



**St. MARY'S UNIVERSITY  
SCHOOL OF GRADUATE STUDIES**

**DETERMINANTS OF PRIVATE COMMERCIAL BANKS  
PROFITABILITY IN ETHIOPIA**

**BY:  
MILLION KHAILE**

**A Thesis submitted to St. Mary's university school of graduate studies  
In partial fulfillment of the requirement for award of the degree of  
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**St. MARY'S UNIVERSITY  
SCHOOL OF GRADUATE STUDIES**

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**BY:  
MILLION KHAILE**

**ADVISOR:  
SIMON TAREKEGNE (Ass. Professor)**

**APPROVED BY BOARD OF EXAMINERS**

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**Dean, Graduate Studies**

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**Signature**

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**Advisor**

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**Signature**

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**External Examiner**

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**Signature**

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**Internal Examiner**

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**Signature**

## STATEMENT OF DECLARATION

I, the undersigned, declare that this thesis is my original work, prepared under the guidance of Simon Tarekegne (Ass. Professor). All sources of materials used for the thesis have been duly acknowledged. I further confirm that the thesis has not been submitted either in part or in full to any other higher learning institution for the purpose of earning any degree.

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Name

**St. Mary's University, Addis Ababa**

---

Signature

**Date**

## ENDORSEMENT

This thesis has been submitted to St. Mary's University for examination with my approval as a university advisor.

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Advisor

**St. Mary's University, Addis Ababa**

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Signature

**Date**

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## **Abstract**

*This study examined the determinants of private commercial banks profitability. To achieve the overall objective of the study data were collected from annual report of the selected nine private commercial banks. To determine the sample commercial banks the study used purposive sampling techniques accordingly; from 16 total private commercial banks, nine of them were selected considering their experience and asset size. To analysis the data both descriptive and explanatory (cause – effect) data analysis method were applied. Accordingly the study compares and contrast profitability trend of each of the studied banks and also implied the general environment of all banks profitability trends using percentage ratio. Finally, the study was test how independent variables determine profitability of the studied banks using inferential statics such as, correlation and regression analysis. The study used ROA as a Dependent variable and liquidity, capital adequacy, cost income ratio, Non-performing loan, bank size, loan and advance, net interest margin, GDP and inflation as independent variables. Accordingly the finding implied that, Capital adequacy, bank size, loan and advance, NIM, and GDP have positive significant relationship with profitability of Ethiopian private commercial banks. While, liquidity NPL, inflation and cost income ratio shows negative significant relationship with profitability of Ethiopian private commercial banks. Based on the major finding the study recommended some important recommendations such as, in order to maximize profitability of bank, Ethiopian commercial banks, it is advisable to lower the liquidity ratio to increase the income from loan. The banks could raise fee based services through incentives mechanisms such as, preparing lottery schemes for money transfer services and international banking operations.*

**Key Words:** Profitability, private commercial banks

## LIST OF ACRONYMS

AB	Abay bank
ADIB	Addis international bank
AB	Awash bank
BUIB	Bunna international bank
BOA	Bank of Abyssinia
CAP	Capital adequacy ratio
CBE	Commercial bank of Ethiopia
CBO	Corporative bank of Oromia
CPI	ConsumerPriceIndex
DB	DashenBank
DBE	Development bank of Ethiopia
DGB	Dejub Global Bank
EB	Enat Bank
GDP	Growth rate of Economy
INF	Inflation rate
LA	Loan and Advance
LIB	Lion international Bank
NBE	National Bank of Ethiopia
NIB	Nib international Bank
NIM	Netinterest margin
NPL	Non Performing Loan
OIB	Oromia International bank
OLS	Ordinary Least Square
ROA	Return on Asset
ROE	Return on Equity
UB	United bank
WB	Wegagen Bank
ZB	Zemen bank

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# CHAPTER ONE

## INTRODUCTION

### 1.1. Background of the Study

The financial services industry varies day by day and the evaluation of the profitability of the financial institution became an important aspect. Banks are the integral part of the financial market, and in order to stay at that level; it is necessary to determine how banks operate and what factors affect their profitability.

A study by Saona (2011), attempted to identify the major determinants of banks' profitability, which is affected by internal and external determinants. The measures that are used usually, in the literature, for bank profitability are the return on assets (ROA) and/or the return on equity (ROE) and especially the average value of them. With the term internal determinants we define bank-specific determinants of profitability, such as capital adequacy, liquidity, operational efficiency (expenses management), bank size and other. The external determinants are industry-specific and macroeconomic variables affecting financial institutions' profitability. Such external influences include GDP growth, interest rates, inflation, ownership and other.

Flamini et al. (2009) noted that bank profits provide an important source of equity if re-invested into business. This could lead to safe banks, high profits and financial stability. Therefore, profitability of banking sector is important in both individual and macroeconomic level. It is the expression of how banks run in the environment where they operate. Gottard et al. (2004) stated that profitability is vital in maintaining the stability of the banking system and contributes to the state of the financial system. But on the other hand, a high profitability is not very good. Garcia-Herrero et al. (2009) concluded that a high profitability could be investigative of market power and is especially significant for large banks. This is due to the reason that banks exercising strong market power may offer lower return on deposits but charge high interest on loans. While too low profitability might dampen private agents (depositors and shareholders) from accomplishing banking activities hence resulting in banks failing to attract enough capital to operate.

A number of factors have influenced profitability of commercial banks ranging from those which are under the control of bank management and policy objectives (internal factors) to those factors which are beyond bank management level (external factors). The banking system of Ethiopia demonstrates a vital role in contributing to national economy by intermediating between the savers and productive investors. The financial performance of banks affects the interests of depositors, shareholders, regulators, potential investors and corporate owners. As banks dominate the financial sector in Ethiopia, ensuring the financial health of these institutions is likely going to ensure the health of the performance of the financial system of the country (Abebaw and Kapur, (2011)).

In Ethiopia, commercial banks play important primary role as financial intermediaries in the economic growth process, channeling funds from savers to borrowers for investment. As financial intermediaries, banks play an important role in the operation of an economy. In such away, commercial banks are key providers of funds and their stability is of paramount importance to the financial system. As such, an understanding of determinants of their profitability and the drivers of bank profitability for that matter is essential and crucial to the sustainability of the banking industry.

### **1.1.1 Banking industry in Ethiopia**

It was in 1905 that the first bank, the “Bank of Abyssinia”, was established based on the agreement signed between the Ethiopian Government and the National Bank of Egypt, which was owned by the British.

The bank was managed by Egyptian National Bank and was given different rights among which is the right to issue notes and coins and the promise not to allow any bank to establish in the country in the next 50 years.

In 1931, the Bank of Abyssinia was replaced by the Bank of Ethiopia which was wholly owned by the government and members of the Ethiopian aristocracy, becoming the first 100% African-owned bank on the continent; it was also authorized to issue notes and coins and to act as the government’s bank. It operated for only a few years, being closed after the Italian invasion. During the Italian occupation, several Italian banks opened branches in Ethiopia (Harvey, 1995)

During the five-years of Italian occupation banking activity of the country was relatively expanded. In that time, the Italian banks were particularly active. As a result, most of the banks that were in operation during this period were Italian banks. Like Banco di Italia, Banco di Roma and Banco di Napoli. After independence from Italy's brief occupation, in 1941 another foreign bank, Barclays Bank came to the country where the role of Britain was paramount owing to its strategic planning during the Second World War, and it remained operational until its withdrawal in 1943. Then on April 15, 1943 the Ethiopian government established the State Bank of Ethiopia. This Bank was operating as both a commercial and a central bank until 1963 when it was remodeled into today's National Bank of Ethiopia (NBE), (the Central Bank, re-established in 1976) and the Commercial Bank of Ethiopia (CBE).

The National Bank of Ethiopia with more power and duties started its operation in January 1964 and commercial bank of Ethiopia took over the commercial banking activities of the former State Bank of Ethiopia.

The first privately owned bank, Addis Ababa Bank S.C, was established on Ethiopians initiative and started operation in 1964 with capital of 2 million in association with National and Grindlay Bank, London which had 40 percent of the total share. All privately owned financial institutions including three commercial banks, thirteen insurance companies and two non-bank financial intermediaries were nationalized on 1 January 1975. The nationalized banks were reorganized and one commercial bank (the Commercial Bank of Ethiopia), a National Bank (recreated in 1976), two specialized banks (the Agricultural and Industrial Bank – renamed later as the Development Bank of Ethiopia; and a Housing and Saving Bank – renamed later as the Construction and Business Bank and recently absorbed by the Commercial Bank of Ethiopia) as well as one insurance company – Ethiopian Insurance Company were formed. Following the regime change in 1991 and the liberalization policy in 1992, these financial institutions were reorganized to work on market-oriented policy framework. Besides, new privately owned financial institutions were also allowed to work along the publicly owned ones (Geda, 2006). As a result, the number of banks operating in the country reached 18 of which 16 are private, and the remaining 2 are state owned. Both public owned and private banks which are operating currently in the country are listed in the following table 1.

**Table 1: List of commercial banks operating in Ethiopia**

S/N	Name	Year of Establishment	No. of branch end of June 2016
1	Abay Bank	2010	152
2	Addis international Bank	2011	53
3	Awash Bank	1994	339
4	Bank of Abyssinia	1996	253
5	Berhan international Bank	2010	177
6	Bunna international Bank	2009	143
7	Commercial Bank of Ethiopia	1963	1310
8	Cooperative Bank of Oromia	2005	287
9	Dashen Bank	1995	315
10	Debub Global Bank	2012	38
11	Enat Bank	2013	33
12	Lion international Bank	2006	158
13	Nib international Bank	1999	203
14	Oromia international Bank	2008	237
15	United Bank	1998	204
16	Wegagen Bank	1997	223
17	Zemen Bank	2009	22

Source: National Bank of Ethiopia

Commercial Bank of Ethiopia is the only one government owned bank in commercial sector the rest sixteen's banks are privately owned (Abay Bank, Addis international Bank, Awash international Bank, Dashen Bank, Bank of Abyssinia, Wegagen Bank, United Bank, Nib International Bank, Cooperative Bank of Oromia, Lion International Bank, Oromia International Bank, Zemen Bank, Bunna Bank, Berhan International Bank, Enat Bank & Debub Global Bank).

## 1.2 Statement of the problem

Determinants of bank profitability divided in internal and external factors. Internal factors of bank profitability can be defined as those factors that are influenced by the bank's management policy objectives and decisions.

Management effects are the results of differences in bank management policies, decisions, objectives, and actions reflected in differences in bank operating results, including profitability. The return on assets (ROA) and/or the return on equity (ROE) are usually expressed as a function of internal and external determinants. Internal determinants are factors that are mainly



influenced by a bank's management decisions and policy objectives. Such profitability determinants are the level of liquidity, provisioning policy, capital adequacy, expenses management, bank size and so forth. On the other hand, the external determinants, both industry-related and macroeconomic, are variables that reflect the economic and legal environment where the credit institution operators contributing in bank performance (Alfadhil, & Alabdullah, 2011).

For the last decade the Economy of Ethiopia increases at increasing rate and the country enables to register a double digit economy growth and it is expected to continue for the future. In this regard, banks also play a great contribution to facilitate the registered economy growth in the last decades. In view of this fact, the government has tried the banking sector to grow and to facilitate the economy growth of the country.

On the other hand, the literatures on the banking sector have pointed out that a great deal of economic activity would be seriously hindered if the most prominent agents in the credit markets, the commercial banks, did not execute their function properly. A sound and profitable banking sector is able to resist negative shocks and contributes to the stability of the financial system and sustainability of overall economic development. Thus, identifying the major profit determinant factors is vital to improve the profitability of the banking industry in particular and for smooth economy growth of the country in general (Sastrosuwito&Suzuki, 2011).

In view of the above fact, a lot of studies have been conducted in the area of commercial banking profitability and its determinants by considering the importance of the area at international level. They verified that there is a direct association between profitability of commercial banking industries and its determinant factors Rajan&Zingales, (1998); Eichengreen& Gibson, (2001); Bourke, (2004). Even though, all these and other researchers conducted study on this area, the determinants of profitability have been debated for many years and still unsolved issues in the corporate finance literature. Indeed what makes the profit determinants debate exciting is the determinant of profit is dynamic through time to time and differ with the nature of operating of the firm from place to place (Flamini et al., 2009).

Similarly, studies also conducted on the area in Ethiopia even though the exact assessment areas vary with the proposed study topic of in this assessment. Such as there are a studies that took place in Ethiopia on determinates of private commercial banks profitability by (Moges, 2014) the

study used both descriptive and panel method of data analysis, however, the gap in this study was that there were focused on two more experience private commercial banks, therefore it is difficult to reach on overall conclusion left in medium experienced banks, to solve this gap in this study attempts tried to include both experienced and medium experienced private commercial banks, similarly there were a related study took place by (Melaku,2011) on private selected banks depending on panel data and assessing only internal determinants factors of private commercial banks, the gab observed in this study was it was only assess internal factors, while to fill the gap the study was consider both internal and external determinants factors. In addition to this problem, the study were not recent as profitability of commercial banks affected by several determinate factors dynamically with time studying on time research may give contemporary result. Therefore, in this study attempts was tried to address determinants factors of commercial banks profitability in Ethiopia, considering both internal as well as external factors.

Moreover, there were a related study took place by (Belayneh, 2011) on private selected banks depending on panel data and assessing determinants s factors of private commercial banks profitability, the gab observed in this study was it was examine by taking government bank as well as private banks, government banks asset size are extremely high relative to private banks so it may give inadequate result. Therefore to fill the gap the study was consider only private commercial banks to determinants factors.

### **1.3 Basic Research Questions**

Q1.what are the major internal factors that determine the profitability of commercial banks in Ethiopia?

Q2.what are the major external or macroeconomic variables affecting profitability of Ethiopian commercial banks?

## **1.4 Objective of the study**

### **1.4.1 General objective of the Study**

The main objective of the study is to examine the determinants private commercial banks profitability in Ethiopia.

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

Specifically, the study with assumes the following objectives:-

1. To examine how banks specific factors determine commercial banks profitability.
2. To examine the effect of macro-economic determinants variables on commercial banks profitability.

## **1.5 Hypotheses of the study**

In line with the broad purpose statement the following hypotheses were also formulated for investigation. Based on the objective, the present study seeks to test the following hypotheses:

**Capital Adequacy:** should be an important variable in determining bank profitability, although in the presence of capital requirements, it may proxy risk and also regulatory costs. In imperfect capital markets, well-capitalized banks need to borrow less in order to support a given level of assets, and tend to face lower cost of funding due to lower prospective bankruptcy costs. Athanasoglou, Brissimis and Delis, (2005).For this reason the study proposed that:

*HP1: There is a significant positive relationship between the capital adequacy ratio and bank's profitability.*

**Bank Liquidity (LIQ):** Effective liquidity management seeks to ensure that, even under adverse conditions, a bank will have access to the funds necessary to fulfill customer needs, maturing

liabilities and capital requirements for operational purposes. Without the required liquidity and funding to meet short-term obligations, a bank may fail. For the purpose of this research, liquidity positions of private commercial banks are used as a measure of bank performance. Ommeren, (2011) and hence, the following hypothesis is drawn.

*H2: There is significant negative relationship between Liquidity and profitability of commercial banks.*

**Bank size:** The other important determinant of bank performance that is considered by the study is bank size. Since it is difficult to exactly measure the size of a bank, the logarithm of the total assets of a bank is usually used as a proxy for bank size. Bank size is included as an explanatory variable to give an explanation for size related economies of scale or diseconomies of scale in Ethiopia's banking sector. The study expect a positive effect of size on bank profitability 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 profitability, because the bank is harder to be managed due to bureaucratic and other reasons. Therefore, the size-profitability relationship is expected to be non-linear (Eichengreen and Gibson, 2001). In order to emphasize this possible non-linear relationship, as a proxy the study use the logarithm of banks total assets.

