Determinants of Deposit Mobilization in Ethiopian Commercial Banks

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Abstract

The main objective of this study was to identify the determinants of commercial banks deposit in Ethiopia. The data covered the period from 2002-2016 for the sample of seven commercial banks in Ethiopia since the data is secondary in nature, the quantitative approach to research was used. Besides Hausman test was employed. Under this study, both internal and external factors were included. The internal factors used in this study include loan to deposit ratio, loan loss provision, capital adequacy, profitability, and branch expansion whereas inflation rate was from the external factor. This study runs an unneeded random effects test using Hausman specification test. Hence based on the result fixed effect model was adopted. The data were collected from the commercial banks' financial statements and national bank of Ethiopia, Both internal and external variables were analyzed by employing the balanced panel fixed effect regression model and the result of the study revealed that loan loss provision and loan to deposit ratio have negative and statistically significant impacts on deposit of Ethiopian commercial banks while profitability, capital adequacy ratio and branch expansion have positive and statistically significant impact on deposit.

Keywords: Commercial Bank of Ethiopia, Deposit mobilization, internal factors, External factors

1. INTRODUCTION

Banks are playing their pivotal role in the economic growth by facilitating financial settlement in both capital and money market rates. Banks provide a means for international payment. According to Bello (2005), banking system is the backbone of financial intermediation through the mobilization and channeling of financial resources to the economy. Since deposits constitute a vital source of funds required for banking business, the success of the banking related to deposit greatly lies on the deposit mobilization and its management (Nathnael, 2014: Selvaraj & Kumar, 2015).

In a modern economy, the important activity of the commercial banks is to mobilize deposits from the public. The people with surplus income and savings find it convenient and safe to deposit the amounts with banks. Deposits with the bank grow along with the enhancing interest earned by depositors. Granting of loans and advance and channeling households' savings to corporate sector is mostly possible if the banks have accumulated sufficient deposit from the available market (Selvaraj & Kumar, 2015). Commercial banks are believed to play dominant role of mobilizing financial resource for investment and economic growth (Byusa, 2016).

In Ethiopian context, financial institution system is started with the traditional and informal financial institutions called Equip and Iddir that organized with a sense of cooperation and risk sharing has enabled Ethiopians to experience saving and financial management (Ayele, 2015). These two traditional financial institution systems have paved a way for the introduction of modern banking system in Ethiopia called Abyssinia Bank in1906 and later Abyssinia bank was legally replaced by Bank of Ethiopia by Emperor Haile Selassie in 1931 (Ayele, 2015).

Following the release of the Dergue regime in 1991, the Ethiopian People's Revolutionary Democratic Front declared a liberal economy system. In line with this, Monetary and Banking proclamation of 1994 established the national bank of Ethiopia as a judicial entity, separated from the government and laid down the legal basis for Licensing and Supervision private commercial banks in Ethiopia until today (Monetary and Banking proclamation No.83/1994). Accordingly, there are around 18 Private commercial banks currently operating in Ethiopia.

2. STATEMENT OF THE PROBLEM

Deposit is the most liquid money that is found in the treasury of the bank and which is ready to be borrowed by a body in need of the fund. A deposit of the bank may be affected by different factors. One of the problems in mobilizing deposit is that banking activities in developing countries are limited to the officially existed marketing activities and the people in countries have not found well familiar with all banking services plus when it comes to savings. They are not completely rational and completely knowledgeable about financial system.

According to Enon (2015) Banks, over the world, thrive on their ability to generate income through their lending activities. Since commercial banks depend on depositor's money as a source of funds, it means that there are some relationships between the ability of the banks to mobilize deposits and the amount of credit granted to the customers. For the purpose of achieving self-sufficiency there is a need to improve ways of mobilizing domestic deposits.

Study indicates that large chunk of deposits are lying idle under pillows and in bamboos in the rural areas being left out of the banking stream (Rutherford, 2000). Previous researchers have not paid attention to the effect of capitalization and loan loss provision on the deposit mobilization in this particular area. So, to fill this gap the researcher will add capitalization and loan loss provision of bank into the model to see their effects on deposit mobilization.

