

Impact of Cashless Banking on Profitability of Commercial Banks in Rwanda. A Case of Bank of Kigali Plc (2017-2019)

Uwimana Eugene^{a*}, Elijah Kihooto^b, Mutabazi Placide^c, Ndabananiye Gamariel^d

^{a,b,d}*University of Kigali (UoK), School of Graduate Studies, P.O Box: 2611 Kigali, Rwanda*

^c*Nkumba University, School of Postgraduate Studies and Research, P.O. Box 237, Entebbe Uganda*

^a*Email: uwimanaeugene301@gmail.com, ^bEmail: elijahkihooto@yahoo.com, ^cEmail: muplacidus@yahoo.fr,*

^d*Email: ndabananiyegamariel@gmail.com*

Abstract

The information technology has globally impacted every feature of life, changing subsistence social orders into modernized social societies. This study focuses on the effect of cashless banking on profitability of commercial banks in Rwanda with reference to Bank of Kigali Ltd. The exploratory research design was used in this research to a total population of 150 staff from Bank of Kigali Headquarters with a sample of 60 respondents selected by a stratified random sampling. The information was collected using documentation technique and questionnaire while the analysis was done with the help of Statistical Package for Social Scientists (SPSS. 23). The findings revealed that from cashless banking transactions of web banking, mobile banking and electronic cards there were the increase of customer accessing bank services, improved funds transfers, easy payment of bills, banking service provision improvement and general customers satisfaction, reduction of customer queuing period, fast and efficient banking services, international banking promotion, cost effective services and secured services; reduction in operational costs, lower maintenance costs, easy access to withdrawals, increase in commission fee-based incomes and increased bank's effectiveness hence more profitability.

Keywords: Cashless Banking; Electronic cards; Mobile Banking; Profitability; Web Banking.

1. Introduction

Cashless economy is an environment in which money is spent without being physically carried from one place to another [1]. The advent of the novel coronavirus COVID-19 which saw the whole world in lockdown and limited physical appearance at various banking halls has increased various online transactions. The virus has shown that the world has evolved into a global village and the banking sector is not left out.

* Corresponding author.

Information and digital technology (ICT) have increasingly stirred the expansion of the banking networks and range of the services offered in recent times. Most of banking transactions, such as electronic payments, loans, deposits, or securities have become highly dependable on information and telecommunication technology [2]. The introduction of cashless payment systems was aimed at reducing cost of money management, expanding effectiveness of the payment framework, and driving monetary consideration and increasing the profitability of entities in terms of return on asset, return on equity and return on investment. [3-5]. opines that the expanded utilization of cashless payment framework has prompted forecast of a cashless society. In a cashless society, shoppers can make installments over the web, installment at unmanned candy machine, kept an eye on POS utilizing cell phone, savvy cards and other electronic installment frameworks. More people worldwide shift from doing transactions on paper to electronic means of doing transactions due to the lower cost involved in doing transactions electronically. Furthermore, technology is currently regarded as the key contributing factor to the success of organizations in general and banks in particular [6]. Hence, banks, either foreign or local are consistently investing more towards giving their customers access to new technologies via e-banking because of the response and actions exhibited by the customers towards technology acceptance. This is consistent with the social construction of technology theory where the actions exhibited and displayed by humans are what put technology in shape [7]. Technological innovations in European countries have for long increased customer demand for services provided by the bank. This great revolution has set a motion in the banking industry for the provision of a payment system that is compatible with the demands of the electronic market [8]. Cashless policy in Ugandan banks aims to curb some of the negative consequences associated with the high usage of physical cash in the economy, which includes high cost of cash, high risk of using cash, high subsidy, informal economy, inefficiency and corruption [9]. As most people now own mobile phones, banks have also introduced mobile banking to cater for customers who are always on the move. This was popularized in Rwanda first by Bank of Kigali Plc [9], and it intends to keep leading in boosting cash less economy. Various researches have been conducted on cashless policy in Africa and its effect on the bank's performance with varying results and conclusions [11]. This study sought to investigate the effect of cashless banking channels on bank profitability for interested parties to make relevant decisions with reference to Bank of Kigali Plc.

2. Methods

The exploratory research design was used in this research to a total population of 150 staff from Bank of Kigali Headquarters with a sample of 60 respondents selected by a stratified random sampling. Data were collected using a self-administered questionnaire to interview 60 members from Bank of Kigali Headquarters. Data were analyzed using the Statistical Package for Social Sciences (SPSS) version 23. Statistical analysis using inferential statistics was used considering p-value, 0.05 as the level of significance and 95% Confidence Interval (95% CI).