*HP3: There is a significant positive relationship between the size of a bank and bank's profitability.*

**Non - Performing Loan:** It is measured by the ratio of nonperforming loan to total loan. Since NPL data of banks is not obtained the provision of banks is taken as a proxy for NPL. Non-performing loans affect profitability of the banks negatively. They are the main contributor to liquidity risk, which exposes banks to insufficient funds for operation Based on this it is expected that there is a negative relationship between non-performing loans and profitability of the bank and as a result the following hypothesis is drawn. The loan amount recorded as nonperforming should be the gross value of the loan as recorded on the balance sheet, not just the amount that is overdue. Non-performing Loans is measured by ratio of nonperforming loans over the Total Loan (Moore, 2005).

*H4: There is negative relationship between Non-performing loans and bank's profitability.*

**Net Interest Margin (NIM)** is the spread between the interest earned on the bank's assets and the interest costs on its liabilities. One of a bank's primary intermediation functions is to issue liabilities and use the proceeds to purchase income-earning assets. If a bank manager has done a good job of asset and liability management such that the bank earns substantial income on its assets and has low costs on its liabilities, profits will be high. How well a bank manages its assets and liabilities is affected by the spread between the interest earned on the bank's assets and the interest costs on its liabilities. If the bank is able to raise funds with liabilities that have low interest costs and is able to acquire assets with high interest income, the net interest margin will be high, and the bank is likely to be highly profitable. If the interest cost of its liabilities rises relative to the interest earned on its assets, the net interest margin will fall, and bank profitability will suffer. Kosmidoul, (2003). Therefore, there is an ambiguous relationship between Interest Income Interest Expense ratio and bank profitability.

*HP5: There is a significant positive relationship between the NIM ratio and bank's profitability.*

**Loan growth (LG):** One of the most important roles of banks is to offer loans to borrowers and loans serves as the main source of earnings for commercial banks. In different words, loans are the highest yielding asset on banks' balance sheet. According to Abreu and Mendes (2002) the more the banks offer loans the more they do generate revenue and more profit they make. Therefore, loans should positively affect profitability as the bank is working vigilantly and not taking excessive risk.

*HP6: There is a positive relationship between the loans growth and bank's profitability.*

**Cost to Income Ratio (C/I ratio)** measures the income generated per birr cost. That is how expensive it is for the bank to produce a unit of output. The lower the C/I ratio, the better the performance of the bank will and the reverse will be the higher C/I ratio. For this reason the study draw the following hypothesis.

*HP7: There is a significant negative relationship between the C/Income ratio and profitability.*

**Growth rate of Economy (GDP):** is among the most commonly used macroeconomic indicators, as it is a measure of total economic activity within an economy. The GDP per capita growth is expect to have a positive impact on banks' profitability, according to the well-documented literature on the association between economic growth and financial sector performance, as result the following hypothesis is drawn.

*H8: GDP has positive and significant effect on profitability of commercial; Banks*

**Inflation Rate (INF)** The effect of inflation on bank profitability depends on how inflation affects both salaries and the other operating costs of the bank. The study of Perry (1992) suggests that inflation impacts bank profitability whether it is fully anticipated or not. If the inflation rate is fully anticipated by the bank's management, the bank can adjust interest rates appropriately to increase revenues faster than costs, which should have a positive impact on profitability. However, Ethiopian Private commercial banks can't adjacent interest rate based at individual level, as result the following hypothesis is drawn.

*H9: Inflation has negative and significance effect on bank profitability.*

## **1.6 Significance of the Study**

The study will benefit the bank's managers as they will use study findings to identify various factors that influence profitability of banking industry in Ethiopia. In addition, the managers may also adopt the study recommendations to improve performance and profitability where possible. The findings will also be of value to other firms in the banking industry in Ethiopia like microfinance organizations, saving and cooperative societies, insurance firms and pension fund firms who operate similarly to commercial banks to identify factors, which may influence their profitability. The findings will also be of importance to literature, as it will add on to the existing literature on profitability and financial performance of banking industry. Finally, future scholars and researchers may also use these findings as a basis for additional research.

## **1.7 Scope of the Study**

Though, it is believed in the literature that more observation means more information for generalization, however, this study is restricted only to know the key determinants of profitability of selected Ethiopian private commercial banks by analyzing their financial statements start from the year 2009 up to 2016. Regarding the sample banks included in this study attempts were made to include 9 private commercial banks, this is because it is difficult to address and easily manage data of all commercial banks. Therefore, from 16 total private commercial banks the study consider 9 of them based on their experience (establishment years) as well as asset size, accordingly, Awash, Abbysina, Dashen, United, Nib and Wegagen Banks selected from medium peer group while, Cooperative bank of Oromia, Lion international bank and Oromia international Banks were considered from small peer groups), this is because the sample banks are fairly representing their corresponding peer banks positions in terms of asset size, capital level, liquidity positions and profitability.

## **1.8 Organization of the study**

This paper consists of five chapters with different section and sub-sections and it was structured as follows. Chapter one provides the general introduction about the whole report. Chapter two describes the review of related literatures. Chapter three provide detail description of the methodology employed by the research. Chapter four contains data presentation, analysis and interpretation. Finally, the last chapter concludes the total work of the research and gives relevant recommendations based on the findings.

## **CHAPTER TWO**

### **LITRATURE REVIEW**

#### **Introduction**

This chapter covered the literature review on determinates profitability of commercial banks dividing in two parts these are theoretical literatures and empirical literatures. The theoretical framework on determinates of commercial banks will encompass models, theories, and definition, while the empirical literature reviewed several studies results and highlighting the knowledge gap.

#### **2.1 Theoretical Review**

There have been several theoretical studies on determinates of profitability of commercial banks. Highlighted below are some of related definitions, theories and models.

##### **2.1.1 Market Power Theory**

This theory stresses that an increase in market power results to a monopoly, profits. The theory is based on the premise that concentration of the market is a best measure for market power since more concentrated markets exhibit superior market imperfections facilitating various entities to set prices for their products and services at levels which is less favorable to their clients or customers (Punt and Rooij, 2001). The theory also affirms that companies with a large market share and sound differentiated products and services can easily earn monopolistic profits and succeed or win against their competitors (Nkegbe&Yazidu, 2015).

The market power theory assumes that extra profits results from a higher market concentration which allows commercial banks to collude and earn supernormal profits which arise due to the firms portfolio of differentiated products that also increases the market share and market power in determining prices for products (Mirzaei, 2012). The market-power theory also affirms that market power is the major variables which make profitability to change and concentrated markets frequently involve market imperfections which arise from collusion, made possible by market concentration, and by various legislative barriers to entry or exit (Punt and Rooij, 2001).

Market power theory is applied in a banking industry, to explain bank's profitability and how it is affected by its market share. The theory explains the positive relation between bank's size and



financial performance. Market power theory suggests that banks' profitability is as a result of the industries market structure Onuonga, (2014). In addition, this theory posits that market structure of banking industry influences banks' profitability Ntow&Laryea, (2012). According to Obumuyi (2013), this theory assumes that banks' profitability is a function of external market factors and the theory also assumes that the industry structure which is measured using market concentration in term of the market share ratio effects the profitability of commercial banks Fisseha, (2015).

### **2.1.2 Efficiency Theory**

The efficiency theory was formulated by Demsetz (1973) as an alternative to the market power theory. The efficiency theory presupposes that better management and scale efficiency results to higher concentration thus greater and higher profits. Accordingly, the theory posits that management efficiency not only increases profits, but also results to larger market share gains and improved market concentration Athanasoglou, Brissimis& Delis, (2005). The efficiency theory also states that a positive concentration– profitability relation may be a sign of a positive connection relating to efficiency and size. The theory postulates that positive association between the concentration and profit arise from a lower cost which is mainly achieved through production efficient practices and increased managerial process Birhanu, (2012).

The efficiency theory supports that the most favorable production can be attained through economies of scale. Thus, maximum operational efficiency in the short run is achieved at a level of output where all economies of scale available are being employed in an efficient manner Odunga et al., (2013). Additionally, the efficiency theory explains that attaining higher profit margins arises from efficiency which allows banks to obtain both good financial performance and market shares Mirzaei, (2012). According to Fisseha (2015), the efficiency theory presupposes that profitability and high concentration results from efficient cost reduction practices and better management strategies across the organization. Thus, efficient firms in the market lead to an increase in their market share and the size of their firm because of aggressive production and management techniques Birhanu, (2012).

In the banking industry, the efficient theory advocates that large commercial banks which have better and experienced management and up to date production technologies are able to reduce their operational costs, therefore earned higher returns on investment in comparison to smaller

banks Soana, (2011). Basically, the theory is based on the premise that banks attain profits if they operate efficient than their competitors which lowers operating costs leading to good profits Onuonga, (2014). The efficiency theory also assumes that internal efficiencies influence profitability of commercial banks Obumuyi, (2013). Further, the theory explains that banks which operates efficiently in comparison to their competitors increase their profits due from low operating costs. The efficiency hypothesis prevails when a positive significant correlation between profitability and the market share is signaled Mensi&Zouari, (2010).

### **2.1.3 Agency Cost Theory**

The agency cost theory arose from the seminal contributions of Jensen &Meckling (1976). Agency cost theory assumes that firm's financing structure can be used as a mechanism or vehicle by managers and investors solve the free cash flow problem. Agency theory explains that corporate form of organizations is illustrated by professional managers who have little ownership but are running business on behalf of shareholders (owners) who are extensively dispersed characterizes an archetypal principal-agent problem Gedajlovic& Shapiro, (2002). Agency costs arises from separation of ownership and control, whereby managers maximize their own benefits or employ the firm's resources for personal gains instead of maximizing value of firm or the shareholders wealth Mian, Haris& Muhammad, (2012).

Jensen &Meckling (1976) classified agency cost into costs arising from monitoring of managers by shareholders, cost of bonding and residual loss. Agency cost includes agency cost arising from conflict of interest between firm's managers and shareholders and agency cost arising out form conflict debt holders and of interest of shareholders Mian, Haris& Muhammad, (2012). According to the theory, agency costs appear because of the differences of interests and actions from managers and Principals, which is likely to affect in due course the principals' benefits and the firm value and profitability Alfadhl&Alabdullah, (2013).

### **2.1.4 Signaling Theory**

The signaling theory emanated from Arrow (1972) and Spence (1973). Signaling theory presupposes that best performing or profitable firms supply the market with positive and better information Bini, Dainelli&Giunta, (2011). In addition, the signaling theory is one of the theories, which have a clarification for the association between profitability and capital structure Alkhazaleh&Almsafir, (2014). This theory presupposes that a superior capital structure is an

optimistic signal to market worth of the organization Adeusi, Kolapo&Aluko, (2014). The signaling theory further postulates that majority of the profitable firms signal their competitive power through communicating new and important information to market. Thus, information is disclosed by means of specific indicators or ratios which, very often, measure specific conditions on which to enter into or renew the agency contract Bini, Dainelli&Giunta, (2011).

According to the signaling theory, the management of bank signals good future expectation by increasing of capital. This indicates that less debt ratio necessarily mean those banks perform better than their identical Alkhazaleh&Almsafir, (2014). In addition, the theory argues that managers who strongly believe that their bank can outperform other banks in the industry will want to relay such information to various stakeholders in order to attract additional investments. Thus, the signaling theory affirms that when a bank's performance is excellent, directors will signal the banks performance to its stakeholders and market by making various disclosures which poor performing firms cannot make. By enhancing more disclosure most managers will wish to receive high benefits and a good reputation which may increase the value of the firm and profitability Muzahem, (2011).

### **2.1.5 Expense theory**

Is measured by the ratio of operating expense to total assets (e.g. Aburime, 2008) and it is a proxy to management quality. Clearly, efficient cost management is a prerequisite for improved profitability of banks. There is evidence that superior management raise profits and market shares (Berger, 1995 and Athanasoglou, Brissimis and Delis, 2005). According to Athanasoglou, Brissimis and Delis, (2005) investigation on Greek banks during the period 1985 – 2001 observed that Operating expenses appear to be an important determinant of profitability. They find that, there is direct positive relation between efficient expense management (i.e. management quality) and profitability. There is direct negative connection between Operating expenses and profitability of banks; means that there is immediate negative relation between lack of efficiency in expenses management and profitability of banks.

The literature suggests that, the environment in which banks operate influences them, like any firm; from this, the external environment is the common and the uncontrolled one. The external determinants are variables that not related to bank management but reflect the industry-related

and macroeconomic environment that affects the operation and performance of commercial banks. External determinants of bank profitability are concerned with those factors, which are not influenced by specific bank's decisions and policies, but by events outside the influence of the bank. Several external determinants are included in the performance examination of commercial banks profitability: the financial market structure; the economic condition of the country, the legal and political environment all may influence the performance of the banks Athanasoglou, Delis and Staikouras, (2006), kasmidou, (2008) and Sufian, (2011). For the purpose of this study, regulation and market concentration as industry-specific determinants and economic growth, exchange rate and interest rates policy as macroeconomic determinants were used.

## **2.2 Factors determining Commercial banks Profitability**

A number of studies have examined the determinants of banks' profitability in many countries around the world. Most of the studies consider internal factors (i.e., banks' specific) and external factors (i.e., industry-specific and economic environment) and examine either a particular country or a number of countries. The studies usually expressed bank profitability, as a function of internal and external determinants. A number of explanatory variables have been proposed for both categories, according to the nature and purpose of each study. Internal determinants of bank profitability can be defined as those factors that are influenced by the banks' management decisions and policy objectives. Essentially, company level determinants of bank profitability comprise characteristics of individual bank companies that affect their profitability. Shareholder and managerial decisions and activities can directly influence these characteristics; hence, they also differ from company to company Athanasoglou, (2006), kasmidou, (2008) and Sufian, (2011). The most frequently used bank profitability determinants which are driven from financial statement include;

### **2.2.1 Capital Adequacy**

Bank equity capital can be seen in two dimensions as stated by Aburime (2008). Those are the amount contributed by the owners of a bank (paid-up share capital) that gives them the right to enjoy all the future earnings and the amount of owners' funds available to support a bank's business which includes reserves, and is also termed as total share holders' funds. It is measured by the ratio of equity capital to total assets. Bank's capital is widely used as one of the determinants of bank profitability since it indicates the financial strength of the bank

Athanasoglou, Brissimis and Delis, (2005). Aburime (2008) suggested that the bank level of safety achieved through the high capital requirements which generated positive net benefits. The degree of security exceeded the level maximizing net benefits. Capital adequacy requirements generally aim to increase the stability of a national banking system by decreasing the likelihood of a bank failure and a number of negative externalities exist in banking that cause risk to systematically under price. Research conducted by Valentina, Flamini, McDonald and Schumache, (2009) on the determinants of commercial banks profitability in Sub – Saharan Africa by taking 389 sample banks in 41 SSA countries, they measuring profitability by return on asset indicators. They founded that capital adequacy has positive and significant effect on profitability.

