid of both inferential and Descriptive Statistics. The study concluded that 61.3% of commercial banks fear internet banking due to cyber insecurity since their accounts were vulnerable to hackers. Internet banking is a crucial driver of cost management in banks. These studies checked on the impacts and performance of online banking however, some theories were not addressed which this study discussed such as Schumpeter theory of innovation, diffusion theory and technological acceptance model.

Statement of the Problem

Internet banking innovations by the microfinance banks has taken an important part in improving the performance and in bringing financial services near to the population. This has permitted the paucity to become economically active and supports SDGs, Kenya vision 2030, and big four agenda aim of reducing different forms of paucity by 2030 and tries to find ways for protecting social welfare of the poor and the left behind. Despite the efforts made to reduce scarceness of the population living in extreme poverty globally remain unacceptably high. The latest global estimate showed that above 10% of the world population or 800 million people lived below the extreme paucity verge in 2013. In Sub Saharan Africa an estimated 415 million or 35% of the population is under standards of living and is the only region where the overall number of extremely poor people is increasing rather than decreasing (WB, 2017 & UNEP, 2018). In Kenya nearly half of the population 45.2% is living in poverty. Poverty increment is attributed to lack of microcredit for the poor due to high cost of dealing with the poor and unlimited resources by MFBs. This demonstrates the gap in the industry which have made the MFBs to innovate new financial products and services to reduce poverty by providing the poor access financial services. The innovation of online banking by microfinance banks continue to create debate over whether they really benefit the poor (Sara & Shahidur, 2016). Different studies Okiro and Ndungu (2013), delved in a study to determine how internet banking impact the performance of financial institutions. The study disclosed that technology has resulted in new delivery channels for banking products and services. Halili (2014), study was carried on the use of the online banking on performance of banks in UK. The study concluded that online banking does not have effect on the performance of the banking industry. The study by Mateka, Gogo and Omagwa (2016), concluded that 61.3% of commercial banks fear internet banking due to cyber insecurity since their accounts were vulnerable to hackers. In response to these findings this study sought to investigate how online banking adopted by the MFBs, have interfered with the performance and whether the deviations in the performance can be ascribed to the online banking they have adopted.

METHODOLOGY

The study adopted positivism philosophy approach and descriptive research design was used. The target population was the senior managers working in the thirteen (13) microfinance banks regulated by the CBK. These senior managers were Chief Executive Officer, finance managers, Business development manager, credit officers and operations manager from each MFB totalling to 65. Data collection was done by acquiring data from primary sources through self-administered questionnaires. Statistical Package for Social Sciences (SPSS) software was used to analyse data. Descriptive statistics (frequencies, mean scores, and standard deviations) were used to describe the characteristics of the variables. Descriptive statistics provide the basic features of the data collected. Inferential statistics was used to conclude the findings of test carried out on a population by taking a sample of an information from the large population. The inferential statistic techniques were used to measure the significance of the relationship while the bivariate regression was employed to find out whether online banking had a positive correlation with performance of MFBs. The results of the study were presented using tables, cross tabulation, frequency and percentage.

RESULTS

Descriptive Statistical Analysis Results

Descriptive Analysis for Online Banking

The study evaluated the effect of online banking on performance of microfinance banks. The objective was evaluated by the use of the statements on the questionnaire. The statements were on whether the customers were able to deposit cash, withdraw cash, pay bills, transfer funds, enquire balance and loan application. The respondents were asked to indicate whether they agree or disagree with the statements. After, data collection the questionnaires were coded and analysed using SPSS. Frequencies of the various outcomes were drawn in percentages from the sample and then presented in Table 1 below.

