Online Banking Impact on Profitability and Market share: Evidence of Ethiopian Banking

Dr.T.Durga Prasad[1] and Tarekegn Tariku Ebissa[2]

1. Associate Professor, Department of Accounting & Finance Wollega University, Nekemte, Ethiopia
2. HOD & Assistant Professor, Department of Accounting & Finance, Wollega University, Nekemte, Ethiopia

Abstract: *Nowadays technology is the backbone of every organization. The banking sector is also gradually replacing technology banking in the practice of traditional banking. This research paper has been focused on bankers should be investing more funding to adopt the technology but it will impact profitability, market share, and growth of the business. For that research idea implementation purpose ROA, Market Share, Business Size, Number of Branches consider as independent variables, technology factors like POS, ATM, and digital banking (mobile banking & online banking) consider as dependent variables, for analyzing the variable's purpose used correlation and multiple regression tools. Finally, the authors are concluded the number of branches variable only for impact on POS, ATM, and digital banking but coming to other variables does not influence. This study will helpful for bankers to take proper investment decisions on introducing technology products.*

Keywords: POS, ATM, Digital Banking, MS, ROA

1. Introduction

The banking sector is the backbone of every country's economic performance so the banking sector needs to be growth. Nowadays IOT things are influencing on banking sector growth rate. If any bank adopts the technology that the bank will more profitable and growth rate. The present scenario e-banking providing a lot of benefits and issues also. This statement is proved by **Hajera Fatima Khan (2017)**. She was doing research what are the benefits and issues of e-banking as per customer and baker perspective. She is also discussed what are the benefits and issues under atm, pos, and mobile banking platforms. So as per her recommendation if adopt the e-banking concept but it will impact profitability or not. So for that purpose analyzing we need tools. **Syed Qasim, Rizwan Jan (2014)**, both the authors are predicting the financial performance indicators depends upon variable performances. ROA & IN variables are considered as dependent variables and BS, AM, and OE consider as independent variables. Finally, they concluded ROA variable only positive impact on BS, AM, and OE, the remaining variables do not influence. So as per the research idea, we can predict which technology factor will be influencing on profitability and growth of the business. for that idea proved by **khodaei valahzaghard, M., and Shakourloo, A. (2013)**. Both the authors used technology factors like ATM, POS, PINPAD, ONLINE, and SWIFT branches as dependent variables and ROA, ROE, and OIR as independent variables. Finally, they conclude a weak positive relationship between the POS, PINPAD, and online business with ROA and ROE, there was also a relatively strong relationship between the POS, PINPAD, and Online business with OIR. So as per research recommendation in our research selected one public sector bank and five private banks and annual reports from 2015 to 2019. Dependent variables like POS, ATM, Digital banking, and independent variables like ROA, MS, BS, and Number of branches.

2. Purpose of the study

This research paper has been a focus on banker should be investing more funds for adopting the technology (POS, ATM, Digital Banking), so it is an impact on profitability (ROA), market share (MS), Business Size (total assets), and the number of branches (NB).

3. Methodology

This empirical research investigation purpose selected six banks, out of one bank is public sector bank (51% of the market share) and the remaining

banks are top private banks in Ethiopia. Financial reports are collected from concern bank websites from 2015 to 2019.

3.1Tools

This research analyzing purpose selected basic statistics, multiple correlations, and Multiple Regression techniques.