### **2.2.2 Liquidity Risk**

Liquidity risk is another type of risk for banks; when banks hold a lower amount of liquid assets they are more vulnerable to large deposit withdrawals. In other word, liquidity risk arising from the possible inability of a bank to decreases accommodate liabilities or to fund increases on the assets' side of the balance sheet. Therefore, liquidity risk is estimated by the ratio of liquid assets to total asset. Insufficient liquidity is one of the major reasons of bank failures Ommeren, (2011). Liquidity is the quality of an asset that makes it easily convertible into cash with little or no risk of loss. A bank considered liquid when it has sufficient cash and other liquid assets, together with the ability to raise funds quickly from other sources, to enable it to meet its payment obligation and financial commitments in a timely manner. Following prior research of Ommeren, (2011) and Rasiah (2010) a negative relationship between profitability and large liquid assets to customer deposits and short term funding ratio is hypothesize. On the other hand researchers expected a positive relationship between liquidity risk and profitability and concluded that the fewer the funds tied up in liquid assets the higher expected profitability to be Eichengreen and Gibson, (2001).

### **2.2.3 Income /Cost Ratio**

In the literature of bank performance, Efficiency and Productivity is the single ratios such as net interest income over total assets, operating expense to operating income, operating expense to total assets and gross income to the numbers of employees had been used to assess manager's and employee's efficiency in banks. Empirical evidence from Athanasoglou, Brissimis and Delis,

(2005) shows that labor productivity growth has a positive and significant effect on bank profitability. This suggests that higher productivity growth generates income that partly channeled to bank profits. The commercial banks can target high levels of efficiency and productivity growth both by keeping the labor force steady and by increasing overall output. Ramlall (2009) said the higher the efficiency level of a bank, the higher the profits level.

#### **2.2.4 Loans and Advances**

One of the principal activities of commercial banks is to grant loans to borrowers. Because loans are among the highest yielding assets a bank can add to its balance sheet, and they provide the largest portion of operating revenue. The higher the volume of loans extended the higher the interest income and hence the profit potentials for the commercial banks. Furthermore, it must also be noted that higher interest income are not merely a function of higher volume of loans but are in fact also dependent on the lending rates and the interest rate elasticity of loans as well. The interest rate elasticity of loans will depend on the national affluence or national income Moin, (2008). The interest raised from the loans is the most important source of the banks' income. However, inherent with bank's loan is liquidity risk as well as credit risk. In this respect, in extending loans, banks should properly manage such risks. In general, it is expected that the more loans, the more interest income, and the more profitable the bank Sastrosuwito and Suzuki, (2011). Loan and advance is the ratio of loans to total assets. It measures what percent of total assets is comprised by loans and it gauges the percentage of total assets the bank has invested in loans (or financings). It is also another important ratio that measures the liquidity condition of the bank in terms of its total assets Moin, (2008).

#### **2.2.5 Size of the Bank**

The bank's total asset is another bank specific variable that affects the profitability and liquidity of a bank. Bank size measures its general capacity to undertake its intermediary function. There are two opposing arguments regarding to the relationship between bank liquidity and bank size. The first view is the "too big to fail" hypothesis which considers negative relationship between bank size and liquidity whereas; the second view considers there is a positive relationship between bank size and liquidity. In this study, bank size is measured by the natural logarithm of total asset of the bank and it is expected positive relationship between bank size profitability.

### **2.2.6 Non-performing Loans:**

Non-performing loans are loans that are outstanding in both principal and interest for a long time contrary to the terms and conditions contained in the loan contract Kiyotaki, and Moore (2008). It follows that any loan facility that is not up to date in terms of payment of both principal and interest contrary to the terms of the loan agreement, is non-performing. Therefore, the amount of non-performing loan measures the quality of bank assets Basel, (2011). Bank nonperforming loans to total gross loans are the value of nonperforming loans divided by the total value of the loan portfolio (including nonperforming loans before the deduction of specific loan-loss provisions). The loan amount recorded as nonperforming should be the gross value of the loan as recorded on the balance sheet, not just the amount that is overdue. Non-performing Loans is measured by ratio of nonperforming loans over the Total Loan (Moore, 2005).

Non-performing loans can lead to efficiency problem for banking sector. It is found by a number of economists that failing banks tend to be located far from the most-efficient frontier because banks do not optimize their portfolio decisions by lending less than demanded (Barr et al. 1994). According to Bloem and Gorter (2001), though issues relating to non-performing loans may affect all sectors, the most serious impact is on financial institutions such as commercial banks and mortgage financing institutions which tend to have large loan portfolios. Besides, the large bad loans portfolios will affect the ability of banks to provide credit. Huge non-performing loans could result in loss profit.

### **2.2.7 Net Interest Margin (NIM)**

Net interest margin is the spread between the interest earned on the bank's assets and the interest costs on its liabilities. One of a bank's primary intermediation functions is to issue liabilities and use the proceeds to purchase income-earning assets. If a bank manager has done a good job of asset and liability management such that the bank earns substantial income on its assets and has low costs on its liabilities, profits will be high. How well a bank manages its assets and liabilities is affected by the spread between the interest earned on the bank's assets and the interest costs on its liabilities. If the bank is able to raise funds with liabilities that have low interest costs and is able to acquire assets with high interest income, the net interest margin will be high, and the bank is likely to be highly profitable. If the interest cost of its liabilities rises relative to the

interest earned on its assets, the net interest margin will fall, and bank profitability will suffer. Demircuc-Kunt and Huizinga (1999) and Kosmidoul, (2003) use the net interest margin (NIM) as proxy for banks' profitability. The net interest margin can be calculated as interest income (income from loans and securities) minus interest expense (the interest the bank must pay to its depositors and creditors from whom it has borrowed funds).

### **2.2.8 Economic Growth (GDP)**

Economic growth (GDP) is among the most commonly used macroeconomic indicators, as it is a measure of total economic activity within an economy. The GDP per capita growth is expected to have a positive impact on banks' profitability, according to the well-documented literature on the association between economic growth and financial sector performance. An important finding of the study is that, the economic growth had positively and significantly affects bank profits Athanasoglou, (2005). This is because the default risk is lower in upturn than in downturn economy. In addition, higher economic growth may lead to a greater demand for both interest bearing and non-interest bearing financial services. Moreover, higher economic growth encourages banks to lend more and permits them to charge higher margins, as well as improving the quality of their assets. Neely and Wheelock (1997) uses per capita income and suggests that this variable exerts a strong positive effect on bank earnings. Demircuc-Kunt and Huizinga (2000), Athanasoglou, Brissimis and Delis, (2005) and Bikker and Hu (2002) by supporting this idea attempted to identify the effect of economic growth (GDP) on bank profitability. All researchers agreed and concluded that positive and strong correlation existed between economic growth (GDP) and bank profitability.

### **2.2.9 Inflation on (INF)**

Inflation reflects a situation where the demand for goods and services exceeds their supply in the economy (Karl et al, 2002). Inflation causes many distortions in the economy. It hurts people who are retired and living on a fixed income. When overall prices rise these consumers cannot buy as much as they could previously. It also affects the repayment of loans and discourages savings due to the fact that the money is worth more presently than in the future and inflation therefore affects the liquidity of the of the Commercial Banks.



In any economy inflation is undesirable. This is because of the specific economic costs associated with inflation. First, when inflation is high, currency and non-interest-bearing checking accounts are undesirable because they are constantly declining in purchasing power. Secondly, there are tax distortions, for example, when inflation rages, the actual value of these deductions are much less than it should actually be (Ludi and Ground, 2006).

A growing theoretical literature describes mechanisms whereby even predictable increases in the rate of inflation interfere with the ability of the financial sector to allocate resources effectively. More specifically, recent theories emphasize the importance of informational asymmetries in credit markets and demonstrate how increases in the rate of inflation adversely affect credit market frictions with negative repercussions for financial sector (both banks and equity market) performance and therefore long-run real activity (Huybens and Smith 1998, 1999). The common feature of these theories is that there is an informational friction whose severity is endogenous. Given this feature, an increase in the rate of inflation drives down the real rate of return not just on money, but on assets in general. The implied reduction in real returns exacerbates credit market frictions. Since these market frictions lead to the rationing of credit, credit rationing becomes more severe as inflation rises. As a result, the financial sector makes fewer loans, resource allocation is less efficient, and intermediary activity diminishes with adverse implications for capital/long term investment. In turn, the amount of liquid or short term assets held by economic agents including banks will rise with the rise in inflation. Hence, there is positive relationship between increase in inflation rate and banks profitability.

### **2.3 Empirical Literature of the Study**

A study by Maigua and Mouni (2016) investigated the effect of interest rate determinants on banks' performance. A sample size of 26 banks was used in the study and multiple regression analysis to analyze data. The study results found that inflation rates, discount rates and exchange rates positively affected the banks' performance whereas reserve requirement ratio negatively influenced the banks' performance. It was concluded that exchange rates, inflation rates and high discount rates lead to banks' higher performance whereas high levels of reserve requirement lowered the banks' performance.

Mbugua and Rotich (2014) explored the impact of intellectual capital on profitability of commercial banks quoted at the NSE with focus on relational capital, innovation capital, human capital and structural capital, and. The study employed a descriptive research design and secondary data for 5 years from 2009-2013. The research found that structural capital and innovation capital affects listed commercial banks of Kenya profitability. The study recommended that listed banks in bank should enhance strong control over structural and innovation capital, more allocations for intellectual capital investment should be made to the two elements of intellectual capital for more growth in profitability.

Kyalo (2013) examined the factors influencing profitability of banks in Kenya for a 3 years period from 2010 – 2012. Secondary data collected from the 44 banks in Kenya was used in the study. Using the regression model the study established that capital invested has a significant influence on ROE while operational efficiency, GDP and inflation have insignificant effect on ROE on equity. The study recommended that commercial banks in Kenya should put more focus both the bank specific factors and the external environment together to come up with effective strategies to enhance their financial performance.

Kosmidou and Pasiouras (2008) examined effect of macroeconomic conditions, bank-specific features and market structure in financial perspective on banks' profits in United Kingdom from the year 1995 to 2002. The research findings established that banks capital strength had a positive and dominant effect on their profitability. The study established that efficiency in expenses management and bank size significantly affected the profitability of commercial banks Kosmidou (2008) using unbalanced pooled time series data studied the factors that influence the performance of banks in Greece from the year 1990 to 2002. The research established that more return on average assets was connected to highly capitalized commercial banks and low cost to income ratios. The research revealed that size of the bank had a positive but statistically significant in combination with financial structure and macroeconomic variables. The research established that growth of gross domestic product significantly and positively influenced profitability whereas inflation has a negative and statistically significant negative effect on banks' profitability.

In the context of Ethiopia, to the knowledge of the researcher, there appears to be very limited work on the assessment of determinants of profitability of banks. Mohana&Berhanu (2008) was

carried out to explore the key determinants of profitability of commercial banks operating in Ethiopia using unbalanced panel data set of banks over the period 1999-2008. In this analysis the fixed effects model is used to control the unobservable bank specific characteristics. The fixed effects model is preferred to the random effect model following the Hausman test, Chi-square =27.6, and P-value =0.005. The result of their study indicates that the most determinants of bank profitability in Ethiopia are the internal factors, factors over which a bank's management has control. Though the external factors are found to be statistically insignificant, their signs have important policy implications, and thus require the attention of policy makers and bank regulators.

Alemu (2015) examined determinants of commercial banks profitability of eight banks in Ethiopia from for 10 years from 2002 - 2013. The study used multiple linear regressions and the fixed effect regression model to analyze data. The study established that size of banks; capital adequacy and gross domestic product have a positive and statistically significant relationship with profitability of banks. The findings of the study also revealed that liquidity risk, operational efficiency, funding cost and banking sector development have a negative and statistically significant relation with profitability of banks. Finally, the study found that the relationship between efficiency of management, efficiency of employee, inflation and foreign exchange rate was statistically insignificant.

Abebe (2014) assessed the internal and external determinants of financial performance Ethiopia's banks using panel data of banks for a period between the year 2002 and the year 2013. The study employed the fixed effect regression model. The regression results established that capital structure, income diversification, operating cost had a significant negative relationship with performance while bank size had a positive significant

A study made by Semu (2010) assessed the impact of reducing or restricting loan disbursement on the performance of banks in Ethiopia. It also attempted to examine the possible factors that compel the banks to reduce or restrict lending, covering the period of 2005- 2009. The findings of the study showed that net deposit and paid up capital have statistically significant relationship with banks' performance measured in terms of return on equity. On the other hand, Damena (2011) examined the determinants of Ethiopian commercial banks profitability. The results

showed that all bank-specific determinants, with the exception of saving deposit, significantly affect commercial banks profitability in Ethiopia. Market concentration was also a significant determining factor of profitability. Finally, with regard to macroeconomic variables, only economic growth exhibits a significant relationship with banks' profitability. Study conducted by Belayneh (2011) examined the determinants of Ethiopian commercial bank profitability by employing the bank-specific, industry-specific and macroeconomic variable. The estimation results show that all bank-specific determinants, with the exception of saving deposit, significantly affect commercial banks' profitability in Ethiopia. Market concentration is also a significant determining factor.

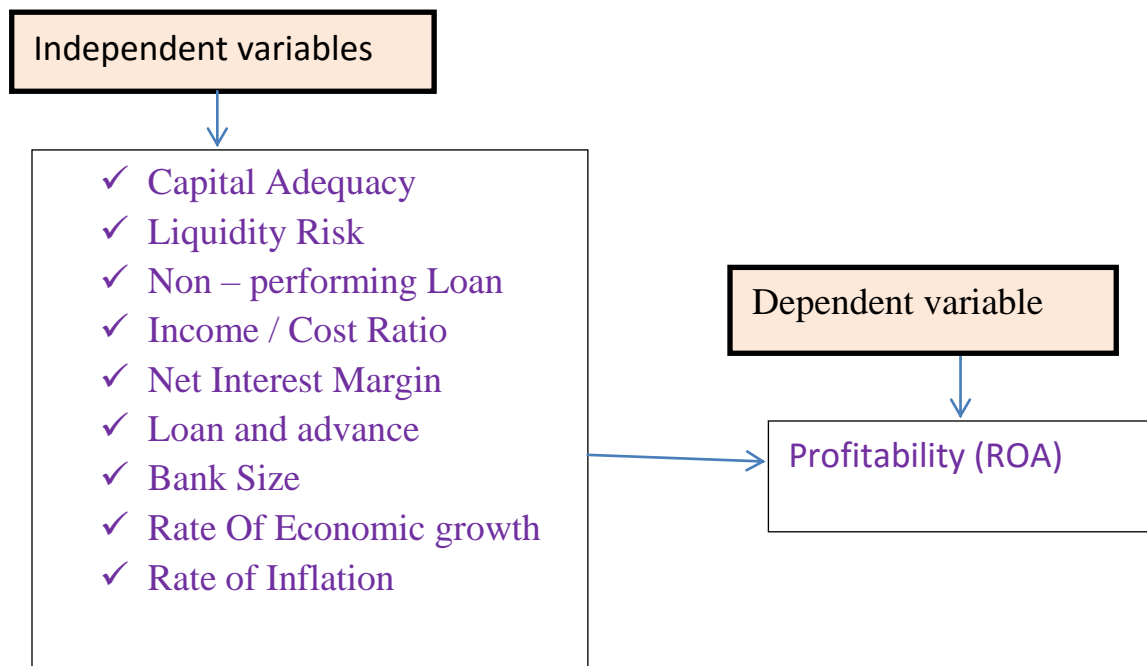
## **2.4 Summary and literature gap**

The empirical literature part in this study analyzed considering both empirical studies done within the country and outside of the country. A specific literature outside of Ethiopia explored determinates of profitability although the measurement of profitability varies among studies. Disregarding the profitability measures, most of the banking studies have noticed that the capital ratio, loan-loss provisions and expense management are important factors in achieving high profitability. For instance, study conducted by Semu (2010), Mbugua and Rotich (2014), Kyalo (2013), Kosmidou and Pasiouras (2008) and Damena (2011) examined the determinants of commercial banks profitability by employing the variables capital, bank size, loan and advance, saving deposit, fixed deposit, non-interest income, non-interest expenses and credit risk as bank-specific; market concentration as industry – specific variable and economic growth, saving interest rate and inflation as macroeconomic variable. And they have been indicate how profitability affected by determinant variables in several ways. There are also studies conducted in Ethiopia on the area such as, a study by Abebe (2014), Alemu (2015), Semu (2010) and Belayneh, (2011) their study considered both internal and external determinate variables, however, the gap in this study was, rather than indicating determinate factors effect on the industry crude average results it doesn't compare and contrast how variables affect each banks system, therefore, the study attempt to solve this literature gap by assessing both internal and external determinant factors and how their effect intensity was managed by several banks of Ethiopia by compare and contrasting the effects.

