



**EFFECTS OF M-BANKING TECHNOLOGY ON FINANCIAL PERFORMANCE OF MICRO FINANCE INSTITUTIONS  
IN KENYA**

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## EFFECTS OF M-BANKING TECHNOLOGY ON FINANCIAL PERFORMANCE OF MICRO FINANCE INSTITUTIONS IN KENYA

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### Abstract

*Microfinance institutions have been in the process of significant transformation. The force behind the transformation of these institutions is innovation in information technology. Information and communication technology is at the Centre emergence and development of M-Banking technology in Kenya. The rapid development of information technology has made it possible for financial institutions to reach the unbanked population in Kenya. This research aims at finding out how M-Banking technology has improved the performance of Micro Finance institutions in Kenya with regard to improved operation efficiency, cost reduction on part of both the Micro-Finance institutions as well as the customers it also examines challenges that microfinance institutions face in the adoption of M-Banking technology and solution to these challenges. The research used both primary and secondary data. The questionnaire included both structured and unstructured questions. The questionnaire was administered through the drop and pick method. The research employed census study this is due to a small number of Micro Finance institutions who are members of Association of Micro Finance Institutions of Kenya (AMFI). After collection, data was coded into Statistical Package for Social Sciences (SPSS version 21) for analysis. The study used both descriptive and inferential statistics to analyze the data. The study found out that there exist a negative relationship between M-banking technology and financial performance of Micro-Finance institutions in Kenya, the research recommends that there is a need for a serious study on the M-banking system so that the issues pointed out by the clients can be mind leading to a satisfied clientele. The Micro Finance Institutions should also do follow-up surveys on the clients from time to time to ensure that their service quality is always at par.*

**Keywords:** M-banking, Microfinance institutions, information technology

## Introduction

M-banking technology is the ability to conduct bank transactions via a mobile device, or more broadly to conduct financial transactions via a mobile terminal it includes not only basic services such as bank account statements and funds transfer but also electronic payment options as well as information based financial services such as alerts on account limit or account balance and access to stock broking (Drexelius & Herzig, 2010). During the 21<sup>st</sup> century M-banking technology advanced from providing mere text messaging services to that of internet banking whereby customers could not only view their account balances and set up multiple alerts but also transact activities such as fund transfer, redeem loyalty coupons, deposit and withdraw via the phone and instruct payroll based transactions (Vaidya, 2011).

Mobile money services offer secure and convenient means for banked and unbanked people to send and receive money with mobile phones at home and abroad; anywhere at any time. It contains features such as mobile wallet, mobile transfer, airtime transfers and M-banking. Mobile wallet enables the subscriber to receive, store, send or pay money anywhere anytime. Money transfer options means that one can send money from their mobile money account to a different subscriber anywhere anytime, which is similar to airtime transfer, where one can purchase and send airtime to another subscriber within the same network-banking works closely with banks to provide banking services to subscribers of mobile money (Zutt, 2010).

The mobile revolution has transformed the lives of many Africans, providing not just communications but also basic financial access in the form of phone-based money transfer and storage (Jonathan & Camilo, 2008; Demombynes & Thegeya, 2012). The high growth and penetration rates of mobile telephony that is

transforming cell phones into pocket-banks in Africa are providing opportunities for countries on the continent to increase affordable and cost effective means of bringing on board a large chunk of the population that hitherto has been excluded from formal financial services for decades (Asongu, 2012).

Individuals all over the developing world have used loans from MFIs as a stepping stone to investing in their small businesses to create a better future for themselves (Guatam, 2011). Other people have used MFIs as a vehicle through which they can smooth their income flows: saving when times are good, and spending their savings when their earnings may not be as strong. MFIs offer financial options to people who were previously unbanked (Suoranta, 2004).

Despite the many clear advantages of using technology by financial service providers including MFIs, and also due to the fact that the cost of hardware and connectivity is falling, successful use of technology in microfinance is still the exception rather than the rule. Several challenges remain that inhibit the widespread adoption of technology to extend financial service delivery across vast distances and to millions of people quickly (Gateway, 2010).

Technology is consistently cited as one of the greatest challenges faced by MFIs around the world. It is widely recognized that technology is invaluable for improving efficiency, accuracy, increasing outreach and reducing costs. However, many MFIs lack sufficient funds to invest in suitable backend technologies or operate in regions where access to critical infrastructures – such as the Internet – remains scarce. Still, others sink funds into poor technology investments, or simply choose not to invest, limiting their ability to grow and compete which negatively affects their performance (Rosenberg, 2009).

## Study Objectives

The general objective was to establish the effects of M-banking technology on the financial performance of microfinance institutions in Kenya. The specific objectives were:

- To determine the effect of the convenience of M-banking technology on the performance of MFIs.
- To determine the effect of accessibility to financial services on the performance of MFIs.
- To investigate the effect of M-banking technology on customer satisfaction hence the performance of MFIs.
- To establish the effect of perceived security of M-banking technology on performance of MFIs.

