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FINANCIAL ECONOMICS | RESEARCH ARTICLE Determinants of private commercial banks deposit in Ethiopia

Meseret Dame Tafa¹ and Solomon Tessema Worku²

Abstract: This study aimed to investigate the determinant of private commercial bank deposits in Ethiopia over eighteen years (2000–2017). To achieve the research objectives, an explanatory research design and a quantitative research approach were employed. In addition, the study has targeted sixteen private commercial banks currently operating in Ethiopia. Data obtained from selected banks were analyzed by using descriptive statistics and random effect model analysis. The regression result shows that three internal variables such as loan to deposit ratio, profitability and the number of bank branches and two macroeconomic variables such as unemployment rate and economic growth rate have a significant effect on the total deposit of private commercial banks. Based on the study finding, researchers recommended that all private commercial banks are required to aggressively expand their branches comparatively to the commercial bank of Ethiopia, and government bodies should give more attention to sustainable economic growth and should work on unemployment reduction.

Subjects: Accounting And Finance For Events; Business, Management And Accounting; Accounting; Cost Accounting; Financial Accounting; Government & Non–Profit Accounting; International Accounting; Management Accounting

Keywords: Deposit mobilization; private commercial banks; remittance; deposit ratio; Ethiopia



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PUBLIC INTEREST STATEMENT

Ethiopia is one of the developing nations in which the financial sector is not well developed and needs more participation of government and private investors to enhance financial sector as different financial activities takes place in traditional ways. In this study, we have examined that determinants of private commercial banks in Ethiopia as economic growth recommended attracting higher deposit and unemployment rate inversely related to deposit. The higher earning capacity of the citizen is expected to enhance their ability to deposit, and this enhances the deposit growth of the bank. The general finding of this study is the country's stunning interest on enhancing the financial sector with specific to the increasing role of private sector participation in solving financial problem of the country.

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1. Introduction

Deposit is one of the assets that banks are highly motivated to mobilize, the most liquid money that is available in the treasury of the bank, which is ready to be borrowed in need of the funds (Yusuf, 2001). Therefore, the development of financial institutions and the level of deposit mobilization add a lot to the economic growth of developing countries where the level of monetization is weak (Gebeyew, 2013). Nowadays, the activities of all commercial banks are primarily focused on deposit mobilization and providing loans (Otu & Peter, 2015). Thus, without enough bank deposits, financial institutions might fail to attain their business targets and economic growth enhancement (Viswanadham et al., 2013). Thus, the extent to which banks play as an intermediary depends on the level of advancement of the financial sector and the level of deposit mobilization (Bahiredin, 2016).

HoweverIn lin with this, several past study indicated still in developing countries of Sub-Saharan Africa (SSA), like Ethiopia, financial institution have not been well-developed to play critical role of intermediation because of under- banked and banks have limited banking services compared to the rest of the world (Woldegiorgis, 2010 and Garedachew, 2008). Other studies in Ethiopia also conclude that private commercial banks in Ethiopia are in their infant phase and level of deposit mobilization is also very low (Shemsu, 2015). This indicates that the amount of deposit mobilized by banks in the country is not sufficient to satisfy the demand of investors who engaged in the economic development of the country. Moreover, nowadays, public bank, which is Commercial bank of Ethiopia (CBE), aggressively expanded its business in all places of the country. CBE has remained potent and is in the lead in terms of assets, deposits, capital and customer base (Shemsu, 2015). For instance, as National Bank of Ethiopia report, in 2017/18, CBE was trying to receive more deposits, 64.5 percent of total deposits of the industry, by introducing attractive savings schemes, and because of its large number of bank branch expansion, the share of private commercial banks is limited to less than 35% of total deposit mobilized in the industry. Thus, the amount of deposit a private commercial banks have at hand is not sufficient to make the bank engage in the market activities and to satisfy the financial desires of its customers. Hence, depending on this general fact, the private commercial banks should be expected to mobilize sufficient deposit, so that mobilizing and managing deposits is not achievable without understanding and controlling the factors affecting it.

In line with this, many studies have been conducted in abroad countries on determinants of commercial bank deposits; to the best of researchers' knowledge, most abroad country studies focused more on macroeconomic variables rather than investigating both micro (bank specific) and macro (beyond to bank) determinants of bank deposits. For instance, the study conducted by Nathanael (2014), Hassan (2016), Mashamba & Gumbo (2014), Mohammad & Mansur (2014) and Simon-Oke & Jolaosho (2013) tried to analyze the effect of different macroeconomic indicators, on the bank deposits. Most of the time, at the global level, as stated by the above researchers, the determinant variables usually explained as factors determining the deposit amount are the deposit interest rate and gross domestic product. However, all the authors have stated a different finding on the determinants of commercial bank deposit and its relationship with total deposit and their findings may not be applicable to other countries like Ethiopia, due to differences in social, economic and legal environments.