## 2.5 Conceptual Framework

A conceptual framework depicts a relation that exists between study variables. The study seeks to identify determinants of banks profitability hence independent variables will include bank's size, capital adequacy, liquidity, credit risk and operating costs. The dependent variable will be profitability. From the literature review mentioned above, the investigator developed the following schematic representation of the conceptual frame work.

**Figure 1: Conceptual frame work**



Source: Mbugua and Rotich (2014)

## **CHAPTER THREE**

### **Research Methodology and Design**

#### **3.1 Research Design**

The study used descriptive and explanatory research design. According to Muranaga and Ohsawa (2002), a descriptive and explanatory types of research design is important for a research types if the dependent variable affected by several independent variables. Based on this profitability of commercial banks can be affected by several determinate factors. So, this study designed to describe the collected panel data using correlating and regression analysis. The data was gathered the period from 2009 up to 2016 and panel data study was used to determine the interrelationship between the variables under consideration among the different private's banks of Ethiopia.

#### **3.2 Data Type and Sources**

The study used secondary data to investigate the determinants of private commercial banks profitability in Ethiopia. Panel data from year 2009 up to 2016 was taken. The main source of the data was the annual audited financial statement of each private Commercial Banks, Reports and Bulletins of National Bank of Ethiopia. The types of data that used in this study were balanced panel data and Quantitative in nature. Balanced panel data meaning that each cross sectional units have same number of time series observations.

#### **3.3 Study Population**

All operational commercial banks in Ethiopia considered as taken as the study population. As stated before currently there are 16 operational private commercial banks in Ethiopia. According to NBE annual report (2016/17), Ethiopia consists of 17 Commercial banks. Commercial Bank of Ethiopia (CBE), Dashen Bank S.C (DB), Awash Bank S.C (AB), Wogagen Bank S.C (WB), United Bank S.C (UB), Nib International Bank S.C (NIB), Bank of Abyssinia S.C (BOA), Lion International Bank S.C (LIB), Cooperative Bank of Oromia S.C (CBO), Berhan International Bank S.C (BIB), Buna International Bank S.C (BUIB), Oromia International Bank S.C (OIB), Zemen Bank S.C (ZB), Abay Bank(AB),Addis International Bank(ADIB), Dehub Global Bank(DGB) and Enat Bank (EB). Since the study analyses more depend on the secondary data obtained from NBE annual report. From the target population, sample selected based on

purposive Sampling method which is a non- probability sampling procedure that ensures to achieve a certain goal that the study want to address. To select sample banks the study compares commercial banks experience and asset size. In this regard Commercial Banks of Ethiopia categorized into three peer groups. It is based on the establishment period and asset sizes of the banks. A large bank is the first category, there is only one banks which is Commercial Bank of Ethiopia (CBE), the second peer group is middle size banks, under this category there is six medium banks which are Awash, Dashen, Abyssinia, Wegagen, United and Nib Banks. The final peer group is small banks; this group is relatively small in asset size, which is Cooperative Bank of Oromia, International, Lion, Zemen, Bunna, Berhan, Abay, Addis, Enate and Debub Global Banks. Based on this the study only consider private commercial banks, this is because to compare and contrast determinates of ROA from similar environments. Accordingly, from 16 total private commercial banks 9 of them were selected based on their experience (years of establishment) and asset size. Based on these, Awash, Bank of Abyssinia, Dashen, United, Nib and Wegagen banks considered form middle sized banks while, Oromia international bank, Lion international bank and cooperative bank of Oromia are considered in small peer groups. Based on this the study cover 8 years annual report data 2009 – 2016. This is because in this time interval it is possible to imply the recent profitability position of commercial banks and indicate determinate factors.

Table 2: List of selected studied banks

S.No	Name of the Bank	Establishment Year	Group category
1	Awash Bank	1994	Middle size group
2	Dashen Bank	1995	
3	Bank of Abbysina	1996	
4	Wegagen Bank	1997	
5	United Bank	1998	
6	Nib international Bank	1999	
7	Cooperative Bank of Oromia	2005	Small size group
8	Lion international Bank	2006	
9	Oromia international Bank	2008	

Source: Developed for the research

### **3.4 Methods of Data Analysis**

In this study two type of statistical analysis used to test the proposed hypotheses. These are descriptive statistics and inferential statistics/multiple regression analysis to see the effect (relationship) of explanatory or independent variables on the dependent variable. The descriptive statistics of both dependent and independent variables calculated over the sampled periods. This helps to convert the raw data in to a more meaningful form which enables the researcher to understand the ideas clearly. Then, correlation analyses between dependent and independent variables were made and finally a multiple linear regression analysis and diagnosis test method was used by using E-views 9 software.

### **3.5. Variable Definition & their measurements**

According to Creswell (2009), the variables need to be specified in quantitative researches so that it is clear to readers what groups are receiving the experimental treatment and what outcomes are being measured. Accordingly, the study identified both dependent and independent variables. Below the definition of the dependent and independent variables discussed.

#### **3.5.1 Dependent Variable**

Banks Profitability is the dependent variable. In the context of this study, bank profitability is measured by Return on Asset (ROA).

##### ***Return on Asset (ROA)***

The ROA reflects the ability of a bank's management to generate profits from the bank's assets. It shows the profits earned per birr of assets and indicates how effectively the bank's assets are managed to generate revenues. This is probably the most important single ratio in comparing the efficiency and operating profitability of banks as it indicates the returns generated from the assets that bank owns Getahun, (2015). There are different accounting based measures for banks 'profitability. For instance, Return on Equity (ROE), Return on Assets (ROA), Profit Earning Ratio (PER) and Net Interest Margin (NIM). In this study Return on Assets (ROA) used to measure profitability of the studied banks.

$$\text{Return on asset } ROA = \frac{\text{Net Profit Before Tax}}{\text{Total Asset}}$$



### 3.5.2 Independent Variables

This section describes the independent variables that determine the dependent variables under the study. The following are the dependent variables that the study focused on.

**Bank Liquidity (LIQ):** Effective liquidity management seeks to ensure that, even under adverse conditions, a bank will have access to the funds necessary to fulfill customer needs, maturing liabilities and capital requirements for operational purposes. Without the required liquidity and funding to meet short-term obligations, a bank may fail. Ommeren, (2011). For the purpose of this research, liquidity positions of private commercial banks are used as a measure of bank performance.

$$\text{Bank liquidity (LIQ)} = \frac{\text{CurrentAsset}}{\text{CurrentLiability}}$$

**Capital Adequacy (CAP):** should be an important variable in determining bank profitability, although in the presence of capital requirements, it may proxy risk and also regulatory costs. In imperfect capital markets, well-capitalized banks need to borrow less in order to support a given level of assets, and tend to face lower cost of funding due to lower prospective bankruptcy costs. Aburime (2008). The measurement of capital adequacy is as follows:

$$\text{CapitalAdequacy (CAP)} = \frac{\text{Equity}}{\text{TotalAsset}}$$

**Non - Performing Loan (NPL):** It is measured by the ratio of nonperforming loan to total loan. Since NPL data of banks is not obtained the provision of banks is taken as a proxy for NPL. Non-performing loans affect profitability of the banks negatively. They are the main contributor to liquidity risk, which exposes banks to insufficient funds for operation. Moore, (2005)

$$\text{Non performing loan} = \frac{\text{Total loan}}{\text{Non repayed Loan}}$$

**Loan growth (LG):** One of the most important roles of banks is to offer loans to borrowers and loans serves as the main source of earnings for commercial banks. In different words, loans are the highest yielding asset on banks' balance sheet. According to Abreu and Mendes (2002) the more the banks offer loans the more they do generate revenue and more profit they make. Therefore, loans should positively affect profitability as the bank is working vigilantly and not taking excessive risk.

LG = Annual Growth of Loan and Advance

**Net Interest Margin (NIM)** is the spread between the interest earned on the bank's assets and the interest costs on its liabilities. One of a bank's primary intermediation functions is to issue liabilities and use the proceeds to purchase income-earning assets. If a bank manager has done a good job of asset and liability management such that the bank earns substantial income on its assets and has low costs on its liabilities, profits will be high. How well a bank manages its assets and liabilities is affected by the spread between the interest earned on the bank's assets and the interest costs on its liabilities. If the bank is able to raise funds with liabilities that have low interest costs and is able to acquire assets with high interest income, the net interest margin will be high, and the bank is likely to be highly profitable. If the interest cost of its liabilities rises relative to the interest earned on its assets, the net interest margin will fall, and bank profitability will suffer. Kosmidoul, (2002)

$$\text{NIM} = \frac{\text{Interest income} - \text{Interest Expense}}{\text{Total loans and advance}}$$

**Cost to Income Ratio (C/I ratio)** measures the income generated per birr cost. That is how expensive it is for the bank to produce a unit of output. The lower the C/I ratio, the better the performance of the bank will and the reverse will be the higher C/I ratio. The measurement of cost to income ratio is as follows:

$$(C/I) = \text{total cost (Expense) /total income}$$

**Bank size (BS):** The other important determinant of bank performance that is considered by the study is bank size. Since it is difficult to exactly measure the size of a bank, the logarithm of the total assets of a bank is usually used as a proxy for bank size. Bank size is included as an explanatory variable to give an explanation for size related economies of scale or diseconomies of scale in Ethiopia's banking sector. The study expect a positive effect of size on bank profitability 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 profitability, because the bank is harder to be managed due to bureaucratic and other reasons. Therefore, the size-profitability relationship is expected to be non-linear (Eichengreen and Gibson, 2001).

Bank size (BS) =is natural logarithm of total asset

**Growth rate of Economy (GDP):** is among the most commonly used macroeconomic indicators, as it is a measure of total economic activity within an economy. The GDP per capita growth is expect to have a positive impact on banks' profitability, according to the well-documented literature on the association between economic growth and financial sector performance.

GDP= rate of economy growth the country within the studied period

**Inflation Rate (INF)** The effect of inflation on bank profitability depends on how inflation affects both salaries and the other operating costs of the bank. The study of Perry (1992) suggests that inflation impacts bank profitability whether it is fully anticipated or not. If the inflation rate is fully anticipated by the bank's management, the bank can adjust interest rates appropriately to increase revenues faster than costs, which should have a positive impact on profitability.

INF= Inflation rate of the country within the studied period

### 3.6 Model Specification

In establishment of the relationship between study variable comprising of independent variables including size of the bank, capital adequacy, liquidity, credit risk, operating efficiency and the dependent variable (Return on Assets) the study used the regression model. This study used an ordinary least squares (OLS) regression to estimate the linear equation and the OLS regression model was as follows:

$$ROA_{jt} = \beta_0 + \beta_1 (LIQ)_{jt} + \beta_2 (CAP)_{jt} + \beta_3 (NPL)_{jt} + \beta_4 (LG)_{jt} + \beta_5 (NIM)_{jt} + \beta_6 (CI)_{jt} + \beta_7 (BS)_{jt} + \beta_8 (GDP)_{jt} + \beta_9 (INF)_{jt} + \epsilon_{it}$$

Where:

ROA = Return on Asset of bank j at time t

LIQ = Liquidity position of bank j at time t

CAP = Capital Adequacy Ratio of bank j at time t

NPL = Non – Performing Loan of bank j at time t

BS = Size of the Bank log total assets of bank j at time t

LG= Loan growth of bank j at time t

NIM = Net interest margin of bank j at time t

C/I= Cost /Income ratio of bank j at time t

GDP= Economic Growth Effect of bank j at time t

INF= Inflation Effect of bank j at time t

$\beta_0$  = constant

$\beta_1$  to  $\beta_9$  = coefficients of regression equation

$\epsilon$  = probable error

# CHAPTERFOUR

## Data Analysis and Interpretation

### Introduction

This core chapter deals with the discussion and analysis of data collected from the sampled banks annual publications of the national bank of Ethiopia (NBE) and each commercial banks audited annual financial reports. The audited financial statements of the banks over the study period has been obtained from National Bank of Ethiopia, (which is responsible for maintaining the audited financial statements of all banks operating in the country and regulate their operating activities), the country's central bank. Basically, the balance sheet and income statements were the main sources of the relevant data to address the stated objectives of the study. Based on this the study were analyzed in two major sections. The first section describes determinates of commercial banks profitability using percentage ratio and the second section presented the correlation and regression analysis to determine cause effect relationship between dependent and independent variables.

### 4.1. Descriptive statistics

In this part the study discussed both dependent and independent variables. The dependent variable of the study is ROA of private commercial banks in Ethiopia. As described in the variable definition part, the ROA is the most widely used approaches to measure profitability of commercial banks. Based on this below the study discussed both the dependent and independent variables from the year 2009 – 2016.

### Trend of Profitability (ROA)

Profitability is the likelihood of a business earning the desired level of income within a specific period of time under certain prevailing business conditions. Profitability can be measured by return on asset (ROA) and return on equity (ROE). While for the purpose of this study, it was measured by the return on asset and the return on asset was measured by the ratio of net profit before tax to total asset. Net profit before tax was used in order to avoid the impact of different period's tax rate on the net profit of the bank. Below the table indicate the studied commercial banks trend of profitability from 2009 – 2016.

**Table 3: Return on Asset (ROA) (in percentages)**

<b>Bank</b>	<b>Years</b>								
	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b><u>Average</u></b>
<b>AB</b>	0.025	0.034	0.040	0.036	0.038	0.035	0.029	0.028	<b>0.033</b>
<b>BOA</b>	0.028	0.029	0.033	0.041	0.033	0.034	0.031	0.027	<b>0.032</b>
<b>CBO</b>	0.004	0.020	0.027	0.038	0.043	0.065	0.042	0.003	<b>0.030</b>
<b>DB</b>	0.021	0.024	0.027	0.028	0.024	0.042	0.023	0.024	<b>0.027</b>
<b>LIB</b>	0.004	0.037	0.034	0.043	0.051	0.035	0.038	0.035	<b>0.035</b>
<b>NIB</b>	0.039	0.041	0.047	0.041	0.037	0.028	0.028	0.025	<b>0.036</b>
<b>OIB</b>	-0.009	0.020	0.029	0.023	0.024	0.033	0.023	0.020	<b>0.020</b>
<b>UB</b>	0.024	0.033	0.034	0.036	0.023	0.018	0.021	0.021	<b>0.026</b>
<b>WB</b>	0.036	0.037	0.038	0.037	0.034	0.030	0.028	0.027	<b>0.033</b>
<b><u>Average</u></b>	<b>0.0191</b>	<b>0.0306</b>	<b>0.0343</b>	<b>0.0359</b>	<b>0.0341</b>	<b>0.0356</b>	<b>0.0292</b>	<b>0.0233</b>	<b>0.0303</b>

*Source: Computed from annual reports of each bank*

Even though private commercial banks are profitable, however, their trend of profitability implied becomes decline the recent two years. Accordingly the minimum average growth rate of ROA registered 1.91% in the year 2009 and the maximum ROA of 3.59% was registered on the year 2012. Regarding the individual bank level the average growth rate of Nib international bank was high at 3.6% while Oromia international bank ROA at 2.0% was smallest. relatively the net profit of older banks were higher in magnitude than newly opened banks, equivalently the total asset of the older banks was higher and as a result the ratio of ROA has not shown significant difference between the studied banks.