Table 1: Descriptive Analysis for Online Banking

Statement	SD %	D %	NS %	A %	S A %	Mean	Std Dev
OB1 The number of customers transferring funds have increased	15.0	11.7	3.3	18.3	51.7	3.80	1.538
OB2 The number of customers deposit have increased	13.3	6.7	8.3	21.7	50.0	3.88	1.439
OB3 The number of customers paying bills have increased in the agents	16.7	16.7	13.3	20.0	33.3	3.37	1.507
OB4 The number of customers getting mini statements have increased	15.0	13.3	5.0	26.7	40.0	3.63	1.495
OB5 The number of foreign exchanges using have increased	35.0	35.0	10.0	6.7	13.3	2.28	1.367
Overall						3.39	1.470

Table 1 presents the descriptive analysis of online banking in the microfinance banks. The findings in Table 1 shows 70% of the respondent agreed that the number of funds transfer online increased, 26.7% disagreed and 3.3% were not sure. The mean score was 3.8, showing most the respondents agreed that it is easy to transfer funds. The standard deviation was 1.538 indicating a fairly high variation from the mean. This discloses that due to no accessibility and insecurity of online money transfer few customers are using this platform. This supports the findings of Okiro and Ndungu (2013), who concluded that few people are using online banking to transfer funds due to insecurity. Depositing money using online banking is easy given that 71.7% agreed and only 28.3% were of a different opinion. The response had a mean of 3.88 indicating most of the respondents agreed that it is easy to deposit cash online. The standard deviation was 1.439 implying that the data was more spread out. This reveals that the

respondents' different point of view on depositing cash. This concurs with Mateka, Gogo and Omagwa (2016), who urged that online banking has improved profits due to interest charged on the customer's deposits.

Online banking has made it easier to pay bills as 53.3% agreed and 46.6% differed with the statement. The response had a mean of 3.37 indicating most of the respondents agreed that the payment of utilities is convenient. The standard deviation was 1.5 indicating that the responses were dispersed far from the mean. The dispersion indicates that the respondents had different point of view on payment of utilities online. Due to high standard deviation it shows there is need for MFBs to sensitize the population to embrace the paying of utility bills. These findings collaborated with the study by Okiro and Ndungu (2013), who noted that nowadays customers no longer go to queue in the banking halls for bills payment for example electricity, water, school fees and other utilities.

The customers are able to print mini statement for their incomes and expenditures. This is shown by 66.7% concurred with the phrase and 28.3% contradicted the statement. The response had a mean of 3.63 indicating most of the respondents agreed that the enquiring of balance is easy. The standard deviation was 1.495 indicating a considerably high variation from the mean. The dispersion indicates that the respondents had different point of view on enquiring the balance in the personal accounts. This shows a larger percentage of the population using online banking are accessing information of their accounts. The checking of balances helps the individuals to control the account and are informed of any unauthorized transaction. These findings agreed with the study by Okiro and Ndungu (2013), who opined that online banking permits the customers to regularly access information of all the transactions on their accounts.

On the statement number of foreign exchanges using have increased, 80% disagreed and only 20% agreed with the statement. The mean score was 2.28 showing most of the respondents disagreed with the statement. The standard deviation was 1.367 indicating that the responses were dispersed far from the mean. The dispersion indicates that most of the respondents had different point of view on conversion of currencies. This shows that the respondents are not used to using foreign exchange. This indicates that there is need for the MFBs to sensitize the customers to enfold the forex services. This is inconsistent with the study by Mateka, Gogo and Omagwa (2016), who noted that online banking has facilitated the foreign exchange especially for those doing small business.

The results of this study indicate that online banking has enabled few customers to access quick banking services. This is shown by a low mean score of 3.39 which implies that more information is needed for the customers to familiarize with online banking. The overall standard deviation was 1.47, an indication of reasonably high deviation from the mean. This shows that the respondents had fairly varied view on online banking. This is consistent with the study by Hussein (2013), Miran and Rasha (2014), which revealed that online banking has a positive effect on the operations of the commercial banks although not all are able to access online banking. Van and Yen (2015), Okiro and Ndungu (2015), found that online banking has enhanced access to cheap and efficient banking services anytime and anywhere and increase the income on the services but few customers access it. The findings are inconsistent with the study by Mateka, Gogo and Omagwa (2016), which stated that online banking does not influence the financial performance of the commercial banks due to insecurity.

MFBs in Kenya are providing online banking services to meet customer needs and these services are quick and secure. The financial services provided by online banking are money transfer, bill payment and loan application. Online banking can be accessed from home or in the offices and this enables the customers to transact freely at their own time and this has increased the number of customers. The network connection may be a challenge to many of the individuals in the remote areas that is why most of the customers are not accessing this service. Online banking has been very effective in delivering banking services especially for those small business enterprises who import or export goods and services across borders but the challenge is the cybercrime which has led most customers to incur a lot of costs due to loss of financial information.