In other hand, few studies in Ethiopia by Andinet (2016), Bahiredin (2016), Mamo (2017) and Giragn (2015) also show contradictory findings. For example, the study conducted by Mamo (2017) shows that bank branch expansion had positive and significant effects on total deposit, while, according to Tizita (2014), bank branch expansion has a negative effect on bank deposits. On the other hand, a study performed by Bahiredin (2016) showed that loan to deposit has a significant negative influence on the commercial bank deposits. Contradictory to this, finding by Fisseha (2017) stated that the loan to deposit ratio has a positive and significant influence on bank deposit. Moreover, all those researchers conducted their studies on public bank, which is

Commercial Bank of Ethiopia only. This indicates that it is very difficult to generalize their findings into private commercial banks.

A limited study corresponding with this research is that the research conducted by Andinet (2016) considering limited explanatory variables, which are number of bank branches, deposit interest rate, inflation and GDP (economic growth). However, all studies conducted in Ethiopia including Andinet (2016) have not incorporated the unemployment rate and individual foreign remittance growth as a variable. In addition to this, Andinet (2016) and other researchers listed above also concluded and suggested that Ethiopian commercial bank deposits is affected by other additional factors, which are not included in the previous studies, Because of this reason, the area needs additional study. To sum up, this research tries to fill the gap by considering the most important determinant variables, which are used by previous researchers, and add unemployment rate and individual foreign remittance growth rate, which are not included in previous studies. Therefore, the research is aimed to examine the effect of the number of branches, deposit interest rate, loan to deposit ratio, GDP, remittance growth rate and unemployment rate on Ethiopian private commercial bank deposits.

2. Empirical literature review

A number of empirical studies have been carried out by different scholars in different countries on the determinants of commercial bank deposits. The researcher Lomuto (2008) conducted a study on the determinants of Kenyan commercial bank deposits growth in Kenya. The study result showed that the deposit interest rate, lagged Commercial bank deposits and economic growth have a significant effect on banks total deposit. Depending on the study results, the researcher recommends on the need for macroeconomic stability and the establishment of conditions that attract private investment, strengthening bank supervision and the legal infrastructure, which enhances financial stability and strongly suggests on deregulation on the real deposit rate of commercial bank deposit. At the end, the authors concluded that determinants of bank deposit are not similar among countries. Therefore, the study recommended further research to better understand which factors are more affecting commercial bank deposits.

According to Pham Minh Dat (2020) and P. M. Dinh Tran Ngoc Huy (2020), to provide required service to customers and to satisfy their needs, commitment of commercial banks is crucial. In addition, it is necessary to coordinate synchronously between the management and administration of commercial bank policies with fiscal policies, monetary policies (used as effective tools to stimulate bank over all products) and other economic development policies to limit the negative effects of the lending rate, risk free rate and exchange rate on commercial banks performance.

Another study conducted by El (2017) examined the factors determining the bank deposit in Morocco for 2003–2014. The researcher employed panel data regression for analysis purpose. The study result shows that bank's deposits are significantly determined by banks size, both internal and external funding and interest rate on deposits. Finally, the researcher concluded that customers as well as bank deposits are strongly determined by the unemployment rate rather than other variables.

The study conducted by Peter & Charles (2014) on remittance as financial sector development argue that remittances adversely affect financial sector development since these capital flows are informal, altruistic and purposely intended for household consumption. The study additionally argues the association between remittances and bank deposits as being positive although statistically insignificant. This finding indicates the absence of a relation between bank deposits and remittance inflow to the residence country. Therefore, theoretical and empirical records on the effect of remittances on economic growth, financial sector development and commercial bank deposit growth are unclear; the relationship among remittances and bank deposit growth remains a matter of argument.

The studies performed by Mashamba & Gumbo (2014) discuss the relationship between the deposit interest rate and deposit mobilizations in Zimbabwe. The study result indicates that a positive

relationship between deposit rates and bank deposits for the period under study and all the other explanatory variables were statistically significant. Depending on the research results, the researchers suggested to banks to tap into the unbanked markets through massive branch expansion, offering low-cost accounts and increasing interest offered on deposits to attract more deposits.

Among the few research studies conducted on the subject in Ethiopia, the researcher's has selected the following study as the empirical literature for this research. The study conducted in Ethiopia shows that the loan to deposit ratio and bank branch expansion positively and significantly influence total deposits of public commercial banks, whereas competitor's influences total deposit negatively and significantly; the study by Mamo (2017) and other study by Giragn (2015) concluded that commercial bank deposit mobilization is significantly and negatively affected by the branch expansion, inflation, exchange rate and money supply growth.

In addition, the study by Bahiredin (2016) empirically analyzed determinants of commercial bank deposit growth in Ethiopia. The regression result showed that the number of branches and growth of per capita income have a positive and significant influence on bank deposits growth in Ethiopia, whereas the loan to deposit ratio and lagged bank deposit have a negative and significant influence on bank deposit growth. Finally, research conducted by Andinet (2016) showed that the explanatory variables deposit interest rate; number of bank branches, GDP and net interest margin were significantly and positively correlated with the explained variable., while lagged value of bank deposit was significantly and negatively correlated with total deposit.