### **Determinates of ROA**

The study investigates the both internal and external determinants variables and their effect on profitability of the studied private commercial banks for the period 2009 - 2016. The internal factors included in this study are variables such as banks size, Capital adequacy, liquidity ratio, loan growth, Net interest margin, cost/Income ratio and non-performing loan. On the other hand, GDP and Inflation used as external determinate variables.

## Liquidity (LIQ)

Liquidity position of the studied banks were measured based one Liquid asset/net deposit ratio which indicates the extent to which the bank's total liquid assets are composed of deposits from customers and other financial institutions. Liquidity ratio has a negative influence on bank profitability such that high excess liquidity decreases bank profitability and low liquidity improves bank profitability. Excess liquidity is a sign that bank lending is low and banks are holding more money than statutory required for precautionary purposes. While, low liquidity is a reflection that banks are holding less money in their accounts, an indication of increased lending to the public, and thus implied growth in business and profitability. As per NBE directive number SBB/57/2014 issued by the National Bank of Ethiopia, any licensed commercial banks are required to maintain liquid asset not less than 15% of its net current liabilities (which includes the sum of demand deposits, saving deposits, time deposits and similar liabilities with less than one-month maturity). Below, the overall average liquid asset-to-deposit and other short term borrowing ratio of the studied banks indicated from 2009 to 2016 implied as follow:

*Table 4: Liquid Asset/Net Deposit*

Bank	Years								
	2009	2010	2011	2012	2013	2014	2015	2016	<u>Average</u>
<b>AB</b>	0.52	0.49	0.50	0.58	0.60	0.60	0.66	0.67	<b>0.58</b>
<b>BOA</b>	0.54	0.57	0.53	0.56	0.54	0.56	0.53	0.59	<b>0.55</b>
<b>CBO</b>	0.75	0.51	0.40	0.49	0.47	0.67	0.89	0.70	<b>0.61</b>
<b>DB</b>	0.55	0.49	0.52	0.57	0.55	0.53	0.57	0.55	<b>0.54</b>
<b>LIB</b>	0.66	0.57	0.51	0.55	0.62	0.57	0.64	0.68	<b>0.60</b>
<b>NIB</b>	0.64	0.59	0.51	0.62	0.67	0.68	0.71	0.61	<b>0.63</b>
<b>OIB</b>	0.61	0.45	0.43	0.48	0.52	0.51	0.65	1.42	<b>0.63</b>
<b>UB</b>	0.58	0.53	0.53	0.59	0.57	0.56	0.57	0.65	<b>0.57</b>
<b>WB</b>	0.53	0.61	0.47	0.60	0.61	0.54	0.59	0.68	<b>0.58</b>
<b><u>Average</u></b>	<b>0.60</b>	<b>0.53</b>	<b>0.49</b>	<b>0.56</b>	<b>0.57</b>	<b>0.58</b>	<b>0.65</b>	<b>0.73</b>	<b>0.59</b>

*Source: Computed from annual reports of each bank*

As implied from the above table the minimum average liquidity ratio reaches 49% in 2011 and then it has shown increments in the year 2016 it was 73%. Accordingly both are by far above the

minimum liquidity requirement standard of the NBE supervisory authority of 15%. In general, the higher this ratio signifies that the bank has the capacity to absorb liquidity shock and the lower this ratio indicates the banks increased sensitivity related to deposit withdrawals. As indicated relatively Bank of Abyssinia and Dashen bank relatively have smaller amount of liquidity ratio when it compare with bank of Oromia international bank and Nib .This indicates the banks maintained high liquid average asset more than the NBE requirement which affects the return on asset negatively because as more liquid assets are kept idle with respect to net deposits, no profit will be generated from these assets unless they are invested in alternative investment avenues.

### Capital Adequacy Ratio (CAP)

Capital adequacy is measured by the ratio of regulatory capital to risk-weighted assets and accordingly a minimum of 8% is required. The higher the ratio entails the capability of the bank to absorb losses from its own capital. As it is shown in the table below,

*Table 5: Average Capital Adequacy Ratio*

Bank	Years								
	2009	2010	2011	2012	2013	2014	2015	2016	<u>Average</u>
<b>AB</b>	0.12	0.12	0.13	0.14	0.14	0.13	0.13	0.13	<b>0.127</b>
<b>BOA</b>	0.10	0.09	0.09	0.11	0.11	0.14	0.13	0.13	<b>0.112</b>
<b>CBO</b>	0.15	0.11	0.10	0.11	0.11	0.11	0.12	0.12	<b>0.116</b>
<b>DB</b>	0.09	0.09	0.10	0.10	0.10	0.12	0.12	0.12	<b>0.105</b>
<b>LIB</b>	0.20	0.18	0.20	0.18	0.18	0.17	0.14	0.13	<b>0.173</b>
<b>NIB</b>	0.15	0.15	0.17	0.19	0.18	0.18	0.16	0.16	<b>0.168</b>
<b>OIB</b>	0.34	0.19	0.15	0.16	0.14	0.12	0.10	0.12	<b>0.164</b>
<b>UB</b>	0.11	0.11	0.12	0.13	0.12	0.13	0.12	0.12	<b>0.119</b>
<b>WB</b>	0.16	0.18	0.17	0.19	0.18	0.19	0.18	0.17	<b>0.178</b>
<b><u>Average</u></b>	<b>0.158</b>	<b>0.136</b>	<b>0.134</b>	<b>0.145</b>	<b>0.140</b>	<b>0.144</b>	<b>0.134</b>	<b>0.132</b>	<b>0.140</b>

*Source: Computed from annual reports of each bank*

The average capital adequacy ratio of the studied banks was above the minimum requirement set by the NBE which is 8%. The maximum CAP ratio of 15.8% which was recorded in the year 2009 shows that, during that time the total asset of the studied banks were at its highest level as compared to its capital. The capital adequacy ratio reaches the minimum 13.2% in the year 2016.



Generally, the study depicted that, the average capital adequacy ratio of the studied banks for the studied period such as; DB 10.5%, and BOA11.2% have shown the lowest average capital adequacy ratio. On the other hand, WB at 17.8% and LIB 17.3% maintained highest average capital adequacy ratio. From the result it can depict that, relatively the commercial banks that have higher level of capital have higher opportunity to lend a higher amount of money to a borrower and they can increase their interest income and can reduce their transaction costs, and which finally enables them to increase their profit. Therefore, an increase in the ratio of capital to loan leads to an increase the profit of the banks.

### **Loan growth (LG)**

Hence, lending is the principal business activity for all commercial banks in Ethiopia and the loan portfolio is the largest asset and the predominate source of revenue. The higher the loan growth has probability the higher profit. Below the table implied loan and advance trend of the studied commercial banks.

**Table 6: Loan growth trend of the studied banks**

<b>Bank</b>	<b>Years</b>								
	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b><u>Average</u></b>
<b>AB</b>	-0.01	0.16	0.27	0.38	0.40	0.19	0.36	0.24	<b>0.25</b>
<b>BOA</b>	0.02	0.13	0.23	0.31	0.09	0.06	0.22	0.10	<b>0.15</b>
<b>CBO</b>	0.85	0.20	0.12	0.74	0.53	0.75	0.85	-0.08	<b>0.49</b>
<b>DB</b>	-0.01	0.16	0.27	0.38	0.40	0.19	0.36	0.24	<b>0.25</b>
<b>LIB</b>	1.58	0.24	0.16	0.43	0.36	0.19	0.84	0.52	<b>0.54</b>
<b>NIB</b>	-0.10	0.17	0.18	0.23	0.32	-0.02	0.32	0.24	<b>0.17</b>
<b>OIB</b>	1.00	2.26	0.80	0.54	0.59	0.59	0.86	0.10	<b>0.84</b>
<b>UB</b>	0.16	0.21	0.25	0.25	0.15	0.08	0.35	0.24	<b>0.21</b>
<b>WB</b>	0.05	0.15	0.09	0.34	0.23	0.19	0.28	0.09	<b>0.18</b>
<b><u>Average</u></b>	<b>0.39</b>	<b>0.41</b>	<b>0.26</b>	<b>0.40</b>	<b>0.34</b>	<b>0.25</b>	<b>0.49</b>	<b>0.19</b>	<b>0.34</b>

*Source: Computed from annual reports of each bank*

The above loan growth trend shows that the minimum average growth rate of LA 19% was registered in the year 2016 and the maximum LA 49% registered in 2015. Regarding the individual bank level the highest average growth rate of LA observed in OIB that is 84%, while

the lowest was BOA bank (15%). Generally, from the trend of LA, one can understand that, as the main income of commercial banks depend from interest of loan and advance the loan growth of the studied banks implied all of the studied commercial banks in terms of LG were somehow profitable.

### **Non - Performing Loan (NPL)**

In this study, NPL is measured by the share of non-performing loans from the total loans & advances of the bank. The National Bank of Ethiopia has provided direction to all commercial banks to maintain the NPL ratio below 5%. Below the table implied trend of non-performing low at each bank level.

*Table7: Non -Performing loan trend in percentage ratio*

<b>Bank</b>	<b>Years</b>								
	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b><u>Average</u></b>
<b>AB</b>	0.06	0.05	0.04	0.03	0.02	0.02	0.02	0.02	<b>0.030</b>
<b>BOA</b>	0.02	0.02	0.01	0.01	0.01	0.01	0.00	0.00	<b>0.011</b>
<b>CBO</b>	0.01	0.03	0.02	0.01	0.02	0.02	0.03	0.05	<b>0.023</b>
<b>DB</b>	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	<b>0.020</b>
<b>LIB</b>	0.01	0.02	0.02	0.02	0.01	0.01	0.02	0.02	<b>0.015</b>
<b>NIB</b>	0.05	0.04	0.04	0.03	0.03	0.02	0.02	0.02	<b>0.029</b>
<b>OIB</b>	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.02	<b>0.011</b>
<b>UB</b>	0.03	0.04	0.03	0.02	0.02	0.01	0.01	0.01	<b>0.022</b>
<b>WB</b>	0.06	0.04	0.05	0.02	0.02	0.02	0.02	0.02	<b>0.030</b>
<b><u>Average</u></b>	<b>0.030</b>	<b>0.028</b>	<b>0.025</b>	<b>0.019</b>	<b>0.018</b>	<b>0.016</b>	<b>0.015</b>	<b>0.019</b>	<b>0.021</b>

*Source: Computed from annual reports of each bank*

As implied from the above table the trend of the studied commercial banks non-performing loan, most of the studied banks engaged below the minimum requirement of NPL of NBE 5%. Even if, the trend implied that, performance of the studied banks were improved from year to years as implied by the average non performing rate that is 3.0% were the highest non performing rate of commercial banks registered in 2009, while the minimum registered 1.5% in 2015. This implied

performance of commercial banks increase in collecting the loan from borrowers. At individual bank level the highest average percentage ratio of NPL observed 3.0% by AB and WB, while the lowest were 1.1% in BOA and OIB. As a whole the percentage ratio 2.1% implied that performance of all the studied commercial banks in collecting loan was almost similar. Generally, from the stated data one can deduced that, as the study is focused profitability of commercial banks measuring through several types of determinant variables, the fact implied that, all of the studied banks perform low (under the NBE requirement of 5%), which is good for banks profitability because it shows they are collected there loan in time without affecting credit cap.

### **Cost to Income ratio(C/I)**

It measures income generated per birr cost. It signals how expensive it is for a bank to produce a unit of output. The lower the C/I ratio, the better the performance of the bank will be. Below the table indicate the measure and trend of profitability of the studied commercial banks based on cost income ratio analysis

**Table 8: Cost income ratio analysis**

Bank	Years								
	2009	2010	2011	2012	2013	2014	2015	2016	Average
<b>AB</b>	0.58	0.49	0.46	0.52	0.56	0.57	0.63	0.65	<b>0.556</b>
<b>BOA</b>	0.64	0.58	0.58	0.60	0.06	0.56	0.69	0.71	<b>0.553</b>
<b>CBO</b>	0.94	0.72	0.65	0.54	0.48	0.46	0.61	0.97	<b>0.669</b>
<b>DB</b>	0.53	0.53	0.51	0.48	0.54	0.55	0.61	0.64	<b>0.550</b>
<b>LIB</b>	0.92	0.55	0.56	0.52	0.49	0.63	0.65	0.68	<b>0.626</b>
<b>NIB</b>	0.49	0.49	0.48	0.49	0.54	0.54	0.64	0.66	<b>0.539</b>
<b>OIB</b>	2.00	0.74	0.63	0.72	0.73	0.62	0.72	0.79	<b>0.867</b>
<b>UB</b>	0.61	0.52	0.49	0.51	0.66	0.71	0.73	0.74	<b>0.621</b>
<b>WB</b>	0.46	0.44	0.44	0.46	0.52	0.63	0.66	0.69	<b>0.536</b>
<b>Average</b>	<b>0.796</b>	<b>0.560</b>	<b>0.531</b>	<b>0.538</b>	<b>0.510</b>	<b>0.585</b>	<b>0.658</b>	<b>0.725</b>	<b>0.613</b>

*Source: Computed from annual reports of each bank*

Based on the above table, for all the sample banks, 2009 shows a highest C /Income ratio compared with the rest of the period studied. The highest Cost to income average ratio which is register by 2009 is 79.6% while the lowest were 51% in 2013. The average ratio of from 2014 - 2016 has increased this implies providing banking service in Ethiopia is becoming costly from

time to time. When the study compare average C/I ration of each of the studied banks, highest C/I average ratio registered in OIB which is 86.7%, followed by, CBO (66.9%), the rest belongs between the average ratio of 53.6 % - 62.6% this implied there were no significance difference registered among the studied banks between the studied years. However, as the trend of the C/I implied the average ratio of the studied banks I/C increase from time to time which means the cost of the banks increase and return interest decrease and this situation affect profitability of the studied banks.

