

**FACTORS AFFECTING THE PERFORMANCE OF SELECTED PRIVATE  
COMMERCIAL BANKS IN ETHIOPIA**

**MA THESIS**

**By**

**BETELHEM KASSAHUN**

**WOLKITE UNIVERSITY, WOLKITE, ETHIOPIA**

**JULY, 2020**

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**SUBMITTED TO DEPARTMENT OF MANAGEMENT, COLLEGE OF  
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**Advisor : Dr.Getie Andualem (Asso.Professor )**

**Co-Advisor; Birhanu Tereda (Mba)**

**JULY, 2020**

## DECLARATION

I, Betelhem Kassahun declare that this thesis entitled “*Factors Affecting the performance of private commercial bank in Ethiopia*” is outcome of my own effort and that all sources of materials used for the study have been duly acknowledged. I have produced it independently except for the guidance and suggestion of the thesis Advisor. This study has not been submitted for any degree in this University or any other University. It is offered for the Partial Fulfillment of the Requirement for Master of Art (MA) Degree in Business Administration.

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This is to certify that the thesis entitled “*Factors affecting the performance of private commercial banks in Ethiopia*” submitted in partial fulfillment of the requirements for the degree of Master's with specialization in Business Administration, the Graduate Program of the Department/School of Management and Economics, and has been carried out by Betelhem Kassahun Id. No GSE/024/10, under my/our supervision. Therefore, we recommend that the student has fulfilled the requirements and hence hereby can submit the thesis to the department.

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We, the undersigned, members of the Board of Examiners of the final open defense by Betelhem Kassahun have read and evaluated her thesis entitled “*Factors affecting the performance of private commercial banks in Ethiopia*”, and examined the candidate. This is, therefore, to certify that the thesis has been accepted in partial fulfillment of the requirements for the degree of Masters of Art in Business Administration.

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## CERTIFICATE OF THE FINAL THESIS

This is to certify that thesis entitled, “*Factors affecting the performance of private commercial bank in Ethiopia*”, undertaken by Betelhem Kassahun for the Partial Fulfillment of the Requirement for Master of Art (MA) Degree in Business Administration at Wolkite University, is an original work and not submitted earlier for any degree either at this University or any other University.

Name of the Designate	Signature	Date

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(Betelhem Kassahun)

## **ABBREVIATIONS AND ACRONYMS**

ROA return on asset

OLS Ordinary Least Square

GDP Gross domestic product

NIM Net interest margin

PAT Profit after Tax

PBT Profit before Tax

ROE Return on equity

ROC Return on Capital

ROAE Return on average equity

ROAA Returns on average assets

ALM Asset Liability Management

NBE National Bank of Ethiopia

MoFED Ministry of Finance and Economic Development

AIB Awash international bank

BOA Bank of Abyssinia

DAB Dashen bank

NIB Nib international bank

UNB United bank

WEB Wegagen bank

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## ***Abstract***

*This study examined factors affecting performance of private commercial banks' in Ethiopia. The study is employed descriptive type of research design with both quantitative and qualitative data analysis research methods was used and the panel model was used to examine the six leading private commercial banks including Abyssinia Bank, Awash Bank, Dashen Bank, Nib International Bank, United Bank and Wegagen Bank registered by the NBE that have at least six years data 2013-2018 purposefully taken for this study to estimate the performance, which was measured by return on asset as a function of balance sheet and macroeconomic explanatory variables. The sampling design that the investigator was used purposive sampling under this study. In order to achieve the stated research objectives the secondary and primary data was gathered. Thus, the collected panel data was analyzed by using descriptive statistics, correlations, multiple linear regression analysis and inferential statistics. The finding of the study show that, deposit with other bank and saving deposit have statistically significant and positive relationship with banks' performance. On the other hand, variables like sum of investment, fixed deposit and bank size have a negative and statistically significant relationship with banks' performance. However, the relationship of loan and advance, demand deposit, gross domestic product and inflation rate is found to be statistically insignificant. As a result, the study recommended that private commercial banks should focus on increasing public awareness to mobilize more savings this will enhance their performance in provision of loans and advance to customers. Finally, private commercial banks should not only be concerned about internal structures and policies, but they must consider both the internal environment and the macroeconomic environment together in fashioning out strategies to improve their performance.*

*Key words: Return on asset, Panel Model, performance, macroeconomic variables, internal variables*

# CHAPTER ONE

## INTRODUCTION

### 1.1 Background of the study

Commercial banks are important financial institutions in the financial system and the economy. They have played an important role in the tremendous economic development that has taken place in Ethiopia in recent years. Banks mobilize, allocate and invest the greatest part of the economic transaction. In addition, their performance has important consequences on capital allocation, firm expansion, industrial growth and economic development. Therefore, performance of banks is very important not only at the individual bank level, but also in the macroeconomic level. Performance is a reflection of how banks are run, given the environment in which they operate. Performance is vital in maintaining the stability of the banking system and contributes to whole financial system (Goddard, *et al.*, 2004). Therefore, the determinants of bank performance have attracted the interest of academic research, financial markets and bank supervisors.

As noted by Laurence (2011) Commercial banks are an institution that accepts checking and savings deposits and lends to individuals and firms. Thus performance of banks is directly affected by management of their assets and liabilities. In addition, different market and macroeconomic factors also influence the ability of the banks to make profits (Athanasoglou, *et al.*, 2008). There are many aspects of the performance of banks that can be analyzed. Since such analysis involve both cross-section and time dimensions, problems that plague cross-sectional data and time series data need to address (Flamini, V., MCDonalD, C., and Schumacher, L , 2009). Bank profits provide an important source of equity especially if re-invested into the business. This should lead to safe banks, and as such high profits could promote financial stability. However, too high performance is not necessarily good (Gavila, S., and Santabarbara, D. , 2009). Garcia-Herrero *et al.*, (2009) observed that too high performance could be indicative of market power, especially by large banks. This may hamper financial intermediation because banks exercising strong market power may offer lower returns on deposit but charge high

interest rates on loans. Too low performance, in turn, might discourage private agents (depositors and shareholders) from conducting banking activities thus resulting in banks failing to attract enough capital to operate.

Maximum care should be taken in order to maintain the safety and soundness of commercial banks in Ethiopia. Any failure/incident/ in the banking industry especially in a country where the commercial banks dominate the financial sector will definitely have a contagious effect that can lead to bank runs and crises. Hence, it would be mandatory to scrutinize and take proactive measures to maintain the health of the economy and build up the public confidence. While doing so, bank performance measures such as using panel data are believed to be amongst the major internal supervisory tools for evaluating the soundness of financial firms and/or detect problems ahead of time.

The paper is tries to explore the effects and/or impacts of the bank specific factors on selected Ethiopian private commercial banks performance. Moreover, the exogenous (macroeconomic) factors are not expected to differ among the target banks that are selected for this particular study since all are operating under the same financial system, same regulatory organ and are within the same geographic area (Ethiopia). Hence, all the target banks selected for this particular study were classified under the medium category since all of them have stayed 15 or more years in the business. To be specific, Awash International Bank (AIB), Bank of Abyssinia (BOA), Dashen Bank SC (DAB), Nib International Bank SC (NIB), United Bank SC (UNB), and Wegagen Bank SC (WEB) are the banks that were selected for the desired end and/or study.

## **1.2 Statement of the problem**

In fact; economic theory suggests that banks attempt to produce to maximize profits while minimizing cost. Efficient composition of assets and liabilities of commercial banks is crucial for their sound financial performance. According to (Uddin and Bristy, 2014) accurately evaluating and measuring the performance of commercial banks is not an easy tasks. This is due to the competition in the financial markets; banks seek out greater efficiency in the management of their assets and liabilities. The main source of profits generated by a bank is the balance sheet portfolio: the assets, liabilities and capital which are considered important components in determining

profits (*Saunders et al.* 2014). Despite, the Ethiopian banking sector has been known for supplying limited financial products, low levels of technology utilization, huge reliance on manual work, and concentration on urban areas over the past two decades. Efficiency is a key concept for financial institutions (*Kwast & Rose* 1997). Therefore, as any other enterprises, performance is highly desirable for banks and, then, it is crucial to discover what the main factors that influence this objective are. As illustrated by (*Gutu*, 2015), it becomes important to know what the factors that influence the banks' wellbeing. As a matter of facts, it has altered the need for frequent bank examinations all over the world.

Currently, the banking industry in Ethiopia is characterized by operational inefficiency, little and insufficient competition and perhaps can be distinguished by its market concentration towards the big government owned commercial bank and having undiversified ownership structure (*Lelisa*, 2007). However, banks differ in their sizes and this could have an effect on responsibilities of management, liquidity, debt level and performance. In addition, different market and macroeconomic factors also influence the ability of the banks to make profits (*Athanasoglou et al.*, 2008). Accordingly, different researchers have conducted studies on the performance issues of private commercial bank in Ethiopia. These researchers' focuses on: the impacts of financial liberalization on the ownership, market structure and performance of the Ethiopian banking industry (*Lelisa*, 2007).

However, as far as the researcher's knowledge is interested to address research gap on the issues what are the main factors that affecting the performance of private commercial bank in Ethiopia. The issue of the factors affecting the performance of private commercial banks in Ethiopia, by using the internal variables used in this study specially bank size to updated information for investors, management of private commercial Banks and for knowledge of researcher has not enough studies. For this reason, in attempt to contribute in bridging the above stated gap, the study was focuses on factors affecting the performance of six selected private commercial bank in Ethiopia. Thus, Ethiopian commercial banks need to learn timely on how to stay healthy, competent and profitable in a very competitive and dynamic business environment. Therefore, the problem under investigation is to find out the relative importance of the factors that influence performance of commercial banks in Ethiopia case of selected private commercial bank.

### **1.3 Basic Research Questions**

This section presents the basic research questions that the study intends to address.

1. What is the effect of balance sheet assets on the performance of private commercial banks?
2. What is the effect of liabilities on the performance of private commercial banks?
3. What is the impact of major macroeconomic variables on the performance of private commercial banks?
4. What is the impact of Bank size on the performance of private commercial banks?

### **1.4 Objectives of the study**

#### **1.4.1. General objective of the study**

The general objective of the study is to investigate the factors affecting the performance of selected private Commercial Banks in Ethiopia.

#### **1.4.2. Specific objective of the study**

The specific objectives of the study are:

1. To examine the effect of balance sheet assets on the performance of private commercial banks.
2. To examine the effect of liabilities on the performance of private commercial banks.
3. To investigate impact of major macroeconomic variables on the performance of private commercial banks. And,
4. To scrutinize the impact of Bank size on the performance of private commercial banks.

### **1.5 Determinants selection**

In line with the broad purpose statement the following hypotheses are also formulated for investigation. Hypotheses of the study stands on the theories related to a bank's performance that has been developed over the years by banking area researcher's and past empirical studies related to a bank's performance. The results from the literature review (to be established in the next chapter) are used to establish

expectations for factors affecting bank performance using panel data regression models and other macro-economic variables. Hence, based on the objective, the present study seeks to test the following seven hypotheses:

In the context of the problems highlighted the broad objective of this research is to assess factors affecting performance of private commercial bank in Ethiopia. In line with the broad purpose statement six hypotheses were formulated for investigation purpose. Hence, subsection 1.5.1 presents the dependent variable as proxy for banks' performance. Then the independent variables that are selected and categorized into bank-specific and macroeconomic determinants of banks' performance are presented in subsection 1.5.2.