In general, from the above empirical works in foreign country, all the authors have stated contradicted findings and their findings may not be applicable to other countries like Ethiopia, due to differences in social, economic and legal environments. Few studies conducted in Ethiopia on the determinants of commercial bank deposits are limited to public banks, which are commercial banks of Ethiopia. Therefore, this study helps to fulfill the study area gap by conducting this research on the private commercial banks. As per researcher's knowledge, only the study conducted by Andinet (2016) on private commercial banks is similar towith this study. However, the study failed to take into account some macroeconomic variables such as individual foreign remittance growth and unemployment rate. As stated by El (2017), unemployment rates have a high influence than other macroeconomic variables on total deposits of commercial banks. But all the stated studies conducted in Ethiopian commercial banks have not incorporated unemployment rate and foreign remittance as variables that determine commercial bank deposit. Therefore, this study fills the information gap by incorporating those variables as independent variables in the study.

3. Research methodology

3.1. Research design

Explanatory studies are necessary in such a study where a situation or problem leads to the explanation of the relationship between variables (Saunders & Thornhill, 2009). Therefore, the researchers employed explanatory research designs to see the regression analysis result with respective empirical literature studies on the determinants of bank deposit in Ethiopia.

3.2. Research approach

In this study, the quantitative research approach was used. The basic reason for using this type of quantitative research approach is to collect secondary data that have quantitative nature, and it is possible to test the relationship between the variables used in this study.

3.3. Data source

To achieve the study objectives, researchers collected data from secondary data sources. Thus, for variables considered as dependent and independent, in the study, data were collected from NBE and selected banks annual reports, Central Statistical Agency of Ethiopia and other relevant data sources.

3.4. Population for study

In 2018, there are sixteen private commercial banks that operate in Ethiopia. Therefore, to examine the determinants of total deposit in private commercial banks of Ethiopia, all sixteen private commercial banks operating in Ethiopia are considered as the target population for this study.

3.5. Sample size and sampling technique

Researchers believed that the sample size is representative as it includes the banks that dominate a market position in terms of bank branches, total asset, deposit amount, loans and annual profit. Therefore, in this study, six private commercial banks are selected. Those are Awash International Bank, Dashen Bank, Bank of Abyssinia, Wegagen Bank, United Bank and Nib International Bank.

3.6. Model specification

In this research, a random effect is employed to estimate effects of independent variables on dependent variables. According to Cooper & Schindler (2009), the general random effect model with X independent variables is written as follows:

$Yit = \beta Xit + a + uit + \varepsilon it,$

where Yit is observations of the dependent variable, Xit is the ith observation of the independent variables, β is the regression coefficients of the ith observation, *u*it is between entity errors and ε it is within entity error. Hence, the deposit (DEPO) is the dependent variable of the model, while the following are independent variables affecting deposit:

- β1, β2, β3, β4, β5, β6, β7 and β8 represent the regression coefficients or parameter to be estimated;
- NOBRA it: Number of branches for bank i at time t;
- DIR it: Interest Rate on the Commercial Bank Deposits for bank i at time t;
- PROF it: Profitability for bank I at time t;
- RGDP it: real gross domestic product for bank i at time t;
- LDPR it: Loan to Deposit Ratio (Liquidity Ratio);
- UNER it: Unemployment rate for bank i at time t;
- IFRG it: individual foreign remittance growth for bank i at time t;
- t: Time (2000-2017 years);
- µit: Represents error terms for intentionally/unintentionally omitted or added variables.

3.7. Variables measurement and expected result

Based on the research hypothesis, the following relationships are expected for the commercial bank deposits and selected determinant factors.

3.8. Data analysis and presentation technique

The research paper analysis is based on the quantitative research approach. The study used the balanced panel data of six private commercial banks in Ethiopia. To analyze, interpret and summarize the data, researchers adopted descriptive statistics including mean, standard deviation, maximum and minimum, computed by using Stata software and random effect model applied to test the relationship between dependent variables and explanatory variables.

4. Results and discussion

4.1. Descriptive analysis

The mean for natural logarithm of total deposits of private commercial banks is 8.233624 percent, and the standard deviation was 1.436593 percent with a minimum of 4.0855 percent and a maximum of 10.8273 percent. The maximum deposit is recorded by Nib international bank in the year 2016, and the minimum deposit is recorded by Dashen bank after its establishment in 2002. Depending on minimum and maximum values, it can be concluded that the private commercial bank deposit fluctuates between 4.0855 and 10.8273, respectively. The standard deviation also stated that there is the variation of deposit amount among sampled private commercial banks during the study period (2000–2017).