3. Results and Discussion

This chapter gives the identification of respondents, the effect of mobile banking on profitability of Bank of Kigali Ltd, the effect of Web banking on profitability of Bank of Kigali Ltd, the effect of electronic cards transactions on profitability of Bank of Kigali Ltd and the secondary data showing the profitability levels of Bank of Kigali as well as the correlation analysis between the cashless banking and the profitability levels of Bank of

Kigali Ltd.

Table 1: Correlation coefficient between cashless banking and bank profitability.

		WB	ECB	MB	P
WB	Pearson Correlation	1	.409**	.356**	.578**
	Sig. (2-tailed)		0.000	0.000	0.000
	N		60	60	60
ECB	Pearson Correlation		1	.498**	.568**
	Sig. (2-tailed)			0.000	0.000
	N			60	60
MB	Pearson Correlation			1	.311*
	Sig. (2-tailed)				0.028
	N				60
P	Pearson Correlation				1
	Sig. (2-tailed)				
	N				
** Correlation is significant at the 0.01 level (2-tailed).					
* Correlation is significant at the 0.05 level (2-tailed).					

Source: Primary data, 2021

With WB (Web Banking), ECM (Electronic Cards Banking), MB (Mobile Banking) and P (Profitability). The previous findings of table 4.28 indicate the Pearson correlation drawn from SPSS on sixty (60) cases observed as the number of complete observations as pair wise no missing values ($n=60$). The results show that there is a linear relationship between the two variables (independent and dependent) with correlation of height and weight ($r= 0.409$; 0.356 ; 0.578 respectively), its p-value, and the numbers of complete pair wise observations that the calculation was based on. The results show that between cashless banking and profitability there is significance level indicated by 0.409 ; 0.356 ; 0.578 respectively) for a two-tailed test), as these values are all greater than 0.05 .

Table 2: Model Summary on effect of web banking transactions on profitability.

R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
.713 ^a	.509	.499	.70815288	2.449

Source: Primary data, 2021

a. Predictors: (Constant), web banking transactions

b. Dependent Variable: Profitability

Analysis of variance results in Table 4.29 revealed that web banking transactions had significant effect on the profitability of Bank of Kigali ($F = 60.069$, p value < 0.05).

Table 3: Analysis of Variance on effect of web banking transactions on profitability.

	Sum of Squares	Df	Mean Square	F	Sig.
Regression	24.929	1	24.929	60.069	.000b
Residual	24.071	58	0.415		
Total	59	59			
a. Dependent Variable: Profitability					
b. Predictors: (Constant), web banking transactions					

Source: Primary data, 2021

Regression coefficients results in Table 4.30 revealed that there was a positive and significant relationship between web banking transactions and profitability of Bank of Kigali ($\beta = 3.648$, p value < 0.05). The findings of the study concur with the funding of Laukkanen & Pasanen, (2007), who found that technology created greater opportunities to service providers to offer great flexibility to the customers. The bivariate model was derived as shown below:

$$Y = -8.845 + 3.648 X_1 + \epsilon$$

Where Y = Profitability, X_1 = Web banking transactions, ϵ = Error Term

Table 4: Regression Coefficient on effect of web banking transactions on profitability.

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	-8.845	1.259		-7.03	0.00
Web banking transactions	3.648	0.291	0.713	7.05	0.00

Source: Primary data, 2021

a) Results on effect of electronic cards banking transactions on profitability

Results in Table 4.31 revealed that 48.0% of the changes in profitability of Bank of Kigali can be accounted for by electronic cards banking transactions while the remaining percentage can be accounted for by other factors excluded in the model.

Table 5: Model Summary on effect of electronic banking transactions on profitability.

R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
.693 ^a	.480	.419	.60815288	2.169

Source: Primary data, 2021

a. Predictors: (Constant), electronic cards banking transactions

b. Dependent Variable: Profitability

Analysis of variance results in Table 4.32 revealed that electronic cards banking transactions had significant effect on the profitability of Bank of Kigali ($F = 62.089$, $p \text{ value} < 0.05$).

Table 5: Analysis of Variance on effect of electronic cards banking transactions on profitability.

