Determinants of Commercial Banks Profitability: An Empirical Evidence from the Commercial Banks of Ethiopia

Birhanu Tsehay Amare

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Advisor	**Signature**	**Date**

ABSTRACT

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Birhanu Tsehay Amare

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The main objective of this study is to examine the effect of bank-specific, industry-specific and macroeconomic determinants of Ethiopian commercial banking industry profitability from the period 2000 – 2011. By usig OLS etimation method to measure the effect of internal and external determinants on profitability interms of average return on asset and net interest margin. The estimation results show that profitability persists in some extent, implies that the indicator of the existance of relatively fairly competitive market in Ethiopian commercial banking environment, especially competition between private banks. Regarging the explanatory variables, all bank-specific determinants, with the exception of bank size, expense management and credit risk, affect bank profitability significantly and positively in the anticipated way. However, bank size, expense management and credit risk affect the commercial banks profitability significantly and negatively. In addition to this, no evidence is found in support of the presence of market concentration. Finally, from macro economic determinants GDP has positive and significant effect on both asset return and interest margin of the bank. But interest rate policy has significant and positive effect only on interest margin.

The commercial banks of Ethiopia policy makers and managers should give high concern to the credit risk management, expense management and large bank size management inorder to reduce the hindrance of the profitability of the banks.

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ACRONYM

Acronym	Full name
AIB	Awash International Bank
ATM	Atomatic Teller Machin
BUIB	Bunna International Bank
BIB	Berhan International Bank
BOA	Bank of Abyssinia
CBB	Construction and Business bank
CBE	Commercial Bank of Ethiopia
CBO	Cooperative Bank of Orromia
CLRM	Clasical Liner Regressiom Model
CPI	Capital Per Income
CSAA	Central Statistics Authority Agency
DB	Dashen Bank
ESH	Efficiency Structure Hypothesis

EVA	Economic Value Added
GDP	Gross Domestic Product
HHI	Herfindahl-Hirschman Index
IMF	International Montary Fund
ISBN	International Standared Book Number
LIB	Lion International Bank
MoFED	Ministry of Finance and Economic Development
NBE	National Bank of Ethiopia
NIB	Nib International Bank
NIM	Net Interest Margin
OBS	Off Balance Sheet
OIB	Orromian International Bank
OLS	Ordinary Least Squares
PER	Profit Earning Ratio
RAROC	Risk-Adjusted Return on Capital
RMP	Relative-Market-Power

ROA	Return on Assets
ROE	Return on Equity
SCP	Structure-Conduct Performance
SSA	Sub - Sahara African
UB	United Bank
WB	Wegagen Bank
ZB	Zemen Bank

Chapter One

Introduction

1.1 Background of the Study

The Banking sector acts as the life blood of modern trade and economic development to provide them with a major source of finance. The concept of profitability is more important both for the non-financial and financial institutions and banks are the part of them. Banks largely depend on competitive marketing strategy that determines their success and growth. Bank performance has been one of the main concerns of management experts, investors, and economic analysts. This concern closely relates to the significant impact of the profitability of financial organizations in general, and commercial banks in particular, on the potential growth of the economy as a whole. Due to this, the protocols of the banking business have changed a lot in the new millennium compared to the way they used to be in the years by gone (Hussain and Bhatti, 2010).

Bank performance gets a great deal of attention in the finance literature considering that banks serve a pivotal role in the economy. The performance of banks is expressed in various terms, such as competition, concentration, efficiency, productivity, and profitability. Firms with better performance are better able to resist negative shocks and contribute to the stability of the financial system (Athanasoglou et al., 2008). The profitability of the banking system has been one of the hot issues in financial environment.Since the bank industry play a major role in the financial system of the country and it supports the compititiveness of the financial institution. Given the relation between the well-being of the banking sector and the growth of the economy

(Levine, 1998), knowledge of the underlying factors that influence the financial sector's profitability is therefore essential not only for the managers of the banks, but also for numerous stakeholders such as the central banks, bankers associations, governments, and other financial authorities. Knowledge of these factors would be useful in helping the regulatory authorities and bank managers formulate future policies aimed at improving the profitability of the banking sector.

Many researchers in different countries have made investigation on this area by considering the importance and the hot issue of profitability in banking sector. For instance research conducted by Goddard, et al, (2004) by using panel data and dynamic panel etimation to investigate the determinants of profitability in six selected Europian counrties banking sectors: Denmark, France, Germany, Italy, Spain, and the UK, for the period 1992-98. The result suggested that among modeled determinants of profitability incorporate: size, capital asset ratio, credit risk and ownership, by measuring profitability in term of Return On Equity (ROE), checked that bank- specific determinants and profitability relation ship is very strong. Finally they checked that there is little evidence of a systematic relationship between industry – specific determinants(i.e ownership) type and profitability.

In the case of Sub - Sahara African (SSA) countries banking sector, the profitability of the commercial banks industries are affacted by different internal and external factors. For instance research conducted by Flamini et al. (2009) used a sample of 389 banks in 41 SSA countries to study the determinants of bank profitability measured by the ratio of after tax profits to total assets (ROA). The results revealed that the bank – specific, industry – specific and macroeconomic determinants affacted

the bank return or bank profitability in strong manner. And finally they conclude that Bank profits are high in Sub-Saharan Africa (SSA) as compared to other regions.

In Ethiopia, commerial 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 stability of the economy. However, substantial amount of studies have not conducted to investigate the status of bank profitability as well as the determinants of profitability of the Ethiopian banking system. This research examined the effects of bank-specific, industry-specific and microeconomic determinants on profitability of Ethiopiann commercial banks industry from the period 2000-2011.

1.2 Statement of the Problem

A lot of studies conducted in the area of commercial banking profitability and its determinant by considering the importance of the area at international level. They veriefied that there is a direct association between profitability of commercial banking industries and its both internal and external deteminants(eg. Rajan & Zingales, 1998; Eichengreen & Gibson, 2001; Bourke, 1989). 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 deteminants debate exciting is the determinants 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).

To sum up, there is no universally accepted findings to the determinants of profitability of the banking sector. Because countries differ each other by their economic systems, financial systems, political systems and operating environments. Thus in this study, the researcher examined some bank-specific, industry-specific and microeconomic determinants of profitability of Ethiopian commercial banks, and a variety of variables (capital adequacy, deposit liability, credit risk, liquidity risk, loan and advance, expenses management, efficiency and productivity, non-interest income, market concentration, economic growth and interest rate policy) that are potentially responsible for determining profitability of banks have been selected based on the selacted theoretical literatures and privious emperical workes. Although, numbers of earlier studies have made to add their own contribution to the theory of profitability and stated their own policy implication, they were inclined towards to the developed economy, and less developed countries including Ethiopia received litle attation in various literature on this issue. Consequently the conclusion and finding of the study in one country may not serve to another.

Specifically in Ethiopia the banking sector is unstudied area, though, few studies have been conducted on financial performance of Ethiopian commercial banks. For instance, study conducted on financial performance and ownership structure of Ethiopian commercial banks (Deepak and Abebaw, 2011, pp.1 - 8) indicated that, even if, after 1994 financial liberalization the numbers of banks in the industry (particularly private banks) are increased and the performance progress of the sector is better than the past. However, Ethiopia's financial sector remains closed and is much

less developed than its neighbors. In addition to this, other study conducted by Belayneh (2011) examined the determinants of profitability at internal and external level. By employed the variables like; 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. This researcher also conclude that, Ethiopian commercial banks profitability affected by other additional factors.

Even though, those two studies conducted on this area, The researchers not included non financial variables and qualitative information from their studie. As a result, this area is not effectively studied. Because, these variables are the most important factors to determaine the profitability of the commercial banks. Among these determinants the most commenly known variables are employee efficiency and productivity and management quality (Athanasoglou et al., 2005; Haron, 2004). As per the result of those researchers, the variables are highly significant and explanatory of profitability of the commercial banks. Because of this, the current researcher was included these non-financial variables and other financial determinants in addition to the previous study with additional qualitative information.

So, the theme of this research was emperically examined the main determinants of Ethiopian commercial banks industry profitability(bank-specific, industry-specific and macroeconomic) during the period of 2000 - 2011 by adding non financial variables and other determinants of profitability which are not included in previous study. It is an important research area that need to be investigated by benchmarking

the same researches under taken in other countries to know the past decade of profitability and its determinants of Ethiopian commercial banks.

The time period of 2000 – 2011 was selacted because, following 1994 financial liberalization of Ethiopia, large numbers of private banks established from the period 1994 – 1999 continuouslly and the period has significant structural change in profitability increment in Ethiopia banking sector after financial libralization. This is the basic reason to start the investigation of this research from 2000 year.

1.3 Objective of the Study

In commercial banking industry of Ethiopia no sufficient study was conducted on the both internal and external determinants of commercial banks profitability. Because of this, the Ethiopian commercial banks managers and policy makers have not clearly identified and understand the determinants of banks profitability at bank-specific, indistry-specific and macroeconomic level during the decad operation time. So, the objective of this paper can be stated as follows.

1.3.1 General Objective

The aim of this study is to examine the effect of bank-specific, industry-specific and macroeconomic determinants on Ethiopian commercial banking industry profitability over the period 2000 – 2011 and to identify the significant determinants of profitability.

1.3.2 Specific Objective

The study has the following specific objectives:

- To assess and analyse the extent of bank-specific (internal) determinants effect on profitability of Ethiopian commercial banking industry.
- To check the effects of external (both industry-specific and macroeconomic) determinants on profitability of Ethiopian commercial banks.
- To identify the behaviour of market structure of Ethiopian commercial banking sector over the past decade.
- To know the significant determinants of profitability across the state owned and private commercial banks over the last decade.

1.4 Hypothesis

In oder to acheive the objective of the study, a number of hypotheses was tested regarding the determinants of profitability in Ethiopia commercial banks based on different emperical research and theoretical reviewed made. There are three general testable hypothesis with their sub hypothesis. These testable hypotheses could be formulated as follows.

Hypothesis A: Bank specific determinants have significant effect on banks profitability.

Hypotheses A_1: There is direct positive relationship between capital adequacy and profitability

Hypotheses A_2: There is direct negative relation between credit risk and profitability.

Hypotheses A_3: There is direct positive relation between deposit liability and profitabilty.

Hypotheses A_4: There is direct positive relation between liquidity risk and profitability.

Hypotheses A_5: There is direct positive relation between loan and advance and profitability.

Hypotheses A_6: There is direct negative relation between expense management and profitability.

Hypotheses A7: Efficiency and productivity has positive direct relation with profitability.

Hypotheses A8: There is positive direct relation between bank size and profitability.

Hypotheses A_9: Non-interest income has positive direct relation with profitability.

Hypotheses B: There is direct positive relation between industry-specific determinant(i.e market concentration) and profitability.

Hypotheses C: Macroeconomic determinants have significant effect and relation on banks profitability

Hypotheses C_1: Economic growth has direct positve relation with profitability.

Hypotheses C_2: There is direct positive relation between interest rate policy and profitability

1.5 Significant of the Study

This study has ultimate significance to show the degree of the bank-specific, industry - specific and maacroeconoomic determinants in what extent it affected the profitability of the commercial banks, by idetifying and showing the main determinants of profitability and to suggest policy implications after critical examination of the profitability determinants of the commercial banking industry of Ethiopia. To this end, Particulary this study has importance for the following body.

- It enables policy makers and management body of the commercial banks to adjust the bank management system and mechanisms.
- It will help the management to hedge against adverse factors, like uncertainty, and capitalize on other, like strong demand and cost complementarities that improve performance.
- Moreover, it will help investors to measure the performance of their portfolios and proceed with readjustments as required.
- It will help research biginners who are interested to conduct their research in this area.
- It will provide a road map for managers and the shareholders to evaluate there bank performance in term of profitability with respact to the internal and external determinants.

- It will give direction for economic policy makers to measure the impact of the bank industry performance on the economy and its implications on the issues of policy.

1.6 Delimitation and Limitation of the Study

1.6.1 Delimitation of the Study

There are fouteen commercial banks in Ethiopia both public and private which is fully engaged in commercial banking activity at least more than five years. But to make the study more manageable, the scope of the study was delaminated on eight of the main office in Addis Ababa city which is fully operated from the year 2000-2011. And the research is concentrated on the bank-specific, industry-specific and and macroeconomic measurable determinants only. In addition to this the study measure the more of financial performance of the banks.

1.6.2 Limitation of the Study

The study is more of financial related variables was considered that of non financial measure variables may have a little influnce and might need a further investigation. Financial reports within twelve years may affacted by different non modaled variables in the state of the economy. This might fail to measure the actual effects of the internal and external determinants on profitability of the bank.

1.7 Organization of the Paper

This paper consists of five chapters with different sections and sub-sections and it was stucture as follows. Chapter one presents the introduction for the main part of the paper. Chapter Two reviews the most significant theortical and emperical studies

including Ethiopian bankink business enivronment. Chapter three focuses to presents methodology of the study. Chapter four also provide the interpretation and analysis of econometric model outcomes. Chapter five as usual gives conclusion and recommendation with policy implication and further research direction.

Chapter Two

Literature Review

Various determinants influence banks' profitability, recognizing the main concepts of the banking sector profitability and its determinants are essential in order to provide evidence to support the practical result by the theoretical and emperical view. Hence, this chapter serves as a base for this study by describing factors that could influence banks' profitability. Sub topics which build on this chapter are described here below. First, this chapter explains some theoretical frameworks that are helpful in assessing the relationship between macroeconomic, industry-specific, bank-specific factors and banks' profitability, and the, emperical review was discusses. Next, the commercial banking industry of Ethiopia were reviewed. Finally, conceptual frame work and conclusion and knowledge gap was conducted.