### **1.5.1 Dependent variable**

In the literature, there are two major alternative measures of performance, namely ROA and ROE. ROA reflects the ability of bank's management to generate profits from the bank's assets, although it may be biased due to off-balance-sheet activities. ROE shows the return to the shareholders on their equity. As highlighted by (Athanasoglou *et al.*, 2008; Sufian, 2011), many scholars suggest that ROA is the key ratio for the evaluation of bank performance given that ROA is not distorted by high equity multipliers, while ROE disregards the risks associated with high leverage and financial leverage. Therefore, this study attempts to measure performance by using ROA similar to most of the aforementioned researchers. ROA is measured as net profit before tax divided by average of total assets similar to (Olweny and Shipho, 2011).

### **1.5.2. Independent variables hypothesis**

A number of authors Hester & Zoellner (1966), Kwast & Ros (1997), Vasiliou (1996) Kosmidou *et al.* (2004) and Asiri (2007) have studies about the influence of the composition of assets and liabilities on the performance of bank. For the first time, Hester and Zoellner (1966) employed statistical cost accounting (SCA) method on US banks. Their study examines whether significant relationship exists between assets/liabilities standardized with total assets with return on assets of individual banks. They found statistically significant coefficients for most of the categories of assets and liabilities and rejected the null hypothesis that there is no relationship between them. Vasiliou (1996) investigated portfolio of assets and liabilities between high-profit and low profit Greek banks by employing SCA method. His regression results suggest that it is the asset management rather than liability management that play more prominent role in

explaining interbank differences in performance. This study implies that high profit banks earn higher return on their assets than that of low profit banks. At the same time high profit banks enjoy lower expenses for their liabilities. These findings contrast with the findings of (Kosmidou *et al.*, 2004) who find that liability management contributes more in creating the performance differences among the banks. & Rose (1997) provided most comprehensive study on the impact of bank's asset portfolio composition on its earnings. The authors focused on the large US banks and used data from 1970 to 1977 for their estimation. Their model found no evidence that differential returns and costs on different categories of assets and liabilities exist between high and low profit banks. Asiri (2007) has also on 8 Kuwaiti banks. The study finds that assets are positively and liabilities are negatively related to the performance of the Kuwaiti banks. Thus, the variables are expected to exhibit positive and negative relationship with bank performance for assets and liabilities respectively.

**Real GDP growth:** Poor economic conditions can worsen the quality of the loan portfolio, generating credit losses and increasing the provisions that banks need to hold, thereby reducing bank performance. In contrast, an improvement in economic conditions, in addition to improving the solvency of borrowers, increases demand for credit by households and firms with positive effects on the performance of banks (Athanasoglou *et al.*, 2008). Thus, the variable is expected to exhibit positive relationship with bank performance.

**Inflation:** Another important macro-economic condition which may affect both the costs and revenues of banks is the inflation rate (INF). In this regard, Revell (1979 cited in Ponce 2012) introduces the issue of the relationship between bank performance and inflation, stating that the effect of inflation on bank performance depends on how inflation affects both salaries and the other operating costs of the bank. In this context, Staikouras and Wood (2003) point out that as inflation may have direct effects, that is, increase in the price of labor, and indirect effects, that is, changes in interest rates and asset prices, on the performance of banks. On the other hand, Oguzsoy and Guven (1997) found that banks' performance is adversely affected by inflationary situation which make banks vulnerable to default risk, interest rate risk and liability risk. Due to onslaught of so many risks, bank may face a huge amount of loss in a variable inflationary environment. Thus, the variable is expected to exhibit significant negative relationship with bank performance.

**Bank size:** Bank size is measured by the natural log of total assets. Size is included in the regression as a proxy of bank size to capture the possible cost advantages associated with the economies of scale. In the literature, positive relationships are found between size and performance.

The following table 1.1 presents the summary of hypothesized expected sign for the relationship between four assets, three liabilities of the balance sheet and macroeconomic explanatory variables (independent variables) and ROA (dependent variable).

**Table1.1: Description of the variables and their expected relationship**

Variable	Measure	Notation	Expected sign
<b>Dependent variable</b>			
performance	Net profit before tax/average of asset	ROA	Positive
<b>Asset side/Independent variables</b>			
Deposit with other bank	Deposit with other bank/average of asset	Cash	Positive
Loan and advance	Loan and advance/average of asset	LA	Positive
Sum of investment	Sum of investment/average of asset	SI	Positive
Bank size	Logarithm of total asset	BS	Positive
<b>Liability side/independent variables</b>			
Saving deposit	Saving deposit/average of asset	SD	Negative
Fixed deposit	Fixed deposit/average of asset	FD	Negative
Demand deposit	Demand deposit/average of asset	DD	Negative
<b>Macroeconomic variables</b>			
GDP growth rate	Economic growth in percent	GDP	Positive
Inflation rate	The annual inflation rate	Inf	Negative

Source: Survey data by the researcher, 2020

## **1.6 Hypothesis of the study**

*HP1: There is a significant positive relationship between Deposit with other bank and bank's performances.*

*HP2: There is a significant positive relationship between Loan and advance of a bank and bank's performances.*

*HP3: There is a significant positive relationship between Sum of investment of a bank and bank's performances.*

*HP4: There is a positive significant relationship between bank size and performance of private commercial banks.*

*HP5: There is a significant negative relationship between liabilities of a bank and bank's performance.*

*HP6: There is a significant positive relationship between real gross domestic product growth rate and bank's performance*

*HP7: There is a significant negative relationship between inflation and bank's performance*

## **1.7 Scope of the Study**

This study focused on factors affecting the performance of selected private commercial Banks in Ethiopia. Hence, the study was considered only the six leading private commercial banks including Abyssinia Bank, Awash Bank, Dashen Bank, Nib International Bank, United Bank and Wegagen Bank registered by the NBE that have at least six years data 2013-2018 purposefully taken for this study and their branch is found in Wolkite town. In order to achieve the broad research objectives a quantitative and qualitative methods approach is adopted. The internal factors was selected in this study include asset, liability and bank size. The macroeconomic factors was included are level of GDP and effect of inflation rate by employing fixed effect method. Due to budget constraints the study were not going further to study the variations of factors affecting the performance of private commercial banks across the country. Thus, the study was delimited into assess the current or existing situations of the performance of private commercial banks specially those branches found in Wolkite town covering the time between 2013-2018.

## **1.8 Significance of the Study**

This study will have the following significances:-

First it will assist investors in understanding the current situation (strength and weaknesses) of Private commercial banks in Ethiopia which in turn will help investors to make knowledge and information-based decisions because, if the banks has no better performance high lending rate, low credit risk and liquidity risk the investors are not want to invest their money.

Second Expected to contribute to the management of private commercial Banks in Ethiopia to take measures and to protect their banks from different risks, and maintain a sound and healthy financial system through an efficient and effective balance sheet management.

Third the inclusion of these additional determinants improves academicians and researcher understanding of bank performance in significant ways. It also helps other researchers as a source of reference for those who want to make further study on the area afterwards.

### **1.9 Structure of the paper**

The research is organized as follows: Chapter one presents introduction of the study. Chapter two contains a review of the literature. The research design and methodology presented in chapter three. In Chapter four data presentation, analysis and interpretation of the results discussed. Finally, finding of the result, conclusions and recommendations discussed.

## **CHAPTER TWO**

### **LITERATURE REVIEW**

This chapter presents the related literature reviews that include the theoretical literatures Review, empirical literatures Review and the conceptual framework is presented.

#### **2.1 Theoretical Literatures Review**

Modern banking in Ethiopia was introduced after the agreement that was reached in 1905 between Emperor Minilik II and MaGillivray, representative of the British owned National Bank of Egypt. Traditional institutions organized with a sense of cooperation and risk sharing has enabled Ethiopians to experience saving and financial management within its cultural context. Eqqub and Edir are some of the informal financial institutions that shaped the social bond and interaction (Gebeyaw, 2008).

The chapter explored Theoretical literatures Review, empirical literatures Review and conceptual framework in the area of factors influencing performance of commercial banks in Ethiopia in relation to factors afore mentioned and the choice of some theories analyzed in an analytical framework were explained in details. The literature cover's both independent and dependent variables under the study and tends to bring for the nature of the relationship among these variables as established by theory and empirical research. The relationship drawn from pertinent literature is then used to develop a conceptual frame work.

##### **2.1.1 Performance Measurement in Banks**

According to Aburime (2009), the importance of bank performance can be appraised at the micro and macro level of the economy. At the micro level, profit is the essential prerequisite of a competitive banking institutions and the cheapest source of funds. It is not merely a result, but also a necessity for successful banking in a period of growing competition on financial markets. Hence, the basic aim of every bank management is to maximize profit, as an essential requirement for conducting business. Various literatures written by

academicians also assert that performance is the bottom line or ultimate performance result showing the net effects of bank policies and activities in a financial year. As a matter of fact, numerous factors such as inflation, accounting policy, high level of competition, etc., may have an influence on a bank's performance. In due course, wide varieties of ratios are discussed and different measures of performance of commercial banks have been suggested. For instance, Net Interest Margin (NIM), Return on Assets (ROA), and Return on Equity were identified by (Ahmed, 2003) are in use in the literature since then performance measures according to (Haron,S. 2004). Include Profit before Tax (PBT), Profit after Tax (PAT), ROE, Rate of Return on Capital (ROC) and ROA. Some other, studies on performance have also used returns on average bank assets (ROAA), net interest margin (NIM) and return on average equity (ROAE) to measure performance according to (Francis, 2013). However, owing to divergent views among scholars on the superiority of one indicator over the others as measures of performance, there is no clear cut stand as to which best fits. Nonetheless, most literatures confine the performance measure only to the three widely used measures namely Return on Assets (ROA), Return on Equity (ROE), and Net Interest Margin (NIM). Accordingly, some scholars select either of the three and some others preach to select three of them at once.

The commonly used performance metric to measure bank performance is return on equity (ROE). However, this metric completely ignore risk. ROE is also indicated to have a lot of limitations. First, it is not risk sensitive. A decomposition of ROE shows that a risk component represented by leverage can boost ROE in a substantial manner. Second, ROE is unable to indicate risky assets and their solvency situation. Third, ROE failed to discriminate the best performing banks from the others in terms of sustainability of their results especially in the 2008 banking crises. Fourth, ROE is a short term indicator and must be interpreted as a snapshot of the current health of institutions. It does not take into account either institution's long term strategy or the long term damages caused by the crisis. Its weaknesses are even more obvious in times of stress, when there is a climate of uncertainty surrounding the medium term performance of institutions.

In line with the above discussion, the researcher has used ROA as measure of performance for this particular study owing to the limitations of NIM and ROE. NIM is reported to have two major limitations. First, it doesn't measure the total performance of the bank as most of them earn fees and other non-interest income through service like brokerage and deposit account services without taking account operating expenses, such as personnel and facilities costs, or credit costs.

Besides, net interest margin of two banks can't be contrasted as both the banks are poles apart in their own way in the nature of their activities, composition of customer base, etc.

### **2.1.2 Determinants of Banks performance**

There are mainly two (Internal and External factors) and sometimes three (Macroeconomic and bank specific factors) ways of classifying bank performance determinants. (Toddard *et al.*, 2005)

#### **2.1.2.1 External Factors/ Macro-economic Factors**

Toddard *et al.*, (2005) stated that, macroeconomic policy stability, Gross Domestic Product, Inflation, GDP growth rate and political stability are believed to be the major macroeconomic factors that affect the performances of banks. According to Nassreddine et.al in Onuonga (2014), the external determinants of bank performance are related to both the economic and legal environments in which the banks operate.

