Mobile Banking and Financial Performance of Commercial Banks: A Case Study of Selected Commercial Banks in Uganda

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Abstract:- The study concentrated on assessing the relationship between Mobile Banking and Financial Performance of the selected Commercial banks in Uganda. This was attained through assessing the relationship between mobile transaction volumes, mobile banking products, mobile banking technological investment and financial performance. This study undertaken a quantitative and non-experimental research, co-relational, cross-sectional and survey design. The target population was 120 employees and managers of three selected commercial banks that include Equity Bank, DFCU and Centenary bank from where a sample size of 92 respondents was sampled based on Morgan and Krejcie table as given by Amin, (2005) in fulfillment of attaining the research objectives of the study. Results showed that there is a significant positive relationship between mobile transaction volumes, mobile banking products, mobile banking technological investment and financial performance of Commercial banks in Uganda as this was evidenced by correlation coefficients(r) of 0.871, 0.527 and 0.525 respectively that were statistically significant since the p value (0.000) < 0.01. Based on the study findings, the researcher concludes that mobile banking deposits through the M-Banking have greatly increased the firm's revenue, increased the number of transactions done by the bank since there is increased customer convenience, increased the net profits and business for both employees and commercial bank. In addition, mobile banking technological investment has increased the productivity of the bank's employees, increased flexibility in product innovation, enhanced customer numbers, increased employee's efficiency and productivity, increased customer loyalty, reduced the overall transaction costs for both customers and the bank, reduced the administrative expenses, reduced the employees' costs, reduced the bank's expenditure in setting up new branches and further reduced on the customer queues in the banking halls. Based on the study findings, the researcher recommends that the banks should lower the transaction charges incurred by customers, reduce time taken to complete transaction and improve the quality of mobile banking services so as to motivate them use the M-banking services.

Keywords:- *Mobile Transaction Volumes, Mobile Banking Products, Technological Investment and Financial Performance.*

I. INTRODUCTION

A. Background of the study

Mobile money was introduced in Uganda in 2009. The business model involves a partnership between a mobile money operator and a commercial bank. The services offered have so far been restricted to domestic remittances, basic retail payments and money storage services. The growth in mobile banking has been phenomenal. As of December, 2014, there were over 18 million registered mobile money customers, and the average monthly number of transactions in the last quarter was 46 million while the average monthly value of the transactions was UGX 2.1 trillion. Mobile money therefore has a high potential to foster financial inclusion in Uganda.

Commercial banks are starting to feel the pressure from the emergence of financial technology firms as banking halls turn empty and brick-and-mortar branches get closed (Twaha, 2017). Many banks are now closing a couple of branches, in the process laying off staff, as part of managing their costs in what has become a competitive environment with new innovations in the mobile phone space. According to the (2016) BOU supervision report, the number of commercial branches reduced from 573 in 2015 down to 570 in 2016, the first drop in the recent past. Other bank branches were simply merged to cut back on high operational costs as fintech start-ups expanded their presence (Twaha, 2017).

For example, Equity bank, transferred its Masindi branch to Hoima, its Tororo branch to Mbale and the Jinja road branch in Kampala to Oasis branch. Stanbic Uganda also merged the Bushenyi branch with Ishaka branch. On the other hand, the pressure from fintechs is leaving commercial banks with no choice but to innovate and invest in digital solutions (Twaha, 2017). For instance, in 2016, DFCU invested nearly Shs 3.3bn to upgrade its core banking system. Other banks such as Centenary bank, KCB Group and Stanbic bank have equally invested heavily to upgrade their core systems. Uganda Communications Commission's 2015/16 annual market and industry report indicates mobile money telephone lines increased to 21.5 million as at the end of 2016, from 21.1 million the previous year. As a result, the annual amount of money transferred through mobile money totaled Shs 43.83tn in 2016, up from Shs 32.7tn in 2015 (Twaha, 2017).

B. Problem Statement

A firm's financial condition is a major concern to both investors and creditors as it provides a gauge for the firm's health, safety and profitability of their investments and further acts as a basis for prediction of future expectations (Kenton, 2018). However, Commercial banks are starting to feel the pressure from the emergence of financial technology firms as banking halls turn empty and brick-and-mortar branches get closed. According to the (2016) BOU supervision report, the number of commercial branches reduced from 573 in 2015 down to 570 in 2016, the first drop in the recent past as a result of high operational costs (Twaha, 2017).