2.1 Theoretical Framework

There is no general theory of profitability that provides a unifying framework for the study of financial performance determinant of the commercial banking industry. Because of this, this study tries to view some theories which is nearer to the concept of profitability and its determinants.

The theoretical frame work upon which this study is based on structural approaches to investigate behavior of the banking market regarding to profitability. A structural approach was mainly focuses on the structure-conduct performance (SCP) paradigm and on the efficient structure paradigm. Structural approach has investigated how the market

concentration weakens the market competition by fostering collusive behavior among firms (Panzar, J.C. and J. N. Rosse, 1987) as cited by Lalith (2010).

2.1.1 Market Structure Theories and Bank Profitability

The traditional theory of the firm was assumed that a firm's objective is simply to maximize profits. In practice this theory is not applicable because of most modern industries , involvement in providing a variety of products/services, and faced with much more complex decisions to be taken in a dynamic and uncertain environment Devinaga (2010) . Due to this most resaercher prefer market structure theoreis rather than the traditional theory to analyze the profitability of the industry in term of industry structure. Like other authors the this researcher was used market structure theories to analyse market structure of the firm (industry-specific determinant). The central assumption of this theory is, the industry structure (measured by market concentration interm of market share ratio) has impact on profitability of banks. The literature on the measurement of market structure (structural approach) divided into two mainstreams, called the structure–conduct–performance (SCP) paradigm and the efficiency structure hypothesis (ESH).

Market structure theory suggested two alternative policy drives inorder to increase profit of the bank industry and for rationalizing market structure in banking industry (Byeongyong et al 2005). The first one lies in limiting the number of banking units in the market through encouraging mergers among existing banks. This is help to increase the bank size for pursuing scale of economics. The second strategy is the sharing common facilities such as ATM with other banks in the industry. Both strategies may be useful in enhancing the competition in the market and improving

the overall profitability and efficiency of the market. As explained in the efficient structure hypothesis (ESH), there is no need to encourage mergers, since the efficient entities can improve their market share by providing banking services, which is more economical in the market. Therefore, ESH suggests instead of encouraging bank mergers, the ESH supports policies that may encourage sharing common facilities to avoid duplication of capital cost.

2.1.1.1 Structure Conduct Performance (SCP) Hypothesis

In formulation of theoretical framworke for studying determinants of commercial banks profitability (industry –specific determinants), market structure conduct performance hypothesis provided usefull prototype. Market structure conduct and performance (SCP) framework derived from the neo-classical analysis of markets. It first formalized by Mason in 1939 as a method of analyzing markets and firms (Worthington et al., 2001) .The SCP was the central opinion of the Harvard school of thought and popularized during 1940-60 with its empirical work involving the identification of correlations between industry structure and profitability. Most early research explanation for the relationship between the market concentration and profitability based on the structure-conduct performance (SCP) hypothesis, and focused on the interpretation of a positive empirical relationship between concentration and profitability Goddard et al. (2004).

The SCP paradigm asserts that there is a relationship between the degree of market concentration and the degree of competition among firms. This hypothesis assumes that firms behave or rivalry in the market determined by market structure conditions, especially the number and size distribution of firms in the industry and the conditions

of entry. This rivalry leads to unique levels of prices, profits and other aspects of market performance (Berger et al., 1989). The Structure-Conduct-Performance (SCP) hypothesis, which also sometimes referred to as the MP hypothesis, asserts that increased market power yields monopoly profits. A special case of the SCP hypothesis is the Relative-Market-Power (RMP) hypothesis, which suggests that only firms with large market shares and well-differentiated products are able to exercise market power and earn non-competitive profits (Berger, 1995).

The assumption of SCP hypotheses have been applied in different research by various researcher and supported positive relationship between market concentration (measured by concentration ratio) and performance (measured by profits) exists. Furthermore, SCP recognized the competitiveness of small market share banks with large market share is weak as a result the positive relationship between market concentration and performance (profitability) of high market share banks exist (Berger and Hannan, 1989). As explained in the SCP, the market concentration encourages collusion among large firms in the industry, which subsequently leads to higher profits. Hence, SCP pointed out those changes in market concentration may have a direct influence on a firm's financial performance. Firms in more concentrated industries can earn higher profit than firms operating in less concentrated industries earn, irrespective of their efficiency (Goldberg et al., 1996).

The relative market power hypothesis (RMPH) which is a special case of SCP posited that only banks with large market shares and well differentiated service lines are able to exercise market power to gain superior profit on non-competitive price setting behavior (in this case service charge) Berger (1995). Studies, such as those by Smirlock (1985) and Berger and Hannan (1989), investigated the profit-structure

relationship in banking, providing tests of the RMP hypotheses. To some extent, the RMP hypothesis verified that superior management and increased market share (especially in the case of small-to medium-sized banks) raise profits. SCP, in general, provides two main benefits to studies, which investigate the banks profit behavior. First, it shows the way to the banks profits are operating. Thus, it explains different forces that restrict or expand the scope of banks' operations in the market. Especially with profitability studies, SCP helps to interpret different sources of productivity and efficiency gains or losses. Second, SCP provides a rational basis for analyzing the market behavior.

2.1.1.2 The Efficient Structure Hypothesis (ESH)

The second formulation of theoretical framworke for studying determinants of commercial banks profitability is the efficient structure hypothesis. According to the 'efficiency' hypothesis, a positive concentration– profitability relationship may reflect a positive relationship between size and efficiency. It states that efficient banks in the market lead to increase in the firms' size and market share due to the aggressive behavior. This behavior of the efficient banks allowed such firms to concentrate and earn higher profits with further enhancing their market share. Those firms can maximize profits either by maintaining the present level of product price or service charge and firms' size or by reducing the service charge and expanding the firm size Smirlock (1985).

Finally, the ESH stated that the positive relationship between profit and concentration results from the lower cost achieved through superior management and efficient production process (Goldberg et al., 1996). In contrast to SCP hypothesis, the ESH

uncertain whether the high profits of large banks are a consequence of concentrated market structures and collusion. As explained by Berger and Hannan (1989), ESH and SPC stand on similar observation on the relationship between concentration and performance (profitability). However, the difference in two theories consisted mainly in ways of interpretation of the relationship.

2.2 Emperical Review

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.

Many emperical literatures conducted on banks profit determinants belong to developed countries economies. Mainly focused on the U.S. banking system (e.g Berger, 1995; De young and Rice, 2004; Stiroh and Rumble, 2006 etc.) and the banking systems in the western developed countries for instance, Europian countries (Ommeren, 2011; staikouras and wood, 2004 etc.), south-east Europ (Athanasoglou et al., 2008), Korea (Sufian (2011)) and Greeke (kasmidou et al., 2007; Athanasoglou et al., 2008; Kasmidou and Zopounidis, 2008 etc.). By contrast few studies have looked bank performance in developing economies (e.g Mthuva,2002 in Kenya; Flamini et al., (2009) in SSA countries, Belayneh, 2011 in Ethiopia etc.). Both 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. The finding of each studies depending on the operational environment of their banks, the economic and

legal environment and the empirical results vary significantly, since both datasets and environments differ.

The internal determinants originate from bank accounts (balance sheets and/or profit and loss accounts) and therefore could be termed micro or bank-specific determinants of profitability. Internal determinants of bank profitability can defined as those factors that are influence by the banks' management decisions and policy objectives. Management effects are the results of differences in bank management objectives, policies, decisions, and actions reflected in differences in bank operating results, including profitability. 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 et al., 2006; kasmidou, 2008 and Sufian, 2011). In this study such internal profitability determinants are includes: capital adequacy, credit risk, deposit liability, the level of liquidity, loan and aadvance, expense management, efficiency and productivity, bank size and non-interst income.

The literature suggests that, the environment in which banks operate influences them, like any firm; from this, the external environment is the commen and the uncontrole 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 influence 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 et al., 2006; kasmidou, 2008 and Sufian, 2011). From this study including market concentration as industry-specific determinants and economic growth and interest rates policy as macroeconomic determinants.

2.2.1 Bank-specific Determinants

2.2.1.1 Capital Adequacy

It is measureing by the ratio of equity capital to total risk weighted assets. It is sometimes mention as Capital structure by great deal of literatures. Bank equity capital can see in two dimensions as stated by Aburime (2008). That 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. Bank's capital is widely used as one of the determinants of bank profitability since it indicates the financial strength of the bank (Athanasoglo *et al.*, 2005: p.14).

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.

Studies dealing about the capital adequacy are stated and concluded as follows. Athanasoglou et al. (2005) study on the effects of bank - specific, industry – specific and macroeconomic determinants ofprofitability on Greek bank from the period 1985 – 2001, based on the emperical fram worke that incorporates the traditional structure – conduct – performance (SCP) hypothesis. Applying General Movment Method (GMM) used apanel data, the investigation demonstrated that the existence of Positive correlation between returns and capital. An other research conducted by Flamini et al. (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.

Other reseacher Berger (1995) found that capital adequacy ratio affected ROA of USA banks positively in 1983-1989 and negatively in 1989-1992. Based on these results, Berger argued that the relationship between capital adequacy ratio and profitability depending on the specific circumstances of the time period observed. According to the results of the study, a high capital adequacy ratio positively affects profitability when financial situation of banks is perceived as risky and it negatively affects profitability in normal situations due to alternative cost of capital. The main problem in benefiting from this result is the difficulty of determining an optimal level for the capital adequacy ratio.

Similar studies conducted on developing countries founed and concluded that, capital adequacy is significant company level determinants of profitability. According to Naceur and Goaied (2001) investigation the impact of bank- specific, industry-specific and macroeconomic determinants of banks' net interest margins and return

on asset in the Tunisian banking industry for the 1980-2000 period. The result shows that high net interest margin and return on asset (profitability) tend to be associated with banks that hold a relatively high amount of capital. As determained by Aburime (2008) company level determinants of bank profitability evidence from Nigeria. Using apanal data set consist of 91 observation of of 33 banks over the 2000 – 2004 period. Regresion desired outcomes revaled that capital size is one of significant company level determinants of profitability. Though the results indicate that capital size is a significant determinant of bank profitability in Nigeria, only the size of the reserves component of bank capital has a significant relationship with bank profitability. But the shares component of bank capital does not have a significant relationship.

In case of Ethiopian commercial banks, the single research conducted by Belayneh (2011) on the determinants of commercial banks profitability during the period 2001 – 2010 by used Ordinary Least Square (OLS) and balanced panel data of seven Ethiopian commercial banks. The result from estimation show that, capital can significantly affect commercial banks profitability in Ethiopia. Following this, he concluded that there is positive relationship between banks capital and profitability. And also the higher the capital level brings higher profitability for Ethiopian commercial banks since by having more capital; a bank can easily adhere to regulatory capital standards and the excess capital also can be provided as loans.

Generally, there is the presence of positive relationship between profitability and capital has been supported by Athanasoglou *et al.* (2005); Flamini et al. (2009); Naceur and Goaied (2001) and Belayneh (2011). Therefore, researchers widely posit that the more capital a bank has, the more resistant it will be to failure.

2.2.1.2 Credit Risk

Credit risk is one of the key drivers of banks' profitability because of this; the research examines credit risk as the main determinants of profitability. The asset quality of the loan portfolio used as proxy for credit risk, measured by the ratio of loan loss provisions over total loans and advances. The loan loss provisions are report on a bank's profit and loss account. This research does not use the ratio of loan loss reserve to gross loans similar to Athanasoglou et al. (2008) and Dietrich and Wanzenried (2011) as cited by Ommeren (2011) because many data is missing for this variable. Athanasoglou *et al.* (2005) suggest that bank risk taking has irrational effects on bank profits and safety. similarly Bobakova (2003) asserts that the profitability of a bank depends on its ability to foresee, avoid and monitor risks, possibly to cover losses brought about by risks arisen. Hence, in making decisions on the allocation of resources to asset deals, a bank must take into account the level of risk to the assets.

According to Flamini et al. (2009) the main source of bank-specific risk is credit risk. Poor enforcement of creditor rights and obligation, weak legal environment, and insufficient information about the borrowers expose banks to high credit risk. At the macroeconomic level, weak economic growth adds to risk as it promotes the deterioration of credit quality, and increases the probability of loan defaults. Higher anticipated non-repayment of the loans, measured by the loan loss provisions, reflects a lower credit quality of the loans. Over a longer period, a lower credit quality could negatively influence the profitability since the actual impairment costs of non-repayment are likely to be higher for banks with a lower asset quality than for banks with higher asset quality. In contrary to the risk-return hypothesis, a lower asset

quality expected to negatively, influence banks' profitability. Most literatures suggest that increased exposure to credit risk is obviously associated with decreased firm profitability Ommeren (2011).

The study examined a negative and strongly significant impact of credit risk on Ethiopian commercial banks profitability. This is occure due to weak inspection techniques of identifying potential borrowers. Credit risk trend may bring a series collapse against the sector as well as the nation economy Belayneh (2011).