Real GDP growth: GDP growth is expected to have a positive impact on bank performance according to the literature on the association between economic growth and financial sector performance (Demirguc-Kunt and Huizinga, 1999; Bikker and Hu, 2002; Athanasoglou *et al.*, 2008). In addition, we expect a positive relationship between bank performance and GDP development as the demand for lending increases or decreases in cyclical upswings or downswings.

Inflation rate: Revell, (1979) cited in Ponce (2012) stated that the effect of inflation on bank performance depends on how inflation affects both salaries and other operating costs of the bank. Moreover, Staikouras and Wood (2003) revealed that an increase in the price

of labor and indirect effects bring changes in interest rates and assets prices on the performance of banks. Also, Perry (1992) suggested that the effects of inflation on bank performance depend on whether inflation is anticipated or unanticipated. In the anticipated case, the interest rates are adjusted properly, bringing a faster increase in revenues rather than costs and therefore having a positive impact on bank performance. Conversely, in the unanticipated case, banks may be slow in adjusting interest rates resulting in a faster increase of costs than revenues and therefore having a negative impact on bank performance.

#### **2.1.2.2 Bank Specific Factors/Internal Factors**

Bank specific variables are variables that affect the performance of a specific bank. These factors are within the scope of the bank and are easy to be manipulated and differ from bank to bank.

These include capital size, size of deposit liabilities, size and composition of credit portfolio, interest rate policy, labor productivity, state of information technology, risk level, management quality, bank size, ownership, etc. ( Zimmerman , 1996 ; Bourke, 1989; Wall, 1985 )

Andreas and Gabrielle (2009) stated that the bank performance is usually measured by internal determinants which include bank specific variables. Athanasoglou *et al*, (2006) argued that performance is a function of internal factors that are mainly influenced by a bank's management decisions and policy objectives such as the level of liquidity, provisioning policy, capital adequacy, expense management and bank size, and the external factors such as ownership, market concentration and stock market development, and other macroeconomic factors. The main focus of this particular study is to investigate the impact of bank specific factors and external factor on banks performance and there by rank the overall performance of the respective bank by using panel data regression models (bank specific) proxies.

#### **The asset liability management concept**

Baum, G.(1996) defined Asset Liability Management as the practice of managing a business so that decisions and actions taken with respect to balance sheet assets and liabilities are coordinated in order to ensure effective utilization of a company's resources to increase

its performance. ALM can be defined as the ongoing process of formulating, implementing, monitoring and revising strategies related to assets and performance to achieve an organization's financial objectives given the organization's risk tolerance and other constraints. According to Dynamic Business Analysts, it is the coordination, or large scale simulation of an entire company to manage its assets and liability to enable financial company to operate in a more soundly and profitable environment and this enables financial institutions to define strategic asset allocation and to identify financial opportunities and uncertainty in order to improve its financial resources. Asset Liability management is relevant to, and critical for, the sound management of the finances of any organization that invests to meet its future cash flow needs and capital requirements. Fabozzi *et al.*, (1998) identified three requirements for a successful implementation of ALM. A thorough understanding of the ALM concept is the first among these requirements. It refers to a comprehensive recognition of the banking risk. Besides serving as a venue for understanding the scope of risk, ALM allows for the quantifiable assessment and effective management of various risk categories. Even in the absence of a formal ALM program, the understanding of these concepts provides a picture of the risk/reward trade off in which the financial institutions are engaged. The second step or requirement for the implementation of ALM is the development of an information system. Risk management involves gathering and monitoring relevant data. The set of data alone is likely to provide valuable information about the degree of financial risk affecting the institution. The third step involves a design and implementation of the ALM decision making process. The Asset Liability Committee (ALCO) usually carries out this process.

Bank size: Bank size is measured by total assets. One of the most important questions in the literature is if there exists an optimal bank size in order to maximize bank performance. It has been argued that a growing bank size is positively related to bank performance (Smirlock, 1985; Pasiouras and Kosmidou, 2007). Larger banks are more willing to have a higher degree of product and loan diversification than smaller banks. Furthermore, due to high diversification, economies of scale can also arise from a larger size. We expect a positive effect of size on bank performance as diversification reduces risk and economies of scale lead to increased operational efficiency. Therefore, if the bank becomes extremely large in size, a negative effect could be between size and bank performance, because the bank is harder to be managed due to bureaucratic and other reasons. Therefore, the size- performance relationship is expected

to be non-linear (Eichengreen and Gibson, 2001). In order to emphasize this possible non-linear relationship, as a proxy we use the logarithm of bank's total assets.

## **2.2. Empirical Literatures Reviews**

While investigating determinants of bank performance, identifying similarities and differences across the various economies studied by previous researchers is un-questionable. The study on the determinants of bank performance began as early as 1979 when Short examined the relationship between profit rate and bank concentration. The determinants of bank performance were classified to three specific aspects: bank-specific and macroeconomic determinants of bank performance (Said and Tumin, 2011, p.159). Hence, the following section reviews the studies on factors affecting bank performance with a particular focus on those conducted in single country and those conducted on a panel of countries.

### **2.2.1 Previous studies (International level)**

Berger (1995) examined the relationship between the return on equity and the equity to asset ratio for a sample on United States banks for the time period from 1983-1992. By using the granger causality model, he demonstrated that the return on equity and equity to asset ratio is positively related.

Garcia-Herrero *et al.* (2009) analyzed the main determinants of performance for Chinese banks by employing a panel data set for 87 banks from 1997-2004. Both of them, originated that better capitalized banks, a comparatively larger share of deposits, and more X-efficient banks tend to be more profitable. Thus, a less concentrated banking system and a lower government intervention increase bank performance. Moreover, from the macroeconomic variables studied, higher real interest rates on loans and inflation appear to increase performance while the volatility of interest rates reduces it. Guru *et al.* (2002) investigated the determinants of bank performance in Malaysia, using a sample of 17 commercial banks during the 1986 to 1995 period. The determinants were classified into two main categories, the internal determinants (liquidity, capital adequacy, and expenses management) and the external determinants

(ownership, firm size and economic conditions). Their finding revealed that efficient expenses management was one of the most significant factors explaining high bank performance.

Ramadan *et al.*, (2011) has investigated 100 observations of 10 banks over the period 2001-2010 by using two measures of bank's performance: the rate of return on asset (ROA) and the rate of Return on equity (ROE). The research results indicated that the Jordanian bank's characteristics explain a significant part of the variation in bank performance. In other words, high performance in the Jordanian banking sector tends to be associated with well capitalized banks, high lending activities, low credit risk, and the efficiency of cost management. The study also showed that size did not support the significant scale of economies for Jordanian banks.

Sufian and Chong (2008) studied the determinants of Philippines banks performance during the period 1990–2005. The empirical findings showed that all the bank-specific determinant variables had a significant impact on bank performance. Moreover, the results showed that inflation had a negative impact on bank performance, although the impact of economic growth, stock market capitalization and also money supply had not significantly explained the variations in the performance of the Philippines banks.

Athanasoglou *et al.*, (2008) investigated the effect of bank- specific characteristics, industry-specific and macroeconomic determinants of bank performance for Greek banks for the period 1985-2001. SCP hypothesis had a specific attention into the study. The empirical results recommended that capital, labor productivity growth, operating expenses, inflation, and cyclical output significantly affect performance. On the other hand, the impact of bank size and ownership cannot be observed. Furthermore, the SCP hypothesis on bank performance was found insignificant.

Flamini *et al.*, (2009) has also argued that analysis of ROE disregards financial leverage and the risk associated with it. Hence, for the reasons stated above, ROA is considered as key proxy for bank performance, instead of the alternative return on equity (ROE) and net interest margin (NIM). ROA measurement includes all of a business's assets including those which arise out of contribution by investors.

Moreover, the inclusion of liabilities makes ROA even more valuable as an internal measurement tool, particularly in evaluating the performance of different departments or divisions of a company.

### **2.2.2. Previous studies (Country level)**

Ermias (2016) has investigated on the effects of internal determinants of performance of private Ethiopian commercial banks over the period 2000-2014 and thereby ranked the overall financial performance of the respective banks based on CAMEL model. He used fixed effect least square method to estimate the impact of bank specific factors and detailed descriptive statistics and regression has been used to assess the relationships between the bank specific variables that comprise CAMEL model and return on assets has been used as a measure of performance. The findings indicated that bank specific factors incorporated in the CAMEL model affect to the extent of 67.5% of the changes in performance of the private commercial banks in Ethiopia. Finally the study suggested that Ethiopian commercial banks in general and private commercial banks in particular need to develop their credit risk management capacity in order to avoid poor performance of assets that mainly emanate from loans and advances so as to boost their performance and also advised need to give due emphasis to efficiency objectives so as to stay competitive and more resilient to economic shocks.

Habtamu (2012) has also tried to investigate determinants of private commercial banks performance in Ethiopia by using panel data of seven private commercial banks from year 2002 to 2011. As it can be learnt from his paper, he used secondary and quantitative research approach to analyze bank performance measures such as Return on Assets (ROA), Return on Equity (ROE), and Net Interest Margin (NIM) by using multiple linear regression models. The researcher found bank specific factors; capital adequacy, managerial efficiency, bank size and macroeconomic factors, level of GDP, and regulation have a strong influence on the performance of private commercial banks in Ethiopia. As a result, he advised the management of the private commercial banks to strengthen the identified significant factors and he also advised the government bodies to notice the adverse effect of tight policies imposed on private banks.

Mulualem (2015) has also tried to analyze and rank the financial performance of 14 commercial banks in Ethiopia by using CAMEL approach and panel data for the years 2010 to 2014. He also used quantitative research approach and multiple regression models with