Therefore, understanding of the factors that determine deposit mobilization of commercial banks in Ethiopia is the most important for the participants in the industry to exert their effort to explore the deposit market accordingly. The aim of this research is to identify and analyze the determinants of deposit mobilization of Commercial Banks in Ethiopia.

3. RESEARCH HYPOTHESIS
Based on the objective, the study has tested the following hypotheses:

H1; profitability has no significant effect on commercial banks deposit in Ethiopia

H2; loan loss provision has no significant effect on commercial banks deposit in Ethiopia.

H3: Inflation rate has no significant impact on commercial banks Deposit in Ethiopia

H4; loan to deposit ratio has no significant effect on commercial banks deposit in Ethiopia.

H5; capital adequacy ratio has no significant effect on commercial banks deposit in Ethiopia.

H6; branch expansion no significant effect on commercial banks deposit in Ethiopia.

4. SIGNIFICANCE OF THE STUDY
Studying the determinants of deposit mobilization in Ethiopian commercial banks is beneficial for different stakeholders such as for commercial banks, future researchers and concerned bodies. For bank managers, it provides basic information about the determinants of deposit mobilization and understanding on the activities that enhance their banks performance.

5. SCOPE OF THE STUDY
This study was conducted and analyzed the key determinants of deposit mobilization on selected Commercial Banks in Ethiopian by analyzing the financial statements from 2002 to 2016 fiscal years. The study comprises all Commercial Banks under operation since 2002. As a result, seven Commercial Banks namely Commercial Bank of Ethiopia, Awash International Bank, Bank of Abyssinia, Dashen Bank, wegagen Bank, united bank and nib international bank were selected under this study. All sampled banks have been operating for more than couple of decades and the study used fifteen years data.

6. REVIEWS OF EMPIRICAL LITERATURES
Various numbers of studies have examined the determinants of bank deposit mobilization in many countries around the world. Most of the studies considered banks 'specific internal factors and external factors (i.e., industry-specific and macroeconomic factors) and examine either a particular country or a number of countries and a number of explanatory variables have been proposed for three categories, according to the nature and purpose of each study.

A study made by Haron (2006) investigated the structural determinants of deposits level of commercial banks in Malaysia, using co integration techniques and found rates of profit of Islamic bank, rates of interest on deposits, Base Lending Rate, Kuala Lumpur Composite Index, Consumer Price Index, Money Supply and Gross Domestic Product have significant impact on deposits. Customers of conventional system also behave in conformity with the savings behavior theories. Hessen (2009) examined the demand for commercial bank deposits at regional financial center in Lebanon. At the micro level, he found that in addition, bank-

specific variables, such as the perceived riskiness of individual banks, their liquidity buffers, loan exposure, and interest margins, bear a significant influence on the demand for deposits. But, at the macro level, he found that domestic factors such as Economic activity, prices, and the interest differential between the Lebanese pound and the U.S. dollar are significant in explaining deposit demand, as are external factors such as advanced economy economic and financial conditions and variables proxying the availability of funds from the Gulf Impulse response functions and variance decomposition analyses underscore the relative importance of the external variables.