Equity bank, transferred its Masindi branch to Hoima, its Tororo branch to Mbale and the Jinja road branch in Kampala to Oasis branch. Currently, apart from personnel costs, mobile technology is usually the biggest item in the budget of commercial banks, and the fastest growing one. During investor briefing Mwangi (2012) asserts that the Equity Bank had made large investments in ICT in order to enhance their mobile banking services solutions. It is therefore important that Mobile banking innovations are made by sound analysis of risks and costs associated so that to avoid harms on the bank performance.

In addition, today many people are still without effective access to mobile banking services and this may have also affected the financial performance of commercial banks. The main literature gap exists in revealing how mobile banking has affected the financial performance of the banking industry in Uganda. It's for this reason that this study assessed the relationship between Mobile Banking and Financial Performance of Commercial banks, Uganda.

C. Research Objective

The main objective of the study was to assess the relationship between "Mobile Banking and Financial Performance of Commercial banks, Uganda".

a) Specific objectives
- To find out the relationship between mobile transaction volumes and financial performance of Commercial banks, Uganda.
- To assess the relationship between mobile banking products and financial performance of Commercial banks, Uganda.
- To examine the relationship between mobile banking technological investment and financial performance of Commercial banks, Uganda.

D. Scope of the study

The study was limited to assessing the relationship between "Mobile Banking and Financial Performance of the selected Commercial banks in Uganda". The study focused on Mobile Banking as the independent variable that was broken down into three forms of mobile transaction volumes, mobile banking products and mobile banking technological investment. The study assessed the relationship between mobile transaction volumes, mobile banking products, mobile banking technological investment and financial performance. The study was conducted within the three selected Commercial banks in Uganda that is Equity Bank, DFCU Bank and Centenary Bank since they were convenient in terms of accessibility, time, costs and information required would be accessed. This study covered a period of 2014-2017.

E. Conceptual Framework

The impact of Mobile banking on the financial performance is presented in the conceptual framework below. The usage Behavior adopted in this study includes the breakdown of Mobile banking into three forms of; Mobile transaction volumes, mobile banking products and Mobile banking technological investment that highlight their impact on Financial Performance.
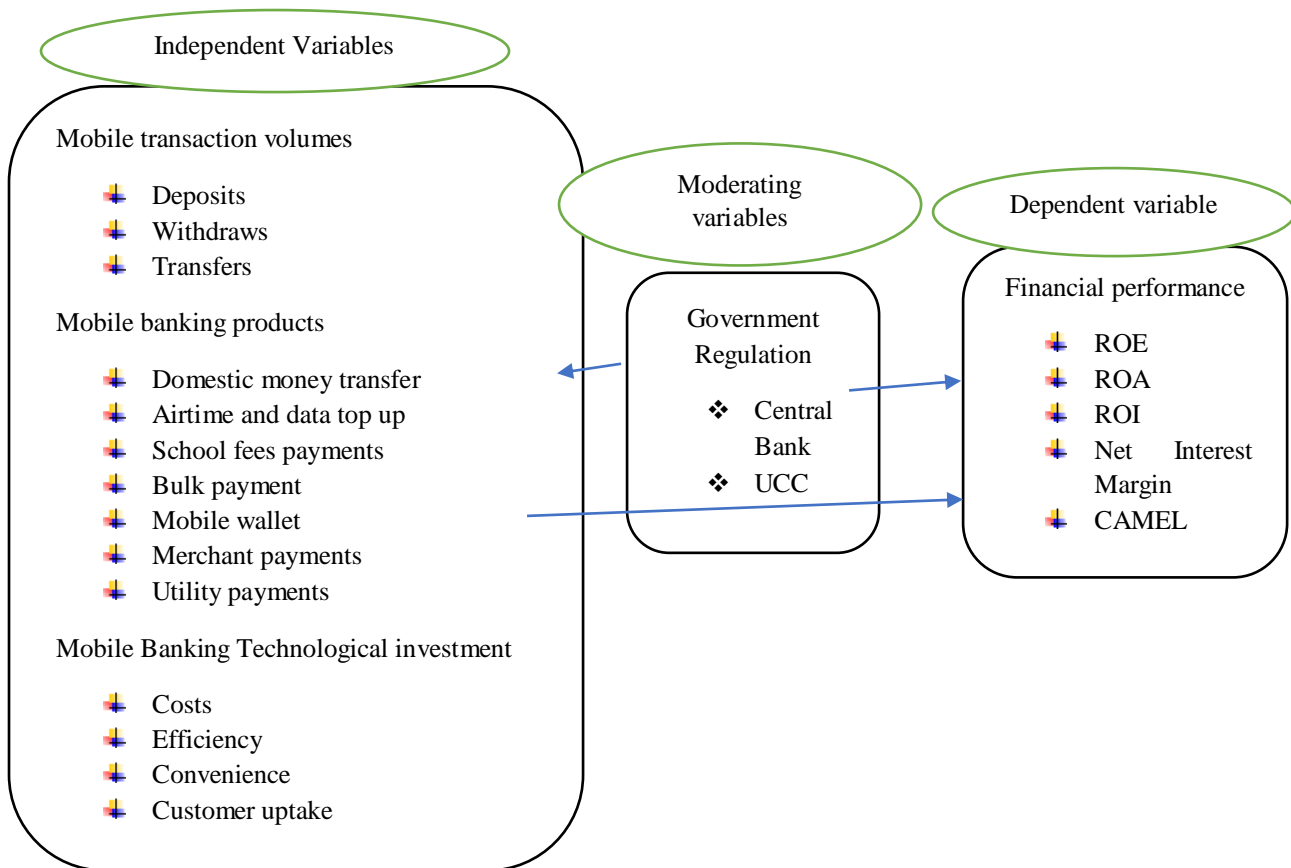
Fig. 1: Conceptual Framework, Impact of Mobile Banking on Financial Performance.