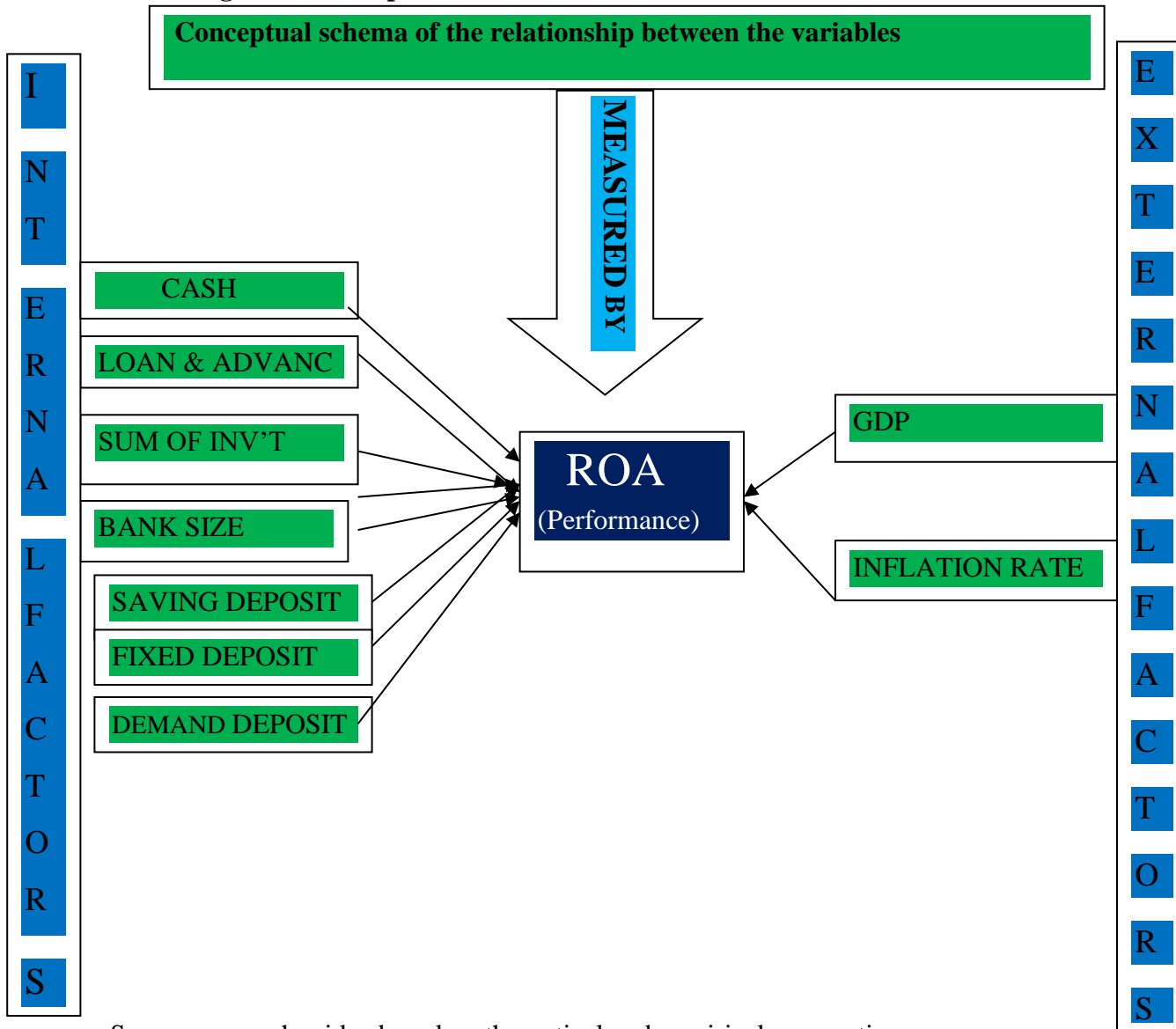
two performance measures: ROE and ROA. As it can be seen from the paper fixed effect regression model was applied to investigate the impact and relationship of CAMEL factors: Capital adequacy, Asset quality, Management Efficiency, Earning and Liquidity on the aforementioned bank performance measures separately. His finding indicated that capital adequacy, asset quality, and management efficiency have negative relation whereas earnings and liquidity showed positive relationship and strong statistical significance for both performance measures. On the other hand, capital adequacy for ROA and asset quality for ROE was in -significant according to the paper. The study finally suggested that banks need to re-engineer and focus on the banks internal drivers to enhance performance of commercial banks in Ethiopia.

Similarly, Amdemikael (2012) has also tried to examine the bank specific, industry specific, and macroeconomic specific factors affecting bank performance for a total of eight commercial banks in Ethiopia covering the period of 2000-2011 by adopting a mixed research method approach, i.e. documentary analysis and in depth interviews. The Finding indicates that capital strength, income diversification, bank size and gross domestic product have statistically significant and positive relationship with banks performance. He also pointed out that variables such as operational efficiency and asset quality have a negative and statistically significant relationship with banks performance. On the other hand, he argued that the relationship for liquidity risk, concentration and inflation was not statistically insignificant. The study suggested reengineering on the banks key internal drivers might result in enhancing the performance. He also recommended banks to focus on macro level factors despite the internal ones and he pin pointed to loosen the 27% bond purchase requirement set by the government on every credit transaction.

### **2.3 Conceptual Framework**

The conceptual frame work which describes the relationship between bank liquidity with bank specific and macroeconomic determinants based on the theoretical and empirical perspectives was formulated as follows:

Figure 2: Conceptual Framework



Source, researcher idea based on theoretical and empirical perspectives

## **2.4 Conclusion and knowledge gap**

Commercial Banks play an important role in economic development and they are the base of financial systems in all countries. Hence to achieve this healthy and sustainable performance is essential issue. As the review of literature discussed in this chapter reveals efficient composition of assets and liabilities of commercial banks is crucial for their sound financial performance.

A lot of research work had so far taken place concerning the issue of factors affecting bank's performance. However, in Ethiopia, most studies conducted in the banking system were focused on the overall determinants of banking performance. The review of literature discussed in this chapter reveals the existence of many gaps of knowledge in measuring factors affecting bank performance using panel model on performance of private Commercial Banks in Ethiopia. As far as the knowledge of the researcher no studies were carried out on the issue of factors affecting bank performance of private commercial banks in Ethiopia using internal variables used in this study specially bank size. Also the study overlooked some important variables that can significantly affect performance of the Ethiopian banking industry from the point of view of the theories and previous empirical studies reviewed above.

This study, therefore, is an attempt to address this gap of information on Ethiopian commercial banking sector. Thus the intent of this study was to examine factors affecting bank performance using panel model together with external variables that mainly affect the performance of private commercial banks in Ethiopia. Finally, the next chapter presents details of research design and methodology used so as to the objective of this study.

## **CHAPTER THREE**

### **RESEARCH METHODOLOGY**

#### **3.1 Introduction**

This chapter presented the research methodology that is used as well as where the study was carried out. It put forward the Research approach, research design, study population, sample size and sampling procedures, data collection instruments and data analysis procedures.

#### **3.2 Research approach**

In the investigative study there are three common approaches to business and social research namely, quantitative, qualitative and mixed methods approach (Creswell, 2003, p.13). In this study, the quantitative method was primarily use. However, to have a better insight and gain a richer understanding about the research problem, the quantitative method is supplemented by the qualitative method of inquiry. That is, to get the benefits of a mixed methods approach and to mitigate the bias in adopting only either quantitative or qualitative approach, the current research combines both quantitative and qualitative research approaches.

#### **3.3 Research Design**

Research design refers to how data collection analyses are structured in order to meet the research objectives through empirical evidence economically (Cooper and Schindler, 2003).Therefore; the study was employed descriptive type of research design with both quantitative and qualitative data analysis research methods was used. Descriptive research design is an appropriate choice when the research aim is to identify characteristics, frequencies, trends, and categories. Also the main purpose of descriptive research is description of the state of nature or affairs, as it exists at present. The study was uses secondary and primary sources of panel data by utilizing fixed effect method.

### **3.4 Target Population and Sample Size**

According to Access capital (2012) there are sixteen private commercial banks in Ethiopia that are currently in operation. However, out of sixteen private commercial banks, the investigator was took the leading six of them through purpose as stated next section. Hence, the target population for this study was includes Abyssinia Bank, Awash Bank, Dashes Bank, Nib International Bank, United Bank and Wegagen Bank those taken purposefully.

### **3.5 Sampling Techniques and Procedures**

The investigator was used non probability sampling technique and to be clear and reasonable set some criteria's for purposefully selecting those six private commercial banks out of the total population. The reason behind selecting purposive sampling design than others is, it considered more appropriate when the universe happens to be small and a known characteristics of it is to be studied intensively. For this reason, ownership structure and the presence of well-organized audited financial statement was considered in the sampling techniques. Moreover, the major reason for selecting those private banks is leading banks they are rival from other bank and only banks' that have established before 2000 G.C and first comer to Wolkite town. Also, only banks who have organized audited financial statements was considered to gather empirical / secondary sources of panel data from their annual reports.

### **3.6 Source of Data and Collection Techniques**

In order to achieve the stated research objectives the secondary and primary data was gathered. Therefore, it was uses panel data by utilizing fixed effect method. As noted in Baltagi (2005) the advantage of using panel data is that it controls for individual heterogeneity, less co linearity among variables and tracks trends in the data, something which simple time-series and cross-sectional data cannot provide. To this end, bank audited financial statements of six private commercial banks for six consecutive years i.e., 2013-2018 was collected. Thus, the secondary data that was collected through structured review of documents are mainly taken from the records held by National Bank of Ethiopia (NBE), Ministry of Finance and Economic Development (MoFED) and the respective bank websites and branches. Data gathering techniques were used extensively and mainly extraction of information from financial statements, print outs

of the published financial records of the sample were used. The survey was administer data collection in a structured document review mode, and it was intend to obtain data relevant for factors having impact on the performance of banks using panel data regression models. The survey was administer include, GDP growth rate, bank size and inflation rate through interview. On the other hand data collection instruments was used to analyze secondary data that collect NBE regulations, bank's policies and procedures, bulletins, literature related to the subject was used as a secondary source of interpretation. Those macroeconomic data was mainly gather from the records seized by NBE and MoFED through structured document review covering the period of 2013-2018. Following this, the qualitative method was used to support the quantitative findings and to gain additional insight into the factors that may affect the performance of private commercial banks in Ethiopia. The qualitative data was collect through interviews with the managers of selected private commercial banks.

### **3.7 Data analysis and presentation**

Thus, the collected panel data was analyzed by using descriptive statistics, correlations, multiple linear regression analysis and inferential statistics. Mean values and standard deviations was used to analyze the general trends of the data from 2013 to 2018 based on the sector sample of 6 banks and a correlation matrix was also used to examine the relationship between the dependent variable and explanatory variables. A panel model and p-value was used to determine the relative importance of each independent variable in influencing performance. The panel model was conduct using stata econometric software package, to test the casual relationship between the firms' performance and their potential determinants and to determine the most significant and influential explanatory variables affecting the performance of Ethiopian private commercial banks. Therefore, as far as the above facts hold true in this study, it is rational to use fixed effect. The Data was present in form of narratives and tables.

### 3.8 Model specification

The performance indicator utilized for this particular study is Return on Assets (ROA) and the major determinants (independent variables) considered are asset, liability, bank size, inflation rate and GDP growth rate. Hence, the panel model utilized for regression analysis is depicted here below:

$$Y_{it} = \beta_0 + \beta_1 X_{1it} + \beta_2 X_{2it} + \beta_3 X_{3it} + \beta_4 X_{4it} + \beta_5 X_{5it} + \dots + u_{it}$$

Where:

$\beta_0$  → represents a constant term

$Y_{it}$  = represents ROA (return on assets of the bank i at time t)

$X_{1it}$  = represents size of Bank i at time t

$X_{2it}$  = represents asset of Bank i at time t

$X_{3it}$  = represents liability of Bank i at time t

$X_{4it}$  = represents GDP growth at time t

$X_{5it}$  = represents Inflation rate at time t

$U_{it}$  = represents error term

## CHAPTER FOUR

### RESULT AND DISCUSSION

The previous chapter presents the research methodology adopted in the study. The purpose of this chapter is to present and discuss results of data obtained from method involved in this study. Therefore, the chapter is organized into five sections. The first section 4.1 presented Descriptive Statistics. This is followed by 4.2 the result of Correlation analysis. 4.3 Choosing Models. 4.4 Tests for the classical linear regression model (CLRM) assumptions. Finally, 4.5 presented Results of regression analysis.

#### 4.1 Descriptive Statistics

Table 4.1 By using stata presents the outcomes of the descriptive statistics for main variables involved in the regression model. Key figures, including mean, standard deviation, minimum and maximum value were reported. This was generated to give overall description about data used in the model and served as data screening tool to spot unreasonable figure.

