

Determinants of Commercial Banks Deposit Growth Evidence from Ethiopian Commercial Banks

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Abstract: The purpose of this research is to examine major causes of deposit growth in commercial banks in Ethiopia with explicit inference on industry specific and Macro-Economic variables. The research used secondary data from 2010-2019. Macro-economic factors selected under this study consist of age dependency ratio, unemployment rate, population growth, broad money supply, and Inflation. While bank-specific variables included are branch expansion and bank size. Since the study employed panel data in line with the nature and data of the study ordinary least square method estimation were used subsequently after the necessary diagnostic tests and Hausman test performed to determine the appropriateness of fixed effect. The result of the study indicate branch macroeconomic factors such as bank size, broad money supply, and inflation significant positive effect on deposit growth of commercial banks. Contrarily, Age dependency ratio and population growth have a statistically significant negative effect on deposit growth. The unemployment rate, on the other hand, has been found to have a positive but statistically insignificant relationship. The bank-specific factors indicate the branch expansion has a positive significant association while Bank size has a positive but insignificant relationship with deposit growth of commercial banks. Finally, the study suggests there should be a stable macroeconomic environment that reduces the effect of inflation, money supply, population growth, and from a bank-specific perspective aggressive branch expansion is essential for the growth of deposits in commercial banks in Ethiopia.

Keywords: Deposit Growth, Panel Data, Fixed Effect

1. Introduction

1.1. Background

Commercial Banks have an essential role in economic development through intermediation and reallocation of surplus fund to the deficit sectors [1]. They function through facilitation of accepting deposit and disbursing a loan enabling the economy to meet the ever increasing demand for credit [2]. In countries like Ethiopia, where the banking industry dominates the financial sector, the bank's successful and productive operation plays a critical role in catalyzing economic development [3]. The financial resources of banking systems are primarily provided by customer deposits [8]. As a result, the going concerns of every commercial bank are highly relying on deposits collected from customers. Low level of deposit growth in commercial banks leads to the

inability to disburse loans, unable to cover operation costs, to pay debts, unstable board of directors due to frequent reshuffle as disgruntled members vote officials out, quitting of members to competitors. In today's world, the concern of bank resource (deposit) has become one of the most important and crucial in the field of business due to the greater ineffectiveness of lots of commercial banks in the world in terms of their operation and its unfortunate effect on their performance. Lack of enough deposits in banks' treasury or inability to pay operational costs and unable to satisfy customers resulted in a failure for the banking industry before, during, and after the financial crisis of 2007-2009 all over the world. In Ethiopia, there is an increasingly growing public and private investment in the area of different sectors. So, the bank plays the intermediation functions in the efficient allocation of those resources to the demanding sector [5].

According to NBE (2019/20) annual report, the total deposit was 1.04 trillion having the share of Ethiopian private commercial banks was 42.6% as compared to the Commercial Bank of Ethiopia (CBE) which had approximately 57.4% total deposit share in the country. Commercial banks may face a low level of deposit growth due to several reasons such as losses, reduction in stock price, and low level of deposit interest rate, low branch expansion, high population dependency ratio, and a very high inflation rate.

In Ethiopia, the studies made on the subject of deposit growth were very limited. Thus, most the researchers state the main determinants of commercial banks deposit growth were bank specific and some shows mainly deposit of commercial banks were influenced by macro-economic factors. Few studies show the determinants that affect deposit growth were identified based on their significance from previous literatures. Hence real GDP growth, interest rate, unemployment rate, deposit interest rate, inflation, exchange rate, population growth, liquidity of bank, age of company and branch expansion rate are the significant causes that determine deposit growth of commercial banks [3-5]. One of the bank resources are mobilized deposit this mobilized deposit facilitate for various country level as well as individual level investment at most the chine is very high. Ethiopian commercial banks have a great role to support financial gaps of the all business and Government project but it is not sufficient to fill those gaps. This problem is arises from very low level of deposit in commercial banks [6].

In general, the issue of commercial bank deposit growth and influencing factors are critical to the financial sector of emerging countries country like Ethiopia. Thus, this research aims to assist banks and regulators to maintain control over the issue of deposit growth by are investigating bank specific and macroeconomic factors of both government and private commercial banks that are critical to security of the banks operation as well as the overall wellbeing of the economy.