The mean of the loan to deposit was 71% with a std. dev. of 14.87%. The minimum and maximum values of the loan to deposit were 48.85 and 115.79 percent, respectively. The maximum loan to deposit 115.78 percent was registered in the year 2000 by the United Bank, meaning that the loan to deposit ratio is 100% and greater than that means a bank loaned one birr to customers for every birr received in deposit they received, while the minimum amount of loan to deposit ratio was recorded by Wegagen bank in 2011. Depending on these descriptive results, it can be concluded that the loans to deposit ratio was lower dispersed among private commercial banks in Ethiopia.

The mean value of the bank branch of the private commercial banks included in this study is 68.15741. The minimum and maximum value of size is 5 and 313, respectively. Moreover, the standard deviation for the number of bank branches was 64.49765. From the result, Awash Bank has the maximum number of branches rather than other private commercial banks during the study period (313). This descriptive result shows that private commercial banks expanded their branch network continually in the study period. The standard deviation of the bank branch shows that there is a low dispersion among private commercial banks regarding the branch expansion.

Regarding the deposit interest rate of commercial banks of Ethiopia, the mean value of deposit interest rate is 4.33333% with a maximum of 7% and a minimum of 3%. On the other hand, the minimum and maximum values of deposit interest rate paid to depositors are 3% in the year 2002–2007 and 7% in 2001, respectively. There was little variation of interest rate towards its mean value over the periods under study with the standard deviation of 1.1601.

The average ROA for the last 18 years for Ethiopian private commercial banks is 2.74747 with a standard deviation of 0.9318%. The minimum ROA is 0.2, and the maximum is 4.7; the minimum return on asset of 0.2% was generated by the Bank of Abyssinia in 2002, and the maximum return on asset of 4.7% was generated during the study period in 2011 by Wegagen bank. This indicates that there is little gap in profitability between Ethiopian private commercial banks. The average value of individual remittance from the Diaspora growth rate was 28.1722%. The maximum and the minimum values of remittance from foreign were 70% and 2.1%, respectively. The maximum individual foreign remittance growth was registered in 2000, and the minimum was recorded in the year 2012. The standard deviation of individual foreign remittance growth during the study period.

4.2. Correlation analysis

Cooper & Schindler (2009) suggested that a correlation of above 0.8 should be corrected for the above-mentioned variables, since it is a sign for multicollinearity problems. Also, Hair et al. (2006) argued that the correlation coefficient below 0.9 may not cause serious multicollinearity problems.

Table 1. Summary of variables measurement and its expected result						
Proxy variables	Symbol	Measurement	Expected result			
Deposit	DEPO	Natural logarithm of total deposit				
Number of bank branches	NOBRA	Number Of Branches At The End Of theYear	+			
Deposit Interest Rate	ADIR	Average Deposit Interest Rate Of The Year	+			
Loan To Deposit Ratio	LTDR	Total Loans and Advances/Total deposit	+			
Profitability	PROF	ROA = net income after tax/total asset	+			
Economic growth	GDP	Measured by Real GDP growth rate of Ethiopia	+			
Individual foreign remittance growth	IFRGR	Foreign Remittance growth rate	-			
Unemployment rate	UNER	Annual unemployment rate	-			

Source: Developed by researchers (2020)

Table 2. Descriptive statistics results and discussion							
Variable	Obs.	Mean	Std. Dev.	Min	Max		
DEPO	108	8.233624	1.436593	4.08255	10.8273		
LTDR	108	.7150974	.1487637	.48847	1.15789		
NBBR	108	68.15741	64.49765	5	313		
DIR	108	.0433,333	.0116008	.03	.07		
PROF	108	.0274,747	.0093179	.002	.047		
INFRG	108	.2817222	.1799918	.021	.7		
GDP	108	.0883889	.0388067	021	.126		
UNER	108	.2018333	.0405895	.163	.269		

Source: Stata output (2020)

As shown in the Table 2, the descriptive statistics of the study, there are 108 observations and balanced data collected from six private commercial banks over the period 2000 to 2017. As shown in the Table 4.6, the descriptive statistics of the study, there are 108 observations and balanced data collected from six private commercial banks over the period 2000 to 2017. The mean for natural logarithm of total deposits of private commercial banks is 8.233624 percent, and the standard deviation was 1.436593 percent with a minimum of 4.0855 percent, and a maximum of 10.8273 percent. The maximum deposit is recorded by nib international bank in the year 2016 and the minimum deposit is recorded by Dashen bank after its establishment in 2002. Depend on minimum and maximum values it can be concluded that the commercial bank deposit fluctuates between 4.0855 and 10.8273 respectively. The standard deviation also stated that there is the variation of deposit amount among sampled private commercial banks during the study period (2000-2017). As shown in the Table 4.6, the descriptive statistics of the study, there are 108 observations and balanced data collected from six private commercial banks over the period 2000 to 2017. The mean for natural logarithm of total deposits of private commercial banks is 8.233624percent, and the standard deviation was 1.436593 percent with a minimum of 4.0855 percent, and a maximum of 10.8273 percent. The maximum deposit is recorded by nib international bank in the year 2016 and the minimum deposit is recorded by Dashen bank after its establishment in 2002. Depend on minimum and maximum values it can be concluded that the commercial bank deposit fluctuates between 4.0855 and 10.8273 respectively. The standard deviation also stated that there is the variation of deposit amount among sampled private commercial banks during the study period (2000-2017).