Factor Analysis

Drivers for Online Banking

A factor analysis was carried out on the five statements of online banking variable. These items were: cash deposit, bills payment, loan application, balance enquiry and funds transfer. The results are presented below:

Test Sampling Adequacy for Online Banking

In order to determine sampling adequacy of online banking KMO test of sampling adequacy was conducted and the results are presented in Table 2. The results in Table 2 show that the coefficient KMO for online banking was 0.714 and hence above the recommended minimum threshold of 0.5 (Hair et al., 2010; Field, 2013). These statistics indicates that the statements were suitable for factorability.

The Table 2 shows the results of Bartlett's test of Sphericity with a chi square of 161.114 with 10 degree of freedom and a p value of 0.000, which is less than 0.05 (Pallant, 2013). These statistics shows that the 5 statements testing online banking are highly correlated and therefore suitable for structure detection in Principle Component Analysis. Based on the analysis, the results suggest that further analysis could be conducted on online banking.

Table 2 KMO and Bartlett's Test for Online Banking

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.714
Bartlett's Test of Sphericity	Approx. Chi-Square	161.114
	df	10
	Sig.	.000

Total Variance Explained for Online Banking

In order to determine the number of components to be retained for online banking the total variance explained was conducted and the results were presented in Table 3. The results in Table 3 shows that only one component was retained which had an eigenvalue greater than 1. The component had an initial eigenvalue total of 3.045, which accounts for a total variance of 60.495%, which is above the minimum recommended threshold of 60% (Hair et. al., 2012). These results imply that this component is suitable for measuring online banking. The same findings indicate that the 5 statements constituted one component that accounts for 60.495% of the total variance.

Table 3: Total Variance Explained for Online Banking

Component	Total	Initial Eigenvalues	
		% of Variance	Cumulative %
1	3.025	60.495	60.495
2	.812	16.250	76.745
3	.750	15.001	91.746
4	.312	6.248	97.994
5	.100	2.006	100.000

Extraction Method: Principal Component Analysis

Scree Plot for Online Banking

In order to determine the number of factor loadings to be retained in the measurement of online banking, a scree plot was generated in Figure 1. The Y axis shows the eigenvalues which indicates the amount of variability in the online banking variable. X axis shows the one component of online banking variable which are considered significant for further analysis.

The results in Figure 1 shows a downward curve which levels after the first component. This indicates that one component was retained which had eigenvalues greater than 1 while the rest of the components had an associated eigenvalue less than one. The Figure also shows that all the 5 statements used to test online banking were reduced to 1 component.