1.2. Objectives of the Study

- 1) To evaluate the effect of bank specific variables on deposit growth of commercial banks.
- 2) To evaluate the effect of macro-economic variables on deposit growth of commercial banks.

1.3. Significance of the Study

The central purpose of this study is identifying determinants factors of deposit growth in commercial banks in Ethiopia and provides helpful information's to different stakeholders like Board Members, executive Managements and other concerned participants to increases commercial banks deposit growth to applying this study finding and recommendations. The study will add to the body of knowledge by establishing the potential association between bank deposit growth and the factors that influence it; eventually, the study serves as a guide for academics working on related research themes [4].

2. Literature Review

2.1. Theoretical Review

Deposit is one of the essential resource commercial banks vastly exited to mobilize as it is most liquid asset in the treasury of the bank the bank need to borrow to it is customers [7]. Deposit mobilization is the essential activity of the banks. In keeping with [8] financing resources of banks are obviously provided from people's deposits. The functions of commercial banks in Ethiopia are clearly stated at Art 2 sub Article 2 of the Banking Business Proclamation No 592/2000 primary function of the economic bank being accepting deposits from their customers. The customer's deposit within the commercial banks is to be safe and secure and to be free from theft and robbery. Especially, during this time people have developed a culture of saving and that they use even ATM method to form commerce in any supermarket or the other markets where such services are provided.

2.2. Determinants of Deposit Growth and Their Description

Several variables influence the increase of deposits in commercial banks [9]. The variables that are said to have an effect on commercial bank deposits are divided into two categories exogenous and endogenous factors the prior factor is further divided into country-specific factors and bank-specific factors that the bank has no control over while the latter are internal element of the bank the bank has control over.

2.2.1. Age Dependency Ratio

Age Dependency Ratio (ADR) was among the demographic factors like population age structure and dependency ratio influences savings behavior of the economy. Of the three stages in human life childhood, middle-age or youth stage, and adulthood, people consume quite they produce during childhood and adulthood. The age dependency ratio involves individuals younger than 15 and older than 64 as a non-working age population. The life cycle postulate assumes that the increase in the number of dependents in a country tend to increase consumption and cause a decline in saving [5].

2.2.2. Population Growth

The effect of population growth is complex as expenditure exceeds income during retirement as well as dependent children in the house hold. It is measured as the ratio of workers to retire or ratio of children to adults cost and saving the latter decrease. The net effect depends in the cost and benefit of children, the balance change from net benefit to net cost with economic growth [10]. The life cycle of population growth emphasizes that income varies systematically throughout life, allowing consumers to shift their income from periods of high income to periods of low income. The life cycle theory assumes that the amount of savings depends on the demographic structure of the society, that is, the age of the structure rather than the magnitude of the family income, and the cycle assumes that deposits decrease over life time until the person reaches old age. Therefore, with an aging general

population, a general decline in deposits is eminent [11].

2.2.3. Inflation

Inflation is defined as an increase in prices accompanied by a decrease in the value of money. Inflation can affect saving for a variety of reasons. It could be the result of too much money being injected into the market, whether by the government issuance of bonds or by commercial banks' lending. Another reason could be a significant growth in the market's aggregate demand for money, but the market's mixture supply is underperforming.

Greater uncertainty theory postulates the risk of saving increase since customers deposit their money to hedge against probable adverse change in income and other circumstances. As a result, risk-averse individuals may boost their precautionary savings when inflation raises uncertainty about future income growth [12]. Second, in an inflationary situation, savings may increase if customers misinterpret an increase in the overall price level for an increase in specific relative prices and refrain from purchasing [13]. Inflation's impact on real wealth may also have an impact on saving. If consumers try to keep their wealth or liquid assets at a certain level, they will fail.

In order to spice up deposits and boost self-sufficiency, banks must examine depositor behavior during periods of inflation. Inflation refers to a persistent surge in the general price level over a defined period of time. As a result of a prolonged rise in prices, the market value of money (purchasing power) falls. The real value of money decreases, benefiting debtors while harming creditors [14].