The correlation matrix computed in Table 3 shows that there are fairly low data correlations among the independent variables. This means that the correlations between the variables within the study do not exceed 0.8.

As shown in Table 3, the coefficient of correlation between the total deposit and the number of bank branches was 0.6939. The result reveals that there is strong positive correlation between the bank deposit and the number of branches of private commercial banks over the last 18 years. The

Table 3. Correlation matrix of dependent and explanatory variables								
	DEPO	LTDR	NOBBR	DIR	PROF	INFRG	GDP	UNER
DEPO	1							
LTDR	-0.5874	1						
NOBBR	0.6939	-0.4404	1					
DIR	0.1072	-0.1697	0.3147	1				
PROF	0.2412	-0.1818	0.0792	-0.0641	1			
INFRG	-0.4206	0.4768	-0.4533	-0.1115	-0.1434	1		
GDP	0.4925	-0.2808	0.2335	-0.0216	0.6022	-0.0633	1	
UNER	-0.7091	0.4337	-0.5494	0.0071	-0.5621	0.2629	-0.6595	1

Source: Stata output (2020)

correlation coefficient of private commercial bank deposit and loan to deposit ratio was -0.5874, which is a negative relation. The coefficient of correlation between the bank deposit and the deposit interest rate was 0.1072, and the result shows that the weak and positive relation exists between total deposits of private commercial banks and deposits interest rate. The coefficient of correlation between the total deposit and profitability was 0.2412. The result shows that a weak and positive correlation exists between bank deposits and profitability. The coefficient of correlation between bank deposit and individual foreign remittance growth was -0.4206. This result indicates that a lesser negative correlation exists between the total deposit and remittance growth. The coefficient of correlation between commercial the bank deposit and economic growth (GDP) was 0.4925, and this output shows that there is a moderate and positive relationship between those variables. The last variables coefficient of correlation between the commercial bank deposit and the unemployment rate was -0.7091. This means that there is a strong negative correlation between the deposit and the unemployment rate.

Moreover, the unemployment rate was positively correlated with the loan to deposit ratio, deposit interest rate and individual foreign remittance growth with correlation coefficients of 0.4337, 0.0071 and 0.2629, respectively, whereas it was negatively correlated with the number of bank branches, profitability and GDP with correlation coefficients of -0.5494, -0.5621 and -0.6595, respectively. GDP negatively correlated with the loan to deposit ratio, deposit interest rate and foreign remittance growth with correlation coefficients of -0.2808, -0.0216 and -0.0633. However, economic growth (GDP) was positively correlated with the bank branch and profitability with correlation coefficients of 0.2335 and 0.6022, respectively. The individual foreign remittance has a negative relationship with the number of bank branches, profitability and deposit interest rate with correlation coefficients of -0.4533, -0.1434 and -0.1115, respectively. It has a positive correlation with a loan to deposit ratio of 0.4768. Furthermore, from the above correlation matrix, profitability has a negative relation with the loan to deposit ratio and a positive relation with bank branch with correlation coefficients of -0.1818 and 0.0792, respectively.

The deposit interest rate positively correlated with the number of bank branches as well as negatively correlated with the loan to deposit ratio (0.3147 and -0.1697). At the end, the bank branch negatively correlated with the loan to deposit ratio with a correlation coefficient of -0.4404.

4.3. Random effect regression result

Accordingly, as Normality, Multicollinearity, Autocorrelation and model specification test result shows, there is no evidence of violation with all diagnostic tests. In addition, the Hausman specification test was conducted and as per the result, the random effect model was selected.

Now, from the regression result, we can substitute the values of coefficients and find the following equation:

 $\label{eq:def_def_def} \begin{array}{rrrr} \text{DEPO} &=& 12.47751 \ - & 1.998126 \text{LTDR} \ + \ 0.0070043 \text{NOBBR} \ - & 5.216579 \text{DIR} \ - & 28.5124 \text{PROF} \ - & 0.7648422 \text{INFRG} \ + & 7.803967 \text{GDP} \ - & -13.66136 \text{UNER} \ + & \mu \text{it}. \end{array}$

From the DEPO regression model result, the R-squared statistics and its overall R-square for DEPO are 0.7263 and 0.7137; this indicates that the R-square (correlation coefficient) measures the correlation between the regressed variable and the explanatory variable with 0.7263 well explaining the model.