### Literature Review

Omwansa (2009) states that mobile money was originally designed to help MFIs streamline their operations, raising efficiency and boosting business growth. Mobile payment platforms allow for the sender to immediately receive confirmation data of the recipient as the receiver is getting the payment. This information is stored within the phone short message service (SMS) storage option allowing for future retrieval and tracking if the need arises. Additional information services that can be made through mobile money include requests for and viewing of bank statements, requesting for bank balances and much more.

Accessibility to finances is considered a key determinant of business success. One challenge posed by SMEs is the lack of securities to act as collateral to access finances especially from mainstream financial institutions such as the banking sector. Since mobile money allows any subscriber to add credit to his or her mobile account and store it for later use, some of the features like storage, payments, and transfers makes it possible to build additional financial services within the mobile phone technology (Zutt, 2010 and Omwansa, 2009)

Evidence shows that expanding access among the poor to financial services is effective in reducing poverty (Must & Ludewig, (2010). Poor individuals without access to banking services are forced to rely on the informal cash economy like borrowing and family savings, making them more susceptible to risks and lacking means to efficiently save or borrow money.

Hughes and Lonie (2007) suggest that mobile money transfer is more secure and cost effective than alternative methods of money transfer, such as using couriers or friends. Focus group participants in Plyler et al. (2010) highlight the greater security they enjoy because they are able to keep funds as mobile money, rather than at home in cash. Men in the Kibera slum focus on the aspect of physical danger due to mugging, which has decreased because fewer people carry large amounts of cash. Likewise, other respondents in the study indicate that local businesses and street vendors often convert their cash to M-PESA at the end of the day for safekeeping. Additionally, mobile money empowers women by giving them an independent place to store and manage funds that are private and inaccessible to other family members.

Tarawneh (2006) in his study regarding financial performance in Oman banking sector found out that not all banks that have high total capital, deposits or even total assets would indicate that the banks always had better profitability he noted that intense competition adversely affects bank performance. There are various ways to measure financial performance. The performance can be measured using various methods such as accounting based technique, which consists of Return on asset (ROA) and Return on Equity (ROE).

Njenga (2009) conducted a study on M-banking usage experience in Kenya. His findings validated the view that the Kenyan mobile banking sector presents a delightful outlook of exploitation. Most individuals acknowledge the importance of the

mobile-based banking service in a myriad of their daily activities. Usage patterns appear to be largely driven by personal missions and marketing strategies of service providers, depending on the nature of activities and requisite levels of expediency users will employ M-banking in variable ways. However, the research dealt specifically with experience of m banking technology in Kenya with no regard to its effect on the performance of MFIs.

### Methodology

The study adopted a descriptive research design which enabled the researcher to highlight the association between the variables under the study. Following the small number of MFIs, the study included all the institutions in this category hence a census study was conducted. The target population of the study was 39 microfinance institutions registered with Association of Microfinance Institutions (AMFI) In Nairobi. There are 39 MFIs registered with AMFI in Kenya. The target population of the study consisted of customer service officers and customers to add up to 78 respondents.

Both Primary and secondary sources were used in data collection. Secondary data was collected through the review of the empirical literature as well as from microfinance information exchange

### ROE

**Table 1: Model Summary of the Dependent Variable(ROE) and Factors(Perceived Security, Customer Satisfaction, Accessibility, Convenience)**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.477 <sup>a</sup>	.227	.065	30.08819

The R in the table 1 above shows the relationship between, the predict/dependent variable (Return on Equity) and the factors. R=.477. R-square is the spread of the accountability, i.e. the effect that changes in the financial performance are

incorporation commonly known as (MIX) which is a nonprofit organization that collects and validates financial and social performance data from MFIs from 2011 to 2014. Primary data was collected through open and close-ended questionnaires which were dropped and picked later from the respondents.

Before processing the responses, preparation was done on the completed questionnaire by editing, coding, entering and cleaning the data. After collection, data was coded into Statistical Package for Social Sciences (SPSS version 21) for analysis. The study used both descriptive and inferential statistics to analyze the data. In descriptive statistics, the study used frequencies, percentages, mean and standard deviation.

### Results

#### Regression Analysis

Multiple regression analysis was used to determine the relationships between dependent and independent variables.

accounted for by changes in the factor variables. R-square value is 0.227, while standard error of 30.088 estimates represents the effect of factors outside the study.