3.1.1Regression Model

- ROA = $\beta_0 + \beta_1$ (POS) + β_2 (ATM) + β_3 (Digital) + €
- MS = $\beta_0 + \beta_1$ (POS) + β_2 (ATM) + β_3 (Digital) + €
- BS = $\beta_0 + \beta_1$ (POS) + β_2 (ATM) + β_3 (Digital) + €
- NB = $\beta_0 + \beta_1$ (POS) + β_2 (ATM) + β_3 (Digital) + €

3.2 Hypothesis of the study

- H0 = Dependent variables = Independent Variables
- H1= Dependent variables ≠ Independent Variables

Table 1. Explanation of Variables

Dependent Variables	Independent Variables
POS (POINT OF SALES)	Return on Assets (ROA)
ATM (Automatic Teller Machine)	Market Share (MS)
Digital Banking (Mobile & Online banking)	Business Size (BS)
	Number of Branches (NB)

4. Results and Discussions

4.1. Descriptive statistics

Table 2. Dependent variable descriptive performance

	POS	ATM	Digital Banking
Mean	1.324	1.772	7.434
Median	1.18	1.70	4.20
Maximum	2.12	2.78	20.32
Minimum	0.66	0.83	0.66
Std.Dev.	0.5819	0.7505	8.1232

From table 2 representing the performance of the descriptive statistics of dependent variables. POS variable is showed the lowest standard deviation that is 0.5819, it showed more consistency. Other variables are recorded the highest standard deviation values.

Table 3. Independent variable descriptive performance

	MS	ROA	BS	NB
Mean	1.118	1.328	1.726	1.898
Median	1.12	1.20	1.60	1.93
Maximum	1.24	1.85	2.72	2.79
Minimum	1.00	1.00	1.00	1.00
Std.Dev.	0.1040	0.3341	0.7024	0.6978

From table 3 representing the performance of the descriptive statistics of the independent variables. In the overall observation, the market share variable recorded the lowest standard deviation value, it indicated more consistency, and other variables are recorded the highest standard values.

4.2 Correlation analysis

Table 4 Correlation analysis between dependent and independent variables

	MS	ROA	BS	NB	POS	ATM	Digital
MS	1.00	0.8866	0.9791	0.9832	0.9761	0.9751	0.9198
ROA	0.8866	1.00	0.9557	0.9198	0.9646	0.9493	0.9804
BS	0.9791	0.9557	1.00	0.9804	0.9941	0.9866	0.9797
NB	0.9832	0.9198	0.9804	1.00	0.9852	0.9962	0.9306
POS	0.9761	0.9646	0.9941	0.9852	1.00	0.9943	0.9687
ATM	0.9751	0.9493	0.9866	0.9962	0.9943	1.00	0.9507
Digital	0.9198	0.9804	0.9797	0.9306	0.9687	0.9507	1.00

The above table 4 explains the correlation between the dependent and independent variables vice-versa. If you observe all variables are maintaining a strong correlation between us, so if you change any variable definitely impact on other variables either dependent or independent variable so banker if any

take decision so please consider proportionate variable also.

4.3 Regression Analysis

Table 5 Results of Regression Analysis (dependent variable MS)

Variables	*Coefficients*	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*
Intercept	0.8293	0.1191	6.9631	0.0908	-0.6840	2.3426
POS	0.2640	0.4560	0.5789	0.6659	-5.5308	6.0588
ATM	-0.0109	0.2827	-0.0387	0.9753	-3.6040	3.5821
Digital	-0.0055	0.0111	-0.4986	0.7055	-0.1478	0.1366
R square	0.9636					
Adjusted R square	0.8547					

ANOVA					
	df	*SS*	*MS*	*F*	*Significance F*
Regression	3	0.0417	0.0139	8.8478	0.2411
Residual	1	0.0015	0.0015		
Total	4	0.0432			

MS with Independent variables

From the ANOVA table representing the regression variation between the dependent variable (MS) with independent variables (POS, ATM, & Digital). The R square (0.9636) indicates that 96% of the variance in between the variables. It is a very strong variance rate between the variables. The simultaneous multiple regression analysis is statistically (df=3,1, F=8.847, p=0.241) is explained by the predictive variable is not eligible (0.05≤0.241) for POS, ATM & Digital.

$$MS \neq \beta 0 + \beta 1\ (POS) + \beta 2\ (ATM) + \beta 3\ (Digital) + €$$

Examination of the regression coefficient of independent variables wise

POS: It has been observed that the POS is positively correlated with Market share (MS) with a coefficient of (0.2640) these results indicate that with a 1% increase in the POS transactions, there is a 26% increase the market share. However, the relation in this study proves to be statistically significant with a 0% level of significance (0.05≤0.665), which makes the first hypothesis to be rejected.