Using time series data between 1980 and 2010, Beligna (2012) examined the determinants of savings mobilization and its role in promote economic growth. OLS regression results from the study showed that exchange rate, inflation rate and money supply (M2) significantly affect the mobilization of financial savings (deposit) in Ghana. Deposit interest rate however, proofed to be a weak determinant of bank deposit mobilization. A study made by Gumbo (2014) in Zimbabwe for the period of 2000-2006 on the relationship between banks' deposit interest rates and deposit mobilization and result showed a positive relationship between deposit rates and banks' deposits.   Eriemo (2014) also examined the macroeconomic determinants of bank deposits in Nigeria using data covering the period between 1980 and 2010. The researcher tried to analyze the effects of various macroeconomic indicators, on the performance of banks within the context of deposit mobilization of banks and its determinants. The parsimonious ECM result showed that in Nigeria, bank investment, bank branches, interest rate and the general price level are important determinant of bank deposit. (Gemedu, 2012), focused on commercial banks of Ethiopia with the aim of identifying Factors Determining commercial bank deposit in Ethiopia. Data from 2000 – 2011 were utilized, three variables namely deposit rate, inflation rate and bank branches were regressed with the dependent variable, using EView software for hypothesis testing and the result of the hypothesis testing shown the three variables can affect total deposit. Branch expansion had positive and significant effect on total deposit whereas deposit rate and inflation rate had positive and insignificant effect on total deposit. Using both primary and secondary data (from 1998 up to 2014) to evaluate factors affecting bank deposit in general by taking Commercial Bank of Ethiopia conducted by Adem in 2015 showed that deposit interest rate, overall inflation rate, number of branch opening, gross domestic product, individual foreign remittance as a dummy variable were positively correlated with the explained variable. Among these variables, branch opening is an important strategy for deposit mobilization and highly significant than others. Tegegn (2015) also studied determining the short and long run impacts of determinant factors on deposit growth of commercial bank of Ethiopia for the period 1974/75 to 2013/14 using Vector Error Correction Model (VECM). The estimated results suggest that interest rate has positive but insignificant impact on deposit growth both in the long run and short run. But, exchange rate and branch expansion significantly increases banks deposit contemporaneously both in the short run and long-run. However, Inflation has positive and significant impact on deposit in the long-run and negative impact in the short run. Population and Economic growth also has a positive relationship with deposit growth and it is significant in the long run but insignificant in the short run. In 2016, Awole investigated the determinants of commercial bank deposit growth in Ethiopia using panel data set (from 2000 to 2014 for secondary data) and found that bank branches and per-capita-income growth influence is positively and statistically significant on bank deposit growth whereas lagged bank deposit and loan-to-deposit ratio influence is negatively and statistically significant on bank deposit growth. Money supply growth had insignificant negative

influence on bank deposit growth; whereas deposit interest rate and inflation had insignificant positive influence on bank deposit growth.

7. RESEARCH DESIGN AND METHODOLOGY
a. Method Of Data Collection And Analysis

The researcher adopted a quantitative research approach to achieve the objective of the study. Both primary and secondary data were collected and balanced panel data were used for multiple regression model. Panel data can better detect and measure effects that simply cannot be observed in pure cross-section or pure time series data Gujarati (2004). Finally, fixed effect panel data model uses to determine the relative importance of each independent variable in explaining the variation of deposit mobilization Ethiopia Commercial Banks.

b. Sampling technique and sample size

For this study seven commercial banks were selected using purposive sampling techniques method. The main reason for using purposive sampling technique is to include only those banks which have been operating for the last 15 years from 2002 up to 2016. This period is also the periods of fast economic growth in Ethiopian.

c. Data Analysis

The collected panel data were used and analyzed using descriptive statistics, correlation matrix and regression analysis. The descriptive statistics (Mean values and standard deviations) was used to analyze the general trends of the data from 2002 to 2016 based on the sample of 7 banks, and the correlation matrix also used to examine the linear relationship between the dependent variable and independent variables. Finally, using STATA-12 econometric software package, the regression analysis known as Hausman fixed effect model and correlation matrix were regressed to determine the relative importance of each independent variable in explaining the variation of deposit mobilization Ethiopia Commercial Banks.

d. Operational definitions of dependent and independent variables

Bank deposit mobilization is used as dependent variables which are measured interns of total deposit (DM). Besides, explanatory variables included in this study were capital adequacy ratio (CAR), loan loss provision (LLP), branch expansion (BE), loan to deposit ratio (LTD) and profitability ratio (ROA) from internal variable and from external variable inflation rate (IR) is included in this study.

i. Dependent Variable operational definition

According to Mohan (2012), Bank deposit mobilization is the Acts or methods of raising or collecting money from the individuals, organizations or government agencies in the form of saving is called deposit mobilization. The nature of the deposit can be saving deposit, demand deposit and time deposit. But, this study was used total deposit mobilized by sampled banks in Ethiopia as a measurement of bank deposit.

ii. Independent variables operational definitions
1. *Branch Expansion*

Branch expansion is opening new branches or service outlets in and outside the country. A smaller bank has to generate less deposit in absolute terms to achieve the same deposit growth than a large bank, thus possibly favoring smaller banks in achieving higher deposit growth. But a larger bank with economies of scale as well as larger branch network might be able to better attract deposits. Daniel (2005) suggest that the lack of widespread branching bank networks hindered the development of large-scale industrial firms.