**Table 2: ANOVA**

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	5059.628	4	1264.907	1.397	.273 <sup>b</sup>
Residual	17200.685	19	905.299		
Total	22260.313	23			

The significance in the table 2 above indicates that the regression model does not predict the outcome of the Return on Equity significantly well (sig>.05). Hence, the model is not acceptable. From the ANOVA statistics in the table above, the processed data, which is the population parameters, had a significance level of 0.273

which shows that the data is not ideal for making a conclusion on Return on Equity. This is an indication that Perceived Security, Customer Satisfaction, Accessibility, Convenience are not significant influencers of Return on Equity (a financial performance parameter) of MFIs in Kenya.

**Table 3: Coefficients of Factor Variables (convenience, accessibility, customer satisfaction, and perceived security)**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	27.829	51.779		.537	.597
Convenience	-3.848	5.323	-.137	-.723	.478
Accessibility	5.195	3.131	.906	1.659	.113
Customer Satisfaction	-1.473	2.485	-.303	-.593	.560
Perceived Security	1.148	5.315	.354	.216	.831

The coefficients table 3 above provides the constant value and the beta values for each factor variable. From the beta column, the constant, Accessibility, and Perceived Security values are positive. This means that they have a positive effect on Return on Equity. This indicates that an increase in the levels of Accessibility and Perceived Security brings about an increase in the ROE of the Micro Finance Institutions. But looking at the Sig. column, the effect of these predictors is insignificant (sig.>0.05).

Still, from the beta column, the Convenience and Customer Satisfaction values are negative. This means that Convenience and Customer Satisfaction have a negative effect on the financial performance of Micro Finance Institutions. This indicates that an increase in their levels would bring about a decrease in the Return on Equity of the Micro Finance Institutions. Again their effect is insignificant (sig.>0.05).

A multiple regression was conducted to see if Convenience, Accessibility, Customer Satisfaction and Perceived Security significantly affect the financial performance of Micro Finance Institutions. The factors turned out to be not effective predictors of the predict variable (Return on Equity). From our former a descriptive analysis of the factor variable, we noted a discrepancy in the views of the clients and the staff. This shows a high level of the misunderstanding of the clients' needs by the Micro Finance Institutions which could be the cause of the outcome. This means that the Micro Finance Institutions need to do a thorough study of their clients which would help in increasing the level of appreciation of the M-banking technology. It would also mean that clients have not yet fully understood the M-banking product.

From the data analysis, it was found that Convenience, Accessibility, Customer Satisfaction and Perceived Security collectively could not

significantly explain a significant amount of the variance in the financial performance of MFIs ( $F(4, 19) = 1.397, p > .05, R^2 = .227$ ,  $R^2$  adjusted is 0.065, where adjusted R square takes into account the number of predictors and the sample size, i.e. it is adjusted based on the degree of freedom (df). The value of R Square is therefore 0.227, where from the above regression equation, it was revealed that holding convenience, accessibility, customer satisfaction and perceived security constant zero financial performance of MFIs would be 27.829. The results

### ROA

contradicts with that of Nzau (2013) who found out that the use of M-banking technology has advantages in terms of enhanced accessibility, flexibility and reduced operational costs which will accrue to customers and institutions that adopt the technology which in turn influence the firm's financial performance, Nyathira (2012) also argued that the use of M-banking technology has enabled MFIs to automate the repetitive tasks resulting in greater efficiency and effectiveness, better time usage and enhanced controls.

**Table 4: Model Summary of the Dependent Variable(ROA) and Factors(Perceived Security, Customer Satisfaction, Accessibility, Convenience)**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.543 <sup>a</sup>	.295	.147	8.17350

The R in table 4 above shows the relationship between, the predict/dependent variable (Return on Assets) and the factors,  $R = .543$ , which is moderate. R-square is the spread of the accountability, i.e. the effect that changes in the

financial performance are accounted for by changes in the factor variables. R-square value is 0.295, while standard error of 8.1735 estimates represents the effect of factors outside the study.

**Table 5: ANOVA**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	530.969	4	132.742	1.987	.137 <sup>b</sup>
	Residual	1269.316	19	66.806		
	Total	1800.285	23			

The significance in the table 5 above indicates that the regression model does not predict the outcome of the Return on Assets significantly well ( $sig > .05$ ). Hence, the model is not acceptable. From the ANOVA statistics in the table above, the processed data, which is the population parameters, had a significance level of 0.137 which shows that the data is not ideal for making a conclusion on Return on Assets. This is an indication that Perceived Security, Customer Satisfaction, Accessibility, Convenience are not

significant influencers of Return on Assets (a financial performance parameter) of MFIs in Kenya. The results contradicts that of Atavachi (2007) who found out that there is a positive relationship between ROA and financial performance of MFIs in Kenya, however the results are in line with those of Li and Ye (2002) who found out that M-banking technology was not statistically significant in improving profitability of financial institutions in China as measured by ROA.