ATM: according to the results ATM is negatively correlated with MS with a coefficient of (-0.01), These results indicate that with a 1% increase in the ATM transactions there is a (-0.01) percent decrease in MS of the banking sector. There is an insignificant (0.05≤0.975) relationship between ATM and MS. Thus we reject our second hypothesis.

Digital: according to the results, Digital transactions were found to be negatively correlated with MS with a coefficient of (-0.05). however, the relation in this study proves to statistically insignificant with a 0% level of significance, which makes the third hypothesis to be rejected (0.05≤0.70)

Table 6 Results of Regression Analysis (dependent variable ROA)

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*
Intercept	0.9140	0.3761	2.4301	0.2485	-3.8650	5.6931
POS	0.1693	1.4402	0.1175	0.9254	-18.1305	18.4691
ATM	-0.0202	0.8930	-0.0227	0.9855	-11.3670	11.3264
Digital	0.0303	0.0353	0.8588	0.5482	-0.4188	0.4796
R square	0.9649					
Adjusted R square	0.8596					

ANOVA					
	df	*SS*	*MS*	*F*	*Significance F*
Regression	3	0.4310	0.14367	9.1683	0.2370
Residual	1	0.0156	0.01567		
Total	4	0.4466			

ROA with Independent variables

From the ANOVA table representing the regression variation between the dependent variable (ROA) with independent variables (POS, ATM, & Digital). The R square (0.9649) indicates that 96% of the variance in between the variables. It is a very strong variance rate between the variables. The simultaneous multiple regression analysis is statistically (df=3,1, F=9.168, p=0.237) is explained by the predictive variable is not eligible (0.05≤0.237) for POS, ATM & Digital.

$$ROA \neq \beta 0 + \beta 1\ (POS) + \beta 2\ (ATM) + \beta 3\ (Digital) + €$$

Examination of the regression coefficient of independent variables wise

POS: It has been observed that the POS is positively correlated with Return on Assets (ROA) with a coefficient of (0.1693) these results indicate that with a 1% increase in the POS transactions, there is a 16% increase the return on assets value. However, the relation in this study proves to be statistically insignificant with a 0% level of significance (0.05≤0.925), which makes the first hypothesis to be rejected.

ATM: according to the results ATM is negatively correlated with ROA with a coefficient of (-0.02), These results indicate that with a 1% increase in the ATM transactions there is a (-0.02) percent decrease return on assets of the banking sector. There is an insignificant (0.05≤0.985) relationship between ATM and ROA. Thus we reject our second hypothesis.

Digital: according to the results, Digital transactions were found to be positively correlated with ROA with a coefficient of (0.030). however, the relation in this study proves to statistically insignificant with a 0% level of significance, which makes the third hypothesis to be rejected (0.05≤0.54)

Table 7 Results of Regression Analysis (dependent variable BS)

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*
Intercept	0.4026	0.3515	1.1452	0.4569	-4.0645	4.8698
POS	0.6323	1.3462	0.4697	0.7204	-16.4734	17.7379
ATM	0.1631	0.8347	0.1954	0.8771	-10.4430	10.7694
Digital	0.0265	0.0330	0.8018	0.5697	-0.3934	0.4464
R square	0.9930					
Adjusted R square	0.9722					

ANOVA					
	df	*SS*	*MS*	*F*	*Significance F*
Regression	3	1.9598	0.6532	47.71331	0.1059
Residual	1	0.0136	0.0136		
Total	4	1.9735			

BS with Independent variables

From the ANOVA table representing the regression variation between the dependent variable (BS) with independent variables (POS, ATM, & Digital). The R square (0.9930) indicates that 99% of the variance in between the variables. It is a very strong variance rate between the variables. The simultaneous multiple regression analysis is statistically (df=3,1, F=47.713, p=0.105) is

explained by the predictive variable is not eligible (0.05≤0.105) for POS, ATM & Digital.

