Impact of Branch Expansion and Related Number of Employees on Performance of Commercial Banks in Ethiopia

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Abstract: *The study looks into the impact of branch expansion and related increases in employees of the commercial banks as well as firm size as a control variable on the performance of selected six commercial banks of Ethiopia. The secondary data was obtained from annual financial statements and management reports of the individual respective banks from 2013 to 2020. Return on Asset (ROA), Return on Equity (ROE), and Earnings per Share (EPS) were taken as a proxy for performance measurements of the banks. Descriptive statistics, correlation, and regression analysis were used to investigate the relation of variables and to examine the impact of independent variables on dependent variables. The finding of the study revealed that there was a big divergence among variables in terms of minimum and maximum values of branches, employees, and firm size which causes great variations in the performance. There was a mild correlation between the dependent and independent variables. The branch expansion adversely impacted the performance of the banks. It also impacted significantly in the case of ROA and EPS. The employees' increment also negatively and insignificantly impacted ROA and ROE; while, it impacted insignificantly and positively in the case of EPS. The Firm size impacted ROA, ROE, and EPS positively and significantly. All independent variables jointly were impacted significantly the performance of the banks.*

1.   Introduction

The measurement of performance is playing a great role in evaluating every organization in a business environment. Evaluation of organization leads to policy formulation, changes in procedures improve in resource allocation, and it also helps in designing an appropriate organizational structure and improves planning.

The banking sector is one of the prominent in the financial sector in most of the economies. It plays an important role in the circulation of finance in any economy; so that, it stimulates every organization to sound implementation of their performance. The banks serve many functions in the economy. To mention some; they provide saving or deposit function, credit or loan function, payment function, liquidity function, policy function, and so on. However; these become real if and only if the banking sectors are healthy in their performance. A bank's profitability (Dawood, 2014) and efficiency are fundamental to measure the performance in terms of ROA, ROE, and EPS. Thus, it is empirical to measure the impact of branch expansion and related increases in employment which may impact the performance of banks.

There is only one public commercial bank and sixteen private banks are available in operation in the country, of course, many more banks coming soon in function. Having this in mind and keeping it aside, at this turbulent economic times in Ethiopia, the banks operating in the country have been opened many branches nationwide and have been hired many employees in fulfilling the new branches opened. The 17 existing banks' branches and employees in 2013 were 1,536 and 38,144 respectively and which grew to 5,984 branches and 122,896 employees in 2020. The researcher of this study enquires one important question to be initiated to the study. *What is the impact of branch expansion and related increment of employees on the bank performance?*

For ideal economic development in the country, sound financial circulation is a significant parameter to stimulate the economy. Thus, the financial sectors should be customer-centered. The banking sectors cover lion share to allocate resources through opening new banks as well as expanding branches. The expansion of branches favors the economic side of the country, however; on side of bank benefit should be investigated to maintain a balance between the two. Likewise; the increment of employees concerning the expansion of branches should also be assessed to investigate whether or not they have an impact on the banks' performance.

1.1 The objective of the study

The main objective of the study as was highlighted above in the context of the statement of the problem was to assess the impact of branch expansion and the employees of the banks on the performance of the selected commercial banks in Ethiopia.

To make it more specific;

- To investigate the relationship among dependent and explanatory variables.
- To examine the impact of branches expansion and related increases in employees on bank performance parameters.
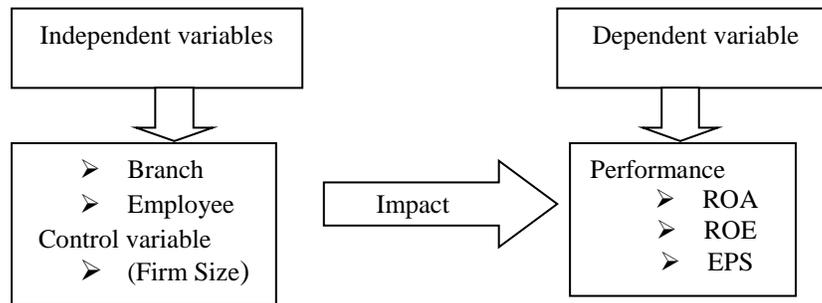