2.2.4. Unemployment

The standard definition of unemployment refers to "all those persons of working age who do not have work, looking for work (carried out activities to seek employment during a recent period comprising the last four weeks or one month), and currently available for work"[15]. Furthermore, future starters of labor are considered unemployed. Long-term unemployment can be defined as those people with duration of search for employment lasting 12 months a period or more, including the reference period. According to [16] the Unemployment rate has a positive significant effect on commercial banks deposit growth.

2.2.5. Broad Money Supply

According to [17] the Money supply is a measure of the total amount of money in an economy. Money supply (M2) is that the summation of currency in circulation, deposit, certificate of deposit, and saving deposit. The broad definition of cash supply (M2+) is adopted which incorporates currency in circulation, demand deposits, quasi-money, and foreign currency deposits. The money-creating activities of the deposit money banks impact directly on funds and as long as the financial institution is liable for controlling funds in an economy, it is important to understand the role of those banking institutions on the convergence process. Therefore, broad money supply is the proxy of annual change in the broad money supply of Ethiopia.

2.2.6. Branch Expansion

Banking is first and foremost a service industry. As a result, the convenience of bank offices plays a significant role in determining whether or not to carry full-service bank deposits. It is claimed that if banks continue serving their existing clients while also attracting new ones, population expansion and necessitates an expansion in branches. New bank branches are thought to increase overall deposits in an area by absorbing money that would otherwise circulated outside the banking system. Other factors remain constant, increases in the number of banking offices should be expected to boost deposit growth.

Because deposit potential is one factor that banks examine when expanding their branches, it could also be a factor in the banking sector's branch expansion strategy. People will be more inclined to put their idle cash holdings or at least a portion of their wealth into deposits as more people gain access to the banking system [4]. More recently, existing banks have been rapidly expanding their branch networks to reach out to new places in order to increase their deposit share in the industry as well as increase their market share. Hence, Branch expansion has a favorable and strong association with deposit volume, as evidenced by this practice.

2.2.7. Bank Size

One of the most notable elements that have been found as affecting deposit variability is bank size. Evidence suggests that the number and variety of ownership of individual deposit accounts varies with bank size, as does the distribution of deposits by type. [18] Discovers that, even when other variables are adjusted for, bank size has an impact on deposits. Smaller banks must create fewer deposits in absolute terms to achieve the same level of deposit growth as larger banks, perhaps benefiting smaller banks in this regard. However, a larger bank with economies of scale as well as a larger branch network may be better positioned to attract deposits [19].

2.3. Empirical Reviews

Yakubu & Abokor investigated industry specific and macroeconomic factors effect on bank deposit growth in Turkey from 2000–2016 [1] using autoregressive distributed lag approach. The findings show that long-term deposit growth is influenced by bank stability, banking sector efficiency, broad money supply, economic growth, and inflation. In the short run, only branch development and broad funding are relevant for deposit mobilization, according to the findings.

Ünvan & Yakubu use the Random effect to examine the drivers of bank deposits in Ghana from 2008 to 2017 [20]. A part from bank specific factors the macroeconomic factors were used as a control variable. The result indicates profitability, bank size, and liquidity are important predictors of bank deposits. Inflation, which is a proxy for macroeconomic instability, has a negative influence on bank deposits. The data also show that an increase in a bank's

capital adequacy level does not necessarily translate into more deposits. The findings suggest that effective policies targeted on enhancing bank-specific characteristics, particularly bank size, are critical for deposit attraction.

In most recent research, Islam *et al.* used panel data regression methods to investigate the impact of firm-specific and macroeconomic variables on deposit mobilization of private commercial banks in Bangladesh [21]. The study was undertaken on 14 conventional private commercial banks for ten years (2007-2016). The result indicate company size has a significant negative impact on the deposit mobilization (as measured by banks deposit growth rate) and broadly growth rate has a significant positive impact on the banks' deposit rate of growth whereas the remainder of the chosen variables i.e. the number of banks branches, deposit interest rate, loan-to-deposit ratio, Gross Domestic Products (GDP) growth rate, the inflation rate has no significant impact on the banks deposit growth rate of the private commercial banks in Bangladesh.