BS ≠ β0 + β1 (POS) + β2 (ATM) + β3 (Digital) + €

Examination of the regression coefficient of independent variables wise

POS: It has been observed that the POS is positively correlated with business size (BS) with a coefficient of (0.6323) These results indicate that with a 1% increase in the POS transactions, there is a 63% increase the business size. However, the relation in this study proves to be statistically insignificant with a 0% level of significance (0.05≤0.720), which makes the first hypothesis to be rejected.

ATM: According to the results ATM is negatively correlated with BS with a coefficient of (0.163), these results indicate that with a 1% increase in the ATM transactions there is a (0.163) percent increase in BS of the banking sector. There is an insignificant (0.05≤0.877) relationship between ATM and BS. Thus we reject our second hypothesis.

Digital: According to the results, Digital transactions were found to be positively correlated with BS with a coefficient of (0.026). however, the relation in this study proves to statistically insignificant with a 0% level of significance, which makes the third hypothesis to be rejected (0.05≤0.56)

Table 8 Results of Regression Analysis (dependent variable NB)

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*
Intercept	0.1397	0.2736	0.5105	0.6994	-3.3374	3.6168
POS	-0.2930	1.0478	-0.2796	0.8264	-13.6073	13.0213
ATM	1.2517	0.6497	1.9266	0.3047	-7.0037	9.5073
Digital	-0.0096	0.0257	-0.3760	0.7710	-0.3365	0.3171
R square	0.9957					
Adjusted R square						
ANOVA						
	df	*SS*	*MS*	*F*	*Significance F*	
Regression	3	1.9395	0.6465	77.9406	0.0530	
Residual	1	0.0082	0.0082			
Total	4	1.9478				

NB with Independent variables

From the ANOVA table representing the regression variation between the dependent variable (NB) with independent variables (POS, ATM, & Digital). The R square (0.9957) indicates that 99% of the variance in between the variables. It is a very strong variance rate between the variables. The simultaneous multiple regression analysis is statistically (df=3,1, F=77.94, p=0.053) is explained by the predictive variable is eligible (0.05≤0.0530) for POS, ATM & Digital.

NB = β0 + β1 (POS) + β2 (ATM) + β3 (Digital) + €

Examination of the regression coefficient of independent variables wise

POS: It has been observed that the POS is negatively correlated with the Number of Branches (NB) with a coefficient of (-0.2930) These results indicate that with a 1% increase in the POS transactions, there is a 29% decrease the bank branches. However, the relation in this study proves to be statistically insignificant with a 0% level of significance (0.05≤0.826), which makes the first hypothesis to be rejected.

ATM: According to the results ATM is positively correlated with NB with a coefficient of (1.251), these results indicate that with a 1% increase in the ATM transactions there is a (1.251) percent increase in NB of the banking sector. There is an insignificant (0.05≤0.304) relationship between

ATM and NB. Thus we reject our second hypothesis.

Digital: According to the results, Digital transactions were found to be negatively correlated with NB with a coefficient of (-0.009). however, the relation in this study proves to statistically insignificant with a 0% level of significance, which makes the third hypothesis to be rejected (0.05≤0.77)

5. Conclusion

Banking sector adopts more technology and provide different service to the customers and save their time and provide convenience banking, for that purpose banker investing more funds. The present study had observed based on the results technology factor-like POS, ATM, and Digital Banking does not influence profitability, market share, and business size except the number of branches. If increase the more technology products, then possible chances for increasing the number of branches. It is evidence of this study. This study had given negative results for the introduction of technology products but nowadays without technology can't survive on the market.

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