### **Net interest margin (NIM)**

This ratio is measured by the interest earned on loans & advances as a fraction of total loans & advances. This variable was included in the model in order to test the relationship of interest on loans & advances to the profitability of the banks. The bank that able to raise fund with liabilities with low interest costs and is able to acquire assets with high interest income will get high net interest margin. Such banks are highly likely to be profitable. Below the table implied Net interest margin of the studied banks on the studied years

*Table 9: Interest Income/Interest Expense (in times)*

<b>Bank</b>	<b>Years</b>								
	<b>2009</b>	<b>20010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b><u>Average</u></b>
<b>AB</b>	0.06	0.05	0.05	0.07	0.07	0.07	0.07	0.07	<b>0.062</b>
<b>BOA</b>	0.06	0.04	0.06	0.07	0.06	0.08	0.08	0.08	<b>0.068</b>
<b>CBO</b>	0.06	0.07	0.07	0.08	0.08	0.09	0.08	0.10	<b>0.077</b>
<b>DB</b>	0.05	0.05	0.05	0.06	0.06	0.06	0.07	0.06	<b>0.056</b>
<b>LIB</b>	0.05	0.06	0.07	0.08	0.09	0.09	0.08	0.08	<b>0.074</b>
<b>NIB</b>	0.08	0.07	0.08	0.08	0.09	0.07	0.08	0.10	<b>0.080</b>
<b>OIB</b>	0.01	0.04	0.04	0.07	0.08	0.09	0.08	0.10	<b>0.064</b>
<b>UB</b>	0.06	0.06	0.06	0.08	0.08	0.09	0.08	0.08	<b>0.072</b>
<b>WB</b>	0.07	0.07	0.07	0.09	0.09	0.09	0.09	0.09	<b>0.083</b>
<b><u>Average</u></b>	<b>0.055</b>	<b>0.055</b>	<b>0.061</b>	<b>0.074</b>	<b>0.076</b>	<b>0.080</b>	<b>0.078</b>	<b>0.085</b>	<b>0.070</b>

*Source: Computed from annual reports of each bank*

As indicated from the table the net interest margin average ratio was increase in the studied period. Accordingly the maximum Interest Income/Interest Expense was observed in 2016 which is 8.5% while the minimum were 5.5% in 2009. This implied there is an improvement in the activities. However, at individual bank level there is a difference in the performance of NIM

such as, DB scored the lowest average rate of Interest income / interest expense which is 5.6%, this implied the banks still have high illiquidity asset. Moreover loan given to debtors is not significant enough to generate interest income relative to interest expense paid to depositors. The bank can improve this ratio if it increases loan granted to creditworthy customers without decreasing its liquidity position to an undesirable level. But, in general terms, it is possible to conclude that the ratio has increased starting from 2009 for most of the sample banks. WB (8.3%) registered the highest average rate of Interest income / interest expense.

## Bank Size (BS)

Bank Size could be important variable in determining banks return on asset. It can be measured using the logarithm of total assets. And it is expected to have positive impact on banks return. Larger banks may have efficiency gains due to economies of scale. This would imply lower costs for larger banks that they may retain as higher profits. Below the table implied the effect of bank size on profitability of the studied commercial banks

Table 10: Average natural logarithm of total asset

Bank	Years								
	2009	2010	2011	2012	2013	2014	2015	2016	Average
<b>AB</b>	22.69	22.92	23.13	23.30	23.60	23.82	23.95	24.16	<b>23.45</b>
<b>BOA</b>	21.53	21.68	21.85	21.99	22.22	22.33	22.54	22.75	<b>22.11</b>
<b>CBO</b>	20.75	21.29	21.64	22.02	22.60	22.72	23.16	23.09	<b>22.16</b>
<b>DB</b>	22.17	22.43	22.61	22.79	22.92	23.02	23.14	23.28	<b>22.80</b>
<b>LIB</b>	20.67	21.03	21.32	21.62	21.80	22.01	22.49	22.82	<b>21.72</b>
<b>NIB</b>	21.37	21.63	21.83	22.00	22.11	22.28	22.50	22.69	<b>22.05</b>
<b>OIB</b>	19.59	20.84	21.40	21.75	22.09	22.54	22.98	23.15	<b>21.79</b>
<b>UB</b>	21.34	21.61	21.92	22.06	22.20	22.39	22.59	22.78	<b>22.11</b>
<b>WB</b>	21.45	21.58	21.97	22.85	23.06	23.17	23.34	23.51	<b>22.62</b>
<b>Average</b>	<b>21.28</b>	<b>21.67</b>	<b>21.96</b>	<b>22.26</b>	<b>22.51</b>	<b>22.70</b>	<b>22.97</b>	<b>23.14</b>	<b>22.31</b>

Source: Computed from annual reports of each bank

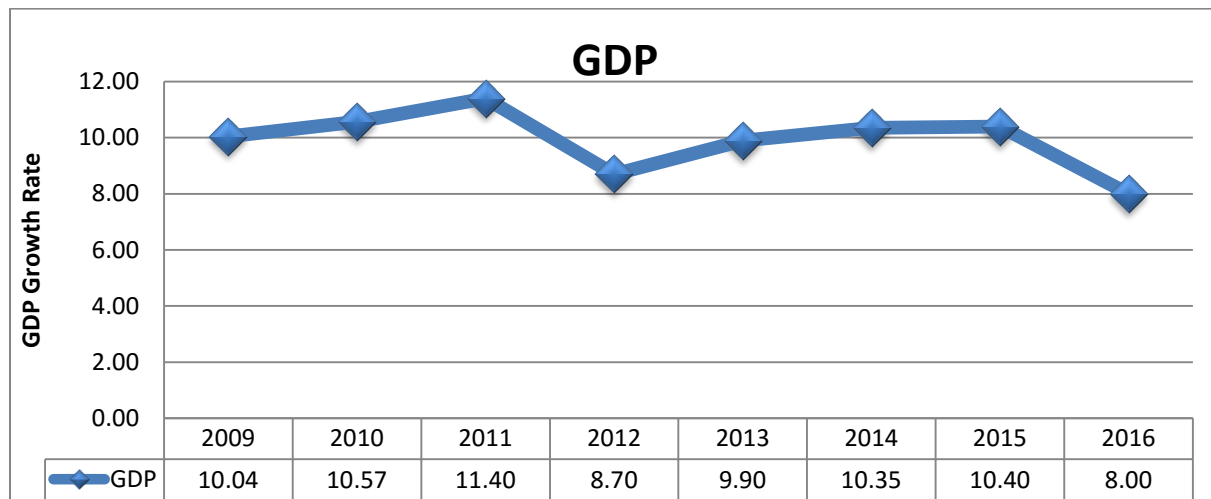
The average ratio of total asset of the studied banks was slightly increased through the studied years. Based on this highest average growth rate of the studied banks observed in 2016 (23.14%) and the lowest in 2009 (21.28%). Totally the studied commercial banks total assets grow for the past eight years by 22.31% averagely. However, when the study compare the size development

rate at individual level have slight difference accordingly the minimum asset growth indicated 21.72% by Lion International Bank (LIB), while the highest were 23.45% Awash bank (AB). Generally, the studied industry at different level indicates increasing of their asset, as well as their profit.

### Gross Domestic Product (GDP)

GDP Commercial Banks profitability is expected to be sensitive to macroeconomic variables. This paper use GDP growth as a control for economic growth and wealth effects, which is expected to have a positive influence on bank profitability. As GDP growth slows down, and, in particular amount of borrowers will decrease, and defaults increase, thus reducing banks return.

**Figure 2. Gross Domestic Product (GDP)**



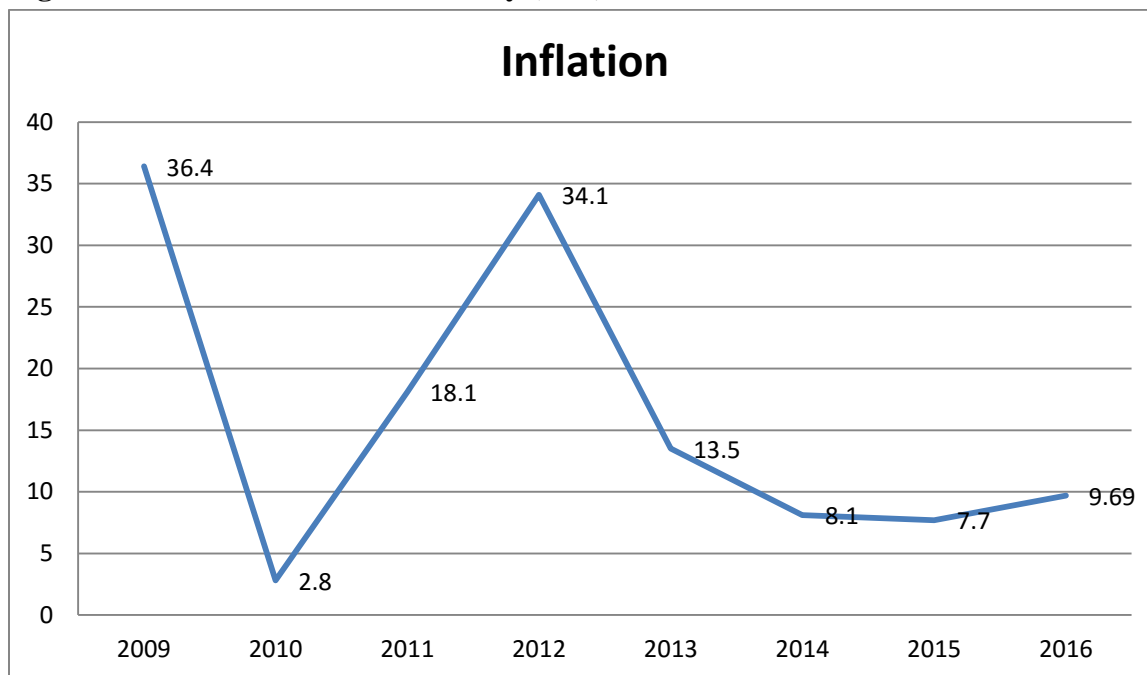
Source: *Computed from NBE, Annual Report (2016/17)*

As indicated the above figure the minimum GDP growth rate scored in 2016 (8.0 %) and 2012 (8.70%) while the highest GDP scored in 2011 (11.40%) in 2010 (10.57%) and 2015 (10.40%). The results implied that, when the economy boom or goes out of recession, economic units including banks are optimistic and increase their loans & advances and as a result ROA increase. Therefore, as implied from the economic years even though the GDP rate of growth were vary at the studied years however, the country scored GDP above 8.7% except in the year of 2016, based on this it can be conclude that, GDP positively influence ROA of commercial banks of Ethiopia.

## Inflation rate of the country (INF)

The extent to which inflation affects bank profitability depends on whether future movements in inflation are fully anticipated, which, in turn, depends on the ability of firms to accurately forecast future movements in the relevant control variables. In this regard the study assessed inflation rate of the country through the studied years below the figure indicated the country inflation rate and its impact on profitability.

**Figure 3. Inflation rate of the country (INF)**



*Source: Computed from NBE, Annual Report (2016/17)*

The average inflation rate of the country for the past eight years was 16.3% which is greater than the average GDP of the country. The maximum inflation of the studied year 2009 which is 36.4% followed by the year 2012 (34.1%) and the minimum inflation rate which was recorded in 2010 (2.8%). Inflation affects banks profitability inversely which means when inflation rate increases bank profitability will decrease or otherwise.

## 4.2 Correlation Analysis among Variables

In this section, the correlation between the dependent variables and the independent variables have been presented and analyzed. According to Brooks (2008), the correlation between two variables measures the degree of linear association between them. To find the relationship between variables I had used the most broadly applied correlation statistics of Pearson correlation which was once used in this study. Values of Pearson's correlation coefficient are always between -1 and +1. A correlation coefficient of +1 indicates that two variables are perfectly related in a positive sense; a correlation coefficient of -1 indicates that two variables are perfectly related in a negative sense, and a correlation coefficient of 0 indicates that there is no linear relationship between the two variables. A low correlation coefficient; 0.1 - 0.29 suggests that the relationship between two items is weak or non-existent. If r is between 0.3 and 0.49 the relationship is moderate. A high correlation coefficient i.e. >0.5 indicates a strong relationship between variables. The direction of the dependent variable's change depends on the sign of the coefficient. If the coefficient is a positive number, then the dependent variable will move in the same direction as the independent variable; if the coefficient is negative, then the dependent variable will move in the opposite direction of the independent variable. Hence in this study both the direction and the level of relationship between the dependent and independent variables conducted using the Pearson's correlation coefficient. The table below presents the result of the correlation analysis.

**Table 11 Correlation Matrix of ROA**

	ROA	BS	C_I	CAP	GDP	INFR	LG	LIQ	NIM	NPLS
ROA	1									
BS	0.231858	1								
C_I	-0.723364	-0.31644	1							
CAP	-0.168268	-0.40759	0.488733	1						
GDP	0.148627	-0.31232	-0.14484	-0.00321	1					
INFR	-0.121231	-0.36158	0.117516	0.156316	-0.21305	1				
LG	-0.203571	-0.29545	0.359599	0.296844	0.064626	0.043894	1			
LIQ	-0.129968	0.234198	0.199357	0.055881	-0.37902	-0.0895	-0.02382	1		
NIM	0.343426	0.450559	-0.27138	-0.07562	-0.38733	-0.21477	-0.29394	0.375408	1	
NPLS	0.165377	0.00688	-0.24772	-0.06993	0.130911	0.158445	-0.36754	-0.04591	-0.03474	1

*Source: Own computation (E-views output, 2018)*



The result of correlation coefficient shows that BS, GDP, NIM and NPL positively correlated with ROA, while the rest determinant variable such as, CI, CAP, INF, LG and LIQ negatively correlated with ROA. The correlation between the dependent and independent variables implies that, change made in one of the independent variables can change organization profitability efficiency.

### 4.3. Results of Regression Analysis and Diagnostics test

In the classical linear regression model different tests were run to form the data ready for analysis and to get reliable output from the study. These tests were expecting to check whether the OLS basic assumptions, are fulfilled when the explanatory variables are regressed against the dependent variables.

#### Heteroscedasticity Test

When the scatter of the errors is different, varying depending on the value of one or more of the independent variables, the error terms are heteroskedastic (Gujarati & Porter, 2009).

Heteroscedasticity white test is used to test the heteroscedasticity problem in this research. This test is very important because if the model consists of heteroscedasticity problem, the OLS estimator no longer BEST and error variances are incorrect, therefore the hypothesis testing, standard error and confident level will be invalid. If the p-value is less than significant level we reject the null hypotheses otherwise, do not reject the null.

Table 12: Heteroscedasticity Test

White Test	P-value
F-statistic	0.25333
Obs*R-squared	0.18931
Scaled explained SS	0.57122

*Source: Own computation (E-views output, 2018)*

The p-value of this model result is more than the significant level 0.05 (5%), so the model doesn't have heteroscedasticity problem.

## Autocorrelation Test

Autocorrelation error occurs when there is a serial correlation between residuals and their own past values. In this study, Breusch Godfrey Serial Correlation LM Test is used to carry out the autocorrelation test. The P- value is obtained to check whether the autocorrelation problem occurs in the model. If the p-value is more than 5% significant level, it indicates that there is no autocorrelation problem in the model.

The hypothesis for the model specification test was formulated as follow;

H0: There is no autocorrelation problem.

H1: There is autocorrelation problem.

Decision Rule: Reject H0 if P value is less than significant level 0.05. Otherwise, do not reject H0.

**Table 13: Result of Autocorrelation Test**

Variables	P-value	Decision Rule
Breusch-Godfrey Serial Correlation LM Test	0.9522	Do not Reject the H0

*Source: Own computation (E-views output, 2018)*

## Multicollinearity

Correlation matrix between independent variables is presented in table below. As shown in the tables there were fairly low data correlations among the independent variables. These low correlation coefficients indicate that, there is no problem of multicollinearity in the study. Moreover, Kennedy (2008) stated that multicollinearity problem exists when the correlation coefficient among the variables are greater than 0.70, but in this study there is no correlation coefficient that exceeds 0.70. Accordingly, in this study there is no problem of multicollinearity which enhanced the reliability for regression analysis.