Gunasekara & Kumari examine the factors Affecting Deposit Mobilization in Sri Lanka [22]. In the research, they use the random sampling method to select the sample and collect the questionnaire. The questionnaire was analyzed and results were executed by using SPSS software. Statistical Package for the Social sciences (SPSS), this analysis has three sections including Univariate analysis, Bivariate Analysis, and Multivariate Analysis. The study reveals that there is a significant and positive relationship between deposit mobilization and deposit interest rate, security, branch expansion, services, technology, and awareness. Moreover, there's a big relationship between the living area and therefore the number of deposits, and therefore the demographic variables like gender, occupation, education level, and income significantly affect deposit mobilization.

Ferrouhi aims to define the determinants of bank deposits in Morocco for the period 2003-2014 using panel data regression [23]. To test the panel data stationary, the study used three tests: Levin, Lin, and Chu test, Breitung test, and Lm, Pesaran, and Shin test. The results of the study show that Moroccan banks' deposits are explained by four banks specific determinants (Banks size, internal funding, external funding, and rate of interest on deposits) and one macroeconomic variable (unemployment). And conclude that deposit levels were mainly affected by both variables.

Turhani & Hoda examine the Determinative Factors of Deposits Behavior in banking industry in Albania from 2005-2014 [16]. They assess the impact of macroeconomic, bank-specific variables and banking crisis by using dichotomous variables on deposit performance by applying SPSS 20.0 and descriptive analysis. The study revealed that periods of macroeconomic crisis, exchange rate exposure, bank liquidity, and unemployment rate have a positive significant effect on deposits of banks. In contrary to this inflation, interest rate, cash outside bank and capitalization have a negative significant effect on the deposit performance.

Pitoňáková assessed the determinants of Household Bank Deposits: Evidence from Slovakia from quarterly data 1998 –

2015 [24] quarterly data using ARDL methodology. The results show that real rate of interest, elderly dependency ratio, inflation, and therefore the gross income step up deposits, while income growth reduces household deposits.

Mushtaq & Siddiqui evaluate the effect of rate of interest on bank deposits evidence from Islamic and non-Islamic economies [25]. They used panel least square with fixed effect model by using 55 non-Islamic and 15 Islamic countries data from 2005 to 2013 for the study. Results showed that in Islamic countries interest rates don't have any impact on bank deposits however funds and inflation do have a positive significant impact. But in the case of non-Islamic countries interest rates and money supply both have a positive significant impact on bank deposits however inflation seems to be insignificant.

Larbi-Siawb & Lawer investigated the drivers of bank deposits in the context of Ghana [26] by Employing a Co-integration analysis and Fully Modified Ordinary Least Square (FMOLS) from the year 2000-2013. The findings revealed an inverse relationship between inflation rate and funds within the short run. Monetary policy, however, showed a direct impact on deposits in the short turn. The study also evidenced that within the end of the day, funds directly explains deposit level, while the effect of rate of interest and inflation is negative.

Osei conducted a study to assess the determinants of rural banks deposit mobilization in Ghana from 2009 to 2013 [27]. Panel least regression with fixed effects has been used for analysis the results of the findings suggest that liquidity ratio, loan to asset ratio, and bank size are significant determinants of rural banks' deposit mobilization. The implication of the findings is that the credit management practices of the rural banks should become a matter of concern to all relevant authorities especially the board of directors of the various banks.

Teshome identified on Determinants of Commercial Banks Deposit in Ethiopia [2]. Both qualitative and quantitative research approach was used. The result from the random effect panel least square regression showed that the number of branches, deposit interest rate, loan to deposit ratio, annual inflation rate, real gross domestic product and population number have a significant effect on commercial banks' deposits.

Getachew conducted the Determinants of Commercial Banks Deposit Mobilization in Ethiopia [5]. The researcher adopted a Quantitative research approach the result from fixed effect regression showed that bank profitability, exchange rate, and credit risk are positive and significant on bank deposit growth. On the other hand, the bank's liquidity, the money supply had a negative and significant effect on deposit growth.