Fig: Conceptual framework

The ROA is dealing with banks' management efficiency in generating income from inappropriate utilization of company resources at disposal. It is calculated as net profit after tax divided by the total asset. The higher the ratio means the greater the efficiency of the bank's performance in converting its assets into income (Ongore & Kusa, 2013). The ROE (European Central Bank, (2010) is an internal performance measure of shareholder value, and it is by far the most popular measure of performance. It is calculated as net profit after tax divided by the total shareholders' equity. The EPS indicates how much is earned per ordinary share and it is calculated as a company's profit after tax divided by outstanding shares of its common stock. The Branches expansion indicates the number of branches of each bank nationwide which denoted annual reports. The Employees are the number of employees hired and actively operating in each bank which denoted annual reports. The Firm size (Akhtar & Ali, 2011) represents the total assets each bank reported on the balance sheet which is considered as a control variable.

1.2 Research hypothesis

The null hypotheses (H$_O$) are as follows;

H$_{O1}$: Branch expansion has a positive relationship with ROA

H$_{O2}$: Employees has a positive relationship with ROA

H$_{O3}$: Firm size has a positive relationship with ROA

H$_{O4}$: Branch expansion has a positive relationship with ROE

H$_{O5}$: Employees has a positive relationship with ROE

H$_{O6}$: Firm size has a positive relationship with ROE

H$_{O7}$: Branch expansion has a positive relationship with EPS

H$_{O8}$: Employees has a positive relationship with EPS

H$_{O9}$: Firm size has a positive relationship with EPS

2. Literature Review

Bank branches are the part of the main bank which provides almost all the usual financial activities as the main does but it is controlled by the main office. They are the main interface that joins banks and banks' clients. They are located where a bank's activities such as accepting deposits, providing credits, money transferring, payment services, currency exchange activities, and so on are put on the market.

As it was written by (Carlson & Mitchener, 2005) branch banking leads to more stable banking systems by enabling banks to better diversify their assets and wider their depositor base. The writer went on regarding the arguments commonly articulated in the literature how the branch banking systems reduce their vulnerability to local economic shocks are diversifying loans and deposits over a wider geographical area. According to (Jarso, 2015) the physical presence of the financial institutions in various less developed areas of the country has got due attention by the government and following this many financial institutions, especially banks exercise expansion of branches that in effect increased the number of users of their services.

The nature of commercial banks is oriented by an expansion of branches into highly populated density areas where more potential customers are available and high transaction turnover takes place that leads to performance efficiency (Eyob, 2019). Advantages of a branch banking system offer some function (Meyer & Khalily, 1990) such as spreading the costs of designing products and services over a potentially larger number of branches, the possibility of interbank transfers of funds which make ease the management of liquidity for each branch, and easy transfer of funds from surplus branch to deficit one to facilitate the payments and investments.

The study conducted by (M. Jathurika, 2019) in Sri Lanka had been taking five years of data. The result of the study was that the expansion of branches had a significant impact on the performance of commercial banks. The number of branches as the independent variable and firm size as the control variable had a significant impact on the independent variable Earnings Per Share (EPS) and insignificant with Return On Assets (ROA) and Return On Equity (ROE). The researcher justified that branches take a longer time to be profitable in terms of ROA and ROE.