Source: Researcher 2019

II. METHODOLOGY

A. Research Design

A research design is the overall blueprint that guides a study (Saunders et al., 2012). This study undertaken a quantitative and non-experimental research with no manipulation of the variables under study. It considered a co-relational, cross-sectional and survey design. Correlational research refers to the type of non-experimental research in which a researcher measures two on more variables, understands and assess the statistical relationship between them with no influences from an extraneous variable. The study considered a cross-sectional trend in order to reduce time and cost(s) involved.

B. Target Population

Cooper and Emory (1995) define population as the total collection of elements about which the researcher wishes to make some inferences. The target population was 120 employees and managers of three selected commercial banks that include Equity Bank, DFCU and Centenary bank which had embraced mobile banking by the period of 2014-2017.

C. Sample Size and Sampling Procedure

A sample size of 92 respondents as based on Morgan and Krejcie table as given by Amin, (2005) was assessed in fulfillment of attaining the research objectives of the study. The researcher employed purposive sampling technique as the respondents for the study are perceived to have relevant information to collect primary data. These included Employees and bank managers of the selected banks as based on the previous list of the bank staff.

D. Data Quality Control

After development of the research instruments, the researcher tested for their validity using content validity test and reliability using Cronbach Alpha test to see whether they brought out the intended research objective.

Validity refers to the degree to which an instrument measures what it is supposed to. According to Golafshani (2003), validity determines whether the research items truly measure what they are intended to measure or how factual the research results are. Content validity ratio was employed to determine the content validity index. Variables were measured using the Likert scale, valid research instrument were reviewed by content experts and adjustments done as per their recommendations. The content validity results were obtained and for all variables were above 0.7 as recommended by (Sekaran, 2000).

According to Shanghverzy (2003), reliability refers to the consistency of measurement and is frequently assessed using the test–retest reliability method. Cronbach's alpha (Cronbach, 1951) determines the internal consistency or average correlation of the items in the survey. Cronbach's alpha was used to test the reliability of the instrument using SPSS from where any questions with an alpha above 0.7 were retained and considered reliableas shown in table below.