2. *Loan to deposit ratio*

Loan-deposit ratio is a ratio between the banks total loans and total deposits. If the ratio is lower than 1, the bank relied on its own deposits to make loans to its customers, without outside borrowing. If, on the other hand, the ratio is greater than 1, the bank borrowed money which it relined at higher rates, rather than relying entirely on its own deposits. The ratio is calculated by dividing the total amount of loans, by total amount of deposits (Michael & Taillard, 2014). Mathematically, LDR= Total loan / Total deposit.

3. *Profitability of bank*

The long run relationship between commercial banks deposits and the profitability of the banks (Ekki, 2004). Higher profits would tend is considered as positive signal or soundness of the bank, which could make it easier for such banks to attract other deposits (Heiko, 2008). According to Hassan & Bashir (2003), suggest that bank profitability is best measured by ROA in that ROA is not distorted by high equity multipliers and ROA represents a better measure of the ability of a firm to generate returns on its portfolio of assets. For this study the researcher also used ROA as measurements of profitability and it described by the earnings before interest and tax divided by total asset. Mathematically, ROA = Earnings before interest and tax /Total asset.

4. *Capital Adequacy Ratio*

Capital adequacy is the level of capital that banks are required to hold to enable them withstand credit, market and operational risks they are exposed to. Capital adequacy is evaluated on the basis of capital adequacy ratio (CAR), which demonstrates the internal strength of the bank to withstand losses when calamity strikes. "Higher Levels of equity would decrease the cost of capital, leading to a positive impact on bank Mobilization" Molyneux (1993). Moreover, an increase in capital may raise expected Earnings by reducing the expected costs of financial distress, including bankruptcy" Berger (1995). This research also used paid up capital divide by total assets of each sampled bank to measure their capital adequacy ratio.

5. *Loan loss provision*

To proxy this variable the study used the loan-loss provisions to total loans ratio. According to Vong and Hoi Si Chan (2008), if banks operate in more risky environments and lack the expertise to control their lending operations, it will probably result in a higher loan-loss provision ratio. The ratio is calculated by dividing the loan loss provision, to total amount of loan. Literature suggests that increased exposure to loan loss provision is normally associated with decreased bank deposit and, hence, it is expected to have a negative relationship with banks deposit.

6. *Inflation rate*

It is defined as the persistent increase in the general prices of goods and services within an economy over a given period. It is generally assumed that the growth of total deposits is to be negatively related with inflationary expectation. As the rate of inflation increases, people will be tempted to divert their savings from bank deposits to any other kind of tangible assets because these assets act as hedge against. To proxy inflation, the lagged annual inflation rate of the country was used in this study.

Table 1. Independent variables, their measurement and expected sign

No.	Variables	Notations	Measurement
	Deposit mobilization	DM	Bank deposit mobilization; saving, demand and fixed deposit
1	Loan to deposit ratio	LTD	Total loan/total deposit
2	Inflation	IR	Annual inflation Rate
3	Loan loss provision	LLP	Loan loss provision/total loan
4	Profitability	ROA	Net profit after tax/total asset
5	Capital adequacy ratio	CAR	Equity capital divided by total assets
6	Branch Expansion	BE	Number of Bank Branches

e. Model Specification

Panel data comprises of both cross-sectional elements and time-series elements; the cross-sectional element is reflected by the different Ethiopian Commercial Banks and the time-series element is also reflected in the period of study (2002-2016). The model is multiple regression models with one dependent variable and six independent variables were formulated as follows:

$$DM_{it} = \alpha + \beta_1 CAR_{it} + \beta_2 IR_{it} + \beta_3 ROA_{it} + \beta_4 LLP_{it} + \beta_5 LDR_{it} + \beta_6 BE_{it} + \varepsilon_{it}$$

Where:

α = Constant term for the independent variables
DM= Deposit of Commercial Banks,
CAR = Capital adequacy ratio
IR = Inflation Rate
ROA = return on asset
LLP = loan loss provision
LDR = Loan-deposit ratio
BE = Branch Expansion,
B1- β6 = Coefficients of regression model,
t= 1, 2... 15
i = 1, 2, 3, 4, 5, 6,7, where i stands for the ith cross-sectional unit and t for the tth time period.
ε = the standard error term

8. RESULTS AND DISCUSSIONS

a. Descriptive Statistics result analysis

Table 2 below shows that the coefficient of loan to deposit ratio and loan loss provision were negative relationship with deposit mobilization (dependent variable)as far as the their respective coefficients were -4.360932, and -3.87378 respectively. This indicates that there was an inverse relationship between the above mentioned two independent variables and deposit mobilization which is dependent variable. Thus the increase of those variables will lead to a decrease in deposit mobilization. On the other hand, variables like capital adequacy ratio return on asset, branch expansion and inflation rate had a positive relationship with deposit mobilization (dependent variable) as far as their respective coefficients were 9.817776, 27.44499, 0103882, and 0.7083479. According to fixed effect regression results, R^2 has the value of 55.37% which means 55.37% of variations in bank deposit mobilization

were explained by independent variables included in the model. The value of F-statistics is 19.02 with p-value of 0.0000, indicates that the overall model is highly significant at 1% and that all the independent variables are jointly significant in causing variation in deposit mobilization.

Table 2. Fixed-effects (within) regression result

Panel variable: bank (strongly balanced)

Time variable: time, 2002 to 2016

Delta: 1 unit

Fixed-Effects (Within) Regression	Number Of Obs = 105
Group Variable: Bank	Number Of Groups = 7
R-Sq: Within = 0.5537	Obs Per Group: Min = 15
Between = 0.0167	Avg = 15.0
Overall = 0.3176	Max = 15
F(6,92) = 19.02	
Corr(U_I, Xb) = -0.0490	Prob > F = 0.0000

DM	Coef.	Std. Err.	t	P>|t|
LDR	-4.360932	.7807595	-5.59	0.000 ***
LLP	-3.873786	2.18568	-1.77	0.080 *
CAR	9.817776	4.751745	2.07	0.042**
ROA	27.44499	12.27652	2.24	0.028**
BE	.0103882	.0040037	2.59	0.011**
IR	.7083479	.5906784	1.20	0.234
_CONS	8.341015	1.102458	7.57	0.000

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sigma_e | 1.0594204

sigma_e | .81579512

rho | .62776206   (fraction of variance due to u_i)

The coefficient estimates are significant at 1 %(***); 5 %(**); and 10 %(*) respectively

After completing the diagnostics test results of multicollinearity, heteroscedasticity, autocorrelation, and normality, the regressed result of the research model shows; loan to deposit ratio has negative (-4.360) and statistically significant impact on bank deposit at 1% significance level. This is because of when banks' lending increases as compared to the deposits, the level deposit will be decrease. In another term, when more banks starts lending to the quality borrowers, this leads to the increase bank deposit. This negative significant relationship was consistent with the previous empirical findings of Awole (2016) and Rasiah (2010). Loan loss provision ratio have negative impact on deposit mobilization, and statistically significant (p-value = 0.080) at 10% significant level. This negative sign indicates an inverse relationship between loan loss provision ratio and deposit mobilization. Most literatures suggest that large amount of loan loss provision (LLP) leads the banking sector to efficiency problem and the banking system into failure by reducing their bank deposit holding (Brock and Suarez, 2000). Capital adequacy ratio has a positive relationship with deposit mobilization, and statistically significant (p-value = 0.042) at 5% level. This implies that when Capital adequacy ratio increased by one birr, deposit mobilization of

sampled commercial banks would be increased by 9.82 Birr. This means higher the capital level brings higher deposit for Ethiopian commercial banks. Literatures by (Osei, 2015) found the same results. Return on asset has a positive relationship with deposit mobilization and statistically significant at 5% level and it is consistent with the previous empirical findings of Osei (2015). The regression result also showed that the bank branch expansion is significant factor for bank deposit even at 5% significance level. The result also contradictory with Ekki (2004) found to be insignificant long run relationship between commercial banks deposits and the profitability of the banks. Higher bank profits would tend to signal increased bank soundness, which could make it easier for these banks to attract deposits.