Return on asset (ROA) is calculated as net profit after tax divided by total assets. It measures the companies' profitability relative to its total assets held in a period or in other terms it measures the overall efficiency of the firm and expressed in terms of percentage (Mehdi & El Mehdi Professor, 2018). Return on equity (ROE) is calculated as net profit after tax divided by total equity capital. It measures the percentage return on shareholders' equity and potential investment growth (Petersen & Schoeman, 2008). It is a prominent approach to analyzing bank profitability. Both ROA and ROE incorporate balance sheet and income statement components. Earnings per share (EPS) are calculated as net profit divided by the number of outstanding common shares. It is the allocation of companies' income to outstanding shareholders. EPS measures the profitability of a firm, healthiness, and strength of financial situation (Tahir Saeed & Hira Tahir, 2018). It is the most important variable used to be considered for a banks' profitability. It has a great impact on market value and shares price.

3. Methodology

To attain the objectives of the study, a purely quantitative research method was adopted. A sample of six private commercial banks was selected based on years operating in the country. The researcher's criterion to select six banks is that all banks have been operated for more than twenty years in the country expecting that the bank age is supposed to be related to bank experience and its quality. The banks that were taken for the study are Awash, Dashen, Abyssinia, Wegagen, United, and Nib international banks. The study mainly depends on secondary data gathered from those six respective banks. Annual audited financial statements for the period of eight years from 2013 to 2020 were conducted.

The collected data was analyzed and discussed using statistical tools for investigation. Both descriptive and regression analyses were employed. Panel regressions have been estimated to show the relationship among variables. Panel data is a set of cross-section and time-series types that fits this type of study. To fit the non-stationary model the BR variables become lagged one period and, the EMPL and EPS variables become transformed to natural logarithmic form.

3.2 Robustness and Specification tests

Panel data equation is commonly used with three estimators such as pooled ordinary least square (OLS) regression model, fixed effects or LSDV model, and the random-effects model. In this study, the pooled OLS regression was ignored since it does not distinguish the individuality that exists among the banks. To maintain the heterogeneity of the banks, either the fixed effect or random effect should have been chosen. To test for efficiency between the fixed effect and random effects estimators, the Hausman specification test was applied.

The Hausman specification test for dependent variables such as ROA and logEPS fit a random-effect model, while ROE fits a fixed-effect model. Thus, the regression was applied based on a random-effect model as well as a fixed-effect model accordingly. To check for the significance of the models, the individual t-tests and the F-tests were used. Panel stationery was conducted by the Augmented Dickey-Fuller (ADF). To maintain the means and variances remain constant or time-invariant, the panel had no unit root. The model fit described below are free from any serial correlation and fit for other statistical specifications.

- o $ROA_{ti} = B_0 + L1BR_{ti} + logEMP_{ti} + FS_{ti} + U_{ti}$…………….......Equation 1
- o $ROE_{ti} = B_0 + L1BR_{ti} + logEMP_{ti} + FS_{ti} + U_{ti}$…………………Equation 2
- o $logEPS_{ti} = B_0 + L1BR_{ti} + logEMPL_{ti} + FS_{ti} + U_{ti}$…………….Equation 3

Where;

ROA= return on asset, ROE= return on equity, EPS= earnings per share, BR= number of bank branch, EMPL= number of employees of the bank, FS= firm size, U= error term, B_0= intercept, L1= lag1, log= logarithm, t= time series, i= cross section (banks)

4. DISCUSSION AND ANALYSIS

3.3 Descriptive statistics

Under the descriptive statistics the mean, standard deviation, minimum, and maximum of the variables were described. As indicated in table 1 the mean value of ROA, ROE, EPS, branches, employees, and firm sizes are 2.44%, 18.46%, 243.90, 2,242, 49,828, and $2.77*10^{10}$ respectively. According to the statistical output, the minimum and maximum values of ROA were 2.4% and 4.4%; whereas 13% and 30% in case of ROE and 24.44 and 823 in case of EPS, in the same way, 71 and 503 in case of the number of branches as well as the minimum and the maximum number of employees were 2,100 and 101,308 respectively. The standard deviation described in the same table revealed that there were significant deviations among the banks under the study regarding the variables been considered for the study.