**Table 4. 1: Descriptive Analysis**

Variable	Obs	Mean	Std. Dev.	Min	Max
<b>Roa</b>	36	.0513889	.0338191	.02	.11
<b>Cash</b>	36	.1013889	.0534069	.05	.24
<b>La</b>	36	.4794444	.1965989	.22	.86
<b>Si</b>	36	.1613889	.1189274	.01	.42
<b>Sd</b>	36	.4872222	.1982871	.16	.91
<b>Dd</b>	36	.2336111	.1132924	.11	.63
<b>Fd</b>	36	.1063889	.0689991	.02	.28

<b>Bs</b>	36	.2372222	.0056625	.23	.25
<b>Gdp</b>	36	9.416667	1.238547	7.7	10.9
<b>Inf</b>	36	9.365	2.440808	6.63	13.83

Source: own computation via stata (version 13), 2020

According to table 4.1, all variables comprised 36 observations (this implies number of sample size or number of respondent for example ROA in each bank have 6 observations  $6*6=36$ ) and the performance measure used in this study namely; ROA indicates that the Ethiopian private commercial banks attained, on average, a positive before tax profit over the last six years. For the total sample, the mean of ROA was 0.05 with a minimum of 0.02 and a maximum of 0.11. That means, the most profitable bank among the sampled banks earned 11 cents of profit before tax for a single birr invested in the assets of the firm. On the other hand, the least profitable bank of the sampled banks earned 2 cents of profit before tax for each birr invested in the assets of the firm. The standard deviation statistics for ROA was 0.03 indicates that the performance variation between the selected banks was very small. The result implies that these banks need to optimize the use of their assets to increase the return on their assets. Regarding the explanatory variables of the model there are some interesting statistics that have to be mentioned.

The mean value of the deposit with other bank (cash) 0.1 and standard deviation is 0.05. Loan and advance (LA) variable has the mean value of 0.48 with standard deviation of 0.2. Sum of investments (SI) has a mean of 0.16 with standard deviation of 0.12 which may portray above half of private commercial banks assets are in the form of loans and advances. It has standard deviation of 0.2 which also show there was greater variability than deposit with other bank (cash) and Sum of investments (SI).

The first liability variable, which is the saving deposits (SD), has mean value of 0.48 with standard deviation of 0.19. Demand deposits (DD) variable has mean value of 0.23 with standard deviation of 0.11. Fixed deposit (FD) variable has mean value of 0.1 with standard deviation of 0.069. The mean value and standard deviation of saving deposit and Demand deposit variables are high which probably show that, they are the major source of funds for private commercial banks with greater variability than fixed deposit. It is because

commercial banks are financial intermediaries which have a simple logic that accept deposits with short and long term maturities from a large number of individuals and grant loans with long term maturities to a small number of borrowers.

The macroeconomic variables incorporated in this study have the mean value of 9.4 and 9.3 with the standard deviation of 1.2 and 2.4 for real growth rate (GDP) and the general rate of inflation (INF), respectively. The comparison between minimum and maximum values with the mean value of bank size shows there is lower variability in the variable. Nevertheless, there is higher variability in the general rate of inflation (INF) which has large standard deviation in relation to bank size and DGP variable. It is especially important to notice that the mean of bank size (BS) was 0.23 and standard deviation 0.5.

Generally, from the liability side variables, the saving deposit and demand deposit variables has significant proportion. While from the asset side variables, loans and advances variable has higher mean value and proportion. This implies that most of the private commercial banks during the study period are financed through saving and demand deposits and they have used the fund for provision of loans and advances. In relation to standard deviations, sum of investments and fixed deposit have lower variability, while loans and advances and saving deposits have greater variability, from the assets side and liability side of the balance sheet respectively.

#### **4.2 Correlation analysis**

In this section present correlation between dependent and independent variables,

**Table 4. 2: Correlation matrix of dependent and independent variables**

	<b>Roa</b>	<b>Cash</b>	<b>La</b>	<b>Si</b>	<b>sd</b>	<b>Dd</b>	<b>Fd</b>	<b>Bs</b>	<b>gdp</b>	<b>Inf</b>
<b>Roa</b>	1.0000									
<b>cash</b>	0.7345	1.0000								
<b>La</b>	0.0203	0.0398	1.0000							
<b>Si</b>	-0.1816	0.2021	0.6850	1.0000						
<b>Sd</b>	-0.0041	0.1250	0.8769	0.6554	1.0000					
<b>Dd</b>	-0.1020	-0.0212	0.8012	0.6538	0.6870	1.0000				
<b>Fd</b>	0.0904	-0.1157	0.7916	0.4867	0.5884	0.7038	1.0000			
<b>bs</b>	0.0804	0.4099	0.6094	0.5617	0.6316	0.4392	0.2734	1.0000		
<b>Gdp</b>	-0.0169	0.0182	-0.4338	-0.3192	-0.3674	-0.3670	-0.3149	-0.2091	1.0000	
<b>Inf</b>	0.0176	0.0652	0.8048	0.5907	0.6521	0.6210	0.6520	0.4980	-0.6048	1.0000

Source: own computation via stata (version 13), 2020

Hence, as could be seen in table 4.2, the deposit with other banks (cash) to average of assets ratio is positive and significantly correlated variables with ROA, loan and advance to average of asset ratio is positively correlated variables with ROA. This correlation clearly shows that, as the deposit with other banks and loan and advance increase, performance also moves to the same direction but deposit with other banks (cash) is highly correlated variable. On the asset side only sum of investment (SI) to average of asset ratio is negatively correlated variable to ROA. That means when sum of investment increase ROA decrease.

On the liability side, the saving deposit to average of assets ratio and demand deposit to average of assets ratio seems to be negatively correlated with the performance measure, indicating that, when the saving deposit and demand deposit increase, performance moves to the opposite direction. Surprisingly, the fixed deposit to average of assets ratio of banks was positively correlated with ROA, indicated by the correlation of 0.0904 between fixed deposit to average of asset ratio and ROA. In similar to the fixed deposit, bank size and inflation was positively correlated with performance with a correlation of 0.0804 and 0.0176 respectively. Continuing to the correlations

of bank specific and macroeconomic variables used in this study gross domestic product shows a negative correlation with ROA. These indicate that when GDP increase, performance moves to the opposite direction.

### 4.3 Choosing Models

There are broadly two classes of panel data estimator approaches that can be employed in empirical research: fixed effects models and random effects models. Before starting regression analyses to examine the relationship between bank performance measures and independent variables, it has to be decided that whether fixed or random effect is appropriate to the specific model used. Therefore; the first issue is that choosing between fixed effects (FE) and a random effects (RE) model based on the Hausman test.

**Table 4. 3: Hausman Fixed Effects and Random Effect**

---- Coefficients ----

	(b)	(B)	(b-B)	sqrt (diag(V_b-V_B))	
Fixed		random	Difference	S.E.	
<b>Cash</b>	<b>.1769361</b>	<b>.6240801</b>	<b>-.4471441</b>	<b>.0957583</b>	
<b>La</b>	.050373	.081924	-.031551	.	
<b>Si</b>	-.0686456	-.1542118	.0855662	.0226659	
<b>Sd</b>	-.016483	-.0198596	.0033766	.	
<b>Dd</b>	-.0466638	-.0459078	-.000756	.	
<b>Fd</b>	.118817	.1923571	-.0735401	.	
<b>Bs</b>	-.4376749	-1.334449	.8967741	.	
<b>Gdp</b>	-.0016074	-.0031831	.0015757	.	
<b>Inf</b>	-.0012583	-.0021252	.0008669	.	

---

$b$  = consistent under  $H_0$  and  $H_a$ ; obtained from xtreg  
 $B$  = inconsistent under  $H_a$ , efficient under  $H_0$ ; obtained  
 from xtreg Test:  $H_0$ : difference in coefficients not  
 systematic  

$$\chi^2(9) = (b-B)'[(V_b - V_B)^{-1}](b-B)$$

$$= 30.50$$

$$\text{Prob} > \chi^2 = 0.0004$$

$$(V_b - V_B \text{ is not positive definite})$$

---

Source: own computation via stata (version 13), 2020

According to Chris Brooks (2008), if the p-value for the Hausman test is less than 1%, indicating that the random effects model is not appropriate and that the fixed effects specification is to be preferred. Based on this fact, the p-value for the Hausman test was 0.0004, i.e. less than 1%, so running fixed effect model is appropriate.

#### 4.4 Tests for the classical linear regression model (CLRM) assumptions

In this study as mentioned in chapter three diagnostic tests were carried out to ensure that the data fits the basic assumptions of classical linear regression model. Consequently, the results for model misspecification tests are presented as follows:

##### Test for Heteroscedasticity

The assumption for heteroscedasticity is that the variance of the errors is not constant across observation, thus, standard estimations will be inefficient. In other words, heteroscedastic occurs in a series of random variables only when the random variables have different variance. Furthermore, error term in each period is not constant because the estimator and error term is influenced by each other.

The White's test is usually used as a test for heteroscedasticity. In this test, a regression of the squares of the residuals is run on the variables suspected of causing the heteroscedasticity, and cross products (Gujarati, 2004).

In this study as shown in table 4.1, the Chi-Square versions of the test statistic gave the same conclusion that there is no evidence for the presence of heteroscedasticity, since the p-values were in excess of 0.05.

**Ho: Constant variance/homoscedasticity**

**H1: heteroskedasticity**

**Table 4.4: Heteroscedasticity White Test:**

Cameron and Trivedi's decomposition of IM-test

Source	chi2	Df	P
Heteroskedasticity	36.00	35	0.4215
Skewness	8.94	9	0.4429
Kurtosis	0.15	1	0.6988
Total	45.09	45	0.4683

Source: own computation via stata (version 13), 2020

Therefore, based on Cameron and Trivedi's decomposition of IM-test if the p-value is very small that means less than 0.05, we would have to accept the hypothesis that the variance is heterogeneous and reject the alternative hypothesis that the variance is homogenous (Gujarati, DN., 2004). So in this case, we would have to accept the null hypothesis that the variance is homogenous and reject the alternative hypothesis because the p-value is in excess of 0.05.

**Test for normality**

Another second important diagnostic test conducted in this paper is the normality assumption (i.e the normally distributed errors) since, the Shapiro-Wilk W test statistic is significant.

**H0: normality of residual**

**H1: no normality of residual**

If the p-value is greater than 0.05 accept the null hypothesis that the distribution of the residuals is normal. (Gujarati, DN., 2004). Here the p - value is 0.072 we failed to reject the null because the p-value is greater than 5%. We conclude then that residuals are normally distributed in the study, concluded that there is no the problem of normality in the models.

**Table 4. 5: Shapiro-Wilk W test for normal data**

Variable	Obs	W	V	Z	Prob>z
Resid	36	0.89442	3.850	2.819	0.07241

Source: own computation via stata (version 13), 2020

**Test for Autocorrelation**

Autocorrelation problem occurs when the error term in each period is influenced by each other so that the variance of error term is not in an optimal level. The term autocorrelation may be defined as “correlation between members of series of observations ordered in time [as in time series data] or space [as in cross-sectional data]. The most celebrated test for detecting serial correlation is that developed by statisticians Durbin and Watson. It is popularly known as the Durbin– Watson d statistic.