Hibret studied determining the short and long-run impacts of determinant factors on deposit growth of commercial banks of Ethiopia for the period 1974/75 to 2013/14 [28]. The study checked the causal relationships between deposit growth and its determinant factors (Economic Growth, Inflation, Interest rate, rate of exchange, Population Growth,

and Branch Expansion). The results revealed that Population and Economic growth also had a positive relationship with deposit growth whereas Inflation has a positive and significant impact on deposits in the long run and a negative impact in the short run. On the other hand, the interest rate has a positive but insignificant impact on deposit growth both in the long run and short run. While Exchange rate and branch expansion significantly increase banks' deposits both in the short run and long run.

Research gap

Based on the above theoretical as well as empirical review, the deposit is the major resource for all commercial banks, since their objective is getting more deposits to meet the required loan for credit customers of banks and then to stay profitable. It also revealed that banks deposit growth can be affected by different factors such as macroeconomic and bank-specific factors. While this study focused on some of the macroeconomic and bank-specific factors affecting public and private commercial banks deposit growth in Ethiopia. Theories on commercial banks deposits are well available in various literatures. As the financial sector is vital for the economic prosperity of a country it needs a high focus. But the empirical studies on bank deposit growth are rarely available especially in Ethiopian public and private commercial banks as most of the previously conducted researches focus on banks deposit mobilization (measured as log of total deposit) but this research focuses on the annual change (growth) of commercial banks which is proxy of total

deposit (saving and time deposit) at year t minus total deposit at year $t-1$ divided by total deposit at year t of each commercial banks.

From the above researches, it is observed that bank deposit growth was determined by macro-economic and bank-specific variables. But from their findings, it is observed there was no generally accepted relationship between commercial bank deposit growth and its determinants.

To the knowledge of the researcher, there were a few studies conducted in this area in Ethiopia, most of them focus on private commercial banks. And this study differs from previous researches by studying both public and private commercial banks. This study also wants to examine the effect of the unemployment rate and bank size on the deposit growth of commercial banks in Ethiopia.

3. Methodology

To attain the study's objective, the researchers used a quantitative research approach and an explanatory research design with panel data to compare the regression results to empirical literatures on the causes of commercial bank deposit growth. According to the NBE report, at the end of June 30, 2019, there were sixteen privately held commercial banks and one publicly held commercial bank. The banks that have tenure of eight years and more are included in the sample. Thus, the research used eight commercial banks (both private and public) that fill the tenure requirement.

Table 1. List of sample commercial banks.

No	Name of Commercial Banks	Amount of Deposit in Millions of birrs
1	Commercial bank of Ethiopia	541,459.79
2	Awash bank	59,616.06
3	Dashen bank	44,721.51
4	Cooperative bank of Oromia	36,168.28
5	Bank of Abyssinia	32,146.45
6	United bank	29,079.85
7	Nib International bank	27,663.71
8	Wegagen bank	23,545.28

The rationale for their selection was based on the availability of structured data and the length of time they have been in operation, as well as the impact of their experience in the sector in understanding the elements that drive a bank's deposit growth. As a result, the frame's matrix is 8×10 , containing 80 observations has been employed.

3.1. Data Source

Data were collected from audited financial statements (income statement and balance sheet) of each commercial banks included in the sample and various journals and

publications of NBE and MOF for the macroeconomic data from 2010 to 2019. All data that were collected and figures for the variables are expressed as of June 30th of each year under study on annual base.

3.2. Model Specification

In order to achieve the desired objective of the study, ordinary least square model was used to test the hypothesis. The study has reached a multiple regression that represents the relationship between dependent and independent variables as follows.

$$DEPGRit = \beta_0 + \beta_1 (ADRit) + \beta_2 (INFit) + \beta_3 (POPGit) + \beta_4 (UNEit) + \beta_5 (M2it) + \beta_6 (BSit) + \beta_7 (BREit) + \epsilon_{it} \quad (1)$$

Where;

DEPGRit: is deposit growth of i^{th} bank at time t

ADRit: is the Age dependency ratio of Ethiopia on year t

INFit: is the inflation rate in Ethiopia in year t

POPGit: is population growth rate at time t

UNEit: is the annual unemployment rate at time t

M2it: is broad money supply at time t

BSit: Natural logarithm of total assets of i^{th} bank on the year t

BREit: is branch expansion rate of i^{th} bank on the year t

β_0 : is constant

ϵ it- is error term

β_1 - ----- β_9 : are parameters to be estimated

Table 2. Summary of Variable measurement.