Table 1: Descriptive statistics (SPSS version21 output)

	ROA	ROE	EPS	BR	EMPL	FS
Mean	0.0244	0.1846	243.90	2,242	49,828	2.77E+10
Maximum	0.044	0.30	823	503	101,308	8.93E+10
Minimum	0.024	0.13	24.44	71	2,100	1.80E+09
Std. Dev.	0.0054	0.0382	220.42	118	2,164	1.94E+10
Observations	48	48	48	48	48	48

3.4 The trend of Branches and Employees Growth
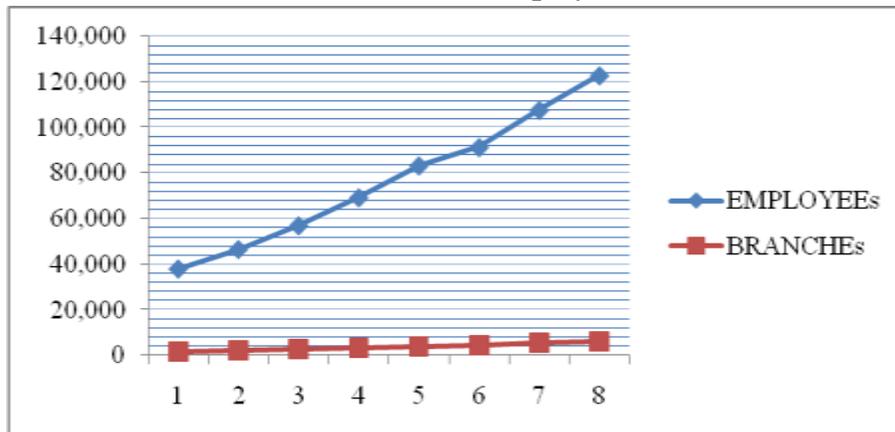
Graph 1: Excel output of the trends of branches and employees

The overall trend of the branches and employees of the banks yearly showed in graph 1 indicates that the growth of branches is not as such growths in employees. Meaning employees grow above the proporotional growth of the branches.

3.5 Correlation Analysis

Correlation analysis is a study of the relationship between variables. It is also defined as a group of techniques to measure the association between two variables. The correlation analysis of the study displayed in table 2, indicated that ROA had a strong and positive relationship with ROE and EPS and significant at 1%. However; it had negative relation and was significant at 5% with the number of branches. ROA also had a negative relationship with the number of employees and firm size but it was insignificant. ROE has strong and positive relationships at a 1% significant level with EPS. Though ROE had a positive relationship with the number of employees and firm size, it was insignificant. EPS had a mild and positive relationship with firm size and the number of employees, in addition, it had positive relation but insignificant with the number of branches of the banks. The firm size had a strong and positive relationship with the number of branches and employees of the bank at a 1% degree significant level. The number of branches also has strong and positives relation with the number of employees of the banks. The Pearson correlation coefficient illustrated 0.88 at a 1% degree level.
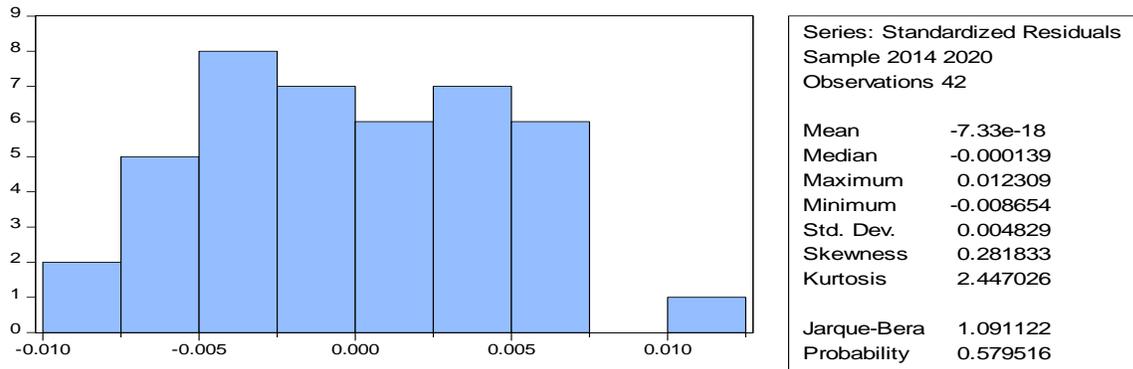
Table 2: Correlations (SPSS version 21 output)