The Durbin-Watson test statistic value in table 4.6 was 1.421. As mentioned in the previous chapter to empirically analyze factors affecting performance of private commercial banks using panel model 36 (6\*6) observations were used in the model. Moreover, there were nine regressors and an intercept term in the model. Therefore, the relevant critical values for the test are dL= 1.335, dU = 1.765, i.e., for 36 observations and nine regressors and 4 - dU = 4-1.765=2.235; 4 - dL = 4-1.335=2.665. Accordingly, Durbin- Watson test

1.421 is clearly between the lower limit (dL) which is 1.335 and the upper limit which is 1.765 and thus the null hypothesis is neither rejected nor accepted that means the result is inclusive or get non-rejection region.

**Table 4. 6: Autocorrelation Test: Durbin Watson**

<b>Variables</b>	<b>DW test static result</b>
All bank-specific & macro-economic	<b>1.421</b>

Source: own computation via stata (version 13), 2020

### **Test for Multicollinearity**

When more than two independent variables are involved it is often called multicollinearity, in this section the researcher test multicollinearity.

Multicollinearity occurs when there is a perfect linear relationship among the predictors, the estimates for a regression model cannot be uniquely computed.

**Table 4. 7: Multicollinearity VIF Test:**

Variable	VIF	1/VIF
LA	9.33	0.107182
SD	5.49	0.182246
INF	4.23	0.236148
BS	3.41	0.293028
DD	3.08	0.324341
FD	3.03	0.330333
SI	1.99	0.502270
GDP	1.77	0.563791
CASH	1.48	0.674218
Mean VIF	3.76	

Source: own computation via stata (version 13), 2020

The variance inflation factor, VIF, is a measure of the mutual of the complement of the inter-correlation among the predictor variables:  $VIF = 1 / (1 - r^2)$ . Where  $r^2$  is the multiple correlations between the predictor variable and the other predictors. VIF values greater than 10 indicate possible problem of multicollinearity (Gujarati, DN., 2004). As shown in table 4.7 there were fairly no data correlations among the independent variables. This no correlations indicate that, there is no problem of multicollinearity in this study.

#### 4.5 Results of regression analysis

This section presents the empirical findings from the econometric results on factors affecting performance of private commercial bank in Ethiopia. The section covers the empirical regression model used in this study and the results of the regression analysis.

**Empirical model:** As presented in the third chapter the empirical model used in order to identify factors affecting performance of private commercial banks using statistical panel model was provided as follows:

$$Y_{it} = \beta_0 + \beta_1 X_{1it} + \beta_2 X_{2it} + \beta_3 X_{3it} + \beta_4 X_{4it} + \beta_5 X_{5it} + \beta_6 X_{6it} + \beta_7 X_{7it} + \beta_8 X_{8it} + \beta_9 X_{9it} + u_{it}$$

$$Y = 0.3400974 + 0.5768853(X1) + 0.0440217(X2) - 0.1226265(X3) + 0.0361919(X4) - 0.0268873(X5) - 0.2400761(X6) - 0.9869605(X7) + 0.157614(X8) - 0.0978995(X9) + \dots + U_{it}$$

The estimation result of the operational panel regression model used in this study is presented in table 4.8. From table 4.8 the R-squared statistics and the adjusted R-squared statistics of the model was 81% and 74% respectively. The result indicates that the changes in the independent variables explain 74% of the changes in the dependent variable. That is loan and advance, deposit with other bank, sum of investment, saving deposit, demand deposit, fixed deposit and gross domestic product and inflation rate collectively explain 74% of the changes in ROA. The remaining 26% of changes was explained by other factors which are not included in the model. Thus these variables collectively, are good explanatory variables of the performance of private commercial banks in Ethiopia. The null hypothesis of F-statistic (the overall test of significance) that the R-square is equal to zero was rejected at 1% as the p-value was sufficiently low. F value of 0.000 indicates strong statistical significance, which enhanced the reliability and validity of the model.

Based on the results shown in table 4.6, all bank-specific independent variables except loan and advance (LA) to average of assets and demand deposit (DD) to average of assets are statistically significant impact on performance. On the other hand, among the two external independent variables used in this study none of them are significant. Among the significant variables, deposit with other bank (cash) to average of assets, sum of investment (SI) to average of assets, fixed deposit (FD) to average of assets and bank size (BS) were significant at 1% significance level. Whereas variables like saving deposit (SD) to average of assets were significant at 5% significance level since the p-value was 0.043 and all other variable insignificant.

**Table 4. 8: Regression on ROA Model**

Variables	Coef.	Std. Err.	T	P>t
ROA	.2352061	.2727827	0.86	0.396
CASH	.5768851	.0662749	8.70	0.000***
LA	.0440217	.0430129	-1.02	0.316
SI	-.1226265	.0311769	-3.93	0.001***
SD	.0361919	.0342998	1.06	0.043**
DD	-.0268873	.0448246	-0.60	0.554
FD	-.2400761	.0729591	3.29	0.003***
BS	-.9869605	1.192246	-0.83	0.002***
GDP	.157614	.3123059	-0.50	0.318
INF	-.0978995	.2448645	0.40	0.693
Number of obs = 36				
F( 9, 26) = 12.33				
Prob> F = 0.0000				
R-squared = 0.8102				
Adj R-squared = 0.7445				
Root MSE = .01718				

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

Source: Financial statements of banks, MoFED reports and own computation, (2020)

Besides, table 4.8 also shows that the coefficient of sum of investment to average of assets, demand deposit to average of assets, fixed deposit to average of assets, bank size and inflation against ROA were negative as far as the coefficients for those variables are negative -0.1226265, -.0268873, -0.2400761, -0.9869605 and -0.0978995 respectively. This indicates that there was an inverse relationship between the aforementioned five independent variables and ROA. Thus the increase of those variables will lead to a decrease in ROA.

On the other hand, variables like, loan and advance to average of asset, deposit with other banks to average of assets, saving deposit to average of assets, and growth domestic product had a positive relationship with performance as far as their respective coefficients were 0.0440217, 0.5768851, 0.0361919 and 0.157614. This revealed that there was a direct relationship between the above four independent variables and ROA. In general as per the regression results provided in table 4.8 among the 9 regressors used in this study five of them were significant. In general, so far, the results of the documentary analysis which includes tests for the classical linear regression model, descriptive statistics, correlation matrix and regression analysis have been presented. The results of the tests for the classical linear regression model showed as the data fit the basic assumptions of CLRMs.

#### **4.6 Discussions of the Results**

The preceding sections presented the result of the documentary analysis. The purpose of this section is to discuss the results obtained from data sources. The analysis is based on the results of the documentary analysis using the results of the regression analysis between the dependent variable and the independent variables presented in table 4.8 presented in the preceding section.

According to Table 4.8 shows the results of regressions that use ROA as a dependent variable for private commercial banks'. Accordingly, the intercept has positive and statistically insignificant impact on performance. It can be explained as during the study period private commercial banks earn a positive income flows unrelated to the balance sheet items.

#### **4.6.1 Deposit with Other Banks (cash)**

The coefficient of deposit with other banks which is measured by the deposit with other banks to average of assets ratio was positive and statistically significant at 1% significant level ( $p\text{-value}=0.000$ ) and verify the hypotheses that assets of the bank are highly significant and positively related to banks' performance. It can be interpreted as; one birr increase in the amount of deposit with other banks (cash) would generate 0.57 cents increase on performance of private commercial banks. The finding was also consistent with previous studies of (Hester & Zoellner, 1966; Kwast & Rose, 1997; Vasiliou, 1996 and Asiri, 2007) their studies found that assets are positively related to banks performance.

#### **4.6.2 Loan and advance (LA)**

The coefficient of loan and advance which is measured by the loan and advance to average of asset ratio was positive and statistically insignificant ( $p\text{-value}=0.316$ ) and verify the hypotheses that assets of the bank are positively related to banks' performance. The study shows that an increase in loan and advance will result in increase performance. Loan interest is a very good source of income to bank hence, the higher the loan portfolio the higher the interest margin and profit. So from the findings we can conclude as loan and advance was factors that affect the performance of private commercial banks' in Ethiopia. Further, the finding was consistent with previous studies of (Hester & Zoellner, 1966; Kwast & Rose, 1997; Vasiliou, 1996 and Asiri, 2007) their study found that assets are positively related to banks performance.

#### **4.6.3 Sum of investments (SI)**

Unlike, the coefficient of loan and advance the coefficient of sum of investment was negative but statistically significant at 1% significant level ( $p\text{-value}=0.001$ ) and the data don't support the hypotheses that assets of the bank are positively related to banks' performance. Sum of investments are assets that generate return from short-term investment and other investments. Thus, it is normal to expect indirect relationship with performance. But, the regression result fails to support this conjecture indicating that for each birr added on sum of investments (SI) would decrease 0.12 cents on performance of private commercial banks. This variable is in contrast to previous studies

of (Hester & Zoellner, 1966; Kwast & Rose, 1997; Vasiliou, 1996 and Asiri, 2007) their studies found that assets are positively related to banks performance.

#### **4.6.4. Saving deposit (SD)**

The coefficient of saving deposit which is measured by the saving deposit to average of assets ratio was positive and statistically significant at 5% significance level (p-value=0.043) and the data don't support the hypotheses that liabilities of the bank are negatively related to banks' performance. It can be opened without any introduction. Money can be deposited at any time and, there is no restriction on the amount that can be withdrawn at a particular time. If the customer wishes to withdraw more than the specified amount at any one time, he has not given prior notice. Interest is allowed on the credit balance of this account. The findings also suggested that saving deposit is a determinant of banks' performance in private commercial banks' in Ethiopia as far as the parameter for this variable is significant as illustrated by the small p-values of 0.043. And the finding was contrast with previous studies of (Hester & Zoellner, 1966; Kwast & Rose, 1997; Vasiliou, 1996 and Asiri, 2007) their study found that liabilities are negatively related to banks performance.

#### **4.6.5 Demand deposit (DD)**

Unlike, the coefficient of saving deposit the coefficient of demand deposit to average of assets was negative and statistically insignificant (p-value=0.554) and the data support the hypotheses that liabilities of the bank are negatively related to banks' performance. These deposits cannot withdraw at any time. Generally, no interest is allowed on current deposits, and in case, the customer is required to leave a minimum balance undrawn with the bank. These deposits are kept by businessmen and industrialists who receive and make large payments through banks. From the findings we can conclude as demand deposit was not one of the factors affecting of performance of private commercial banks' in Ethiopia so the banks recommend to reduce current deposit collect from customer. And the finding was consistent with previous studies of (Hester & Zoellner, 1966; Kwast & Rose, 1997; Vasiliou, 1996 and Asiri, 2007) their study found that liabilities are negatively related to banks performance.

#### **4.6.6 Fixed deposit (FD)**

The coefficient of fixed deposit which is measured by the fixed deposit to average of assets ratio was negative and statistically significant at 1% significance level ( $p$ -value=0.003) and the variable verify the hypotheses that the liabilities of the bank are negatively related to banks' performance. These deposits cannot be withdrawn before the expiry of the period for which they are deposited or without giving a prior notice for withdrawal. If the depositor is in need of money, he has to borrow on the security of this account and pay a slightly higher rate of interest to the bank. They are attracted by the payment of interest which is usually higher for longer period. Fixed deposits are liked by depositors both for their safety and as well as for their interest. So from the findings we can conclude as fixed deposits was one of the main determinants of performance of private commercial banks' in Ethiopia. And the finding was consistent with previous studies of (Hester & Zoellner, 1966; Kwast & Rose, 1997; Vasiliou, 1996 and Asiri, 2007) their study found that liabilities are negatively related to banks performance.