**Table 6: Coefficients of Factor Variables (Convenience, Accessibility, customer satisfaction, and perceived security)**

Model	Unstandardized Coefficients		Standardized	t	Sig.
	B	Std. Error	Coefficients Beta		
(Constant)	21.078	14.066		1.499	.150
Convenience	-1.539	1.446	-1.598	-1.064	.301
Accessibility	.831	.850	.510	.977	.341
Customer Satisfaction	-1.270	.675	-.919	-1.882	.075
Perceived Security	1.650	1.444	1.788	1.143	.267

The coefficients table 6 above provides the constant value and the beta values for each factor variable. From the beta column, the constant, Accessibility, and Perceived Security values are positive. This means that they have a positive effect on Return on Equity. This indicates that an increase in the levels of Accessibility and Perceived Security brings about an increase in the ROE of the Micro Finance Institutions. But looking at the Sig. column, the effect of these predictors is insignificant (sig.>0.05).

Still, from the beta column, the Convenience and Customer Satisfaction values are negative. This means that Convenience and Customer Satisfaction have a negative effect on the financial performance of Micro Finance Institutions.

This indicates that an increase in their levels would bring about a decrease in the Return on Equity of the Micro Finance Institutions. Again their effect is insignificant (sig.>0.05).

A multiple regression was conducted to see if Convenience, Accessibility, Customer Satisfaction and Perceived Security significantly affect the financial performance of Micro Finance Institutions. The factors turned out to be not effective predictors of the predict variable (Return on Assets). From our former descriptive analysis of the factor variable, we noted a discrepancy in the views of the clients and the staff. This shows a high level of the misunderstanding of the clients' needs by the Micro Finance Institutions which could be the cause of the outcome. This means that the Micro Finance Institutions need to do a

thorough study of their clients which would help in increasing the level of appreciation of the M-banking technology. It would also mean that clients have not yet fully understood the M-banking product.

From the data analysis, it was found that Convenience, Accessibility, Customer Satisfaction and Perceived Security collectively could not significantly explain a significant amount of the variance in the financial performance of MFIs ( $F(4, 19) = 1.987, p > .05, R^2 = .295$ ,  $R^2$  adjusted is 0.147, where adjusted R square takes into account the number of predictors and the sample size, i.e. it is was adjusted based on the degree of freedom (df). The value of R Square is therefore 0.295, where from the above regression equation, it was revealed that holding convenience, accessibility, customer satisfaction and perceived risk strategic risk to a constant zero, the financial performance of MFIs would be 21.078. These results are in line with the findings of Atavachi (2007) in his research on effects of M-banking technology on financial performance of microfinance institutions in Kenya, the study found out that all the MFIs had adopted electronic banking technology and that there exists a negative relationship between electronic banking and financial performance of MFIs in Kenya as measured by ROE and ROA.

However, the result contradicts that of Hasan, Schimidel, and Song (2010), Hernado and Nieto (2006) and De young (2005) in studies done in Italy, Spain and USA respectively. These studies concluded that investment in electronic banking



technology has a positive influence on financial institutions as measured by return on assets and return on equity. Mutua (2010) also in his study on effects of M-banking technology on the financial performance of financial institutions in Kenya found a weak positive relationship between M-banking technology and financial performance of financial institutions in Kenya.

### **Summary**

The key findings of the study were that MFIs in Kenya should have a proper understanding of the client needs so that in striving to meet those needs they create a happy customer base which would enable them to determine the performance predictors and also boost their financial performance. Most Micro Finance Institutions seem to be operating under the assumption of a satisfied clientele which is not the case as proved by the study. The fact that clients are not happy with the banking technology means that Micro Finance Institutions should take the time to train the clients on how to use the technology. From the analysis, all variables studied had no significant effect on the financial performance of MFI's.

### **Conclusion**

Based on the objectives and the findings of the study the following conclusions can be made. Convenience, Accessibility to financial services, Effects on customer satisfaction and Perceived

security of M-banking technology does not impact on financial performance of MFI's in Kenya.

The study established strong relationships among the four independent variables but a non-significant relationship between the dependent variables (Return on Equity and Return on Assets) and independent variables (convenience, access to financial services, the effect of M-banking services on customer satisfaction and perceived security of M-banking technology). It was also established that Micro Finance Institutions are not keen on noting the clients' sentiments concerning the use of M-banking technology as highlighted in the great discrepancies between their views and those of their clients.

Therefore there is a need for a serious study on the M-banking system so that the issues pointed out by the clients can be mend leading to a satisfied clientele. Micro Finance Institutions should also do follow-up surveys on the clients from time to time to ensure that their service quality is always at par. It seems that though the clients are okay about other aspects of Micro Finance Institutions operations, M-banking technology is a major issue of concern and Micro Finance Institutions should focus on it to ensure that they derive maximum benefit from its employment.

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