2.2.1.3 Deposit Liability

The amount of interest income Commercial banks earn mainly depend on the amount and quality of the fund deposited with them by the public. There are three major sources of deposit funds for the commercial banks; namely: current or demand deposits, fixed or time deposits / term deposits and Savings deposits. On current or demand deposits, the bank no pays practically interest. The depositor can be withdrawn in part or in full at any time by issuing cheques. Fixed / Time / Term deposits are so- called for commercial banks because they are left with the bank for a certain fixed period before the expiry of which they cannot be withdrawn except after giving due notice. On such deposits, the bank pays higher interest. Savings deposits can withdraw any time subject to certain limitations regarding the amount withdrawn or the frequency of withdrawals. In fact, only a small percentage of savings are withdraw at any particular time. Since, withdrawals can and do take place, the commercial bank has to keep a certain proportion of its assets in liquid form Rasiah (2010).

As we know the primery function of the commercial banks are collecting deposits and giving loan to the public from this deposits. The competitiveness and the profitability of the bank is depend on the degree of well performing of this activity. About this, Rasiah (2010) stated like:

> *Commercial banks, accepts cash and hold on to as much of it as possible because the more it has and can retain the more funds it can lend to the public. That is, the more cash a commercial bank has the greater is its capacity to make profits. Moreover, the commercial bank always utilizes its funds to the full in lending funds; the greater is the commercial banks' profitability. Hence, the competition for deposits is really a competition for profits. Commercial banks compete for deposits in order to become larger and thus to be able to supply more funds to the public. However, such financial growth is profitable only if the commercial bank does not incur additional expenses to obtain and retain cash.*

Most studies from the literature agreed that, liability portfolio Management especially deposit liablity may influence the profitability of commercial banks positively, among this (Moin, 2008) found. In contrary other researchers conclude that Since, time and savings, deposits represent a relatively higher cost source of funds, the more a commercial bank is committed to time and saving deposit, the higher would be the funding cost and hence the lower the profits (Ommeren, 2011). In the case of Ethiopian commercial banks business environment regarding the impact of deposits on profitability research conducted by (Belayeneh, 2011) concluded that, even though, deposit is the main source of funds for banks, the number one expense item for a banking sector is interest payment on saving and fixed deposits. Because of this,

study revealed fixed deposit has a negative and significant impact on Ethiopian commercial banks profitability. In addition to this, the result show that the impact of saving deposit on banks profitability is unstable and insignificant.

2.2.1.4 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. Following Saunders and Cornett (2008), liquidity risk refers to the risk that an asset cannot convert into cash or that the conversion is costly. Furthermore, they state that price risk refers to the risk that the sale price will be lower than the purchase price of an asset. It is considered an important determinant of bank profitability Athanasoglou (2006).Therefore, liquidity risk estimated by the ratio of liquid assets to customer deposits and other short term funding. 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.

In addition to the maintenance of cash reserve with the Central Bank, the commercial banks are also required to maintain a minimum level of liquid assets. While the primary reason behind the imposition of minimum liquidity ratio is to ensure that the commercial banks have at all times, a reservoir of liquidity, which can be tapped to

meet unusual deposit withdrawals, the ratio can also be used as a means of influencing the monetary situation in these countries. When total demand for liquidity exceeds its total supply, the commercial banks will face with liquidity deficit. In such a situation, these institutions will force to raise additional liquid funds by borrowings or disposing some of their liquid assets. Usually, short-term borrowings are costly and the loss of income from the sale of liquid assets will tend to have an adverse effect on profitability. On the other hand, idle funds and the lower returns on liquid assets may also adversely affect the profitability of those institutions with surplus liquidity. Thus, liquidity management represents yet another important determinant of commercial bank profitability Rasiah (2010).

Based on the risk-return hypothesis, more liquidity risk is associated with higher expected returns. Otherwise stated more cash and other liquid non-earning assets result in a lower expected return because these assets do not generate any return. 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 expacted 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) .

2.2.1.5 Loans and Advances

It is needless to emphasize that extending loans is one of the most important role of banks. 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). Loans are the most important indicators of banks performance in the bank financial statements because they reflect the bank's primary activity. Assumed, other variables constant, the higher the rate of transforming deposits into loans, the higher the profitability will be. For that, a positive relation between the loans and banks profitability are expected. On the other hand, if increasing loans leads to higher funding requirements, a negative impact of the loan ratio on the banks profitability may accrue. In their study, Moin (2008) found a significant positive relation between asset composition and profitability. In Ethiopian banking business tangible condition as proved by Belayneh (2011) this variable has positive and highly significant impact on profitability. In contrast, Staikouras and Wood (2004) documented a negatively significant relation with the profitability. Related to this the researcher conclude that a high volume of loans alone is not a guarantee for high interest income. If the borrowers default, then the interest income will not earn and this will certainly affect the profitability of the bank adversely.

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. In this respect, the banks are face with liquidity risk since; loans advanced from funds deposited by customers. Following the raising of loan by the bank to generat large interest income, the liquidity risk problem face the bank. Regarding to this Rasiah (2010) describe as follows:

However, the higher the volume of loans extended the higher the interest income and hence the profit potentials for the commercial banks. At this point, it is also worth noting that banks with a high volume of loans will also face with higher liquidity risk. Thus, the commercial banks need to strike a balance between liquidity and profitability. In addition to the volume of the loans, the quality of the loans would also contribute towards higher profitability. To this extent, it is worth nothing that the non-performing loans can used as an indicator of the loans quality. Hence, the non-performing loans must take into account as a factor. Because this may affect a bank's interest income and profitability.

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). Loan and advance is the ratio of loans to total assets. It measuring what percent of total assets is comprise 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).

2.2.1.6 Expense Management

It 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 *et al.*,

2005). According to Athanasoglou et al. (2005) investigation on Greek banks during the period 1985 – 2001 observed that Operating expenses appear to be an important determinant of 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. In other words there is direct positive relation between efficient expense management (i.e management quality) and profitability. Since banks pass part of increased cost to customers and the remaining part to profits. In a study of United States banks for the period 1989–93, Angbazo (1997) finds that there is evidence that net interest margins are positively related management quality.

Guru et al. (2002) attempt to identify the determinants of successful deposit banks in Malaysia. The findings of this study revealed that efficient expenses management was one of the most significant in explaining high bank profitability. On the other hand, Montinola and Moreno (2001: 6) as cited by Aburime, (2008) argue that about effective cost management or quality of management as follows:

> *Where management quality is low and managerial monitoring is imperfect, some workers will not exert full effort, thereby "free riding" on good workers. Observing that a poor worker next to him is shirking, a good worker may reduce his own effort; so over time average effort falls to that of the poorest worker. From time to time, good workers may be hired, but their effort will eventually drop down to the preexisting level. At other times, workers who are lazier than existing employees may hire, dragging down the performance of current workers. Since only hires that cause workers to shirk*

more have an impact, the equilibrium is for efficiency to fall over time and the profitability of the firm is adversely affected.

The total cost of a bank (net of interest payments) can separated into operating cost and other expenses (including taxes, depreciation etc.). From various literatures, only operating expenses can viewed as the outcome of bank management. The ratio of these expenses to total assets expected to negatively, relate to profitability, since improved management of these expenses will increase efficiency and therefore raise profits.

The operating expenses to operating income ratio shows the overheads or costs of running the bank, including staff salaries and benefits, occupancy expenses and other expenses such as office supplies, as percentage of income. It used as an indicator of management's ability to control costs and is expected to have a negative relation with profits, since improved management of these expenses will increase efficiency and therefore raise profits Guru et al. (2002).

2.2.1.7 Efficiency and Productivity

In the literature on bank performance, the single ratios such as net interest income over totoal assets, operating expense to operating income, operating expense to total assets and gross income to the numbers of employees hade been used to assess manager's and employee's efficiency in banks. Especialy the last ratio is almost the best measurment of employee's efficiency and productivity. The former considers the proportion of every birr of income spent on the average by a bank as a measure of the efficiency of the bank's management. The higher this ratio indicats better managerial efficiency of the bank. The latter ratio relates the expenditure of the bank

(as an input) to its asset base (as a measure of its output). According to Aburime (2008) Clear sudggestion, the single ratio measures of efficiency can hardly serve as proxy for the technical efficiency measures. The single ratio measures are too simplistic and are devoid of sufficient information to capture the input-output relationship and characteristics of a typical bank in view of their highly aggregated nature. Higher the efficiency levels of a bank, higher its profits level. Hence, a positive relationship posited between efficiency and profitability of banks.

Empirical evidence from Athanasoglou et al. (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. In this research efficiency and productivity will measure by the ratio of gross inacom to total employees.

2.2.1.8 Bank Size

Sudies conducted on determinants of bank proftability took bank size variable, as considered to an important determinants of bank performance Kosmidou (2008). If the relative size of a firm expands its market power and profits increases, this is the Market-Power (MP) hypothesis. The hypothesis also referred to as the Structure-Conduct-Performance (SCP) hypothesis (Athanasoglou *et al.*, 2005).

One of the most important questions underlying bank policy is which size optimizes bank profitability? Because there is no clear cut points which indicates the relation of

appropriat bank size and its profitability. The effect of a growing size on profitability has proved positive to a certain extent. However, for banks that become extremely large, the effect of size could be negative due to bureaucratic and other reasons Athanasoglou *et al.* (2005).

The different studies regarding bank size concluded mixed emperical results. Some studies found economies of scale for large banks (e.g. Athanasoglou, 2006 South Eastern European banks and Kosmidou, 2008 on Greece banks,) and others concluded that disecomies scale for large banks due to possible bureaucratic bottlenecks and managerial inefficiencies or economics of scale for small banks (e.g. Athanasoglou *et al.,* 2005 on Greece banks, Aburime, 2008 on Nigeria banks and Ngo, 2006 Australian bank). As extensive researchers pointed out the expected sign of bank size is ambiguous. Hence, the size-profitability relationship may expect to be non-linear. The researcher use the natural logarithm of total assets as a proxy for bank size, while the square of the natural logarithm of total assets is included to capture any non linearity's in the size-profit relationship.

Accourding to Belayneh (2011) research conducted on the determinants of commercial banks profitability during the period 2001 – 2010 concluded that the size of all Ethiopian commercial banks which is measured by log of total asset is increased for the last 10 years. In case of Ethiopian commercial banks, as the result implies that larger banks enjoy the higher profit than smaller banks in Ethiopia banking sector because they are exploiting the benefit of economies of scale.

In the literature, asset and/or deposit base of banks have adopted as proxy for their size. At times, their market shares of assets and/or deposit have also used. The second

set of measures, however, follows from the first. According Aburime (2008) investigation on Nigeria banking industry on the area of bank performance and supervision by adopted the data envelopment analysis approach founded that, the profitability of the bigger banks is significantly higher than that of the smaller banks.

2.2.1.9 Non-Interest Income

Non-interest income is other alternative means of income other than earning from loans. It includes fees earned from offering unit trust services, service charge on deposit account, standard fees, and charges for other bank services. With increasing globalization and financial liberalization, the bank business has been undergoing a gradual transformation away from the traditional business of financial intermediation and towards provision of other financial services including mutual fund, insurance etc. Thus, non-interest income would represent a key source of bank revenue at present and in the future Rasiah (2010). By more aggressively selling services other than loans such as brokerage, insurance and trust services, bankers have found a promising channel for boosting the income statement by diversifying their income sources, and for insulating their banks more adequately from fluctuations in interest rates and loan default risk. Further more, higher diversification regarding banks' income sources towards derivative instrunments and other fee-based activities shows apositive effect on banks profitability on the Korean banking sector Sufian (2011).

In this study, the income which generate from the non interest sources was measured by non-interest income to total income ratio. The importances of fee-based services of commercial banks are to increase the non-interest income. As the result activity of fee-based services and their product diversification is captured by non-interest income

to total income ratio. Although, In the case of commercial banks the majority income generate from interest income, commercial banks profitability highly affected by interest fluctuation and loan default risk. But Banks those income are highly depend on non-interest income can protact the profit from decline during this situation. Since, this income never affected by interest fluctuation and loan default risk. In the banking industry of Ethiopia as check by (Belayneh, 2011) there is apositive relation between non-interest income and profitability.

2.2.2 Industry-Specific Determinants

2.2.2.1 Market Concentration

The previous researcher like Ommeren (2011) and Athanasoglou et al. (2005) measured concentration using the Herfindahl-Hirschman (H-H) index. In this study also measured market concentration like the previous researcher by using the Herfindahl-Hirschman (H-H) index, which is the sum of the squares of market share of the sample banks included in this particular study. It is the number, size, and distribution of banks in a particular market or country. An HH-index of 10,000 indicates that there is only one bank in the country while if the number of banks goes to infinite the HH-index will return almost to zero Athanasoglou et al. (2005).

The high concentration ratio in the market creates greater than average efficiency in these markets yielding a positive profit concentration relationship (Berger et al., 1989). They pointed out four sources of anti-competitive behaviors may be arisen as a consequence of high market concentration: first, if a firm is enjoying a large share of market and it is able to set the prices in excess of competitive levels with a lesser pressure on managers for maintaining operation costs at or near their competitive

level. Second Managers' self-interest behavior may lead to making more risky financing decisions (which are above the shareholders' expectation) to reduce the variation in earnings to protect their positions. Third increase in the political cost associated with obtaining and depending on the existing market power. And the fourth the retention of inefficient managers or the maintenance of inefficient practices allowing managers to live a quiet life to pursue other objectives or maintain market power gains. A positive relationship between bank concentration and profitability was found by Short (1979) in a study which was based on a sample of banks from Canada, Western Europe and Japan.