#### **4.6.7 Bank Size (BS)**

Logarithm of total asset which denote as the bank size is found to have a negative (-0.986) significant relation with the performance of Ethiopia private commercial banks during the study period. This indicate that, holding other factors constant, a one birr increase in bank total asset had caused 98% decrease in the performance of Ethiopian banks during the study period. The negative coefficient indicates that larger banks tend to earn lower profits than smaller banks, and vice versa. The finding is contrast with the study expectation and the findings by some studies around the world and refuted with the findings of positive relation of bank size and bank performance by some other studies. For example, the finding do not supports the study result of positive significant relation between bank size and performance by (Sufian, F., and Habibullah, 2009; Kosmidou, 2008, and; Kosmidou *et al.*, 2006). However, it support with the study result of negative significant relation between this variables by (Sufian, F. and Chong R.R., 2008). Hauner (2005) offers two potential explanations regarding how size could have a positive impact on bank performance. First, if this link relates to market power, large banks should pay less for their inputs. Second, there may be increasing returns to scale through the prioritization of fixed costs (e.g. research or risk management) over a higher volume of services or through efficiency gains from a specialized workforce.

#### **4.6.8 Inflation (INFL)**

Inflation affects banks performance through different channels and its impact on performance can be positive or negative. If the inflation is not anticipated, the banks may be slow in adjusting their interest rates and this adversely or negatively affects bank performance. On the other hand, if the inflation is anticipated, banks may get an opportunity to adjust their interest rates accordingly and resulted with revenues that increased faster than costs. Despite this fact, the coefficient estimate of inflation in this particular study revealed a negative association with the performance of private commercial banks' in Ethiopian. This implies the existence of inverse relationship among inflation and performance of private commercial banks. Also, this negative association was not statistically significant; thus, the findings suggested that inflation was not a major factor that determines the performance of private commercial banks of Ethiopia as far as the parameter for this variable is insignificant as illustrated by a p-value of 0.693. This is because of the existence of a lower real interest rate which is obviously lower than the real inflationary rate, resulting in costs increased faster than revenues. In Ethiopia the maximum lending rate is determined by National bank of Ethiopia and banks are unable to adjust their lending rate in accordance with inflation rate. For instance, the average annual inflation rate in Ethiopia over the period of consideration was 9.36% with a maximum of 13.83%. This clearly indicates the lending rate in Ethiopia was far below from the market interest rate. In conclusion the result clearly reveals as private commercial banks performance is not influenced by inflation.

#### **4.6.9 Gross domestic product (GDP)**

The coefficient estimate of real GDP growth revealed a positive and statistically insignificant association with the performance of private commercial banks. The magnitude of the coefficient estimate (0.157) indicates the existence of moderate positive relationship between real GDP growth and performance of private commercial banks. The findings was in accordance with prior expectation and theory that suggested whenever there was a positive GDP growth, the economic activities in general were increasing and the volume of cash held for either businesses or households was increasing. These conditions contributed to decrease the likelihood that borrowers delay their financial obligations. In addition, strong positive growth in real GDP creates a new and potential demand for financial services that can easily translates into more income.

However, it can be concluded that, the existing ever increasing economic growth in Ethiopia over the sampled period have no significant impact on the performance of private commercial banks. The findings suggested that, real GDP growth was not one of the vital determinants of performance of private commercial banks. This result was consistent with the findings of (Pasiouras & Kosmidou, 2007; Abera, 2012 and Ponce, 2012).

As shown in the above regression analysis result there is a difference between the previous study and this finding. For the reason that, it justifies time, currency, government policy and market value varies from time to time and country to country so that it shows a significant change on the result.

#### **4.7 Interview Results:**

The very purpose of semi structured interview (See appendix-I) with the bank manager at the respective banks was meant to gather information and/or fill the gap that the study couldn't cover by simply assessing secondary data. The interview had been conducted at different times and places and all the managers selected for the interview are believed to have better information access about the subject matter at hand.

##### **4.7.1 Interview with bank representatives:**

Almost all have similar idea each manager of the respective banks answer was compiled together and only deviations (if any) are to be elaborated.

The first question that asks the way of GDP growth rate influences the performance of private commercial bank. As the managers reflection GDP is measurement of economic activity of a country so, when private sector and also governmental organization demand to borrow money and request letter of credit from banks GDP growth rate affect them. When we take Ethiopia as an example we are witness for this implication. So the researcher commented, Poor economic conditions can worsen the quality of the loan portfolio, generating credit losses and increasing the provisions that banks need to hold, thereby reducing bank performance.

The second question, how does inflation rate influence the performance of your bank? Inflation is also one of the macroeconomic determinants and used to represent the changes in the general price level or inflationary conditions in the economy. So When the price of goods specially consumption goods rise people not able to deposit this show the level of inflation rate within a given country then affect banks performance. On the other hand in times of severe inflation the level of savings may even drastically drop. This is due to the fact that returns in savings become negative in real terms, prompting potential savers to opt for other ways of using their funds. Deposit rates appear therefore not to be a principal stimulant of savings.

The third question is impact of bank size on the performance of private commercial bank. Bank size expressed in terms of asset, capital, deposit, profit etc... when a bank accumulated enough capital they can easily achieve what they intended. For instance if a given bank have enough capital they can easily lend money, open branch, maximize profit by introducing new technology. Also large banks are likely to have an advantage of engaging in higher investment diversification than small banks since this diversification reduces risks and economies of scale lead to increase operational efficiency through minimizing costs, positive relationship is expected between bank size and performance.

But some managers supposed, if the bank becomes extremely large in size, a negative effect could be happen between size and bank performance, because the bank is harder to be managed due to bureaucratic and this will happen if not balance bank size and managerial structure of the bank.

#### **4.8 Triangulated report of survey and interview result**

The survey was administer include, GDP growth rate, bank size and inflation rate through interview to collect the necessary data to strengthen survey of the secondary data. There are difference and similarity between manager's general knowledge, empirical study hypothesis and regression analysis;

- ❖ GDP growth rate in the regression analysis positive and insignificant relationship with performance. On the other hand in the interview result when the country economy increases people demand to save and to borrow money. This indicate GDP growth

rate have considerable impact with bank performance. Consequently GDP growth rate have different result in the primary and secondary analysis.

- ❖ Inflation rate in the regression analysis have negative and insignificant effect. On the other hand based on the interview result all of the bank managers supposed that, when the price of goods especially consumption goods rise people are not able to deposit their money this show the level of inflation rate within a given country affect banks performance. Accordingly this negative relationship is significant impact on performance. Hence inflation rate have different result in the regression analysis and in the conducted interview.
- ❖ On the other hand bank size in regression analysis have negative and significant effect with performance and the interview result have two arguments as some managers suggestion large banks are likely to have an advantage of engaging in higher investment diversification than small banks since this diversification reduces risks and economies of scale. On the other hand some of them believed if the bank becomes extremely large in size, a negative effect could be happening between size and bank performance, because the bank is harder to be managed. As a result bank size has different response between regression analysis and the interview result.

## **CHAPTER FIVE**

### **SUMMARY, CONCLUSIONS AND RECOMMENDATIONS**

The preceding chapter presented the analysis of the findings, while this chapter deals with the present summary of the finding, conclusions and recommendations based on the findings of the study. Accordingly this chapter is organized into three sub-sections. Section 5.1 present summary of the finding, 5.2 presents the conclusions and section 5.3 presents the recommendations.

#### **5.1 Summary of the finding**

This study investigate about how factors affecting the performance of private commercial Bank in Ethiopia, most of the results are consistent with the findings of the literature indicating that a bank performance with independent variable.

The study running fixed effect model to estimate the impact of bank specific factors and detailed correlation analysis, descriptive statistics and regression has been used to assess the relationships between the bank specific variables that comprise panel model and return on assets has been applied as a measure of performance.

R-squared statistics and the adjusted R-squared statistics of the model was 81% and 74% respectively. The result indicates that the changes in the independent variables explain 74% of the changes in the dependent variable. That means all independent variable collectively explain 74% of the changes in dependent variable. Only the remaining 26% of changes was explained by other factors which are not included in the model. As a result the regression model fits the observed data.

As shows that variables like, loan and advance to average of asset, deposit with other banks to average of assets, saving deposit to average of assets, and growth domestic product had a positive relationship with performance as far as their respective coefficients were 0.0440217, 0.5768851, 0.0361919 and 0.157614. This revealed that there was a direct relationship between the above four independent variables and ROA. In general as per the regression results among the 9 regressors used in this study five of them were significant. So far, the results of the documentary analysis which includes tests for the classical linear regression model, descriptive statistics, correlation

matrix and regression analysis have been presented. The results of the tests for the classical linear regression model showed as the data fit the basic assumptions of CLRMs.

On the other hand, the coefficient of sum of investment to average of assets, demand deposit to average of assets, fixed deposit to average of assets, bank size and inflation against ROA were negative as far as the coefficients for those variables are negative - 0.1226265, -.0268873 -0.2400761, -0.9869605 and -0.0978995 respectively. This indicates that there was an inverse relationship between the aforementioned five independent variables and ROA. Thus the increase of those variables will lead to a decrease in ROA.

All bank-specific independent variables except loan and advance (LA) to average of assets and demand deposit (DD) to average of assets are statistically significant impact on performance of private commercial bank. On the other hand, among the two external independent variables used in this study none of them are significant. Among the significant variables, deposit with other bank (cash) to average of assets, sum of investment (SI) to average of assets, fixed deposit (FD) to average of assets and bank size (BS) were significant at 1% significance level. Whereas variables like saving deposit (SD) to average of assets were significant at 5% significance level since the p-value was 0.043 and all other variables are insignificant.

## **5.2. Conclusions**

A sound financial system is essential for a healthy and vibrant economy. The performance of any economy is to largest extent dependent on the performance of the banking sector. Banks play a key role in improving economic efficiency by channeling funds from resource surplus unit to those with better productive investment opportunities. In the Ethiopian context, the financial system is also dominated by banking industry. However, the banking sector in Ethiopia is still small, relatively under developed and characterized by a large share of state ownership.

The main objective of this study was to assess factors affecting performance of selected private commercial banks in Ethiopia using panel model. By considering the nature and objective of the research, a quantitative and qualitative research approach was adopted. To

collect the necessary data the study use interview and survey of documents obtained from different sources such as National Bank of Ethiopia (NBE), the websites & financial statements of the respective senior domestic private commercial banks over the period of 2013 to 2018 were analyzed using descriptive statistics, correlation matrix and multiple linear regression analysis. The analyses were made in accordance to the stated hypotheses formulated in the study.

In order to conduct the empirical analysis, one dependent variable (performance measured by ROA), and nine independent variables were selected; loan and advance, deposit with other banks, sum of investments, saving deposit, demand deposit, fixed deposit, bank size, gross domestic product and inflation rate. The variables were selected by refereeing different theories and empirical studies that have been conducted on banks performance and asset liability management. Consequently, the empirical findings of this particular study suggested the following conclusions:

First, the coefficient of the constant term is positive and statistically significant. The positive coefficient of constant term which represents economies of scale suggests that private commercial banks in Ethiopia during the study period earn net positive income from off balance sheet activities. That means that these banks enjoy increasing returns to scale in their operation.

Second, the empirical findings of this study provide evidence that the performance of private commercial banks in Ethiopia is positively related with assets management, except for sum of investments. The deposit with other bank has highly positive significant and sum of investment has highly negative significant effect on the performance of private commercial banks. On the asset side loan and advance only have no significant effect on private commercial banks performance. This implies that loan and advance cannot be able to generate income from alternative sources. Particularly, the other investment activities are not important as in the case of other countries. Although the deposit with other bank is make positive significant contributions toward performance.