Table 14: Multicollinearity Test

	BS	C_I	CAP	GDP	INFR	LG	LIQ	NIM	NPLS
BS	1								
C_I	-0.31644	1							
CAP	-0.40759	0.488733	1						
GDP	-0.31232	-0.14484	-0.00321	1					
INFR	-0.36158	0.117516	0.156316	-0.21305	1				
LG	-0.29545	0.359599	0.296844	0.064626	0.043894	1			
LIQ	0.234198	0.199357	0.055881	-0.37902	-0.0895	-0.02382	1		
NIM	0.450559	-0.27138	-0.07562	-0.38733	-0.21477	-0.29394	0.375408	1	
NPLS	0.00688	-0.24772	-0.06993	0.130911	0.158445	-0.36754	-0.04591	-0.03474	1

Source: Own computation (E-views output, 2018)

### Normality

Below table 15 shows that the Jarque-Bera statistic has a P-value of 0.10471 which indicate that the p-value for the Jarque-Bera test is greater than 0.05 which indicates that we don't reject and there was no support for the presence of abnormality in the data. Normality test is used to determine whether the error term is normally distributed or not. JarqueBera test is to ensure that the data set is well-modeled by a normal distribution.

The hypothesis for the Normality Test is stated as follow:

H0: The error term is normally distributed

H1: The error term is not normally distributed

If P-value of JB is less than significant level of 5% we reject the H0. Otherwise, do not reject H0.

Table 15: Normality Test

Probability (P-Value)	0.10471
-----------------------	---------

Source: Own computation (E-views output, 2018)

P-Value = 10.47%, means do not reject H0 the error term is normally distributed.

## Results of Regression Analysis

The section covers the empirical regression model used in this study and the results of the regression analysis. Empirical model: As presented in the methodological part of the study, the empirical model used in the study in order to identify the factors that can affect private commercial banks profitability is provided as follows:

$$\text{ROA}_{jt} = \beta_0 + \beta_1 (\text{LIQ})_{jt} + \beta_2 (\text{CAP})_{jt} + \beta_3 (\text{NPL})_{jt} + \beta_4 (\text{LG})_{jt} + \beta_5 (\text{NIM})_{jt} + \beta_6 (\text{CI})_{jt} + \beta_7 (\text{BS})_{jt} + \beta_8 (\text{GDP})_{jt} + \beta_9 (\text{INF})_{jt} + \epsilon_{it}$$

Table 16: Regression analysis result

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.002826	0.040369	0.06999	0.94440
LIQ	-0.003064	0.008232	-2.37225	0.03700
CAP	0.062159	0.028404	2.18837	0.03240
NPLS	-0.006013	0.002593	-2.31890	0.02250
LG	0.002365	0.000899	2.63070	0.04103
NIM	0.148125	0.073854	2.00564	0.04930
C_I	-0.039572	0.005713	-6.92720	0.00000
BS	0.000853	0.000251	3.39841	0.02122
GDP	0.141298	0.020821	6.78632	0.00001
INFR	-0.001427	0.004268	-0.33439	0.03880
R-squared	0.793398			
Adjusted R-squared	0.769534			
S.E. of regression	0.004002			
Sum squared resid	0.001538			
Log likelihood	135.4085			
F-statistic	21.6504	Durbin-Watson stat		1.502066
Prob(F-statistic)	0.00000			

In the above table coefficient, standard error, t-value, and p-value for all explanatory variables and the value of R-squared, adjusted R-squared, S.E of regression and F- statistics with p-value analyzed as follow:

The R-squared and adjusted R- squared of the model shows 79.3 and 76.9 respectively. This indicates that the changes in the independent variables collectively explain 76.9% of the changes in the dependent variable and the remaining 23.1% of changes is explained by other factors which are not included in the model. The null hypothesis of F-statistic (the overall test of significance) that is equal to zero was rejected at 1% as the p-value was sufficiently low. Prob (F-Statistic) 0.000 indicates strong statistical significance, which enhanced the reliability and validity of the model. Following to the result obtained from the regression analysis as depicted in the above table, the next section tries to present the analysis concurrently with respect to each profit determents factors.

### **Bank liquidity**

Bank liquidity is measured by the ratio of current asset and current liability .It is known that a bank has to be liquid to meet payment obligation and financial commitments in a timely manner to depositors and creditors and it is a very critical for a bank to remain a going concern. When banks hold a lower amount of liquid assets they are more vulnerable to large deposit withdrawals while when banks excess liquid assets they will lose interest rate or exposed for idle deposition of money they lead the banks to loss their profit. The explanatory variable liquidity (LIQ), indicated statistically significant at 5% significance level and it has a strong negative relationship with the profitability of private commercial banks. The result is consistent with theory Richard (2011); liquidity ratio has a negative influence on bank profitability such that high excess liquidity decreases bank profitability and low liquidity improves bank profitability. Excess liquidity is a sign that bank lending is low and banks are holding more money than statutory required for precautionary purposes. While, low liquidity is a reflection that banks are holding less money in their accounts, an indication of increased lending to the public, and thus implied growth in business and profitability (Saxegaard, 2006). Indeed, excess liquidity of banks negatively influences bank profitability and this study result also agreed with this idea; this is because all of the studied commercial banks of Ethiopia liquidity position were by far above the

requirement of the NBE 15%. This indicates the banks maintained high liquid average asset more than the NBE requirement which affects the return on asset negatively because as more liquid assets are kept idle with respect to net deposits, no profit will be generated from these assets unless they are invested in alternative investment avenues.

### **Capital adequacy**

The explanatory variable bank capitalization is measured by the ratio of capital over total asset of a bank. The impact of this variable on private bank profitability is positive and statistically significant at 5 % level. This is because in our country commercial banks with higher level of capital have the legal right to lend a higher amount of money to a single borrower and they can increase their interest income and can reduce their transaction costs which finally enable them to increase their profit. Therefore, an increase in the ratio of capital to loan leads to an increase the profit of the banks. This finding also has a consistent with the study conducted by Aburime (2008).

### **Nonperforming loan**

The explanatory variable Non-Performing Loan (NPL) bears a statistically significant at 5 % significance level and it has negative relationship with the profitability of private commercial banks. The negative coefficient of this ratio consistent with the prior expectation and theory Moore (2005) non performing loan has inverse relationship with profitability of bank. This implies that an increase in the ratio of nonperforming loans to gross loans, certainly lead to a decrease in profit as measured by ROA.

### **Loan growth**

The study result with related to explanatory variables of Loan Growth (LG) has positive relationship with profitability of the studied banks at statically significant 5% significance level. The factor of growth of gross loans is related with banks profitability. The main source of income for banks is the loans. Therefore, the higher the growth of gross loans the more capable a bank is in transforming deposits into loans and increasing its profits. The findings suggest that loan is one of the main income sources for banks from the interest what they give the loan to

their customers. Traditionally, banks are intermediaries between lenders and borrowers and the more the deposits that are transformed into loans bank performance, the higher the level of profit will be, therefore, it is expected to have a positive relationship with profitability. This finding also has a consistent with the study conducted by Vong and Hoi Si Chan (2008).

### **Net interest margin**

The explanatory variable net interest margin (NIM) or Interest income interest expense (IRE) has positive relationship with ROA statically significant at a significance level of 5%. The result implied that, interest payable on any borrowings such as bonds loans, convertible dept. or line of credit has become increase throughout a year's. The result is similar with the theory Shah, (2010), higher spread indicates more efficient financial intermediate and higher net income thus, higher spread leads to higher profitability.

### **Cost to income ratio**

The coefficient of Cost to Income ratio(C/I) implied a negative relationship with ROA and significant at 1% significance level. This showed that minimizing commercial banks operating costs in Ethiopia would certainly improve the banks performance in general and profitability in particular. According to Athanasoglou, Brissimis and Delis, (2005) investigation on Greek banks during the period 1985– 2001 observed that Operating expenses appear to be an important determinant of profitability. They find that, there is direct positive relation between efficient expense management (i.e. management quality) and profitability. There is direct negative connection between Operating expenses and profitability of banks; means that there is immediate negative relation between lack of efficiency in expenses management and profitability of banks.

### **Bank size**

The study found that bank size (BS) positively influences profitability statically significant at 5% significance level. This indicates smaller the bank the lower the profitability and vice versa. According to Alkhazaleh and Almsafir, (2014) large banks are assumed to have more advantages as compared to their smaller rivals and have a stronger bargaining capability and making it easier for them to get benefits from specialization and from economies of scale and scope.

## **GDP**

Turning to macroeconomic variables, the coefficient of real GDP was positively and significantly related with ROA statically significant at 1% as expected. This implies that, Ethiopian banks profitability was positively related to the GDP growth, mainly through the impact of the economic cycle on the demand for credit by households and firms. The study also justified a positive and significant impact of Ethiopia real GDP growth on Ethiopian commercial banks ROA as the current stimulated economy could create anew and potential demand for financial services in the country.

This finding conforms to earlier findings by Sufien et al. (2008), Kosmidou a Pasiouras (2005) and Hassan and Bashir (2003), which agrees on the positive association between GDP growth should exert positive impact on bank profitability and this provides support in the study Ethiopian GDP also grow for the last ten years between 8 – 10% per annum , thus if there is economic growth there will be an accessibility of investment and bowers in turn banks liquid money transfer in to investment and profitability will grow.

## **Inflation rate**

The study result regarding explanatory variables of inflation (INF) has a negative relationship with ROA at a significance level of 5%. Inflation measures the overall percentage increase in Consumer Price Index (CPI) for all goods and services. Inflation affects the real value of costs and revenues. Negative association inflation and profitability entails that banks in the study could not adjust their prices such as interest rate on loans and deposits, according to the inflation rate during the study time. This is because implied that, Richard (2014) the extent to which inflation affects bank profitability depends on whether future movements in inflation are fully anticipated, which, in turn, depends on the ability of firms to accurately forecast future movements in the relevant control variables.



## **CHAPTER FIVE**

### **SUMMARY, CONCLUSIN AND RECOMMENDATION**

#### **Introduction**

This study aims to identify determinates of profitability in some selected commercial banks of Ethiopia. In doing so, previous studies on bank profitability have been reviewed and profitability determent factors are identified. Therefore, this study specified an empirical framework to investigate the determinants of Ethiopian private commercial banks profitability from 2009 to 2016. The profit determinant factors that were used in this study include variables such as capital adequacy, liquidity ratio, bank size, loan growth, Net interest margin, income/ cost ratio, non-performing loan, Rate of economic growth as well as rate of inflation. Based on this, the major findings of the study conclude as follows:

#### **5.1 Summary of the study**

Regarding the ROA trends of the studied banks even though commercial banks of Ethiopia are profitable throughout the studied period, however, banks ROA relatively large asset banks were more profitable than small asset commercial banks. In addition the average growth rate of ROA was inconsistent throughout the studied years. Accordingly the minimum average growth rate of ROA of 1.91% was registered in the year 2009 and the maximum ROA of 3.59% was registered on the year 2012. This implied ROA of commercial banks decline throughout the studied years. Accordingly, there are several factors that determine profitability of the studied commercial banks and the studied had concluded of the variables how and to what extending determine ROA as follow:

Regarding the Effect of Liquidity on ROA, The Regression result implied that, liquidity (LIQ), bears a statistically at 5% significance level and it has a strong negative relationship with the profitability of private commercial banks. Excess liquidity is a sign that bank lending is low and banks are holding more money than statutory required for precautionary purposes. While, low liquidity is a reflection that banks are holding less money in their accounts, an indication of increased lending to the public, and thus implied growth in business and profitability.

The variable capital adequacy, as expected, is positive and statistically significant determinants determinant of profitability for return on asset (ROA) at 5% significance level. Therefore, it is

concluded that with high capital ratio tend to earn more profit through translating the safety advantage into profit. The size of capital provides financial flexibility for bank and financial institution. It identifies which financing options are available for the entity. Hence, capital adequacy is one of the main determinants factor for the profitability of private commercial banks in Ethiopia.

The explanatory variable Non – Performing Loan (NPL), bears a statistically at 5% significance level and it has a negative relationship with the profitability of private commercial banks. Additionally, the descriptive ratio implies that almost all the studied banks managed their non performing loan system as per NBE requirement (under 5%) this indicates that they are collected the loan principal with interest income from borrowers on timely.

The study result with related to explanatory variables of Loan Growth (LA) has positive relationship with profitability of the studied banks at 5% significance level. The factor of growth of gross loans is related with banks profitability. The main source of income for banks is the loans. Therefore, the higher the growth of gross loans the more capable a bank is in transforming deposits into loans and increasing its profits. The finding suggests that loan is one of the main income sources for banks from the interest what they give the loan to their customers.

The coefficient of Cost to Income ratio(C/I) implied a negative relationship with ROA at 1% significance level. This implied that, cost invested for varied purpose affect profitability of the banks, as implied in the trend of C/I, implied the highest Cost to income average ratio were registered in 2009 (79.6 %) while the lowest were 51.1% in 2013. This implies providing banking service in Ethiopia is becoming costly from time to time and the fact negatively influence profitability of commercial banks.

The study found that bank size positively influences profitability at 5% significance level. This indicates smaller the bank the lower the profitability and vice versa. Large banks are assumed to have more advantages as compared to their smaller rivals and have a stronger bargaining capability and making it easier for them to get benefits from specialization and from economies of scale and scope.

GDP was positively and significantly related with ROA at 1% as expected. This implies that, Ethiopian banks profitability was positively related to the GDP growth, mainly through the

impact of the economic cycle on the demand for credit by households and firms. The study also justified a positive and significant impact of Ethiopia real GDP growth on Ethiopian commercial banks ROA as the current stimulated economy could create a new and potential demand for financial services in the country.

The study result regarding explanatory variables of inflation (INF) shows a negative relationship with ROA at a significance level of 5%. Similarly theories, suggest that Inflation affects banks profitability negatively or inversely. This implied that inflation causes much distortion in the economy. This finding also has a consistent with the study conducted by Ludi and Ground (2006).

## **5.2 Conclusion of the study**

The main objective of the study was to examine the determinants profitability of private commercial banks in Ethiopia using panel data over the period 2009-2016.

The descriptive statistics indicates that return on asset (ROA) averagely scored 3.03% and relatively large asset banks were more profitable than small asset commercial banks. In addition the average growth rate of ROA was inconsistent throughout the studied years and becomes decline the recent two years.

The regression analysis result showed that the determinant variables capital adequacy, bank size, loan growth, net interest margin and GDP are positive and significant relationship with ROA, and also LIQ, C/I NPLs and INFR are a negative and significant relationship with ROA.

The study concluded that an excess liquidity implied that bank lending ratio is low and holding more money far from requirement of NBE.

The study also concluded that failed operational efficiency through poor management of expense reduces the profitability of commercial banks.

### **5.3 Recommendations**

One of the major challenges of profitability of the commercial banks in Ethiopia is excess liquidity. In Order to maximize profitability of bank, Ethiopian commercial banks, it is advisable lower the liquidity ratio to increase the income from loan. In other words, a bank could reduce the cost of loan to increase the lending to the public thereby reduce cash tied up to liquid asset. Therefore, the bank could increase its profitability.

Government regulation which forced banks to preserve about 15% of the total deposit is currently affecting the Ethiopian commercial banks profitability. So the government needs to revisit its policy or it should take some corrective actions like paying at least equal interest with that of the deposit which was offered for loans in order to enhance the performance of the sector in general and the profitability in particular.

This study also recommends that the large commercial banks improve managerial efficiency and they should effectively manage their operational expenses and costs to ensure that their banks are efficient and to maximize profits in the long runs and growth the banks.

Banks may strive to increase their fee based services and assets size to raise their profitability. The banks could raise fee based services through incentives mechanisms such as, preparing lottery schemes for money transfer services and international banking operations. On the other hand, it is recommendable for the banks to increase their assets size up to optimum level so as to enhance their profitability.