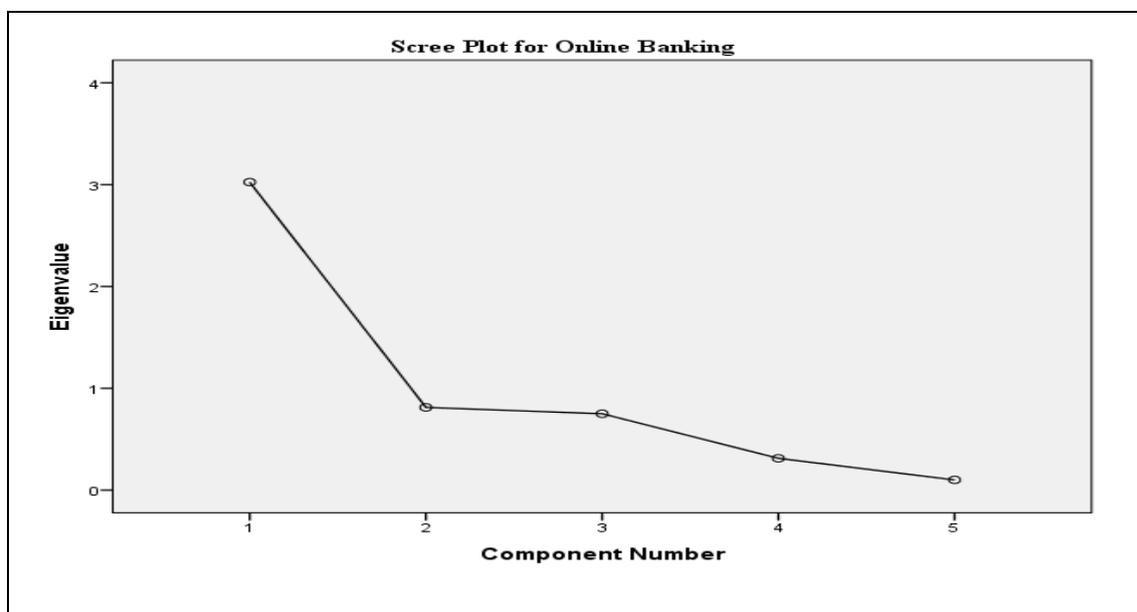


Figure 1: Scree Plot for Online Banking

The findings of the factor analysis show that the five statements on the online banking which were reduced to one component are drivers of the online banking. This means that the 5 statements: cash deposits, balance enquiry, loan application, bill payments and funds transfer are actual drivers of online banking. The findings therefore suggest that online banking was measured using one construct and six statements. This is in line with the studies by Van and

Uyen (2015), Hussein (2013), who urged that money transfer and bills payments are good drivers of online banking. Mateka et al., (2016) cautions the use of online banking noting that online banking transactions are insecure.

Rotated Component Matrix for Online Banking

In order to evaluate the factors for online banking, rotated component matrix was conducted and one component was generated. The results are presented in Table 4. As indicated in Table 4, five constructs formed one components and the factor loading was between 0.924 and 0.562. All the factors loadings were above 0.5 as advocated by Osborne, Costello and Kellow (2008), McDonald (2012) and Tabachnick and Fidell (2014), who recommended that the factors loadings which are below 0.4 to be suppressed and are not fit for analysis. Based on this analysis, all the five statements selected for measuring online banking were retained for further analysis.

Table 4: Rotated Component Matrix for Online Banking

	Component 1
OB1 The customers are able to transfer funds using online banking	.924
OB2 The customers are able to pay bills through online banking	.913
OB3 The customers are able to get mini statements online	.827
OB4 The customers are able to deposit money	.583
OB5 It is easy to carry foreign exchange using online banking	.562

Rotation Method: Varimax with Kaiser Normalization

The findings of the factor analysis show that the five statements on the online banking formed one component. The findings show that all the five statements selected for measuring online banking were retained for further analysis. This is in line with the studies by Hussein, (2013) and Van and Uyen, (2015) who urged that cash withdrawal and money transfer are good measures of online banking.

Inferential Analysis

Inferential statistics was conducted using the bivariate linear regression to evaluate the relationship between online banking and performance of microfinance banks in Kenya. The hypotheses were tested and the results were presented in summary model, ANOVA and regression coefficient table.

Effect of Online Banking on Performance of Microfinance Banks

The objective was to investigate the effect of online banking: cash withdrawal, bill payment, balance enquiry and loan application on performance of MFBs in Kenya. Online banking mean score was regressed on the weighted score of performance to explain the correlation between online banking and performance.

Bivariate Linear Regression of Online Banking and Performance

In order to investigate the effect of online banking on performance of MFBs in Kenya. The following null hypothesis was tested by the study:

H₀₃: Online Banking does not have statistically significant effect on performance of Microfinance Banks in Kenya

In order to investigate the suitability of the model the: model summary, ANOVA, and regression coefficient were generated and presented in Table 5, 6 and 7 respectively. The model summary for online banking is presented in the Table 5.

Table 5: Model Summary for Online Banking

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.282	.080	.064	.47466

The Table 5 shows that the R was 0.282. This indicates that online banking has a weak relationship with performance of MFBs in Kenya. The result shows that R square was 0.08. This indicates that online banking explains for approximately 8% of the variation in performance of MFBs. The model summary was tested for its importance in predicting online banking on performance of MFBs in Kenya. The results for ANOVA for online banking and performance are presented in Table 6.