Variable	Cronbach's Alpha	Number of items
Mobile transaction volumes and financial performance	.889	7
Mobile banking products and financial performance	.805	8
Technological investment and financial performance	.825	12

Table 1: showing the Reliability Test

III. RESULTS AND DISCUSSION

A. Response rate

	Response rate	Percentage (%)
Respondents	85	92.3
Non responses	7	7.7
Sample Size	92	100

Table 2: showing the response rate

Source: Researcher (2022)

Table 2 shows that 85 respondents responded to the study which represents 92.3% response rate that is above 50%. Based on Mugenda and Mugenda (2003) who stipulate that a 50% response rate is adequate, 60% is good and 70% and above is rated very good. Based on this assertion, the response rate was very good hence viable for this study.

B. Empirical findings of the study
  a) Mobile Transaction Volumes and Financial Performance
  In an effort to examine the relationship between mobile transaction volumes and financial performance of Commercial banks, Uganda, the researcher carried out the Pearson correlation analysis and study findings are as given below.

Correlations			
		Financial Performance	Mobile transaction volumes
Financial Performance	Pearson Correlation	1	.871**
	Sig. (2-tailed)		.000
	N	85	85
Mobile transaction volumes	Pearson Correlation	.871**	1
	Sig. (2-tailed)	.000	
	N	85	85
**. Correlation is significant at the 0.01 level (2-tailed).			

Table 3: showing the relationship between mobile transaction volumes and financial performance

Source: Researcher (2022)

Results in table 4 show that there is a strong positive relationship between mobile transaction volumes and financial performance of Commercial banks, Uganda as this was evidenced by a correlation coefficient(r) of 0.871 that is statistically significant since the p value (0.000) < 0.01. This implies that as mobile transaction volumes increase, also the commercial bank tend to increase their financial performance. These agree with Karjaluoto (2002) who argues that by complementing services offered by the banking system, such as mobile banking, banking services are more efficient and hence improved the financial performance of the banks.

Regression analysis was further done to determine the strength of the relationship between mobile transaction volumes and financial performance of Commercial banks, Uganda. And this was summarized in the model below.

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.871ᵃ	.759	.756	1.980
a. Predictors: (Constant), mobile transaction volumes				

Table 4: showing the model summary on mobile transaction volumes and financial performance

Source: Researcher (2022)

Table above indicates that the coefficient of determination (Adjusted R^2) value is 0.756 and this implies that 75.6% of the variation in bank's financial performance can be explained by the number of the transaction volumes done by both the bank and its agents holding other factors constant. Results conquer with Jonathan & Camilo (2009) who argues that most mobile transactions in the developing world enable users to do two things: store value (currency) in an account accessible via a handset and convert cash into and out of the store value account.

ANOVA[a]						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1022.838	1	1022.838	260.804	.000[b]
	Residual	325.515	83	3.922		
	Total	1348.353	84			
a. Dependent Variable: Financial Performance						
b. Predictors: (Constant), mobile transaction volumes						

Table 5: showing the ANOVA on mobile transaction volumes and financial performance

Source: Researcher (2022)

The ANOVA table above shows a P value (0.000<0.01) and an F ratio of 260.804 > 2.12 as given by the T-test table at a critical value for the level α=1% with the degrees of freedom 1 against 83. Since the $F_c > F_r$, the researcher rejects the null hypothesis and concludes that there exists a significant relationship between mobile transaction volumes and financial performance of Commercial banks, Uganda. These findings were found to concur with the findings of Salzaman, Palen & Harper (2001) who noted that in recent years, banks, payment system providers, and mobile operators have begun experimenting with branchless banking models which reduce costs by taking small value transactions out of banking halls into local retail shops, where agents such as airtime vendors, gas stations, and shopkeepers.

b) Mobile Banking Products and Financial Performance
In an effort to examine the relationship between Mobile Banking Products and financial performance of Commercial banks, Uganda, the researcher carried out the Pearson correlation analysis and study findings are as given below.

Correlations			
		Mobile Banking Products	Financial Performance
Mobile Banking Products	Pearson Correlation	1	.527[**]
	Sig. (2-tailed)		.000
	N	85	85
Financial Performance	Pearson Correlation	.527[**]	1
	Sig. (2-tailed)	.000	
	N	85	85
**. Correlation is significant at the 0.01 level (2-tailed).			