9. CONCLUSION AND RECOMMENDATION

The main objective of this study was to identify the determinants of deposit mobilization in Ethiopia Commercial Banks based on panel data analysis for the period 2002 to 2016. The data was analyzed by using fixed effect model and STATA software was used for the purpose of analysis. The regression result shows that loan to deposit ratio (at 1%), loan loss provision, capital adequacy, return on asset, branch expansion and inflation rate were the statistically significant factors affecting deposit mobilization of Commercial banks in Ethiopia 5% significance level. And loan loss provision had statistically significant influence on commercial banks deposit in Ethiopia at 10% significance level. On the other hand, the reaming one variable which is inflation rate had no statistically significant impacts on commercial banks deposit in Ethiopia for the period between 2002-2016.

Based on the study finding, deposit mobilization of Ethiopian commercial banks was mainly affected by the internal factors. Since the management of the bank has control over the bank specific (internal) factors, it is possible to improve deposit mobilization of the bank by giving more attention on the identified bank specific factors such as loan to deposit ratio, loan loss provision, ROA, capital adequacy and branch expansion. Branch expansion has positive and significant impact on deposit mobilization in Ethiopia commercial banks. This indicates commercial banks should increase their branches so that all society are accessible to banks. New branch in rural area had a better scope to mobilize deposit and could expect a higher rate of growth of deposit than the branch in semi urban and urban area. And also unbanked areas have the greatest potential for deposit mobilization. To expand their ranches each sampled banks should consider the level of competition, deposit potential, regional income and existence of infrastructure and transport facilities. Ethiopian commercial banks should attempt to improve their inspection techniques of identifying potential borrowers because the existing credit risk trend may bring a series collapse against the sector as well as the nation economy.

REFERENCES

Bahredin, A. (2016). *Determinants of Commercial Banks' Deposit Growth (Evidence from Ethiopia)*. Addis Ababa University College of Business and Economics.

Brooks, C (2008). *'Introductory Econometrics for Finance', 2nd edition*, Cambridge University Press, New York.

Byusa, M (2016). *Factor influencing saving mobilization by commercial banks in Rwanda*. Strath more retrieved from http;//suplus.strathmore.edu/handle/11071/473

Daniel, C. G. (2005). Branch Banking Restriction and Finance Constraints in Early 65. *The Journal of Economics History, Vol.* 1. Cambridge University Press.

Devinaga R. (2010). Theoretical Framework of Profitability as Applied to Commercial Bank in Malaysia". *European Journal of Economics, Finance and Administrative Sciences*.Melaka, Malaysia.

Erna, R. & Ekki, S. (2004). Factors Affecting Mud araba Deposits in Indonesia. *Working Paper in Economics and Development Studies" Padjadjaran University*, Indonesia.

Herald, F. & Heiko, H. (2009). *"Lebanon-Determinants of commercial banks Deposits in a Regional Financial Centre"* IMF Working paper, WP/09/195

Lambert K.O. (2015). *Determinants of Rural Banks Deposit Mobilization in Ghana*.

Nathanael, O.E. (2014). Macroeconomic Determinants of Bank Deposits in Nigeria*, Journal of Economics and Sustainable Development*. Vol.5, No.10, 2014

National Bank of Ethiopia (2016). *Annual Report NBE 2015/16*.

Ngula, Isaac Beligna (2012). Determinants of Deposit Mobilization and its role in Economic

Selvaraj, N., & Kumar, B. (2015). A Study on the Deposit Mobilization Pattern of the Dindigul central Bank Co-operative Bank Limited. *Journal of Tourism and Hospitality*, vol 4.

Shemsu B. (2015)."*Determinants of commercial bank deposits in Ethiopia: a case of Commercial Bank of Ethiopia"* Degree of Master's thesis Addis Ababa University.

Wooldridge, J.M .(2006). *'Introductory Econometric: A Modern Approach', International Student edition, 3rd edition. Canada:* Thomson South–Western.

Wubetu, E. G. (2012). *Factors Determining Commercial Bank Deposit*: An Empirical study.