How ever Some contemporary studies have challenged the acceptability of the positive relationship predicted between market concentration and profitability. Smirlock (1985) posited that there is no relationship between concentration and profitability but between profitability and market share. His study, which used 2,700 unit-banks in state, found no evidence for the relationship between concentration and profitability. However, he found strong evidence for the relationship between market shares (which are use as proxy for the firm's profitability). He showed that market concentration is not a signal of collusive behavior but rather the superior efficiency of the leading firms.

The SCP hypotheses have been applied in different rsearch by various researcher and supported positive relationship between market concentration (measured by concentration ratio) and performance (measured by profits) exists. Furthermore, SCP recognized the competitiveness of small market share banks with large market share is weak as a result the positive relationship between market concentration and performance (profitability) of high market share banks exist (Berger and Hannan,

1989 and Goddard et al., 2004). In Ethiopia banking business environment study conducted by (Belayneh, 2011) indicated that the existance of negative and significant relationship between the declining market concentration and Ethiopian commercial banks profitability.

2.2.3 Macroeconomic Determinants

The last groups of profitability determinants are deals with macroeconomic variables. The variables normally used are the interest rate policy and economic growth of the country. Bank profitability is sensitive to macroeconomic conditions, despite, the trend in the industry towards greater geographic diversification and larger use of financial engineering techniques to manage risk associated with business cycle forecasting Athanasoglou et al. (2006). In Ethiopia, research conducted by Belayneh (2011) examined the determinants of Ethiopian commercial banks profitability. The researcher concluded that from macroeconomic determinants, the only significant factor of profitability is real GDP growth. Inflation and lending interest rate have a positive but insignificant effect.

2.2.3.1 Economic Growth (Real GDP Growth)

Economic growth (GDP) is among the most commonly used macroeconomic indicators, as it is a measure of total economic activity within an economy. The gross domestic product growth (GDPGR), calculated as the annual change of the GDP, used as a measure of the macroeconomic conditions. GDPGR expected to have an effect on numerous factors related to the supply and demand for loans and deposits Kosmidou (2008). The GDP per capita growth is expect to have a positive impact on banks'

performance, according to the well-documented literature on the association between economic growth and financial sector performance. An important findings of the study is that the economic growth 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. Demirguc-Kunt and Huizinga (2000), Athanasoglou et al. (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. Particularly in Ethiopia commercial banks, this variable has positive and significant effect on profitability Belayneh (2011). How ever study examined by Naceur and Goaied (2000) by their study on the impact of bank- specific, industry- specific and macroeconomic determinants of banks' net interest margins and return on asset in the Tunisian banking industry for the 1980-2000 period conclud that GDP per capita growth have no impact on Tunisian bank's profitability. Generally, in line with the previous literature in this study economic growth is measured by the real GDP growth rate and can expect a strong positive correlation between the overall economic activity of the country and the profitability of commercial banking sector.

2.2.3.2 Interest Rate Policy

A bank's interest rate policy can seen from two perspectives, viz: the bank's policy regarding the interests it pays on deposits received by it and the bank's policy regarding the interests it receives on credits given by it. The interest paid by a bank, on its deposit liabilities is a cost source and tends to contract the bank's income. This is why Fries *et al.* (2002; p. 10) argue that the profit function of a bank includes the interest it pays on deposits. On the other hand, the interest received by a bank on credits given by it is a revenue source and tends to expand the bank's income. Hence, Bobakova (2003; p. 23) argues that the profitability of a bank is influenced by its interest rate policy. This policy can adjust to enhance profitability. Here, the decisive factor is the bank's ability to set such an interest rate for asset deals that meets costs of funds, operating costs, as well as the required rate of profitability.

The real interest rate expected to have a positive relationship with profitability in the essence of lend-long and borrow-short argument (Vong and Chan, 2008). That means banks may increase lending rates sooner by more percentage points than their deposit rates. On the other hand, the rise in real interest rates may increase the real debt burden on borrowers and this may lower asset quality, thereby interest rate may have a negative impact on profitability. How ever Guru et al. (2002) attempt to identify the determinants of successful deposit banks in Malaysia. The findings of this study revealed that, among the macro-indicators, high interest ratio was associated with low bank profitability. The lending interest rate has a positive but insignificant effect on Ethiopian commercial banks profitability Belayneh (2011). Finally, in this paper interest rate policy proxed by spread, in line with the previous literature the researcher expected positive relation between profitability and interest rate policy.

2.2.4 Measurements of Profitability

The two major methods of measurements of profitability are: the traditional accounting based measurements and economic measurements of profitability. In economic measurements of profitability the two common methods are: Risk-Adjusted Return On Capital (RAROC) and economic value added (EVA), which are the economic based metrics of economic profits. Following Kimball study as cited in Ommeren, (2011) these metrics are take into account risks and opportunity costs of equity when measuring the profitability. But related to Ommeren (2011) study, although, numerous banks disclose RAROC and EVA economic profit metrics, academic literature does not use these measures to analyze banks' profitability, because the disclosed parameters are subject to internal policies and assessments which cannot be generalized or validated. So, this thesis attempts to discusead more on accounting measurements of profitability.

The traditional accounting based measures are easy proxies of banks' profitability, obtainable from public disclosed information. As concluded by extensive Prior academic research there are different accounting based measures for banks' profitability. For instance, Return on Equity (ROE) used by (Goddard et al., 2004), Return on Assets (ROA) used by (*Flamini et al.*, 2009), the Return on Equity (ROE) and Return on Assets (ROA) utilized by (Athanasoglou et al., 2006), Ommeren (2011) and Bashir (2003), ROE, ROA and Profit Earning Ratio (PER) applied by Moni (2008) and among others, Demirguc-Kunt and Huizinga (1999) uses the net interest margin (NIM) as proxy for banks' profitability. According to their investigation those accounting based measurements of bank profitability are nearer

to accurat and proxies to measures profitability, even if, they have their own drawbacks.

Study examined by Flamini et al. (2009) proved that return on assets (ROA) as a measure of bank profitability. It defined as the banks' after tax profit over total assets. In principle, ROA reflects the ability of a bank's management to generate profits from the bank's assets. It shows the profit earned per dollar of assets and most importantly, reflects the management's ability to utilize the bank's financial and real investment resources to generate profits, although it may be biased due to off-balance-sheet activities. For any bank, ROA depends on the bank's policy decisions as well as uncontrollable factors relating to the economy and government regulations. Many regulators believe return on assets is the best measure of bank efficiency and it emerges as the key ratio for the evaluation of bank profitability (IMF, 2002).

On the other hand, according to Ommeren (2011) ROE reflects how effectively a bank management is using shareholders' funds. ROE indicates the return to shareholders on their equity and equals net incom divided by total equity capital or ROA times the total quity ratio-to-asset. The latter is often referring to as the bank's equity multiplier, which measures financial leverage. Banks with lower leverage (higher equity) will generally report higher ROA, but lower ROE. It reflects how effectively a bank management is using shareholders' funds. A bank's ROE is affected by its ROA as well as by the bank's degree of financial leverage (equity/ asset). Since returns on assets tend to be lower for financial intermediaries, most banks utilize financial leverage heavily to increase return on equity to a competitive level.

According to Athanasoglou et al. (2008) many scholars remind that ROA is the key ratio for the evaluation of bank profitability given that ROA is not distorted by high equity multipliers, while ROE disregards the risks associated with high financial leverage. In this respect, it is rarely to find the paper utilizes ROE as a single measure of profitability. Most of the time papers utilize ROE for checking the consistency with ROA (Izhar and Asutay, 2007). The rate of return on assets, ROA, is the most comprehensive accounting measure of a bank's overall performance. Because of this, the bulk of studies employed ROA as profitability measure, for instance, (Izhar and Asutay, 2007) and Flamini et al (2009).

Many Empirical research proposed to used the net interest margin to overcome the off balance sheet (OBS) bias. Demirguc-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) mimus interest expens (the interest the bank must pay to its depositors and creditors from whom it has borrowed funds) expressed as apercentage of earning assets (i.e earning assets are the sum of all banks assets that earn interest, including loans and investment in fixed income securities).

In line with earlier studies that examined the determinants of banks' profits this research rely on two commonly used measures of profitability by using the traditional accounting method. The first is the return on assets average (ROAA), calculated as net profit after tax divided by average total assets. This is probably the most important measure used in comparing the operating performance of banks, and we use the average value in order to control for differences that occur in assets during the fiscal year. The analysis towards determinants of banks' profitability use only ROAA and

not ROE since Goddard et al., (2004) suggest that the results by using either ROE or ROAA are comparable because the yearly variation in the numerator (net income) is greater than the yearly variation in the denominator (assets or equity). And the second measure of profitability is the net interest margin (NIM).

2.3 Commercial Banking Industry of Ethiopia

2.3.1 The Current Development of Ethiopian Banking Sector

According to 2011 annual reports of national banks of Ethiopia the development progress of banking sector in Ethiopia is reflacted in sufficient manner. This development is discribed in term of numbers of banks, total assets, human resource utilization etc. The total numbers of commercial banks in term of branchs and establishment of new banks are increasing relative to the prvious period, but not relative to other developing Africa countries. The total numbers of banks branch both state and private operating accross the country are increasing to 950 branchs from 681 last year. But unfortunatly out of these 371 branchs constituting about 39% concentrated on the Addis Ababa. The rest 579 branchs about 61% establushed in different part of the country. It estimating that one bank branch serves 84,210 people, which is below even if the Sub-Saharan standared. This is show fact that, Ethiopia indeed is under banked country with limited outreach. In term of new establishment of banks, now aday the new entrants come to the market, this is flourish for the development of the banking idustry. But looking ahead, existing banks will surely be challenged by the entry of six new banks (Abay, Enat, Hawassa, Debub Global, Noah, Zam-Zam).

The commercial banking sector in Ethiopia can classified into three broad categories, based on their operation period and stage of development whether they established more than a decade ago (i.e CBE, CBB, AIB, DB, BA, WB, UB and NIB), set up only within the last five years (i.e CBO, LIB ZB, BUIB and BIB) and the new entry or on the formation banks (i.e Addis international bank, Debub Global Bank, Enat Bank, Abay Bank, Noah Bank, Zam-Zam Bank and Hawassa Bank).

2.3.2 The Role of National Bank of Ethiopia Directive on Commercial Banks Profitability

The commericial banks of Ethiopia operating under highly regulated business environment. This rule and regulations are stated by the national bank of Ethiopia. The NBE directives have its own positive and negative role on profitability of the commericial banks. This might be hinder the development of the bank. For instance, among the NBE directives some of which related with this study are stated here :

Licensing and Supervision of Banking Business directive No. SBB/29/2002(see, http://www.nbe.gov.et) under article 4 stated single borrower loan limit like this: ''the aggregate loan or extension of credit by a bank to any one borrower, whether a natural person or business organization, shall at no time exceed 25% of the total capital of the bank''. Even if, this directive has the advantage to reducing the non-performing loan, it affecting the loan performance of the commercial banks. So the NBE can set other mechanisms to protacting non-performing loan, rather than limited the borrowing capacity of the borrower. Because according to Flamini et al. (2009) conclussion, the main source of credit risk are; poor enforcement of creditor rights and obligation, weak legal environment, and insufficient information about the borrowers but giving

much loan may not the source of the credit broblem. In addition to this, economic growth adds to risk as it promotes the deterioration of credit quality, and increases the probability of loan defaults.

Other important directives which related to the dterminants of profitability is, Licensing and Supervision of Banking Business Minimum Capital Requirement for Banks Directives No. SBB/50/2011. This directive under article 4 of these directives stated the Minimum Paid-up Capital of the banks like this:

> *The minimum paid up capital required to obtain a banking business license shall be Birr 500 million (birr five hundred million), which shall be fully paid in cash and deposited in a bank in the name and to the account of the bank under establishment.*