Variables	Symbol	Proxy measurment	Expected sign
Dependent			
Deposit growth rate	DEPGR	Annual deposit growth rate of commercial banks	
Independent			
Age dependency ratio	ADR	The ratio of the sum of people younger than 15 and those older than 64 to the working age population.	-
Inflation	INF	Annual general consumer price index	+
Population growth rate	POPG	Annual population growth rate	+
Unemployment rate	UNE	Annual unemployment rate	-
Broad money supply	M2	Annual change in broad money supply	+
Bank size	BS	Natural logarithms of total assets	+
Branch expansion	BRE	Annual Branch expansion rate	+

4. Result and Discussion

Accordingly, after the diagnostic test has been conducted such as Normality, Multicollinearity, Autocorrelation, model specification test were proven that there is no evidence of violation. The Hausman specification test were conducted and as per the result fixed effect model were selected.

Table 3 below presents the result of fixed effect regression model that examines the effect of explanatory variables on deposit growth. Hence, explained variable is deposit growth whereas; age dependency ratio, branch expansion, bank size, unemployment rate, population growth rate, broad money supply and Inflation are explanatory variables. The results of fixed effect regression model analysis through Eviews 10 software have been shown below.

Table 3. Regression result.

Dependent Variable: DEPGR				
Method: Panel Least Squares				
Date: 05/04/21 Time: 00:50				
Sample: 2010 2019				
Periods included: 10				
Cross-sections included: 8				
Total panel (balanced) observations: 80				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.012480	0.460944	-0.027076	0.9785
ADR	-0.737907	0.257768	-2.862681	0.0056***
BRE	0.153870	0.077897	1.975313	0.0525*
BS	0.066166	0.038084	1.737360	0.0871*
UNEM	17.59382	22.85375	0.769844	0.4442
POP	-6.795054	2.225808	-3.052848	0.0033***
M2	1.073762	0.283291	3.790321	0.0003***
INF	0.325426	0.132918	2.448327	0.0171**
Effects Specification				
Cross-section fixed (dummy variables)				
R-squared	0.720224	Mean dependent var		0.272679
Adjusted R-squared	0.659964	S.D. dependent var		0.140698
S.E. of regression	0.082045	Akaike info criterion		-1.995743
Sum squared resid	0.437537	Schwarz criterion		-1.549113
Log likelihood	94.82972	Hannan-Quinn criter.		-1.816676
F-statistic	11.95204	Durbin-Watson stat		2.256570
Prob (F-statistic)	0.000000			

Source; Eviews 10

***, ** and * denote significance at 1%, 5% and 10% significance levels respectively.

The linear function for the study regression equation is denoted as below;

$$\text{DEPGR} = -0.012 - 0.737\text{ADR} + 0.153\text{BRE} + 0.066\text{BAS} + 17.593\text{UNE} - 6.795\text{POP} + 0.325\text{INF} + 1.073\text{M2}$$

In the above Table 3 the fixed effect panel data regression results show the coefficient intercept (α) is -0.012. This means, when all explanatory variables took a value of zero, the average value deposit growth would take -0.012 showing holding all the other independent variables constant, a one-unit increase in

independent variable cause 0.012 decreases in deposit.

A. Age dependency ratio and Deposit growth

The hypothesis was developed to test the relationship between Age dependency ratio (ADR) which, Age dependency ratio here is proxy of the ratio of the sum of

people younger than 15 and those older than 64 to the working age population and Deposit growth (DEPGR) of the Commercial banks in Ethiopian is done to determine whether if any negative and significant relationship between age dependency ratio and deposit growth arise from demographic characteristics. The above table 3 shows age dependency ratio (ADR) has a negative and statistically significant at 1% significance level ($P\text{-value}=0.0056$) in explaining the variability of commercial banks deposit growth in Ethiopia. Further, it can be observed that the coefficient of the degree of age dependency ratio (ADR) is -0.7379 . Based on the beta coefficient; holding other things constant a unit increases in age dependency ratio decrease commercial banks deposit growth by 0.7379 . The result shows age dependency ratio has a negative effect on the deposit growth of commercial banks in Ethiopia.