		ROA	ROE	EPS	FS	BR	EMPL
ROA	Pearson Correlation	1					
	Sig. (2-tailed)						
ROE	Pearson Correlation	.725**	1				
	Sig. (2-tailed)	.000					
EPS	Pearson Correlation	.661**	.713**	1			
	Sig. (2-tailed)	.000	.000				
FS	Pearson Correlation	-.109	.154	.301*	1		
	Sig. (2-tailed)	.459	.294	.038			
BR	Pearson Correlation	-.339*	-.104	.055	.913**	1	
	Sig. (2-tailed)	.019	.480	.712	.000		
EMPL	Pearson Correlation	-.139	.075	.355*	.913**	.881**	1
	Sig. (2-tailed)	.346	.613	.013	.000	.000	

**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).

3.6 Normality Test

The normality assumption plays a great role in the validity of specification tests, inferences, and forecasting of the model output. Accordingly, the normality test for all the three equations the residuals follow normal distribution checked by the Jarque-Bera statistics probability above 0.05. The histogram and corresponding Jarque-Bera for the model equation1 are revealed in graph 2.

Series: Standardized Residuals	
Sample 2014 2020	
Observations 42	
Mean	-7.33e-18
Median	-0.000139
Maximum	0.012309
Minimum	-0.008654
Std. Dev.	0.004829
Skewness	0.281833
Kurtosis	2.447026
Jarque-Bera	1.091122
Probability	0.579516

Graph 2: Histogram test for normality

3.7 Regression Analysis

Regression analysis is the statistical tool for the investigation of relationships among variables. The empirical evidence on the impact of the number of branches and employees on the performance of six selected commercial banks in Ethiopia was analyzed with the help of EVEIWS 10 software.

One of the banks' performance measurements is ROA. The output of the regression result was displayed in table 3. In this model, ROA was negatively affected by the number of branches and employees but positively affected by the firm size. The number of branches and firm size significantly affected the ROA at a 5% degree of significance. The independent variable, as well as the control variable, jointly explained the dependent variable (ROA) by 33.24%. Moreover; the overall effect of the model showed that the dependent variable was significantly affected by the independent variables. This was expressed by an F-statistic probability value below 5%.

Table 3: Dependent Variable: ROA

Method: Panel EGLS (Cross-section random effects)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.062101	0.036765	1.689142	0.0994
LAG1BR	-6.20E-05	2.22E-05	-2.787026	0.0083
LOGEMPL	-0.004209	0.004653	-0.904668	0.3713
FS	3.26E-13	1.06E-13	3.088727	0.0037
Weighted statistics				
R-squared	0.332364	Durbin-Watson stat		1.409070
Adjusted R-squared	0.279656			
F-statistic	6.305738	Prob(F-statistic)		0.001405

Hypothesis testing,

Ho1: Branch expansion has a positive relationship with ROA

Ho2: Employees has a positive relationship with ROA

Ho3:Firm size has a positive relationship with ROA

Table 4: Dependent Variable: ROE

Method: Panel Least Squares

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.327215	0.267349	1.223921	0.2296
LAG1BR	-0.000260	0.000158	-1.645323	0.1094
LOGEMPL	-0.016563	0.033832	-0.489560	0.6277
FS	1.47E-12	7.12E-13	2.069958	0.0464
Effects specification- cross-section fixed				
R-squared	0.589556	Durbin-Watson stat		1.432944
Adjusted R-squared	0.490054			
F-statistic	5.925084	Prob(F-statistic)		0.000101

Regarding these three hypotheses, only Ho3 was unable to reject the null hypothesis. The remaining two hypotheses Ho1 and Ho2 rejected the null hypothesis; meaning that, expansion of branches nationwide and related increment of employees negatively impact the performance of the bank in terms of ROA, though the impact of EMPL was insignificant.