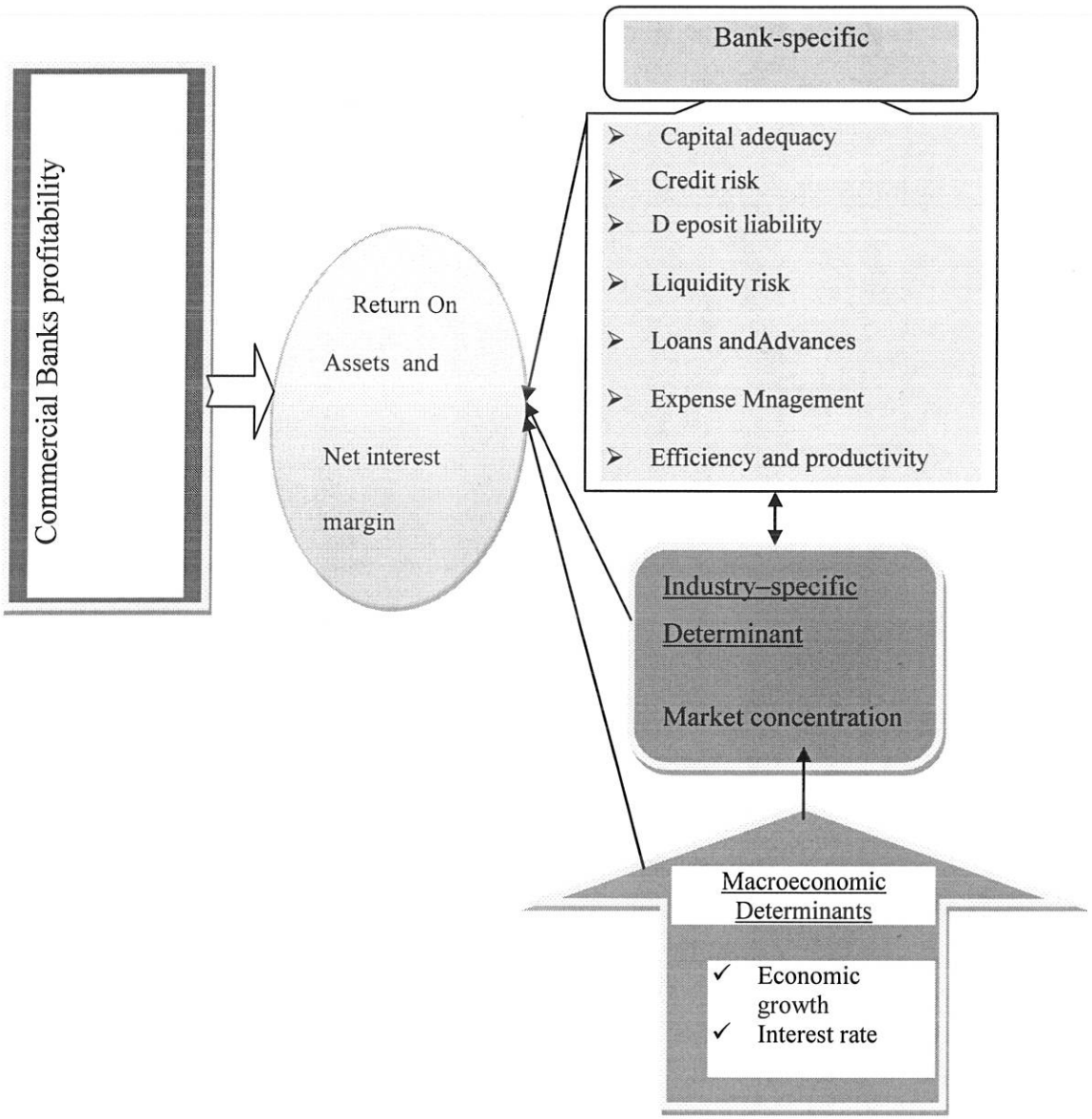
Even though, the directive protact the commercial banks by increase the stability of a national banking system and by decreasing the likelihood of a bank failure and a number of negative externalities exist in banking that cause risk to systematically under price. It affected the profitability of the commercial banks by reducing the return which generate from the capital by the banks. Because my researchers belive capital is the main source of income for commercial banks provided as loan (Athanasoglo *et al.*, 2005). In addition to this, the directive sets; the bank which is fails to comply with the minimum paid up capital requirements must Prohibit such bank from accepting new deposits, underwriting new loans and conducting international banking business until the deficiency in capital is corrected. Moreover, this directive affect the profitability of the commercial banking of Ethiopia.

NBE set as adirective about risk weigheted asset calculation under Licensing And Supervision of Banking Business Directive No. SBB/9/95 Computation of Risk Weighted Asset. According to the directive, the manner of computation of Risk weighted assets and percentage weight attached to each asset shall be calculated in the manner as shown in the tables described here.

Directives No. SBB/50/2011, under article 4 of these directives stated, all licensed banks shall at a minimum maintain capital to risk weighted assets ratio of 8% at all times. This is also the same with Basel I rule.

2.4 Conceptual Framework

This conceptual frame worke describes the ralationship of profitability with bank-specific , industry-spcesific and macroeconomic determinants based on the thoretical and emperical prespactive and the emperical results are described from the following diagram. ***Figure 1:*** *Relation between profitability and its determinants*



2.5 Conclusion and Knowledge Gap

There is no unique theory of profitability provides a unifying framework for the study of financial performance determinant of the commercial banking industry. Most researches conducting on this area was concluded that, the determinants of banking profiability is not outside from bank-specific, industry-specific and macroeconomic factors. However bank-specific factors are the most frequantly occure determinants of profitability. Even though, abundant emperical researchers conducted around this area, it inclined in to the developed country banking environment. The finding and conclusion from these research also dificult to applay in least developed countries banking environment. Beside this, conducting research on the developing countries banking environment based on their tangable environmental and operating condition is mandatory.

According to the history of banking in Ethiopia, the first national banking in Africa is bank of Ethiopia. However, now aday the financial performance of Ethiopian banks are remains closed and is much less developed than its neighbors (Deepak and Abebaw, 2011). In addition to this, the bank to people ratio of Ethiopia is 1 to 84,210, which is below even if the sub-saharan standared. But stile no study is conducted to identifying the hindrance of the banking performance (profitability) in Ethiopia.

In order to investigate the factors which affect the profitability of Ethiopian commercial banks, the researcher conducting this study by using mixed research approach, by observing large numbers of obervation and time span and by including sufficient numbers of variables. This makes complete difference from the pervious researches,because they used quantitative research approach with limited observation.

Chapter Three

Research Methodology

From the previous chapter the researcher discused about the theoretical and emperical facts of the selected dependent and independent variables. Consequently, this chapter describes the methodology that is used in the empirical analysis to test the different hypotheses.

3.1 Research Design

The study was used more of quantitative methods, but in some extent the qualitative information was used to suport the quantitative research findings (i.e mixed research approach). This mixed approach of research is more inclined to quantitative research. The researcher tries to explain the relation between profitability and its' determinants based on the result that found by regression and support it by the questionnair, because of this, the research design was explanatory and descriptive type. The data analysis of this research is used the concurrent mixed research approach.

3.2 Model Specification

The researcher used the mulitiple linear regression model and ordinary least square (OLS) estimation method. The characteristics of the model and proposed variables in equation (1), likely not violate the classical assumptions underlying the OLS model. Modeling is based on panel data techniques. Panel data or longitudinal data, comprises of both cross-sectional elements and time-series elements; the cross-sectional element is reflected by the different Ethiopian commercial banks and the

time-series element is reflected in the period of study (2000-2011). Panel data is favored over pure time-series or cross-sectional data because it can control for individual heterogeneity and there is a less degree of multi-colinearity between variables (Altai, 2005). Extensive literature generally comes to the conclusion that the appropriate functional form for testing is a linear function although there are disagree opinions. Short (1979) investigated this idea and concluded that linear functions produced as good results as any other functional form.

To examine the determinants of the profitability of Ethiopian commercial banks, the researcher was used the fixed effects or random effects model after test the validity of the assumption of the models by using the Hausman test (Brooks, 2008; p. 500). The study used a panel regression technique to analyze the impact of bank specific, industry specific as well as macroeconomic determinants on Ethiopian commercial banks profitability. The general model to be estimated is the following linear forms which, is adopted from Davydenko, (2010), Athanasoglo *et al.*, (2005) and Berger *et al.*, (2000) piror theoretical model.

$$\Pi_{it} = \alpha + \Sigma \beta_k X^{n}it + \varepsilon_{it} \text{ .... } (1)$$

Where: Π_{it} is the profitability of bank i at time t, with $i = 1, N; t = 1, T$, α is a constant term, β is coefficients for the respective variables, X_{it}s are k explanatory variables, superscript n denote both internal and external determinants of profitability and ε_{it} is the disturbance with v_i the unobserved individual bank-specific effect and u_{it} the idiosyncratic error or varies over time and entities.

The explanatory variables *Xit* are grouped, according to the discussion above, into bank-specific, industry-specific and macroeconomic variables.The general specification of model (1) with the *Xit*s separated into these three groups of determinants of profitability as follows:

$$\Pi_{it} = \alpha + \Sigma^{J}_{j=1} \beta_{kj} X_{it}^{j} + \Sigma^{L}_{l=1} \beta_{kl} X_{it}^{l} + \Sigma^{M}_{m=1} \beta_{km} X_{it}^{m} + \varepsilon_{it} \ldots\ldots\ldots (2)$$

Where: The X_{it}s with superscripts *j*, *l* and *m* denote bank-specific, industry-specific and macroeconomic determinants of profitability respectively.

The equation that account for individual explanatory variables which are specified for this particular study is given as follows.

$$\Pi_{it} = \alpha + \beta_1(CA)_{it} + \beta_2(CR)_{it} + \beta_3(LR)_{it} + \beta_4(LOTA)_{it} + \beta_5(DTA)_{it} + \beta_6(EXM)_{it} + \beta_7(EP)_{it} + \beta_8(BSIZ)_{it} + \beta_9(NII)_{it} + \beta_{10}(MCON)_{it} + \beta_{11}(GDP)_{it} + \beta_{12}(IRP)_{it} + \varepsilon_{it} \quad \ldots (3)$$

Where: $\beta_1 - \beta_{12}$ is coefficients for the respective explanatory variables, from this β_1 - β_9; represent cofficient of bank specific variables, β_{10}; represent cofficient of industry specific variable, β_{11} and β_{12} also represent cofficient of macroeconomic variables.

- CA = Capital Adequacy
- CR = Credit Risk
- LR = Liquidity Risk
- LOTA = Loan and Advance to total Asset ratio
- DTA = Deposit to total Asset ratio
- EXM = Expense Management
- EP = Efficiency and Productivity

- BSIZ = Bank Size
- NII = Non-Interest Income
- MCON = Market Concentration
- GDP = Gross Domestic Product (Economic Growth)
- IRP = Interst rate Policy

***Note**: The description of notations, measurments and expected sign included in the above comprehensive regression equation has given in the table 3.1 from the appendix I.*

The study was used the two commonly used ratios to describe bank profitability: the average return on assets (ROAA) and the Net Interest Margin (NIM). So can drive two econometrical models:

ROAA Model : - Return on Assets Average as dependant variable

$$ROA_{it} = \alpha + \beta_1(CA)_{it} + \beta_2(CR)_{it} + \beta_3(LR)_{it} + \beta_4(LOTA)_{it} + \beta_5(DTA)_{it} + \beta_6(EXM)_{it} + \beta_7(EP)_{it} + \beta_8(BSIZ)_{it} + \beta_9(NII)_{it} + \beta_{10}(MCON)_{it} + \beta_{11}(GDP)_{it} + \beta_{12}(IRP)_{it} + \varepsilon_{it} \ldots\ldots\ldots (4)$$

NIM Model:- Net Interest Margin as dependant variable

$$NIM_{it} = \alpha + \beta_1(CPA)_{it} + \beta_2(CR)_{it} + \beta_3(LR)_{it} + \beta_4(LOTA)_{it} + \beta_5(DTA)_{it} + \beta_6(EXM)_{it} + \beta_7(Ep)_{it} + \beta_8(BSIZ)_{it} + \beta_9(NII)_{it} + \beta_{10}(CONS)_{it} + \beta_{11}(GDP)_{it} + \beta_{12}(IRP)_{it} + \varepsilon_{it} \ldots\ldots\ldots (5)$$

According to earlier studies that examined the determinants of banks' profits Davydenko (2010), Athanasoglo *et al.* (2005) and Berger *et al.* (2000); they concluded that, bank profits show a tendency to persist over time (serially correlated), reflecting impediments to market competition, informational symmetry and/or

sensitivity to macroeconomic shocks. However in the case of Ethiopian commercial banks profitability determinants, since, this area is not well studied the persisting of profit is unknown. The researcher of this study was see this issue from emperical result and discusion part.

3.3 Variables Definition and Measuremnts

3.3.1 Dependent Variable

The Two commonly used ratios to describe bank profitability are: the average return on assets (ROAA) and Net Interest Margin (NIM). ROAA, it measured by net interest income divied by average total asset. Indicates how effectively a bank manages its assets to generate income. It indicates income earned on each unit of assets. Though ROAA has problem of that excludes off-balance sheet items of the bank which creating a positive bias in evaluating bank performance in the literature Athanasoglou et al. (2008) and Davydenko (2010) remind that ROAA is the key ratio for the evaluation of bank profitability. To overcome the off balance sheet (OBS) bias many empirical research proposed to use the net interest margin, Demirguc-Kunt and Huizinga (1999) and Kosmidoul (2003) uses the net interest margin (NIM) as proxy for banks' profitability and measyred by net interest income divided by total earning asset. It is implies how effectivily and efficiently the bank manages its interest earning assets to generat net interest income.

3.3.2 Independent Variables

Capital Adequacy of Banks (CA):- In this study Capital adequacy was measured by a ratio of total equity over total risk weighted assets. This measurement also the same

with Athanasoglou et al. (2005) and and Davydenko (2010). There is Positive correlation between returns and capital has been demonstrated by Demirguc-Kunt and Huizinga (1999) and Naceur (2003). The researcher expacted positve relation between capital adequacy and profitability.

Credit Risk (CR):- In this particular study credit risk was measured by the ratio of non performimg loan over total loans and advances or total investment.The author of this research share this measurements of credit risk with Flamini et al. (2009) and Ommeren (2011). This ratio measures the ability of bank managers to screen the credit risk. When loans are non performing, income is decreases, hence the expected relation is negative.

Bank Size (BSIZE):- Sudies conducted on determinants of bank profitability took bank size variable, as considered to an important determinants of bank performance Kosmidou (2008). It is described by log of banks total assets. The effect of a bank's size on profitability is not settled in the literature because of this, the expected sign is ambiguous Flamini et al. (2009). Increase in size can lead to decreasing or increase profits for banks due to the situations. Like prvious studies this research also was used log of total asset to measure the size of the bank. To capture the non-linearities between size and bank profitability, the researcher proxy bank size by using the logarithm of total assets. The expacted sign was positive.