The adverse significant relationship between age dependency ratio and deposit growth of commercial banks in Ethiopia implies that; the overall capacity for deposit to grow is reduced because the large number of the young and the older people burden the economy because of the increase in the consumption needs of economically non-productive members of the human society. Additionally, As Age dependency ratio increases households forego banking products (saving). Households are expected to consume what they earn.

B. Branch Expansion and Deposit growth

The result of fixed effect regression model in table 3 imply that branch expansion has a positive relationship with the commercial banks deposit growth despite being statistically insignificant at 5% significance level. This result implies that deposit growth increases when number of branch increases. However, it does not have a significant effect on deposit growth of commercial banks in Ethiopian. The coefficient of 0.1538 revealed that, taking other independent variables constant, a 1 percent change in branch expansion rate leads to a 0.1538 unit change in deposit growth of commercial banks in Ethiopian. This study is consistent with [21] the branch expansion though has some positive elements such as reaching the unbanked in far and remote areas under the circumstance where high rate of inflation and dominance of informal market in the economy it will be unlikely for the customers to be encouraged in saving and the possible justification for the insignificant effect which is contrary to [1, 22, 28].

C. Bank Size and Deposit growth

From the above table, the effect of Bank size (BAS), defined as the logarithm of total assets on deposit growth of commercial banks was examined. The coefficient 0.066 indicates that holding other things constant if one-unit increase in bank size increase the deposit of commercial banks in Ethiopia by 0.066 . The above result shows that bank size has a positive and statistically significant effect at 10% on the deposit growth of commercial banks in Ethiopia. This indicates that larger banks with economies of scale and a larger branch network are more efficient in collecting deposit deposits than smaller banks. This result is consistent with the

findings of [20, 23, 27] contrary with [21].

D. Unemployment Rate and Deposit growth

The regression result of table 3 shows there is a Positive and insignificant relationship between Unemployment rate and deposit growth in Ethiopia ($P\text{-value}=0.4442$). Unemployment rate measures the number of unemployed people from the total labour force. The coefficient 17.593 indicates that holding other things constant if one-unit increase in unemployment rate increase the deposit of commercial banks in Ethiopia by 17.593 . The above result shows that unemployment rate has a positive effect on the deposit growth of commercial banks in Ethiopia. Therefore, the findings clearly show that a very high unemployment rate have positive impact on commercial banks deposit growth. The result is contrary to prior researches of [23, 16] the possible justification for the result is associated with the high level of remittance flow to the country that mostly undergo through the banks encourage the receivers to save the portion in the bank through persuasion of a prize for the level of deposit in the form of lottery the study.

E. Population growth and Deposit growth

The other macro-economic variable included in this study was population growth. This is measured as annual population growth rate. From the regression result of this study, Population growth rate has a $p\text{-value}$ of 0.0033 which shows it is statistically significant at 1% and the coefficient -6.795 shows negative impact of population growth rate on deposit of commercial banks in Ethiopia. Thus, other things remain unchanged a 1 percent change in population growth leads to -6.795 units change in deposit growth of commercial banks in Ethiopia. The negative relation of the population growth and Bank's deposit is not consistence with the expectation but it is supported by assumption of [29] that rapid population growth produces large proportions of children and youth relative to the labour force. Families spend far more on children than the children can quickly repay in economic production, especially as modern schooling and health care replaces child labor so it is expected consumption related to children to retard household savings. This finding of the study contradicts with [2, 28].

F. Broad Money Supply and Deposit growth

Money supply is a measure of the total amount of money in an economy. Money supply (M2) is the summation of currency in circulation, demand deposit, time deposit and saving deposit [30]. The result indicated in the above table 3 the coefficient 1.073 reflects that an increase of 1 unit in broad money growth rate may increase banks deposit growth rate by 1.073 units and vice versa. The $p\text{-value}$ of 0.0003 indicates that broad money supply significantly (at 1%) affect deposit growth of commercial banks in Ethiopia. The results show a significant positive effect of broad money supply on deposit growth. This suggests that bank deposit growth is affected by a percentage increase in money supply. The result reflects the hypothesis that money supply evaluates monetary conditions, and bank deposit growth manifests the growth in money supply. This result is consistent with [1, 25, 26] and

contrary to [5].