Table 6: showing the relationship between Mobile Banking Products and financial performance

Source: Researcher (2022)

Results in table show that there is a moderate positive relationship between Mobile Banking Products and financial performance of Commercial banks, Uganda as this was evidenced by a correlation coefficient(r) of 527that is statistically significant since the p value (0.000) < 0.01. This implies that as Mobile Banking Products increase, also the commercial bank tends to increase their financial performance. These findings concur with Karjaluoto (2002) who asserts that by complementing services offered by the banking system, such as cheque books, ATMs, Voice mail/landline interfaces, smart cards, point of sale networks and internet resources. The mobile platform offers a convenient additional method for managing money without handling cash. In addition, Maina (2012) asserts that adoption of mobile banking by financial institutions is very important in improvement of financial adequacy of commercial banks as well as improving operations and reduce costs in the long run hence increase in earnings.

Regression analysis was further done to determine the strength of the relationship between Mobile Banking Products and financial performance of Commercial banks, Uganda. And this was summarized in the model below.

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.527[a]	.278	.269	3.425
a. Predictors: (Constant), Mobile Banking Products				

Table 7: showing the model summary on Mobile Banking Products and financial performance

Source: Researcher (2022)

Table above indicates that the coefficient of determination (Adjusted R^2) value is 0.269 and this implies that 26.9% of the variation in bank's financial performance can be explained by the number of Mobile Banking Products done by the bank holding other factors constant. These agree with Ritho and Jagongo (2015) who noted that the use of an innovative product such as M banking enhanced organization efficiency as well as improved cost reduction in commercial banks.

ANOVA[a]						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	374.952	1	374.952	31.971	.000[b]
	Residual	973.400	83	11.728		
	Total	1348.353	84			
a. Dependent Variable: Financial Performance						
b. Predictors: (Constant), Mobile Banking Products						

Table 8: shing the ANOVA table on Mobile Banking Products and financial performance

Source: Researcher (2022)

The ANOVA table above shows a P value (0.000<0.01) and an F ratio of 31.971 > 2.12 as given by the T-test table at a critical value for the level α=1% with the degrees of freedom 1 against 83. Since the $F_c > F_r$, the researcher rejects the null hypothesis and concludes that there exists a significant relationship between Mobile Banking Products and financial performance of Commercial banks, Uganda. These agree with Nofie (2011) who asserts that the introduction of innovations in the banking and financial services sector has created key competitive positions for firms. Some of the competitive advantages include: reduced transaction costs, improved customer satisfaction, lowered costs of production, maximized revenue generation, reduced competition and being a major competitive talking point for a company.

c) Technological Investment and Financial Performance
In an effort to examine the relationship between Technological Investment and financial performance of Commercial banks, Uganda, the researcher carried out the Pearson correlation analysis and study findings are as given below.

Correlations			
		Financial Performance	Technological Investment
Financial Performance	Pearson Correlation	1	.525[**]
	Sig. (2-tailed)		.000
	N	85	85
Technological Investment	Pearson Correlation	.525[**]	1
	Sig. (2-tailed)	.000	
	N	85	85
**. Correlation is significant at the 0.01 level (2-tailed).			

Table 9: showing the relationship between Technological Investment and financial performance

Source: Researcher (2022)

Results in table show that there is a moderate positive relationship between Technological Investment and financial performance of Commercial banks, Uganda as this was evidenced by a correlation coefficient(r) of 525that is statistically significant since the p value (0.000) < 0.01. This implies that as Technological Investment increases, also the commercial bank tends to increase their financial performance. Results conquer with Simpons (2002) who found that the use of technology such as internet and mobile banking had a positive correlation to the revenue generation of a company. This is similar to the findings of Anal et al., (2011) who noted that the preference of customers for organizations that use technology improved the financial performance as well as customer loyalty levels. However, these disagree with Muiruri and Ngari (2014) who asserts that there was a significant negative correlation between technology use and the overall operational costs of a company.

Regression analysis was further done to determine the strength of the relationship between Technological Investment and financial performance of Commercial banks, Uganda. And this was summarized in the model below.