Table 4 showed the regression output of the performance of the bank in terms of ROE. Fixed effect model was used to robust the model. The R^2 showed in this model indicates that the independent variables such as branches and employees as well as control variables jointly explained the dependent variable (ROE) by 58.96%. The coefficients of the number of branches and employees were negative but insignificantly affected the ROE. However; the firm size was positively and significantly impacted the ROE. Moreover; F-statistics indicated that the overall effect of the independent variables on the dependent variable was significant at a 5% degree of significance.

Table 6: Dependent Variable: LOGEPS

Method: Panel EGLS (Cross-section random effects)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-2.098614	3.931644	-0.533775	0.5966
LAG1BR	-0.012244	0.002313	-5.293467	0.0000
LOGEMPL	0.940471	0.494626	1.901377	0.0649
FS	4.51E-11	1.05E-11	4.289746	0.0001
Weighted statistics				
R-squared	0.459353	Durbin-Watson stat		1.433364
Adjusted R-squared	0.416671			
F-statistic	10.76207	Prob(F-statistic)		0.000029

Hypothesis testing,

Ho4: Branch expansion has a positive relationship with ROE

Ho5: Employees has a positive relationship with ROE

Ho6: Firm size has a positive relationship with ROE

The three hypotheses under this category showed that as ROA model explained above results the same output. Both Ho4 and Ho5 models rejected null and accepted alternative hypotheses; Meaning that they did not impact the performance positively. However; except for Ho6, both the Ho4 and the Ho5 were insignificant to impact the performance.

In this random effect model where logarithm form of EPS, as it was displayed in table 6, number of branches impacts EPS negatively and significantly at a 5% degree of significance. The coefficients of EMPL and FS showed that EPS was positively affected by both EPML and FS. However; only the t-statistic probability value of FS of the bank was significant to impact the performance of the bank in terms of EPS. According to this model, the dependent variable was explained 45.94% by the independent variables as it was expressed by R-Squared. The model was also significant as per the F-statistic probability value at a 5% degree level.

Hypothesis testing,

Ho7: Branch expansion has a positive relationship with EPS

Ho8: Employees has a positive relationship with EPS

Ho9: Firm size has a positive relationship with EPS

Under this category, Ho8 and Ho9 were unable to reject the null hypothesis, while Ho7 rejected the null hypothesis and accepted the alternative hypothesis. However; Ho7 and Ho9 were significant to impact the performance of the banks under the study.

5. Conclusion

In conclusion, there was a great divergence between the minimum and maximum values. To mention, the minimum number of branches was 71 and the maximum was 503 as result, the minimum and maximum value of EPS were 24.44 and 823, ROE was 13% and 30%, and ROA was 2.4% and 4.44%. Branch expansion, increase in employees and firm size had an almost low and negative correlation with ROA but positive and mild relation with EPS. Branch expansion had a low and negative correlation to ROE but EMPL and FS had a positive but low correlation with ROE**.** The coefficient of branch expansion revealed in all three models showed that there was a negative impact on the performance of the banks under study. All except in the case of ROE, they impacted significantly. Increment of employees with branch expansion also negatively and insignificantly impacted ROA and ROE while it impacts insignificantly and positively in terms of EPS. The Firm size which was the control variable impacts ROA, ROE, and EPS positively and impacted significantly in all three models. In all cases of the models all independent variables and control variables generally impacted the dependent variables; meaning BR EMPL, and FS jointly impacted the performance of the banks in terms of ROA, ROE, and EPS.

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