Expense Management (EXM): - It was measured by the ratio of operating expense to total gross income like Aburime (2008) and it is a proxy to management quality. Clearly, efficient cost management is a prerequisite for improved profitability of banks. The researcher used the ratio of operating expense to total gross income as the

measurement of expens management. In line with earlier studies, the researcher expects direct negative relation between inefficient expense management and profitability.

Liquidity risk (LR): – Liquidity risk was estimated by the ratio of liquid assets to short term customer deposits and other short term borrowing or a ratio of cash and cash equivalents over short term customer deposits and other short term borrowing. High liquidity may allow a bank to avoid costly borrowing of funds should the need for cash arise Ommeren (2011) and Davydenko (2010). However, there is also an opportunity cost that banks incur by not investing the cash available to generate returns. Therefore, the sign may appear to be positive.

Loans and Advances (LOTA):- It is the ratio of loans to total assets. LOTA is a variable measuring what percent of total assets is comprise by loans and it gauges the percentage of total assets the bank has invested in loans (or financings) Moin (2008). The researcher expect a positive relation between LOTA and profitability, as more loans would generate interest income for the bank.

Deposit liability(DTA):- This research was measured deposit liability by deposits to total assets ratio (deposits like time, saving and checking deposits), the same with Moin (2008). DTA is a variable measuring the amount of deposits held by a bank proportional to its total assets. Deposits are banks' primary sources of funds that they can invest to generate income. Therefore the researcher expects a positive relation between profitability and deposits ratio.

Efficiency and Productivity (EP):- Empirical evidence from Athanasoglou et al. (2005) shows that labor productivity growth has a positive and significant effect on bank profitability. This suggests that higher productivity growth generates income that is 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. In this research efficiency and productivity was measured by the ratio of earning befor interest and tax to total number of employee. Hence a positive relationship is expected between efficiency and productivity as well as profitability of the bank.

Non Interest Income (NII):- In this study the income which generates from the non interest sources was measured by non-interest income to total income ratio Sufian (2011. The importances of fee-based services of commercial banks are to increase the non interest income. Hence can expect that have a positive relationship with Profitability and non interest incom.

Market concentration (MCON):- The previous researcher like Ommeren (2011) and Athanasoglou et al. (2005) measured concentration using the Herfindahl-Hirschman (H-H) index.In this study also was measured market concentration like the previous researcher by using the Herfindahl-Hirschman (H-H) index which is the sum of the squares of market share of the sample banks included in this particular study. Market concentration and banks profitability is expected to be positive.

Economic Growth (GDP):- This is measured by the real GDP growth rate and it is hypothesized to affect banking profitability positively. 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 sector Athanasoglou (2005) and Kosmidou (2008). In line with the previous literatures can expect a strong positive relation between the economic growth (GDP) and the profitability of commercial banks.

Interest Rate Policy (IRP): The interest rate policy is measured by spread (i.e lending interest minus deposit interest). It is expected to have a positive relationship with profitability in the essence of lend-long and borrow-short argument (Vong and Chan, 2008). That means banks may increase lending rates sooner by more percentage points than their deposit rates.

3.4 Samples, Sample Size and Sampling Procedure

From the total population of fourteen commercial banks of Ethiopia both public and private(i.e Commercial bank of ethiopia,Construction and Business bank, Abyssinia, Awash, Berhan, Bunna, CBO, Dashen, Lion, NIB, OIB, United, Wegagen, and Zemen) those are engaged from the commercial banking activities, the sample of eight commercial banks (i.e Commercial bank of ethiopia, Construction and Business bank, Awash, Dashen, Abyssinia, Wegagen, United and NIB) was selected based on purposive sampling, because the sample including the banks which is established more than a decade ago. The total study population are not included the new entry banks (i.e Abay, Enat, Hawassa, Debub Global, Noah, Zam-Zam and Addis international bank), because they are under formation. The study was covered for the sample period of twelve years (2000 - 2011) by inclusive the two extreme. The main objective of the researcher in choosing the particular sample period and their respective data is to utilize at least twelve years data in order to evaluate twelve years

profitability and its determinants of Ethiopian commercial banking industry after the financial liberalization.

The sample size represents 57.17% of all registered and fully operated commercial banks in Ethiopia. The six banks omitted from the sample had missing financial data for most year of the study. This is because they were established in later years of the sample period, hence omited from the sample size. The sampling fram list of the commerciial bank of Ethiopia was taken from National Bank of Ethiopia (NBE). Since the numbers of the commercial banks which including under sample size are enough to represt the industry in general, the researcher was taken all commercial banks which is fully operated at least more than a decade ago (see table 3.2).

Table 3.2. Sample composition and number of banks observation

S.No.	Bank	Establishment year	Ownership	No.of Branch
1	CBE	1963	100% state owned	490
2	CBB	1975	100% state owned	30
3	AIB S.C	1994	100% private owned	80
4	DB S.C	1995	100% private owned	67
5	BA S.C	1996	100% private owned	61
6	WB S.C	1997	100% private owned	47
7	UB S.C	1998	100% private owned	51
8	NIB S.C	1999	100% private owned	52

Source: National Bank of Ethipia Anual report 2011/2003 (http://www.nbe.gov.et***)***

3.5 Source of Data and Method of Collection

The sources of data for this research was almost secondary sources, but for the purpose of suporting the finding of the research, primery data used in some extent. The secondary data acquired from internal and external sources. The internal sources are the balance sheet and income statement of seven Ethiopian commercial banks which is established more than adecade ago such as Commercial Bank of Ethiopia, Awash Bank, Dashen Bank, Bank of Abyssinia, Wegagen Bank, United Bank and Nib Bank. The external sources are National Bank of Ethiopia (NBE) which regulates the banking sector of the country, Ministries of Finance and Economic Development (MoFD) which regulate the macroeconomic issues of the country and Central Statistics Authority Agency (CSAA) annual reports.

The financial data for the bank-specific variables collected from the financial statements (i.e balance sheet and income statement) of the annual reports of each bank and from the National Bank of Ethiopia (NBE) general annual reports. The balance sheet and income statement was obtained from the annualy reported financial data during the period 2000 – 2011, all of them have been consolidated on June 23 (sene 30) of each year and are calculated in Ethiopia birr. The data for the industry – specific variable and macroeconomic variable (like interest rate) are obtained from the National Bank of Ethiopia (NBE) annual reports. Other macro economic variables like GDP obtained from Ministries of Finance and Economic Development (MoFED) and Central Statistics Authority Agency (CSAA) annual reports. GDP data in this particular research related to statistical data.

This study is based on balanced panel data of Ethiopian commercial banks. The researcher used annual bank – specific, industry – specific and macroeconomic data over the period 2000 – 2011 for banks which is selacted from the sample size and conducted 96 total observation. Inaddition to the above mentioned source of data, financial documents (audited financial data) of the banks like projet documents , published and unpublished materials and ectronic sources are used as the sources of data.

3.5.1 Method of Data Collection

The secondary data were obtained from the annual financial reports and make computation fo the internal variables but dirctly taking the external variables as it is from the annual reports of NBE. Regarding the primry data it is collected by semi-structured interview and open- ended questioner from the chief financial officier about each sampled commercial banks banking business environment.

3.6 Data Analysis Plan

The collected data regressed by panel data fixed effect regression method and interpret with the help of defferent financial ratio and statistical description including standared divation, average, minimum, mximum and median (descriptive statistics) and multiple regression (significant test). To conducted this, the researcher suported by statistical tools like eviews 6.1 software. The proposed hypothesis are tested statistically to arrive at the conclusion and policy implication. In order to calcuulate the value of the bank-specific determinants the researcher was used financial ratio analysis. By taking the value of each bank specific variables from the financial

reeports of each bank and comput the ratio analysis. Regarding the macroeconomic determinants for each period the researcher was directly used which get from the source. The qualitative information which gathered by interview and open - ended questionnaier was analysed by described the responses of the CFO and use it as supportive.

Chapter Four

Empirical Results and Discussion

This chapter analysis the determinants of commercial banks profitability, using the annual balanced panel data,where all the variables are observed for each cross-section and each time period. The study has a time series segment spanning from the period 2000 up to 2011 and a cross section segment which considered eight Ethiopian commercial Banks. Such as Commercial Bank of Ethiopia, construction and Business bank, Awash International Bank, Dashen Bank, Bank of Abyssinia, Wegagen Bank, United Bank and Nib International Bank. Prior to conducting the regression of the bank profitability determinants, it is essential to test the appropriateness of the panel data (both time - series and cross – section data) based on certain criteria and assumption of OLS diagnostic test.

4.1 Model Specification Test

To test the relationship between these commercial banks profitability (return on asset and net interest margin) and identified profitability determinants, the theoretical model is developed based on the finance theory from the methodological part of this study. The important issue from the equation (1) panel model is, it is not specified whether it is fixed effects or random effects model. So the focal point the researcher concern here is, to examine whether individual effects are fixed or random. Because, there are broadly two classes of panel data estimator approaches that can be employed in emperical research: fixed effects models and random effects models. This also requaires the high concern when the researcher employed the panel data approaches.

Therefore; the first issue is the choice between fixed effects (FE) and a random effects (RE) model based on the Hausman test. According to this test null hypothesis says that random effects model is appropriate than the fixed effects model (Brooks,2008, p.509). As indicated by the Hausman test on equation (1) (see Table 4.1. below), the difference in coefficients between FE and RE is systematic, providing evidence in favor of a FE model. The *p*-value for the test is less than 1%, indicating that the random effects model is not appropriate and that the fixed effects specification is to be preferred, since the null hypothesis is rejected at 1% significant level. Furthermore, the estimation results show that individual effects are present, since the relevant $\chi 2$ is significant at the 1% level.

Table 4.1. Correlated Random Effects - Hausman Test

The null hypothesis: Ho = RE > FE; against Ha = FE > RE			
Test Summary	Chi-Sq. Statistic ($\chi 2$)	Chi-Sq. d.f	Prob.
Cross-section random	24.791615	7	0.0008*

Source;computed from eviews result

The * indicate that reject the null hypothesis of random effects model is appropriate than the fixed effects model at 1% significant level.

One can conclude that the *p*-value for the test from the above table is less than 1%, indicating that the random effects model is not appropriate and that the fixed effects specification is to be preferred.So, the cross-section fixed effects model is the appropriate for this study.

To see how the fixed effects model works, can take equation (1) above, and decompose the disturbance term, ε_{it} , into an individual specific effect, v_i , and the 'remainder disturbance', u_{it}, that varies over time and entities (capturing everything that is left unexplained about y_{it}).This is a one-way error component regression model where intercept term is different for each banks (i.e cross – sectionally) and again these intercept are constant over time.

4.1 CLRM Assumption and Diagnostic Test

Before going further in to panel data econometric procedures, the second issue is test the assumption of classical linear regression model (CLRM). Most Prior academic literature, as mentioned in the literature review, examines determinants of banks' profitability using different panel data modeling techniques. Among others, Pasiouras and Kosmidou (2007) and Ommeren (2011) use ordinary least squares (OLS) technique in which differences between the observations and estimations are minimized in terms of sum of squares. The characteristics of the model and proposed variables in equation (3) of this research are not violating the classical assumptions underlying the OLS model. These are checked by testing each assumptions.

4.1.1 Heteroscedastic Test

Among the OLS assumptions, the first diagnostic test which is conducted in this study is heteroscedastic test. This theoretically expressed as by Brooks (2008,p.133) ''var (ut) = σ2 < ∞; it has been assumed thus far that the variance of the errors is constant, σ2 -this is known as the assumption of homoscedasticity. If the errors do not have a

constant variance, they are said to be heteroscedastic.'' White (1980) as cited by (Brooks, 2008 p. 134) is the most popular test of homoscedasticity.

Table 4.2. Heteroskedasticity Test

The null hypothesis: Ho = there is no heteroskedasticity; againest Ha = there is heteroskedasticity						
Heteroskedasticity Test: White						
	ROA model			**NIM model**		
F-statistic	0.806492	Prob. F(12,83)	0.643*	0.849735	Prob. F(12,83)	0.5999*
Obs*R-squared	10.02482	Prob. $\chi 2$ (12)	0.614*	10.50352	Prob. $\chi 2$ (12)	0.5719*
Scaled explained SS	6.403228	Prob. $\chi 2$ (12)	0.894*	11.18957	Prob $\chi 2$ (12)	0.5127*

Source; Computed from Eviews result

*indicate fail to reject the Ho hypothesis at 10% significant level

The above table indicated that, both $\chi 2$ and F-test versions fail to reject the null hypothesis even at 10% significant level, this indicates the variance of the errors is constant (i.e there is no the problem of homoscedasticity to both ROAA and NIM models).

4.1.2 Autocorrelation Test

The second important diagnostic test which is performed in this research is the autocorrelation test. This assumption of OLS theoretically expressed by the numbers of scholars among that Brooks (2008) and Verbeek (2004) founded. They expressed as; cov(ui ,u j) = 0, this is another assumption that is made of the CLRM's disturbance terms is that the covariance between the error terms over time (or cross-sectionally, for

that type of data) is zero. In other words, it is assumed that the errors are uncorrelated with one another. If the errors are not uncorrelated with one another, it would be stated that they are 'autocorrelated' or that they are 'serially correlated'.

The most common test of this assumption is by using the Durbin–Watson test and the Breusch-Godfrey test (Boorks, 2008, p. 144). As far as concerning this paper the researcher used both the Durbin–Watson test and the Breusch-Godfrey test to detected the proplem of autocorrelation.