	Sum of Squares	Df	Mean Square	F	Sig.
Regression	21.421	1	21.421	62.089	.000b
Residual	20.041	58	0.345		
Total	59	59			
a. Dependent Variable: Profitability					
b. Predictors: (Constant), electronic cards banking transactions					

Source: Primary data, 2021

Regression coefficients results in Table 33 revealed that there was a positive and significant relationship between electronic cards banking transactions and profitability of Bank of Kigali ($\beta = 2.048$, $p \text{ value} < 0.05$). The findings of the study concur with the funding of Kleijnen and his colleagues (2004) found that the advancement of electronic cards technologies has provided an opportunity for financial providers in introducing new financial innovations. One of the emerging financial innovations introduced by financial providers is electronic cards banking. The bivariate model was derived as shown below:

$$Y = -3.745 + 2.048 X_1 + \epsilon$$

Where Y = Profitability, X_1 = Electronic cards banking transactions, ϵ = Error Term

Table 6: Regression Coefficient on effect of electronic cards banking transactions on profitability.

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	-3.745	1.259		-5.03	0.00
Electronic cards banking	2.048	0.291	0.513	5.05	0.00

Source: Primary data, 2021

b) Results on effect of mobile banking transactions on profitability

Results in Table 4.34 revealed that 84.8% of the changes in profitability of Bank of Kigali can be accounted for by mobile banking transactions while the remaining percentage can be accounted for by other factors excluded in the model.

Table 7: Model Summary on effect of mobile banking transactions on profitability.

R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
.921 ^a	.848	.729	.80215286	1.927

Source: Primary data, 2021

a. Predictors: (Constant), mobile banking transactions

b. Dependent Variable: Profitability

Analysis of variance results in Table 4.35 revealed that mobile banking transactions had significant effect on the profitability of Bank of Kigali ($F = 69.119$, p value < 0.05).

Table 8: Analysis of Variance on effect of mobile banking transactions on profitability.

	Sum of Squares	Df	Mean Square	F	Sig.
Regression	20.321	1	20.321	69.119	.000b
Residual	17.091	58	0.294		
Total	59	59			
a. Dependent Variable: Profitability					
b. Predictors: (Constant), mobile banking transactions					

Source: Primary data, 2021

Regression coefficients results in Table 4.36 revealed that there was a positive and significant relationship between mobile banking transactions and profitability of Bank of Kigali ($\beta = 7.048$, p value < 0.05). The finding further concurs with the findings of Suoranta and Mattila (2004), who found that mobile banking is among the most recent financial channels today. Riquelme and his colleagues (2010) agree that the mobile phone banking service provides convenience and promptness to customers along with cost savings, banks are also interested in expanding their market through mobile services. The bivariate model was derived as shown below:

$$Y = 17.805 + 7.048X_1 + \epsilon$$

Where Y = Profitability, X_1 = mobile banking transactions, ϵ = Error Term

Table 9: Regression Coefficient on effect of mobile banking transactions on profitability.

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	17.805	2.259		-9.03	0.00
Mobile banking	7.048	3.291	0.713	12.05	0.00

Source: Primary data, 2021

The adjusted R squared is coefficient of determination which tells us about the variation in the dependent variable due to changes in the independent variable.

Table 10: Regression model Summary.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.914 ^a	.835	.819	.17823

Source: Primary data, 2021

^a Predictors: (Constant), mobile banking, web banking, electronic cards transactions.

From the findings in the table 4.30 the value of adjusted R squared was 0.819 an indication that there was variation of 81.9% on profitability level of commercial banks in Rwanda due to changes in web banking, mobile banking transactions and electronic banking transactions at 95% confidence interval. This shows that 81.9 % changes in profitability levels of commercial bank could be accounted to changes in web banking, mobile banking, and electronic cards transactions.

Table 11: ANOVA Table.

Model		Sum of Squares	df	Mean Squares	F	Sig.
1	Regression	24.515	2	12.257	40.319	.000b
	Residual	17.649	58	0.304		
	Total	42.164	60			

Source: Primary data, 2021

The table 4.31 provides analysis of variance, the processed data which is the population parameters, had a significance level of 0% which shows that the data is ideal for making a conclusion on the population's parameter as the value of significance (p-value) is less than 5%. The calculated value was greater than the critical value tabulated ($40.319 > 2.764$) and this is an indication that web banking, mobile banking, and electronic cards transactions significantly influence profitability level of commercial banks.

Table 12: Regression model on bank of Kigali profitability.**Coefficients^a**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.569	.226		6.952	.000b
	Mobile banking	.107	.003	.210	2.567	.012
	Web banking	.216	.071	.016	.219	.000
	Electronic cards	.180	.048	.270	3.720	.050

Source: Primary data, 2021

The table 4.32 give the individual regression model coefficients on extent to which dependent variable as profitability level of bank of Kigali Ltd is influenced by the elements of cashless banking namely web banking, mobile banking, and electronic cards transactions.