The overall R-square (coefficient of determination) also measures the proportion of the total dispersion in dependent variables explained by the regression model. This implies that the changes in the independent variables are 71.37% of the changes in the total deposit of private commercial banks. On the other hand, the loan to deposit ratio, number of bank branch, deposit interest rate, profitability, individual foreign remittance growth, economic growth and unemployment rate are collectively 71.37% of the changes on DEPO. The remaining 28.63% of the changes of the total deposit measure model in this study was explained by other factors that are not included in the model. Thus, these variables jointly are good explanatory variables of the total deposit of private commercial banks in Ethiopia.

The overall model is strongly significant (P-value = 0.0000) with an R^2 value of 72.63% and its overall R^2 is about 71.37% in the model. A P-value of 0.000 indicates strong statistical significance of the specified model, which enhanced its reliability and validity.

From the random effect regression result of Table 4, constant = 12.47751 shows that if all the independent variables (number of branch, deposit interest rate, loan to deposit ratio, profitability, economic growth (GDP), individual foreign remittance and unemployment rate) are rated a zero, DEPO is rated as 12.47751.

Table 4. Regression result						
Random-effects GLS regression Number of obs = 108						
Group variable: code	Number of groups = 6					
R-sq: within = 0.7263	Obs per group: min =	18				
Between = 0.5604 av	vg = 18.0					
Overall = 0.7137 max	< = 18					
Wald chi2(7) = 261.0	5					
corr(u_i, X) = 0 (assur	med) Prob> chi2 = 0.00	000				
DEPO Coef.	Std. Err.	Z	P> Z	[95% Conf. Interval]		
LTDR -1.998126	0.6422379	-3.11	0.002*	-3.256897393633		
NOBB .0070043.	17915	3.91	0.000*	.003493 .0105155		
DIR -5.216579	7.039007	-0.74	0.459	-19.01278 8.579621		
PROF -28.5124	11.772	-2.42	0.015 **	-51.58509 -5.439709		
INFRG 7648422	0.5177668	-1.48	0.14	-1.779646 .2499621		
GDP 7.803967	2.809382	2.78	0.005 *	2.297679 13.31025		
UNER -13.66136	3.353309	-4.07	0.000*	-20.23372 -7.088995		
_cons 12.47751	1.040962	11.99	0.000	10.43727 14.51776		

*& ** denotes significance at 1% and 5% level respectively. Source: Stata output (2020).

4.4. Discussion

4.4.1. Number of bank branches

The number of bank branches has a positive relation with total bank deposits with a coefficient of 0.0070043 and a p-value of 0.000 at the 1% significance level. This indicates that one unit change (increase/decrease) in the bank branch, keeping the other things constant, can result in a change in deposit by 0.0070043 units in the similar direction. Therefore, bank branches are essential to collect the sufficient amount of deposit. In other hand, as private commercial banks expand their branches aggressively in unbanked areas, more and more people are accessible to the banking system and more people would be willing to deposit their idle cash or at least a part of their wealth into deposits. The study finding is closely similar to the study results of Nathanael (2014), Hassan (2016), Shemsu (2015), Bahiredin (2016) and Andinet (2016). The result is also against and contrary to the work of Tizita (2014). Based on the result, hypothesis is not rejected and we can also conclude that a number of bank branches had positive and significant effects on commercial bank deposits. Totally, based on the previous study result and our finding, the bank that has more number of branches in the unbanked area generates a more amount of deposit.

4.4.2. Deposit interest rate

The results of the random effect regression regarding the deposit interest rate show that there is no significant relationship between the deposit interest rate and total deposits of commercial bank. As shown in Table 4, the regression coefficient of deposit interest rate was -5.216579 with a significance value of 0.459. This result indicates that when the deposit interest rate changes by 1%, total deposits of sampled private commercial banks decreased by 5.216579 in opposite direction. As indicated by previous researchers, the deposit interest rate is considered as a main variable in determining the total deposits of commercial banks. However, insignificance of the deposit interest rate for sampled private commercial bank deposit is a controversial result with the previous study and against the reality of saving theory.

On the other hand, the authors Fry (1994) and Brooks (1991) reported a negative relationship between the interest rate and the bank deposit. Furthermore, some empirical studies by Hassan (2016), Gragn (2015) and Fisseha (2017) also found that the deposit interest rate has a negative relationship with bank deposit, so this study result in terms of negative sign is consistent with those researchers' findings; however, this negative insignificant association between the total deposit and the deposit interest rate contradicts with the assumption of permanent income theory, which states that an increase in interest rate has a direct impact on income, meaning that the people save because of future return expectation. The result is different from the research of Harald & Heiko (2009), Sudin & Wan (2006) and Mashamba & Gumbo (2014).