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# Appendixes

## Appendix I: Regression Result

Dependent Variable: ROA

Method: Least Squares

Date: 06/2/18 Time: 05:44

Sample: 1 72

Included observations: 72

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.002826	0.040369	0.06999	0.94440
LIQ	-0.003064	0.008232	-0.37225	0.03700
CAP	0.062159	0.028404	2.18837	0.03240
NPL	-0.006013	0.002593	-2.31890	0.02250
LG	0.002365	0.000899	2.63070	0.04103
NIM	0.148125	0.073854	2.00564	0.04930
C_I	-0.039572	0.005713	-6.9272	0.00000
BS	0.000853	0.000251	3.39841	0.02122
GDP	0.141298	0.020821	6.78632	0.00001
INFR	-0.001427	0.004268	-0.33439	0.03880
R-squared	0.793398			
Adjusted R-squared	0.769534			
F-statistic	21.6504	Durbin-Watson stat	1.502066	
Prob(F-statistic)	0.00000			

Appendix II: Heteroscedasticity White Test

Heteroskedasticity Test:

White

F-statistic	6.05397	Prob. F(54,17)	0.25330
		Prob. Chi-	
Obs*R-squared	68.441	Square(54)	0.18931
		Prob. Chi-	
Scaled explained SS	96.5037	Square(54)	0.57122

Test Equation:

Dependent Variable:

RESID^2

Method: Least Squares

Date: 06/2/18 Time: 02:44

Sample: 1 72

Included observations: 72

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.0018	0.01807	-0.0976	0.9234
NPLS^2	0.0418	0.09723	0.4299	0.6727
NPLS*NIM	0.22358	0.21262	1.05155	0.3077
NPLS*LIQ	-0.1116	0.02339	-4.7705	0.0002
NPLS*LG	-0.0161	0.01257	-1.2795	0.2179
NPLS*INFR	-0.0385	0.0134	-2.8693	0.0106
NPLS*GDP	-0.1129	0.17786	-0.6346	0.5342
NPLS*CAP	0.08075	0.08401	0.96127	0.3499
NPLS*C_I	0.0315	0.01998	1.57675	0.1333

NPLS*BS	-0.0052	0.00354	-1.4714	0.1594
NPLS	0.14731	0.08453	1.74275	0.0994
NIM^2	0.13108	0.09292	1.41064	0.1764
NIM*LIQ	0.00599	0.01872	0.3198	0.753
NIM*LG	-0.0012	0.00683	-0.1732	0.8646
NIM*INFR	0.01073	0.02452	0.43762	0.6672
NIM*GDP	0.064	0.22148	0.28896	0.7761
NIM*CAP	-0.115	0.06162	-1.8659	0.0794
NIM*C_I	0.02102	0.01204	1.74563	0.0989
NIM*BS	-0.0011	0.00272	-0.4219	0.6784
NIM	-0.0051	0.07305	-0.0704	0.9447
LIQ^2	0.00115	0.00122	0.94037	0.3602
LIQ*LG	0.00227	0.00066	3.43206	0.0032
LIQ*INFR	0.00129	0.00354	0.36375	0.7205
LIQ*GDP	-0.0448	0.02434	-1.84	0.0833
LIQ*CAP	-0.0082	0.00628	-1.3129	0.2067
LIQ*C_I	-0.0106	0.00248	-4.2645	0.0005
LIQ*BS	-0.0009	0.00044	-2.0939	0.0516
LIQ	0.03283	0.01052	3.12068	0.0062
LG^2	0.00017	0.00016	1.0978	0.2876
LG*INFR	-0.0004	0.00061	-0.6643	0.5154
LG*GDP	-0.0097	0.00883	-1.0999	0.2867
LG*CAP	-0.0052	0.00207	-2.5276	0.0217
LG*C_I	-0.0028	0.00051	-5.5169	0
LG*BS	-0.0003	0.00011	-2.5521	0.0206
LG	0.00874	0.00293	2.98585	0.0083
INFR^2	0.00434	0.00297	1.46122	0.1622
INFR*GDP	0.08275	0.04291	1.92846	0.0707
INFR*CAP	0.01104	0.00558	1.97899	0.0643
INFR*C_I	0.00278	0.00175	1.59506	0.1291
INFR*BS	0.0005	0.00025	1.99908	0.0618

INFR	-0.0238	0.01031	-2.309	0.0338
GDP^2	-0.2448	0.18911	-1.2945	0.2128
GDP*CAP	0.02136	0.0579	0.3688	0.7168
GDP*C_I	-0.0058	0.02347	-0.2486	0.8067
GDP*BS	0.00235	0.00328	0.71754	0.4828
GDP	0.01191	0.11266	0.10575	0.917
CAP^2	0.00192	0.01945	0.09872	0.9225
CAP*C_I	0.01263	0.0044	2.87172	0.0106
CAP*BS	0.00074	0.00123	0.60125	0.5556
CAP	-0.0152	0.0312	-0.4873	0.6323
C_I^2	9.12E-05	0.00053	0.1729	0.8648
C_I*BS	0.00018	0.00043	0.40892	0.6877
C_I	-0.001	0.00933	-0.1103	0.9135
BS^2	2.26E-05	2.66E-05	0.85114	0.4065
BS	-0.0007	0.00128	-0.5552	0.586
			Mean dependent	4.75E-
R-squared	0.95057	var		05
				9.33E-
Adjusted R-squared	0.79355	S.D. dependent var		05
S.E. of regression	4.24E-05	Akaike info criterion		-17.215
Sum squared resid	3.05E-08	Schwarz criterion		-15.476
Log likelihood	674.753	Hannan-Quinn criter.		-16.523
		Durbin-Watson		
F-statistic	6.05397	stat		2.42886
Prob(F-statistic)	8.9E-05			

### Appendix III: Raw Data

Year	Banks	ROA	CAP	LIQ	NPLs	C/I	NIM	LG	BS	GDP	INFR
2009	AB	0.0254	0.1168	0.5167	0.0549	0.5759	0.0575	-0.0091	22.6879	0.1004	0.3640
2010	AB	0.0345	0.1183	0.4908	0.0470	0.4891	0.0470	0.1595	22.9230	0.1057	0.0280
2011	AB	0.0399	0.1293	0.4961	0.0364	0.4555	0.0465	0.2673	23.1293	0.1140	0.1810
2012	AB	0.0358	0.1349	0.5819	0.0270	0.5223	0.0697	0.3808	23.2978	0.0870	0.3410
2013	AB	0.0379	0.1353	0.6004	0.0231	0.5620	0.0684	0.4006	23.6016	0.0990	0.1350
2014	AB	0.0354	0.1261	0.5963	0.0227	0.5687	0.0669	0.1902	23.8191	0.1035	0.0810
2015	AB	0.0294	0.1295	0.6622	0.0174	0.6257	0.0659	0.3602	23.9505	0.1040	0.0770
2016	AB	0.0278	0.1289	0.6664	0.0153	0.6509	0.0738	0.2378	24.1620	0.0800	0.0969
2009	BOA	0.0285	0.0948	0.5435	0.0228	0.6406	0.0605	0.0159	21.5272	0.1004	0.3640
2010	BOA	0.0293	0.0932	0.5682	0.0200	0.5813	0.0428	0.1342	21.6849	0.1057	0.0280
2011	BOA	0.0334	0.0908	0.5276	0.0119	0.5819	0.0628	0.2315	21.8522	0.1140	0.1810
2012	BOA	0.0405	0.1101	0.5608	0.0096	0.6009	0.0742	0.3066	21.9908	0.0870	0.3410
2013	BOA	0.0326	0.1094	0.5425	0.0069	0.0602	0.0615	0.0909	22.2172	0.0990	0.1350
2014	BOA	0.0342	0.1356	0.5564	0.0059	0.5582	0.0811	0.0640	22.3328	0.1035	0.0810
2015	BOA	0.0312	0.1325	0.5311	0.0041	0.6902	0.0805	0.2224	22.5369	0.1040	0.0770
2016	BOA	0.0273	0.1262	0.5876	0.0034	0.7137	0.0794	0.1013	22.7530	0.0800	0.0969
2009	DB	0.0206	0.0934	0.5488	0.0229	0.5335	0.0530	-0.0091	22.1738	0.1004	0.3640
2010	DB	0.0239	0.0909	0.4868	0.0218	0.5248	0.0464	0.1595	22.4301	0.1057	0.0280
2011	DB	0.0267	0.0953	0.5146	0.0199	0.5087	0.0448	0.2673	22.6102	0.1140	0.1810
2012	DB	0.0279	0.1043	0.5652	0.0215	0.4826	0.0600	0.3808	22.7943	0.0870	0.3410
2013	DB	0.0236	0.1036	0.5465	0.0225	0.5428	0.0599	0.4006	22.9160	0.0990	0.1350
2014	DB	0.0418	0.1183	0.5333	0.0185	0.5536	0.0591	0.1902	23.0229	0.1035	0.0810
2015	DB	0.0234	0.1181	0.5720	0.0168	0.6115	0.0648	0.3602	23.1423	0.1040	0.0770
2016	DB	0.0236	0.1175	0.5483	0.0171	0.6416	0.0615	0.2378	23.2829	0.0800	0.0969
2009	NIB	0.0391	0.1517	0.6426	0.0459	0.4859	0.0806	-0.0999	21.3744	0.1004	0.3640
2010	NIB	0.0411	0.1536	0.5929	0.0389	0.4865	0.0691	0.1711	21.6270	0.1057	0.0280
2011	NIB	0.0468	0.1647	0.5143	0.0412	0.4764	0.0773	0.1763	21.8262	0.1140	0.1810
2012	NIB	0.0410	0.1846	0.6180	0.0272	0.4875	0.0760	0.2253	21.9956	0.0870	0.3410
2013	NIB	0.0366	0.1822	0.6655	0.0251	0.5405	0.0850	0.3154	22.1057	0.0990	0.1350
2014	NIB	0.0282	0.1827	0.6825	0.0210	0.5417	0.0699	-0.0183	22.2812	0.1035	0.0810
2015	NIB	0.0282	0.1642	0.7053	0.0150	0.6352	0.0840	0.3187	22.5047	0.1040	0.0770
2016	NIB	0.0251	0.1591	0.6047	0.0177	0.6562	0.0979	0.2362	22.6900	0.0800	0.0969
2009	WB	0.0363	0.1633	0.5322	0.0611	0.4576	0.0715	0.0504	21.4483	0.1004	0.3640
2010	WB	0.0373	0.1832	0.6057	0.0396	0.4383	0.0691	0.1468	21.5820	0.1057	0.0280
2011	WB	0.0377	0.1659	0.4663	0.0454	0.4378	0.0738	0.0866	21.9665	0.1140	0.1810
2012	WB	0.0372	0.1922	0.6042	0.0243	0.4610	0.0846	0.3406	22.8452	0.0870	0.3410
2013	WB	0.0344	0.1761	0.6072	0.0224	0.5238	0.0881	0.2249	23.0645	0.0990	0.1350
2014	WB	0.0299	0.1907	0.5400	0.0167	0.6255	0.0933	0.1903	23.1681	0.1035	0.0810
2015	WB	0.0281	0.1761	0.5943	0.0158	0.6588	0.0912	0.2748	23.3415	0.1040	0.0770
2016	WB	0.0268	0.1734	0.6775	0.0163	0.6879	0.0893	0.0896	23.5076	0.0800	0.0969
2009	LIB	0.0042	0.2017	0.6605	0.0106	0.9236	0.0468	1.5760	20.6741	0.1004	0.3640
2010	LIB	0.0367	0.1774	0.5648	0.0154	0.5492	0.0616	0.2364	21.0337	0.1057	0.0280
2011	LIB	0.0343	0.1952	0.5143	0.0148	0.5617	0.0725	0.1562	21.3155	0.1140	0.1810



2012	LIB	0.0426	0.1795	0.5504	0.0155	0.5232	0.0779	0.4337	21.6247	0.0870	0.3410
2013	LIB	0.0513	0.1842	0.6178	0.0129	0.4926	0.0857	0.3614	21.8025	0.0990	0.1350
2014	LIB	0.0352	0.1738	0.5735	0.0134	0.6282	0.0864	0.1846	22.0079	0.1035	0.0810
2015	LIB	0.0384	0.1403	0.6352	0.0167	0.6472	0.0764	0.8366	22.4913	0.1040	0.0770
2016	LIB	0.0350	0.1318	0.6795	0.0197	0.6823	0.0815	0.5203	22.8175	0.0800	0.0969
2009	OIB	-0.0093	0.3364	0.6087	0.0088	2.0000	0.0088	1.0000	19.5870	0.1004	0.3640
2010	OIB	0.0197	0.1895	0.4446	0.0108	0.7375	0.0407	2.2589	20.8357	0.1057	0.0280
2011	OIB	0.0291	0.1509	0.4292	0.0106	0.6275	0.0438	0.7945	21.3972	0.1140	0.1810
2012	OIB	0.0233	0.1572	0.4752	0.0127	0.7162	0.0657	0.5365	21.7484	0.0870	0.3410
2013	OIB	0.0235	0.1401	0.5239	0.0148	0.7267	0.0814	0.5873	22.0871	0.0990	0.1350
2014	OIB	0.0333	0.1217	0.5060	0.0134	0.6239	0.0890	0.5847	22.5400	0.1035	0.0810
2015	OIB	0.0227	0.1033	0.6457	0.0130	0.7173	0.0766	0.8591	22.9782	0.1040	0.0770
2016	OIB	0.0197	0.1168	1.4231	0.0179	0.7859	0.1019	0.0976	23.1464	0.0800	0.0969
2009	UB	0.0237	0.1118	0.5769	0.0307	0.6116	0.0567	0.1573	21.3357	0.1004	0.3640
2010	UB	0.0331	0.1082	0.5329	0.0363	0.5147	0.0562	0.2144	21.6126	0.1057	0.0280
2011	UB	0.0340	0.1166	0.5252	0.0278	0.4881	0.0592	0.2538	21.9191	0.1140	0.1810
2012	UB	0.0361	0.1254	0.5904	0.0233	0.5108	0.0783	0.2467	22.0619	0.0870	0.3410
2013	UB	0.0228	0.1204	0.5734	0.0187	0.6623	0.0754	0.1531	22.2008	0.0990	0.1350
2014	UB	0.0181	0.1326	0.5611	0.0144	0.7073	0.0864	0.0762	22.3883	0.1035	0.0810
2015	UB	0.0214	0.1174	0.5740	0.0121	0.7316	0.0820	0.3532	22.5887	0.1040	0.0770
2016	UB	0.0214	0.1200	0.6461	0.0130	0.7437	0.0820	0.2441	22.7796	0.0800	0.0969
2009	CBO	0.0035	0.1525	0.7452	0.0134	0.9362	0.0552	0.8491	20.7460	0.1004	0.3640
2010	CBO	0.0204	0.1069	0.5131	0.0249	0.7191	0.0665	0.1973	21.2931	0.1057	0.0280
2011	CBO	0.0272	0.0984	0.3970	0.0200	0.6448	0.0648	0.1165	21.6400	0.1140	0.1810
2012	CBO	0.0381	0.1136	0.4875	0.0145	0.5401	0.0815	0.7348	22.0237	0.0870	0.3410
2013	CBO	0.0432	0.1064	0.4658	0.0170	0.4772	0.0808	0.5252	22.6008	0.0990	0.1350
2014	CBO	0.0646	0.1141	0.6686	0.0184	0.4615	0.0866	0.7522	22.7180	0.1035	0.0810
2015	CBO	0.0420	0.1231	0.8912	0.0256	0.6077	0.0837	0.8491	23.1623	0.1040	0.0770
2016	CBO	0.0035	0.1149	0.6965	0.0527	0.9654	0.0963	-0.0833	23.0923	0.0800	0.0969