Table 6: ANOVA for Online Banking

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1.131	1	1.131	5.022	.029
	Residual	13.067	58	.225		
	Total	14.199	59			

The results in Table 6 shows that F = 5.022 and p value of 0.029. This indicates that the online banking has a statistically significant relationship with performance of the MFBs in Kenya. The null hypothesis was rejected and the hypothesis online banking has significant effect on performance of MFBs in Kenya was accepted. This study concluded that online banking has a statistically significant effect on performance of MFBs. This study agreed with Hussein (2013), who found that the ANOVA results were statistically significant with a p value of 0.000. This indicates that internet banking has a positive effect on performance of commercial banks. The study by Van & Uyen (2015), shows that the results were statistically significant with a p value of 0.000 hence indicating that online banking has enhanced the financial performance of banks. This study disagreed with the study by Mateka, Gogo & Omagwa (2016), who stated that the results were insignificant with a p value of 0.07. The study also disagreed with Halili (2014), who found that the model was insignificant with a p value of 0.060 meaning that internet banking has affected negatively the performance of banking sector in Pakistan.

The regression coefficient for online banking and performance was generated and presented in Table 7.

Table 7: Regression Coefficient for Online Banking

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	2.112	.151		13.971	.000
	Online Banking	.226	.101	.282	2.241	.029

The results in Table 7 shows that online banking have a beta coefficient of 0.226 and a p value of 0.029. This indicates that online banking explains 0.226 of the variation in performance of MFBs. The findings of the study show that there is a positive relationship between online banking and performance of MFBs. This study is consistent with Miran and Rasha (2014), who reported that online banking has a significant positive correlation with performance of the deposit taking institutions. This study is also consistent with the study conducted by Safa and Saha (2019), that concluded there is positive relationship between online banking and performance measured in terms of return on assets and return on equity. Hauwa, Shazida and Abdul (2017), found that there is a significant relationship between online banking and performance of commercial banks as it is easy to access services anytime. The results imply that MFBs needs to invest more on online banking to improve the performance. Due to lack of network connection especially in the remote areas where the population cannot access online banking, there is need for MFBs to partner with telecommunication companies and with the government institutions to provide the network and training to the population on the use of online banking services.

The model $Y = \beta_0 + \beta_1X_1 + \epsilon$ was given by the model

$$Y = 2.112 + 0.226*OB$$

Assessment of Homoscedasticity of the Bivariate Regression between Online Banking and Performance

Homoscedasticity test was carried on online banking and performance of MFBs in Kenya and the results were presented in Figure 2.



Figure 2: Homoscedasticity Test for Online Banking and Performance

The Figure 2 shows the result of a P P plot output and the residual plot is close to straight line. This implies that there is normal distribution and there was no heteroscedasticity in the data hence the regression bivariate model chosen was fit for the data.

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Summary

Descriptive results showed that online banking had average mean score of 3.39 indicating that it is easy to transfer funds, apply loan and check the balances online. The results denoted that the variations on performance of MFBs is weak and this was shown by R square of 8%. Further, the findings of ANOVA showed that online banking has a statistically significant effect on performance of MFBs with an F value of 5.022 and a p value of 0.029 less than 5%. The beta coefficient showed that the model generated was $Y = 2.112 + 0.226 \cdot OB$. This indicated that there is a moderate positive relationship between online banking and performance of MFBs in Kenya. The MFBs in Kenya have facilitated customers with quick and affordable financial services online.

Conclusion

The study concluded that the adoption of online banking has improved the performance of MFBs by increasing the number of money transfer, balance enquiry, loan application and bill payment. Online banking was found to be positively and statistically significant on performance of the MFBs. This study may provide information to other institutions struggling to implement online banking. There is need to enforce policies to protect the customers on cyber insecurities, ensure that there is network connection every time and everywhere. These policies will ensure the management team implements efficient and effective methods to increase better services to the customers.

Recommendation

The study recommends that microfinance banks ensure that policies are elaborated to protect the customers from fraud and exploitation by the business owners due to higher transaction

cost and the employees should be trained on fraud policies because it is affecting many customers. This will assure the customers that they are well protected when carrying out the transactions online.

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