4.4.3. Loan to deposit ratio

Regarding the impact of the loan to deposit ratio (LTDR) on total deposit, the estimated coefficient for the loan to deposit ratio is statistically significant and negative for all sampled private commercial banks at the 5% significance level. LTDR has a coefficient of –1.998126 and a p-value of 0.002. The result indicates that when the loan to deposit ratio increased by one birr, the total deposit of the sampled private commercial bank would decrease by 1.998126 units in opposite direction. This result is also consistent with the empirical studies conducted in Ethiopia by Andinet (2016) and Bahiredin (2016). However, this study is inconsistent with the study result of Mamo (2017) and Fisseha (2017). Generally, depending on the study results, the high liquidity position of the private commercial bank shows that the banks have higher secured money in their account, which also creates a low level of deposit mobilization specifically for the coming life of the bank.

4.4.4. Profitability

For the purpose of the study, ROA is used as a proxy for profitability. The regression result of the random effect model of this study shows that return on asset was found to have a negative relationship with private commercial bank deposit, but the relationship is significant according to

the model in table 4. The negative sign of the coefficient indicates that an increase in profit leads to a decrease in private commercial bank deposit. Thus, the hypothesis is not in agreement with the actual regression result and then hypothesis is rejected.

The negative effect of this variable could be due to the fact that as the profitability of the private commercial banks increased, they decrease or minimize their reliance on deposit, and the other reason is that when the banks generate high profitability, banks paid profit amounts as the dividend rather than using them for the purpose of depositor's attraction by giving gifts, advertising their services to customers; in another way, when banks are at a higher level of profitability or financial performance, they are dominated by overconfidence regarding their ability to live long year in the market or competition and then because of overconfidence, that banks may not use the bank's profitability or financial performance for additional deposit attraction. The negative sign of this study finding is consistent with the empirical finding) and (Harald & Heiko (2009). Thus, the conclusion about the effect of profitability on private commercial bank deposit remains ambiguous and further research is required.

4.4.5. Individual foreign remittance growth rate

A regression result indicates that individual foreign remittance growth is found to be negatively and insignificantly correlated with commercial bank deposit. Accordingly, it was hypothesized in the last section that individual foreign remittance growth has a negative relationship with total deposits of private commercial banks in Ethiopia. Hence, in line with the expectation, remittance growth has a negative but insignificant relationship with bank deposit. This shows that individual foreign remittance does not determine deposits of private commercial banks in Ethiopia.

Evidently, there are two arguments on the impact of remittance on bank deposit; First, the remittance helps to increase the private savings as well as the amount of bank deposit growth, but another parallel line disagrees on this and gives evidence that especially in developing countries, with remittance only spending on the consumption, it is not use on the growth of bank deposit conditions of the nation. Here, this study also supports this second view, because in our country Ethiopia, a high percentage of remittance is spent on the basic consumption needs (food, clothing and housing), non-productive investments and repayment of debts. Therefore, due to reality that a significant part of remittances utilized in that way, are transferred from out of the country to home country (Ethiopia) is without commercial banks intermediation and that these kinds of expenditures and movement of money tends to makes the deposit level is low. This is also consistent with the finding that long-run remittance growth in Ethiopia has a negative impact on economic growth as well as on banking sector development through bank deposit mobilization (Tassew & Nandeeswar, 2016). Moreover, Peter & Charles (2014) argue that remittances adversely affect financial sector development since these capital flows are informal, altruistic and purposely intended for household consumption. It is also inconsistent with the study result of Shemsu (2015) in Ethiopia and Yéro (2010) in SSA.

In general, depending on the regression result, we have concluded that foreign remittance growth has no statistical significant impact on the bank deposit and the transferred funds can have a negative relationship with financial institutions (with private commercial banks) total deposit, and when these funds are not deposited in financial institutions (the money circulated through unofficial ways), it will discourage these institutions to expand their deposit mobilization activities and poor bank financial performance.

4.4.6. Economic growth (GP)

The panel random effect estimation result given in Table 4 shows that the coefficient of change in economic growth (GDP) rate is 7.803967 and the P-value is 0.005. This implies that there is a significant positive relationship between GDP and total deposits of sampled private commercial banks in Ethiopia. A regression coefficient of 7.803967 means that taking other independent variables constant, a 1% increase in GDP (economic growth) results in a 7.803967-unit increase

in commercial bank deposits. On the other hand, economic growth has a high coefficient next to the unemployment rate, which states that there is a strong positive relationship between GDP and bank deposit. Therefore, hypothesis 6 is accepted, stating that there is a positive relationship between economic growth (GDP) and deposit amount of private commercial banks in Ethiopia. This finding is consistent with the life cycle theory and permanent income assumption theory, which shows that when income is high, people will be more likely to save, and when income is little, they will be less likely to save, which means that ability to save by individual customers and amount of deposit required to mobilize by banks are directly influenced by economic growth of the country. The empirical result obtained from the regression of this study is in line with the empirical result obtained by previous researchers (Hassan, 2016), and during periods of good economic condition, loan demand tends to be higher, allowing banks to provide more loans, which made commercial banks to mobilize high deposit. This study result suggested that GDP has a positive relationship with commercial bank deposits. Demirguc & Hizinga (1999) shows that rapid economic growth increases income of individuals; in fact, this deposit will be increased for a large number of banks (Ayele, 2016). Economic growth causes private savings in Ethiopia, which is in line with Keynesian theory; it is higher economic growth that leads to higher saving. Totally, theoretical, previous empirical evidence and our finding suggest that economic growth is the main source of bank deposit growth. In general, it concludes that sustainable economic growth of the country facilitates banking deposits, activities and banks' financial performances.