Table 4.3. Autocorrelation Test

Ho = There is no autocorrelation; againest, Ha = There is autocorrelation						
Breusch-Godfrey Serial Correlation LM Test						
	ROA model			**NIM model**		
F-statistic	8.637255	Prob. F(2,81)	0.0004*	16.62761	Prob. F(2,81)	0.0000*
Obs*R-squared	16.87470	Prob. χ2 (2)	0.0002*	27.94184	Prob. χ2 (2)	0.0000*
DW test	1.27			1.11		

Source; Computed from Eviews result

*indicate reject the Ho hypothesis at 1% significant level

In the above table the output of Eviews offers two versions of the test; an *F*-version and a χ2 version from the Breusch-Godfrey Serial Correlation LM Test, while the second test presents the Durbin-Watson stat test. The conclusion from both versions of the test in this case is that the null hypothesis of no autocorrelation is rejected; this indicates the presence of the first order positive autocorrelation problem on both ROAA and NIM models. Even though, the equations indicate that positive first-order autocorrelation is present, this does not imply that the estimates are inconsistent.

Inconsistency would be implied if second-order autocorrelation was present (Arellano and Bond, 1991), as cited by Verbeek (2004), this also not the problem of this study. Many scholars of the field highly recommanded the concept of lagged variables to solve the problem of autocorrelation Brooks (2008) and Verbeek (2004). Simillarly in this research the author used one period lagged dependant variable to solve the problem of autocorrelation.

This finding is similar in line with earlier studies that examined the determinants of banks' profits Davydenko (2010), Athanasoglo *et al.* (2005) and Berger *et al.* (2000). They conclude that, bank profits show a tendency to persist over time (serially correlated), reflecting impediments to market competition, informational symmetry and/or sensitivity to regional/macroeconomic shocks. To see this emperical fact, the study adopts a dynamic specification of the model by including a one year lagged profitability variable (Πit-1) on the right hand side of the previous equation. The equation augmented with lagged dependent variable is:

$$\Pi_{it} = \alpha + \gamma\,(\Pi_{it}\text{-}1) + \Sigma^{J}_{j=1}\beta_{kj}X_{it}^{j} + \Sigma^{L}_{l=1}\beta_{kl}X_{it}^{l} + \Sigma^{M}_{m=1}\beta_{km}X_{it}^{m} + v_i + u_{it} \quad (6)$$

Where Π*it-1* is the one-period lagged profitability and γ is the speed of adjustment to equilibrium. According to Athanasoglo *et al.* (2005 p. 13) the value of the coefficient of the lagged profitability variable or γ between 0 and 1 implies that profits persist, but they will eventually return to their normal (average) level. The value close to 0 means that the industry is fairly competitive (high speed of adjustment), while a value of γ close to 1 implies less competitive structure (very slow adjustment). The regression equation of model (5) which includes all explanatory variables and the lagged dependant variable are:

ROA model

$$ROA_{it} = \alpha + \gamma\ (ROA_{it}\text{-}1) + \beta_1(CPA)_{it} + \beta_2(CR)_{it} + \beta_3(LR)_{it} + \beta_4(\ LOTA)_{it} + \beta_5(DTA)_{it} + \beta_6(EXM)_{it} + \beta_7(Ep)_{it} + \beta_8(BSIZ)_{it} + \beta_9(NII)_{it} + \beta_{10}\ (CONS)_{it} + \beta_{11}\ (GDP)_{it} + \beta_{12}\ (IRP)_{it} + \varepsilon_{it}\ldots(7)$$

NIM model

$$NIM_{it} = \alpha + \gamma\ (NIM_{it}\text{-}1) + \beta_1(CPA)_{it} + \beta_2(CR)_{it} + \beta_3(LR)_{it} + \beta_4(\ LOTA)_{it} + \beta_5(DTA)_{it} + \beta_6(EXM)_{it} + \beta_7(Ep)_{it} + \beta_8(BSIZ)_{it} + \beta_9(NII)_{it} + \beta_{10}\ (CONS)_{it} + \beta_{11}\ (GDP)_{it} + \beta_{12}\ (IRP)_{it} + \varepsilon_{it} \ldots\ldots\ (8)$$

4.1.3 The Normality (Bera-Jarque) Test

Another third important diagnostic test conducted in this paper is the normality assumption (i.e the normally distributed errors). Brooks (2008) stated that the normality assumption ' ($ut \sim N(0, \sigma 2)$)' is required in order to conduct single or joint hypothesis tests about the model parameters. One of the most commonly applied tests for normality is the Bera—Jarque (BJ) test. BJ uses the property of a normally distributed random variable that the entire distribution is characterized by the first two moments - the mean and the variance (Brooks, 2008, p.161). In case of this study, the researcher used BJ normality test to test the null hypothesis of normally distributed errors assumptions.

Since, the histogram is bell-shaped and the Bera--Jarque statistic is not significant. This means that the *p*-value given at the bottom of the normality test screen should be bigger than 0.1 to fail to reject the null of normality at the 10% significant level (see

from appendix III). So, the residuals are normally distributed in this study, concluded that there is no the problem of normality on both ROAA and NIM models.

4.1.4 Parameter Stability Test

The intuition behind stability test is to check the profitability and its' determinants reaction function stability and predictability for policy analysis and implication in responding to the internal and external determinants. This is another important test is to check whether profitability has linear relation with its determinants or not. To test the stability of parameter, the study conducted the Ramsey stability RESET test Brooks, 2008, p. 176). The null hypothsis of this test says there is linear (stable) relation between the dependant and independant variables.

Table 4.4. Stability Test

Ho = there is linear (stable) relationship between dependant and independant variables; against, Ha there is no stable relationship between dependant and independant variable						
Ramsey RESET Test:						
	ROAA model			**NIM model**		
F-statistic	0.254928	Prob. F(1,82)	0.615*	3.120867	Prob. F(1,82)	0.0810**
Log likelihood ratio	0.297990	Prob. $\chi 2$ (1)	0.585*	3.585885	Prob. $\chi 2$ (1)	0.0583**

Source; Compute from the Eviews result

** and ** indicate fail to reject the Ho hypothesis at 10% and 5% significant level correspondingly.*

From the above table 4.4 both *F*- statistics and $\chi 2$ versions of the test are presented, and it can be seen that there is no apparent non linearity in the regression equation and

so it would be conclude that the linear model for profitability ROAA) is appropriate at 10% significant level but the linearity of NIM model significant at 5% level. In other way it can say that, profitability (ROAA and NIM) has stable relationship with internal and external determinants in the case of Ethiopian commercial banking business enivironment. However, the stability of NIM model less than ROAA.

4.1.5 Multicollinearity Test

The final test which is conducted in this study is the multicollinearity test, this help to identified the correlation between explanatory variables and to avoid double effect of independant variable from the model. The next table, table 4.5 (See from the appendix I) described correlation among explanatory variables.

A correlation is a single number that describes the degree of relationship between two variables. In other words, multicollinearity describes the relationship among explanatory variables. As indicated on the correlation matrix almost all correlations that have occurred among explanatory variables are surprisingly weak correlations; this indicates there is no the existance of multicollinearity problem on the study. Even if, relatively high positive correlation existed between employee productivity and size (0.78) the researcher ignored this near multicollinearity problem. Because Cooper and Schindler (2009) and Hailer et al (2006) suggested that multicollinearity problem should be corrected when the correlation extent to be above 0.8 and 0.9 respectively.

During the last 12 years the size of all commercial banks of Ethiopia (log of total asset) which are included in this study shows improvement. Increase in the size of the bank shows a higher negative correlation with loan and advance (-0.36), capital

adequacy (-0.366), expense management (-0.354), credit risk (-0.252) and market concentration (-0.506). Size has positive relation with deposit liablity (0.347) and employee productivity (0.78). This indicates the majority of the asset of the Ethiopian commercian banks composed from deposit liability. When the size of the bank increased, the man power utilization capacity of the bank also increased. That is why the existance of relatively high positive correlation between size and employee productivity.

The market concentration as expressed by multicollinearity indicates there is negative correlation with all variables except LOTA and EXM. This because of when the performance of the private banks increase in terms of capital, total asset, liquidity, deposit and loan and advance the concentration of the industry is decreased because of the market share of the sate owned banks are reduced. Regarding the macoeconomic variables, GDP has positive correletion almost all except EXM, LOTA and MCON, because the growth of the GDP of the country has its own positive contribition to the remaining profitability determinants. IRP of Ethiopia has negative correlation with CPA of the bank.

4.2 Descriptive Statistics Result And Discussion

Table 4.6 reports the mean, standard deviation, median, minimum and maximum of each variable in the sample. The descriptive statistics are presented after checking the normality of the data. Because, the presence of non normality (outliers) probably results in biased means and standard deviations when incorporated in the descriptive statistics. They do not only affect the descriptive characteristics but could also deteriorate results from the regression using the OLS technique. Since the tests

approved a normal distribution of the data, the possible outliers are not indicated separatelly.

Table 4.6. Descriptive Statistics of Variables

variables		Mean	St.devation	Median	Maximum	Minimum
dependant	ROAA	2.44	1.22	2.7	4.7	- 2.16
	NIM	4.35	1.58	4.4	8.18	1
Independant variables	CA	15.31	6.8	13.95	36.37	1.93
	CR	3.59	3.32	2.47	14.8	0
	LR	201.39	125.44	180.64	686.21	25.27
	LOTA	53.65	15.55	57.93	83.78	4.67
	DTA	73.95	9.18	76.65	93.68	49.37
	EXM	36.73	13.26	32.77	110.71	13.46
	EP	13.74	8.80	11.87	41.86	-2.19
	BSIZE	7.980	1.36	7.86	11.43	4.96
	NII	38.63	10.15	39.34	61.35	12.5
	MCON	33.17	10.14	31.5	54.0	20.0
	GDP	8.63	4.47	10.90	12.60	-2.10
	IRP	7.38	0.52	7.50	8.25	6.0

Source: Computed from eviews results

As stated in the above table, table 4.6, the profitability measurments (ROAA and NIM) indicates that, the Ethiopian commercial banks have an average positive profit over the last decade. From the total of 96 observations, the mean of ROAA and NIM equals 2.44 and 4.35 percent with a minimum of -2.16 and 1 and a maximum of 4.7 and 8.18 percent respectively. That means, the most profitable bank of the sample banks earned 4.7 cents of net income from a single birr of asset investment in-line with this have the margin of 8.18 percent. And the maximum losses incurred by some of the sample banks are a loss of 2.12 cents on each birr of asset investment with the margin of 1 percent. And also most the remaining banks from the sample earned an average of 2.44 cents from each birr invested by the bank with the margin of 4.35percent. In contrary to

Belayneh (2011) there is less variation in profitability reflected by the difference between the mean and median.

Continuing to the explanatory variables of the model, there are some interesting statistics to mention. Like the large dispersion in the minimum and maximum observation of ROAA there could be seen high variation in the equity-to-risk weighted asset ratio (CA). On average, CA equals 15.31percent with a median of 13.95percent. The average capital to risk weighted assets ratio is two times than the minimum capital to risk weighted assets ratio set by NBE on Directives No. SBB/50/2011, under article 4. This indicate sound financial condition of Ethiopian commercial banks. In the industry there is high variation of CA with the maximum of 36.37 percent and aminimum of 1.93 percent. This high variation occur, because of the dominance of state owned commercial banks (CBE) interm of capital in the last decade.

The two variables that are employed in this study regarding risk are the credit risk and liquidity risk. The descriptive statistics of the first variable indicate that, from the total loan invested on average, 3.59 percent are non performing loan. This means the commercial bank industry of Ethiopia face an averagely 3.59% non-performing loan from the total loan invested per year. This indicated, most banks from the sample incure averagely 3.59 cents as non-performing loan from one birr loan invested on the customer. The minimum value of CR in the industry for some banks are zero; this indicated that the quality of the asset for these banks are high and the deviation between the high quality asset and low quality asset are 3.32 percent. The descriptive statistics for liquidity risk also indicated that the availability of cash and cash equivalent assets

are averagely 201.59 percent per year to replay short term deposits and borrowings. This means most banks in the industry have around two birr liquid asset to replay one birr short term deposits. The maximum and minimum value of LR are 686.21 and 25.27 respectively.

Furthermore, another interesting observation is regarding loan and advance and deposit liability. There is a very large variation in the total loan-total asset ratio indicated by the range between 4.67 percent and 83.78 percent. The mean of the total loan-total asset ratio equals 53.65 percent. This indicated on average, almost half of the total asset of the bank (53.65%) is kept in terms of loan. The large range between the medium and maximum value implies that the most efficient bank has a quite substantial loan advantage compared to the least efficient bank. Because, loan and advance is the main source of interst incom for commercial banks. Concerning deposit-asset ratio there is large variation indicated by the range between 49.37 percent and 93.37 percent. The mean of deposit to asset ratio is 73.95 percent. This indicate, the large portion of the asset of most commercial banks composed from customer deposit. This have a negative implication when large numbers of financial institution liability holders seek to withdraw their financial institution at the same time.