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.525[a]	.275	.267	3.431
a. Predictors: (Constant), Technological Investment				

Table 10: Showing model summary on Technological Investment and financial performance

Source: Researcher (2022)

Table above indicates that the coefficient of determination (Adjusted R^2) value is 0.267 and this implies that 26.7% of the variation in bank's financial performance can be explained by the level of Technological Investment

done by the bank holding other factors constant. Similarly, a positive correlation exists between technology use and customer satisfaction (Makee et al., 2014).

ANOVA[a]						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	371.467	1	371.467	31.561	.000[b]
	Residual	976.886	83	11.770		
	Total	1348.353	84			
a. Dependent Variable: Financial Performance						
b. Predictors: (Constant), Technological Investment						

Table 11: AVONA table on Technological Investment and financial performance

Source: Researcher (2022)

The ANOVA table above shows a P value (0.000<0.01) and an F ratio of 31.561 > 2.12 as given by the T-test table at a critical value for the level α=1% with the degrees of freedom 1 against 83. Since the $F_c > F_r$, the researcher rejects the null hypothesis and concludes that there exists a significant relationship between Technological Investment and financial performance of Commercial banks, Uganda. This is validated by the findings of Rutto (2015) who noted that the use of technology was a key strategic alternative used by commercial banks to drive down the operational costs and enhances the total Performance and efficiency in the banking sector.

IV. CONCLUSION AND RECOMMENDATIONS

A. Conclusions

a) Mobile transaction volumes and financial performance of Commercial banks, Uganda.
Based on the study findings, the researcher concludes that mobile banking deposits through the M-Banking have greatly increased the firm's revenue, increases credit accessibility through online loans which in turn increases the credit multiplier, increases the number of transactions done by the bank since there is increased customer convenience, increases the net profits and business for both employees and commercial bank and that there is a significant positive relationship between mobile transaction volumes and financial performance of Commercial banks, Uganda.

b) Mobile banking products and financial performance of Commercial banks, Uganda.
Based on the study findings, the researcher concludes that mobile banking has led to multiple product delivery for the bank, enhanced new product introduction into the market, increased customer satisfaction levels, increased customer retention and customer relations with the bank. And that there is a significant positive relationship between Mobile Banking Products and financial performance of Commercial banks, Uganda.

c) Mobile banking technological investment and financial performance of Commercial banks, Uganda.
Based on the study findings, the researcher concludes that mobile banking technological investment has increased the productivity of the bank's employees, increased flexibility in product innovation, enhanced customer numbers, increased employee's efficiency and productivity, increased customer loyalty, reduced the overall transaction costs for both customers and the bank, reduced the administrative expenses, reduced the employees' costs, reduced the bank's expenditure in setting up new branches and further reduced on the customer queues in the banking halls. And that there is a significant positive relationship between Technological Investment and financial performance of Commercial banks, Uganda.

B. Recommendations

a) Mobile transaction volumes and financial performance of Commercial banks, Uganda
Based on the study findings, the researcher recommends that the banks should lower the transaction charges incurred by customers, reduce time taken to complete transaction and improve the quality of mobile banking services so as to motivate them use the M-banking services. This will increase the number of transactions and hence improve the financial performance of the commercial banks. In addition, banks should conduct research on other possible mobile money services packages that are user friendly and develop them so as to enable deposit/withdraw of money using mobile phone which will meet different customer requirements and capture market which their competitors have not identified.

b) Mobile banking products and financial performance of Commercial banks, Uganda
Based on the study findings, the researcher recommends that commercial banks should ensure that mobile banking products given to customers offer adequate customers' trust, security as well as awareness. And that commercial banks should increase customer sensitization on the use of internet banking through making them aware of the benefits

and how they can use them in making their banking transactions safely.

c) Mobile banking technological investment and financial performance of Commercial banks, Uganda Based on the study findings, the researcher recommends that commercial banks, the government and other stakeholders make sure they instate esteemed infrastructure which will reduce network failure and hence ensure that financial risks are mitigated. In the same way, small enterprises should be facilitated through better policy interventions that enhance learning and knowledge sharing on opportunities offered by mobile money services and its impact on their business operations. And that banks should invest adequate capital and knowledge resources towards improving existing financial innovations.

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