The established regression equation was $Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \epsilon_i$

Where Y = dependent variables, β_0 = a constant; $\beta_1, \beta_2, \beta_3, \beta_4$ = coefficients

X_1, X_2, X_3, X_4 = independent variables and ϵ_i = error term

$$Y=1.569 + 0.107x_1+ 0.216x_2+ 0.18x_3 + \varepsilon_i$$

Where: X_1 : Mobile banking, X_2 : Web banking, X_3 : Electronic cards transactions, and ε_i = error term.

This clearly shows that there is a positive relationship between profitability of commercial banks and web banking, mobile banking, and electronic cards transactions of the commercial banks. The study further revealed that the P-value were less than 0.05 in all the variables, which shows that all the independent variables were statistically significant and thus in position to make conclusion for the study. From the findings on the coefficient of determination, the study found that there was great variation in the profitability of commercial banks in Rwanda could be accounted to changes in web banking, mobile banking, and electronic cards transactions of the bank at 95% confidence interval. To this end banks are fast developing branchless banking such as web banking, mobile banking, and electronic cards transactions, among others.

4. Conclusion

Mobile phones and Web have been found to have a major influence in delivering technology driven banking services. Findings revealed that mobile phones had a higher moderating effect than Web service and this can be attributed to the level of penetration and ease of access of mobile phones to the public. There is need for commercial banks to heavily invest in technology as this will highly encourage the adoption of cashless banking technologies and this will influence the profitability of commercial banks. The study has shown that cashless banking has a positive impact on the profitability of the banks and therefore they should offer more targeted online services as well as come up with more technology-based services that are easily reachable by customers. Therefore, Electronic cards transactions usage like Automated Teller Machines, Point of Sales terminals, debits and credit cards have significant influence on profitability. The value of adjusted R squared was 0.819 an indication that there was variation of 81.9% on profitability level of commercial banks in Rwanda due to changes in internet banking, point of sales and mobile banking transactions at 95% confidence interval. This shows that 81.9 % changes in profitability levels of commercial bank could be accounted to changes in internet banking, point of sales and mobile banking transactions.

5. Recommendations

From the finding there is need for various players in the banking sectors to adopt cashless banking service as this will enable them to have a ubiquity in coverage, flexibility, interactivity, and greater accessibility compared to conventional banking.

5.1 To investigate the effects of mobile banking practices on profitability of Bank of Kigali Ltd

Mobile phones and Web have been found to have a major influence in delivering technology driven banking services. It is recommended that commercial banks continue to create sustainable business linkages and collaborations with mobile phone service providers as well as the Web service providers. Findings revealed that mobile phones had a higher moderating effect than Web service and this can be attributed to the level of penetration and ease of access of mobile phones to the public. Banks should leverage on mobile phones in order

to grow their business and customer base. The Government should continue to offer more incentives for technologies that use mobile phones as their delivery platforms.

5.2 To explore the effects of Web banking on profitability of the Bank of Kigali Ltd

Banks should embark on educating and creating awareness among their customers on the benefits of cashless banking and the charges involved. There is need for commercial banks to heavily invest in technology as this will highly encourage the adoption of cashless banking technologies and this will influence the profitability of commercial banks.

Banks should embark on educating and creating awareness among their customers on the benefits of cashless banking and the charges involved. Rwandan banks should invest more on cashless banking to reach more customers electronically. The study has shown that cashless banking has a positive impact on the profitability of the banks and therefore they should offer more targeted online services as well as come up with more technology-based services that are easily reachable by customers.

5.3 To examine the effects of electronic cards transactions on profitability of Bank of Kigali Ltd

This study has implications for management and practice. First, the study established that there is a positive significant relationship between electronic cards transactions usage and profitability. Therefore, Electronic cards transactions usage has significant influence on profitability. Further recommendation of this study is that electronic cards transactions should be put in different locations easily accessible by customers, so that quick service and convenience is maintained hence improving bank operations. At the same time constantly serviced to provide reliability of the services. Banks should continue investing in innovation delivery channels because they are able to control their costs much better as compared to investment in brick and mortar or physical branches.

5.4 Area for further research

This research recommends to the future study to do the related topic to the similar field like the influence of banking innovations on profitability of commercial banks in Rwanda.

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