4.4.7. Unemployment rate

Besides, from macroeconomic factors, 'the unemployment rate had a negative impact on total deposits of sampled private commercial banks in Ethiopia by having a coefficient of -13.66136 and a p-value of 0.000, which indicates that a 1% change (increase/decrease) unemployment rate can result in a change in total deposit of sampled private commercial banks by 13.66136 in opposite direction. Therefore, the regression result is consistent with the hypothesis developed in the study. Based on the result, the researchers accept the hypothesis and it can be concluded that the unemployment rate had a negative and significant effect on deposits of sampled private commercial banks.

The negative relationship between the unemployment rate and bank deposits could be attributed to the fact that the unemployment rate increases the cost of living and decreases the individual income. Then, the customers/depositors want to forgo current savings, and this condition also decreases the amount of deposits of the bank. In other cases, the regression result of this study regarding the effect of the unemployment rate on commercial bank deposit is similar to empirical evidences by Serneels (2004) in Ethiopia. The researcher says "a negative relationship between unemployment rate and the country's economy indicates that high unemployment rate in the given country directly reduce the individuals saving rate (amount)", depending on this reality, when the individual or depositors saving amount comes down, the bank deposit growth amount also declined.

Therefore, the significant effect of the unemployment rate on the total deposit was also consistent with the finding of Lomuto (2008) in Kenya and El (2017) in Morocco. In general, the significant and negative effect of the unemployment rate shows that when there is a high unemployment rate in Ethiopia, the level of income distributed to individual customers is very low and most unemployed people also depend on the families, or in other words, it also creates the opportunity to decrease individual saving or deposit this situation, which also directly reduces the amount of deposit in the banking industry.

5. Conclusions

Based on the major findings derived in this study, researchers arrived at the following conclusions: as observed from descriptive statistics and random effect model regression result, the number of bank branches is positively and statistically significant to private commercial bank deposit. This indicates that the bank that has a large number of branches and aggressively expands its branches in the unbanked and remote area generates a more amount of deposit.

The results also showed that insignificant and negative association exists between the deposit interest rate and bank deposit. The negative effect of the deposit interest rate on sampled private commercial bank deposit is a controversial result and against the saving behavior theories. The insignificance of this variable is due to the fact that in Ethiopia, there is no competition between banks to attract depositors by interest rate on deposit and in Ethiopia, customers of banks are not attracted by the deposit interest rate, rather they are motivated by other factors such as banks service quality, safety, differentiation of products offered by bank and usual beliefs that private commercial banks will be not bankrupted or liquidated; in other words, the level of awareness created by bank might attract depositors to deposit, the interest rate is constant and very low when compared with the loan interest rate and government regulation, and restriction on deposit interest rate and government involvement in the market is very high in Ethiopia, because of this and other factors, there is no high competition between private commercial banks in terms of interest rate on deposit for the purpose of deposit mobilization.

Growth domestic product has a positive significant relationship with private commercial bank deposit. This implies that the variable significantly and positively affects deposits of private commercial banks because economic growth of any country directly or indirectly affects the saving level of individual.

The unemployment rate has a significant and negative effect on the total deposits of sampled private commercial banks. Therefore, this indicated that Ethiopian private commercial banks are highly affected by the unemployment rate in the country. In general, it implies that private commercial bank deposit decreases as the unemployment rate increases in the country. This is because the amount and level of bank deposit mobilization directly depend on deposits from individual customers.

6. Recommendations

Since the major source of resources for all commercial banks is deposit, banks should give necessary attention to its deposits and its determinant factors (Table 1). Banks take a remedial action periodically for those influential factors that affect bank deposit. All private commercial banks should be expanding their branch relatively with public commercial bank (commercial bank of Ethiopia) and open a new branch around the rural areas of the country, specifically in unbanked areas.

As the regression result reveals, economic growth is the most important factor for the growth of private commercial bank deposit, so that the government body (policy maker) required giving more attention to improve the sustainable economic growth of the country. An increasing in earning capacity of the people is expected to enhance their ability to deposit, which leads to enhancement in the deposit growth of the bank; hence, this expectation is changed in reality when the government body properly works on the way of reducing countries' unemployment rate and when the government body create's the job opportunities to unemployed people in the countries. So it is better that government body gives more attention on the unemployment rate reduction and increment of the employed people, creating entrepreneur opportunity within Ethiopia.

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