Third, all liabilities are negatively related to private commercial bank performance except for saving deposit. The saving deposits variable has positive and significant effect on performance of private commercial banks. That is because private commercial banks are

receiving better service charges on saving deposits that can cover the liquidity requirement costs on its off balance sheet activities. From the liability variables fixed deposits significantly cost the performance of private commercial banks.

Fourth, Logarithm of total asset represented by Bank size has a negative sign indicating that higher size of bank in the market decreases the performance of private commercial banks. This is against the hypothesis that bank size has positively impact on bank performance. However, as bank representative thought size have positive or negative relationship because if a given bank accumulate enough capital they can easily lend money, open branch, maximize profit by introduce new technology otherwise if the bank becomes extremely large in size, a negative effect could be occur between size and bank performance, because the bank is harder to be managed due to bureaucratic and other reasons.

Finally, the macroeconomic variables incorporated in this study model were the general rate of inflation and real growth rate in GDP. The GDP growth has positive and statistically insignificant impact on the performance of private commercial banks. On the other hand, inflation has statistically insignificant and negative relationship with performance. That indicate the macroeconomic variables relationship in regression analysis has no impact on bank performance. Based on the interview result when the country economy increases people demand to save and to borrow money. On the other hand in times of severe inflation the level of savings may even radically go down.

### **5.3 Recommendations**

In line with the findings of the study, the following recommendations have been forwarded. From the results obtained from the regression analysis and the interview result suggested that, among balance sheet variables:

- ❖ In the asset and liability side deposit with other bank (cash) and fixed deposit (FD) was the major factor that can highly positively and negatively contribute respectively to the performance of private commercial banks in Ethiopia. Therefore, private commercial banks recommend to focus on increasing public awareness to mobilize more savings; this will enhance their

performance in reserving more money with other bank and NBE therefore the bank reduced liquidity problem and opportunity to provide loan access while the customer are demand to obtain the service.

- ❖ On the other hand bank size has positive/negative relationship. Therefore, if the bank becomes extremely large in size, a negative effect could be between size and bank performance, because the bank is harder to be managed and when the size is very small lose opportunity of economies of scale and engaging in higher investment diversification. Thus private commercial bank be advise to balance their size and management structure to gain opportunity of economies of scale, maximize profit by introduce new technology and to reduce diversification risks.
- ❖ Additionally, private commercial banks advocate not only be concerned about internal structures and policies, but they are crucial to consider the macroeconomic environment together in fashioning out strategies to improve their performance. Hence, author recommend to adjust their activities by consider GDP growth rate and inflation rate in a country.
- ❖ Finally, the study sought to investigate factors affecting performance of private commercial banks in Ethiopia. For comprehensive investigation future researcher advice to increase the number of observations by increasing the sample size and extending the period of time with unbalanced data. As well, future research recommends covering cross countries to capture countries differences and to uncover difference from financial system and regulation factors.

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# Appendix

## **Appendix- I: Interview questions - for managers**

1. Do you think that GDP growth rate influence the performance of private commercial bank? If yes, in what way?
2. How does inflation rate influence the performance of your bank?
3. What is the impact of bank size on the performance of private commercial banks?

**Appendix Table 1: Fixed-effects Regression Results**

```

xtreg roa cash la si sd dd fd bs gdp inf, fe
Fixed-effects GLS regression      Number of obs   = 36
Group variable: code              Number of groups = 6
R-sq:  within = 0.2665           Obs per group:  min = 6
                                avg = 6.0
                                max = 6
Between = 0.9263
Overall = 0.8650
Wald chi2(9) = 166.57
corr(u_i, X) = 0 (assumed)       Prob > chi2     = 0.0000

```

Roa	Coef.	Std. Err.	Z	P>z	[95% Conf.	Interval]
cash	.5768853	.0531958	11.73	0.000	.5198183	.7283419
La	.0440217	.0479437	1.71	0.087	-.012044	.175892
Si	-.1226265	.0310683	-4.96	0.000	-.2151047	-.093319

Sd	.0361919	.0284583	-0.70	0.485	-.0756369	.0359176
Dd	-.0268873	.0387181	-1.19	0.236	-.1217937	.0299782
Fd	-.2400761	.0683929	2.81	0.005	.0583094	.3264047
Bs	-.9869605	.6826806	-1.95	0.051	-2.672478	.0035803
Gdp	.157614	.0025409	-1.25	0.210	-.0081632	.0017971
Inf	-.0978995	.0020042	-1.06	0.289	-.0060534	.0018029
_cons	.3400974	.153608	2.21	0.027	.0390313	.6411635

sigma\_u = 0

sigma\_e = .00657274

rho = 0 (fraction of variance due to u\_i)

**Appendix Table 2: overall, between and within effect of descriptive analysis**

Variable		Mean	Std. Dev.	Min	Max	Observations
Roa	Overall	.0513889	.0338191	.02	.11	N = 36
	Between	.0358611	.0233333	.0983333	n = 6	
	Within	.0064365	.0397222	.0647222	T = 6	
Cash	Overall	.1013889	.0534069	.05	.24	N = 36
	Between	.0557914	.065	.2133333	n = 6	
	Within	.0135752	.0680556	.1280556	T = 6	
La	Overall	.4794444	.1965989	.22	.86	N = 36
	Between	.0334443	.42	.505	n = 6	
	Within	.1941453	.2077778	.8394445	T = 6	

Si	Overall	.1613889	.1189274	.01	.42	N = 36
	Between	.0785381	.0366667	.2566667	n = 6	
	Within	.0941099	.0330556	.3930556	T = 6	
Sd	Overall	.4872222	.1982871	.16	.91	N = 36
	Between	.0929855	.325	.5716667	n = 6	
	Within	.1786244	.0755556	.8622222	T = 6	
Dd	Overall	.2336111	.1132924	.11	.63	N = 36
	Between	.0369897	.195	.295	n = 6	
	Within	.1079925	.0586111	.5686111	T = 6	
Fd	Overall	.1063889	.0689991	.02	.28	N = 36
	Between	.0324451	.07	.1566667	n = 6	
	Within	.0621174	.0030556	.2630556	T = 6	
Bs	Overall	.2372222	.0056625	.23	.25	N = 36
	Between	.0036004	.2333333	.2416667	n = 6	
	Within	.0045774	.2305556	.2455556	T = 6	
Gdp	Overall	9.416667	1.238547	7.7	10.9	N = 36
	Between	0	9.416667	9.416667	n = 6	
	Within	1.238547	7.7	10.9	T = 6	
Inf	Overall	9.365	2.440808	6.63	13.83	N = 36
	Between	0	9.365	9.365	n = 6	
	Within	2.440808	6.63	13.83	T = 6	

**Appendix table 3 : Ration data**

YEAR	CODE	ROA	CASH	LA	SI	SD	DD	FD	BS	GDP
2013	(DB) 1	0.09	0.21	0.3	0.13	0.36	0.15	0.03	0.24	10.3
2014	1	0.1	0.22	0.32	0.14	0.41	0.16	0.04	0.24	10.4
2015	1	0.1	0.19	0.39	0.2	0.47	0.16	0.05	0.24	8
2016	1	0.1	0.24	0.43	0.22	0.52	0.2	0.05	0.24	10.9
2017	1	0.1	0.18	0.61	0.28	0.63	0.23	0.09	0.24	7.7
2018	1	0.1	0.24	0.71	0.35	0.78	0.28	0.16	0.25	9.2
2013	(NIB) 2	0.04	0.08	0.24	0.02	0.16	0.11	0.04	0.24	10.3
2014	2	0.04	0.09	0.28	0.03	0.39	0.13	0.06	0.24	10.4
2015	2	0.03	0.09	0.39	0.04	0.47	0.18	0.04	0.24	8
2016	2	0.03	0.08	0.49	0.17	0.64	0.26	0.07	0.24	10.9
2017	2	0.03	0.07	0.71	0.22	0.86	0.41	0.1	0.24	7.7
2018	2	0.02	0.07	0.83	0.27	0.91	0.31	0.14	0.25	9.2
2013	(BOA) 3	0.02	0.05	0.23	0.13	0.42	0.12	0.06	0.23	10.3

<b>2014</b>		3	0.04	0.07	0.33	0.18	0.42	0.12	0.06	0.23	10.4
<b>2015</b>		3	0.02	0.06	0.39	0.22	0.5	0.17	0.06	0.23	8
<b>2016</b>		3	0.02	0.07	0.53	0.24	0.61	0.22	0.06	0.24	10.9
<b>2017</b>		3	0.04	0.1	0.71	0.35	0.65	0.51	0.2	0.24	7.7
<b>2018</b>		3	0.02	0.1	0.82	0.42	0.8	0.63	0.25	0.24	9.2
<b>2013</b>	(UNB)	4	0.04	0.07	0.22	0.09	0.19	0.15	0.06	0.23	10.3
<b>2014</b>		4	0.03	0.08	0.3	0.1	0.24	0.19	0.07	0.23	10.4
<b>2015</b>		4	0.03	0.08	0.37	0.18	0.27	0.22	0.09	0.24	8
<b>2016</b>		4	0.03	0.07	0.41	0.22	0.36	0.28	0.11	0.24	10.9
<b>2017</b>		4	0.03	0.08	0.5	0.25	0.42	0.28	0.11	0.24	7.7
<b>2018</b>		4	0.03	0.09	0.72	0.31	0.47	0.37	0.15	0.24	9.2
<b>2013</b>	(WB)	5	0.02	0.06	0.27	0.01	0.3	0.13	0.02	0.23	10.3
<b>2014</b>		5	0.02	0.06	0.29	0.03	0.33	0.15	0.03	0.23	10.4
<b>2015</b>		5	0.02	0.07	0.39	0.06	0.4	0.17	0.08	0.23	8
<b>2016</b>		5	0.02	0.07	0.49	0.07	0.46	0.19	0.09	0.24	10.9
<b>2017</b>		5	0.03	0.06	0.7	0.29	0.77	0.29	0.28	0.24	7.7
<b>2018</b>		5	0.03	0.07	0.86	0.37	0.66	0.24	0.24	0.24	9.2
<b>2013</b>	(AB)	6	0.09	0.09	0.28	0.01	0.25	0.13	0.13	0.23	10.3
<b>2014</b>		6	0.1	0.1	0.34	0.01	0.28	0.16	0.12	0.23	10.4
<b>2015</b>		6	0.09	0.09	0.44	0.03	0.34	0.19	0.11	0.23	8
<b>2016</b>		6	0.09	0.09	0.48	0.04	0.41	0.26	0.19	0.23	10.9
<b>2017</b>		6	0.1	0.1	0.67	0.05	0.57	0.3	0.15	0.24	7.7
<b>2018</b>		6	0.11	0.11	0.82	0.08	0.82	0.36	0.24	0.24	9.2

## **BIOGRAPHICAL SKETCH**

The author was born on November 17, 1988 E.C in wolkite town, in SNNPR, Ethiopia. She attended both Elementary school (1-10) and high school (11-12) education at mekicho millennium primary school and butajira preparatory school respectively on butajira town. After completion of her high school education, she joined then Adigrat University and Graduated in accounting & finances on 2008 E.C. After completing her degree Education she working in united bank since 2009 in wolkite town.