G. Inflation and Deposit Growth

Inflation was one of the macro-economic factors that affect deposit growth of commercial banks in Ethiopia. According to the regression result, the coefficient for inflation was 0.325 and the value of p was 0.017. This shows that inflation had positive and statistically significant effect on deposit growth of commercial banks. This indicates that a change in inflation by 1 percent leads to a change in deposit growth of commercial banks by 0.325 units. However, different studies showed varying results regarding the directional relationship between inflation and deposit growth. In many literatures, the effect of inflation was not clearly defined but in this study the relationship between deposit growth and inflation found to have positive and significant. As [13] explained precautionary saving increase at the increase of inflation up to certain point. This may be due to lack of entrepreneur skill of the society and lack of other alternative investments in the country or may be the risk-averse mentality of most depositors. This finding supports the Precautionary theory of saving, Classical interest rate theory and Neo-Classical Growth Theory which state inflation has positive effect on deposits or savings. The finding is also consistence with [1, 24] and it was in contrary to [16, 26].

5. Conclusion

The study's central objective is to investigate the factors that influence deposit growth in Ethiopian commercial banks. The researcher has used a change in the annual deposit to operationalize the deposit growth of each bank under the study. While, the respective explanatory variables such as age dependency ratio, branch expansion, bank size, unemployment rate, population growth, broad money supply and inflation has been used basing acceptable measurement using prior empirical works. The study postulates banks deposit growth is significantly influenced by internal bank specific and macro-economic factors.

The result shows that commercial banks branch expansion had positive but insignificant effect on deposit growth of commercial banks in Ethiopia. This result indicates even though branch expansion increase accessibility in bank service enabling the customers save in the bank the dominance of informal economy as well as high level of inflation rate hamper the effect to be significant. Bank size which is proxy of logarithm of total asset of commercial banks had a positive and significant effect on deposit growth of commercial banks in Ethiopia. This result indicates that larger banks with economies of scale and a larger branch network are more efficient in collecting deposit deposits than smaller banks. The result in the regression shows unemployment rate has a positive and insignificant effect on commercial banks deposit growth in Ethiopia with in the study period.

From the regression output Population growth of the country has a negative and significant impact on the deposit

growth of commercial banks in Ethiopia. This result shows as the number of population grows fast the consumption grows in the same direction so deposit in banks can decline. With regard to broad money supply which is proxy of annual change in broad money supply had a positive significant effect on deposit growth of commercial banks in Ethiopia as it is summation of currency in circulation, demand deposit, time deposit and saving deposit. Annual Inflation Rate had a positive and significant effect on deposit growth of commercial banks in Ethiopia. It implies the theory of standard life cycle and neo-classical growth theory; inflation could influence deposit/savings through its impact on real wealth. If customers attempt to maintain a target level of wealth or liquid assets relative to their income, they will increase their savings, as the same time commercial banks deposit will raise with the rise in inflation.

6. Recommendation

- 1) The population growth in the country is diverting the scarce capital away from savings/deposit. It is hypothesized that larger families have fewer aggregate resources and fewer resources per each family. Larger families therefore spread their resources more thinly to support more their families so, this leaves less for saving/deposit. So the concerned body should educate people about family planning and incorporate population growth and family planning into political and economics courses in high school and college and incorporate population control into national economic plans. Additionally, the government should establish a permanent population committee to plan, develop, and implement population policies and related research in order to boost level of saving in the nation.
- 2) With regard to branch expansion, Commercial Banks must come up with products and services for the unbanked areas. This expansion of branch to the urban and remote area in the country side allows commercial banks to collect/mobilize a huge amount of resource (deposit). Therefore, commercial banks should increase ways to approach and mobilize the huge deposits lying in the unbanked society to maximize and maintain their portfolios.
- 3) Policy makers should continuously control inflation in order to boost the growth of deposit through commercial banks in Ethiopia. Increase in inflation up to the point which enhances the growth in economy can increase the level of deposits. However, uncontrolled inflation may retard economic growth and then deposit growth of commercial banks.
- 4) NBE should continuously control the money supply by looking for the reserve requirement of banks, applying the expansionary and the contractionary policies in order to control the level of money supply.

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