The descriptive statistics for the remaining bank-specific variables like; the mean of operating expenss to gross income ratio is 36.73 percent. This implies most banks from the sample incurred 36.73 percent operating expenses out of the total gross incom per year. In other words the bank incurred 36.73 cents as operating expenses out of one birr gross income. The most efficient banks incurred 13.46 percent of operating expenss and the inefficient banks incurred 110.71 percent operating expenses. This

indicated the efficient banks have cost management advantage over the inefficient banks. The mean of efficiency and productivity of employee to earning before interst and tax ratio is 13.74 percent. The maximum and the minimum values are 41.80 percent and -2.19 percent respectively. This implies there is high varation in man power utilization in banks in the industry. On the other hand, bank size which is measured by logarithm of total asset has standard deviation (1.36%) that means it is the least deviated variable from its mean as compared to others bank-specific variable. The maximum and the minimum value of bank size are 11.43 prcent and 4.96 percent respectively. An other important variable is non-interest income to total income ratio (NII). The mean of NII is 38.63 percent, this indicate, most banks from the sample earn 38.63 cents as non-interest income from one birr income. The maximum value (61.35 %) indicated some banks from the industry use non interest income as the main source of income rather than interest income. This indicate, those banks have gradually transforming away from the traditional business of financial intermediation and to wards provision of other financial services like money transfer. The minimum value (12.5%) indicate the more traditional banks in the industry still use interest income as the main source of income.

Finally, the descriptive statistics of the Herfindahl – Hirschman index indicate that there is significant variation in concentration of banks in the banking sector. The most concentrated bank in the sector has the maximum value of 54 percent share and the least concentrated bank in the sector has the minimum value of 20 percent share. This indicate the current market share difference in Ethiopia commercial bank sector.

4.3 Regression Result and Discussion

This section presents over all the empirical results of the regressions. Table 4.7 shows the results of the regressions, when only bank characteristics (i.e. internal factors) are considered. The next table, table 4.8 reports the results of all determinants (i.e both internal and external). This indicate, the result when industry-specific and macroeconomic variables (i.e.external factors) indicators enter in the equation. While table 4.9 and table 4.10 shows the separated regression result of the state owened and private commercial banks for models ROAA and NIM respectively and the final table, table 4.11 show dynamic model regression results.

Table 4.8. Fixed Effect Regression Result of both internal and external variables

Table 4.8C ROAA model FE Regression Result of both internal & external variables

ROAA model				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.200935	1.905719	0.105438	0.9163
CA	0.058283	0.018033	3.232031	0.0018 ***
CR	-0.001641	0.000683	-2.401426	0.0188 **
LR	0.040528	0.023340	1.736372	0.0866*
LOTA	0.026511	0.007420	3.572969	0.0006***
DTA	0.026754	0.011493	2.327822	0.0226**
EXM	-0.036882	0.007034	-5.243367	0.0000***
EP	0.067194	0.019200	3.499746	0.0008***
BSIZE	-0.515150	0.190032	-2.710858	0.0083***
NII	0.040349	0.009649	4.181439	0.0001***
MCON	-0.017888	0.011066	-1.616566	0.1101
GDP	0.050121	0.017056	2.938626	0.0044***
IRP	0.172371	0.180217	0.956464	0.3419

R^2 *0.841401* *Adjusted R^2* *0.801752*

S.E. of regression *0.543909* *F-statistic* *21.22087*

Prob(F-statistic) *0.000000* *DW test* *1.274073*

*Notes: *, ** and *** denotes significance level at 10%, 5% and 1% respectively*

Table 4.8D. NIM model FE Regression Result of both internal and external variable.

NIM model				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.093637	2.681096	-0.034925	0.9722
CA	0.065185	0.025263	2.580227	0.0118**
CR	-0.002762	0.000950	-2.906883	0.0048***
LR	0.050855	0.032428	1.568239	0.1210
LOTA	-0.011495	0.010157	-1.131721	0.2613
DTA	0.060704	0.015886	3.821367	0.0003***
EXM	-0.018631	0.007957	-2.341424	0.0218**
EP	0.048738	0.023066	2.113036	0.0379**
BSIZE	-0.284513	0.303967	-0.936000	0.3522
NII	-0.052937	0.013485	-3.925551	0.0002***
MCON	0.007906	0.015338	0.515483	0.6077
GDP	0.059080	0.023548	2.508920	0.0142**
IRP	0.430473	0.257439	1.672134	0.0986*

R^2 0.817692, Adjusted R^2 0.772115

S.E. of regression 0.754225, F-statistic 17.94091

Prob(F-statistic) 0.000000 DW test 1.109627

Notes:,** and *** denotes significance level at 10%, 5% and 1% respectively*

As shown from table 4.7A & 4.7B, (see from appendix) the explanatory power of the bank-specific determinants, interm of R^2 for both ROAA and NIM models are 81% and 79% repectively but in case of table 4.8C and 4.8D when the external (both industry-specific and macroeconomic) determinants enter into the regression the explanator power of the models (ROAA and NIM) in terms of R^2 increased in to 84% and 81% correspondingly. As expected, the researcher observes differences in the coefficients and the significance of the variables when the external factors are introduced. The explanatory power of the models (in terms of R^2) that examines the determinants of ROAA and NIM increases when the external factors are considered. This indicate studying of both internal and external deteminants are significant.

From table 4.3 the researcher stated the presence of first order positive autocorrelation in the model. This indicated the profitability of commercial banks of Ethiopia is not only determaine by internal and external determinants. Instead, variability in commercial banks profitability (return on asset and interest margin) could be attributable to those variables and its own past trend. To test the serial correlation between return on asset and its own one year lagged value the dynamic regression model (7 and 8) is developed and the regression result of this model is describe in the following tables (table 4.11E and 4.11F).

Table 4.11. Dynamic Effect Regression Result of the determinants

Table 4.11E ROAA Dynamic Effect Regression Result of the determinants

ROAA model				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-1.008919	1.761049	-0.572908	0.5683
CA	0.042575	0.015343	2.774848	0.0069***
CR	-0.001317	0.000630	-2.089134	0.0398**
LR	0.029450	0.020531	1.434401	0.1553
LOTA	0.018816	0.005495	3.424281	0.0010***
DTA	0.022706	0.008994	2.524573	0.0135***
EXM	-0.041164	0.006477	-6.355373	0.0000***
EP	0.044115	0.015694	2.811020	0.0062***
LAGROA	0.115986	0.064305	1.803698	0.0750*
BSIZE	-0.316631	0.105154	-3.011104	0.0035***
NII	0.043920	0.007631	5.755143	0.0000***
MCON	-0.009265	0.010121	-0.915342	0.3627
GDP	0.035703	0.016835	2.120692	0.0370 **
IRP	0.232075	0.176614	1.314020	0.1925
R^2	*0.839430*	*Adjusted* R^2	*0.813659*	
S.E. of regression	*0.530022*	*DW test*	*1.287385*	

*Notes: *, **, and *** denotes significance level at 10%, 5% and 1% respectively*

Table 4.11F NIM Dynamic Effect Regression Result of the determinants

NIM model				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.524629	2.948210	0.177948	0.8592
CA	0.052841	0.027223	1.941057	0.0557 *
CR	0.045536	0.034928	1.303680	0.1960
LR	-0.001483	0.001036	-1.432112	0.1560
LOTA	-0.007954	0.008837	-0.900051	0.3708
DTA	0.037471	0.016123	2.324017	0.0226**
EXM	-0.020155	0.009420	-2.139714	0.0354**
EP	0.070821	0.021080	3.359620	0.0012***
BSIZE	-0.895877	0.206213	-4.344419	0.0000***
NII	-0.029857	0.013153	-2.269964	0.0259**
LAGNIM	0.313524	0.091450	3.428373	0.0010***
MCON	0.007778	0.017158	0.453335	0.6515
GDP	0.081095	0.027218	2.979441	0.0038***
IRP	0.822715	0.291373	2.823578	0.0060***

R^2	*0.729843*	*Adjusted* R^2	*0.686484*
S.E. of regression	*0.889112*	*DW test*	*1.111496*

*Notes: *, **, and *** denotes significance level at 10%, 5% and 1% respectively*

According to table 4.11E and 4.11F regression result the cofficient of lagged profitability variables (lagROAA and lagNIM) are statistically highly significant at 10% and 1% significancy level respectively. This significant coefficient of the lagged profitability variable confirms the dynamic character of the model specification, even though, the fixed effect model is relevant for this study . The previous emperical literatures explained that a value of γ between 0 and 1 implies that profits persist, but they will eventually return to their normal (average) level. A value close to 0 means that the industry is fairly competitive (high speed of adjustment), while a value of γ close to 1 implies less competitive structure (very slow adjustment) Athanasoglou *et al.* (2005, p. 13). In the present study also, γ has a value of approximately 0.12 and 0.31 for the two models respectively. According to the above emperical explanation, the cofficient value of γ in current study indicate that profits seem to persist to a moderate extent, and implies that the indicator of the presence of fairly competitive market structure in the current Ethiopian commercial banking sector. This finding is in contrasting with Belayneh (2011) find that statistically no evidence for profit persistence in Ethiopia commercial banks.

The significant coefficient of lagged variable confirms that one should take into account profit persistence when attempting to explain banking profitability. The critical point here is that, the lagged variable neither predict the profitability of a bank nor it explain the composition of the profitability of a bank. The lagged variable coefficient merely reflects that when banks are able to generate a positive profit in the previous year, it is likely that the bank is able to generate a positive profit this year.

Turning to the other explanatory variables, each determinants explained and analysis based on the previous tables 4.8C, 4.8D, 4.9 and 4.10 (see table 4.9 and 4.10 from the appendix I) which are the orginal regression results are summarized in the appendix II and the results of the estimations are based on model 3 using fixed effect regression. Under fixed effect regression table (4.8C & 4.8D) the value of F- statistic is 21.2 and 17.9 for models ROAA and NIM respectively and both strongly significant at 1% significant level supporting the validity and stability of the model relevant for the study. Considering the validity of the models particularly the fixed effect regression model the following sections discussed about regression results of all variables.

Among the bank specific variables, capital adequacy (CA), liquidity risk (LR), loan and davance (LOTA), deposit liability (DTA), efficiency and productivity (EP) and non-interest income (NII) have positive significant effect on profitability of Ethiopian commercial banking industry. However, among these variables liquidity risk and loan and advance have insignificant effect and non-interest income has negative effect on interest margin of Ethiopian banking industry. But variables like credit risk (CR), expenses management (EXM) and bank size have negative significant effect on profitability (both interm of asset return and net interest margin) of this industry. Regarding external variables real GDP growth of the country has positive significant effect on both asset return and interest margin. In contrary market concentration (MCON) has negative but insignificant effect on asset return and positive but insignificant effect on interest margin. And then interest rate policy (IRP) has significant effect on

profitability of banking industry of Ethiopia interm of interest margin but insignificant on asset return.

The above paragraph described the significant variables which have significant effects on commercial banking industry of Ethiopia ingeneral based on table 4.8C & 4.8D. But table 4.9 and 4.10 (see from the appendix I) discussed the significant variables on particularly state and private banks sector separetly. According to the regression result capital adequacy (CA), expenses management (EXM), liquidity risk (LR) and non-interest income (NII) have commonly significant effects on both state and private banks sector. However variables like credit risk (CR), loan and advance (LOTA), efficiency and productivity (EP) and economic growth (GDP) have special effects on private banks only. Unlikely not this, deposit liability (DTA) has especial effect on state banks performance. The above profitability determinants are individually discussed in the next paragraphs referring regression result of table 4.8C, 4.8D, 4.9 and 4.10.

Capital Adequacy (CA):- The coefficient of the capital adequacy (CA) is positive and it is statistically highly significant determinants of profitability for two ROAA and NIM models at 1% and 5% significancy level respectively. This finding is consistent with previous studies with Athanasoglou *et al.* (2005); Flamini et al. (2009); Naceur and Goaied (2001) and Belayneh (2011). According to those researchers a bank with a sound capital position is able to pursue business opportunities more effectively and has more time and flexibility to deal with problems arising from unexpected losses, thus achieving increased profitability.

This finding reflecting the sound financial condition of Ethiopian commercial banks. Because in addition to the regression result, the descriptive result indicate, the average CA ratio of the industry is 15.31% but the minimum ratio seted by NBE on directives No. SBB/50/2011 is 8%. It's interesting to note that, higher the capital level brings higher profitability for Ethiopian commercial banks since by having more capital; a bank can easily adhere to regulatory capital standards so that excess capital can be provided as loans. This emperical finding strongly related with the responses' of CFO of the banks. Since they strongly agreed CA is the significant determinants of profitability and excess capital can serve as a source of loan.

In addition to the above point, the imlication of the commercial banks of Ethiopia operate with sound capital adequacy shows, the banks may can fufil the current NBE directive, on directives No. SBB/50/2011 under article 4 which declares about the may raise the minimum paid up capital to 500 million birr.

Credit Risk (CR):- The second important bank-specific determinant is credit risk. Most literatures suggest that increased exposure to credit risk is obviously associated with decreased firm profitability (e.g Ommeren, 2011; Flamini et al., 2009; Athanasoglou *et al.,* 2005; Bobakova, 2003 and Belayneh, 2011). Consistent with these evidences, this study also confirms a negative and highly significant relationship between credit risk and profitability in Ethiopia commercial banking sector both ROAA and NIM models at 5% and 1% significancy level respectively. According to most literature (e.g.Athanasoglou et al., 2008 and Ommeren, 2011) this variable is the proxy for the assete quality of the firm.

When the assete quality of the firm reduce the credit risk exposure of the firm is increased.

According to this emperical fact, the problem symptom of assete quality is present in Ethiopian commercial banking industry. Since CR has negative and significant impact on profitability of the sector. Especially, according to table 4.9 and 4.10 (see from the appendix I) the problem of credit risk (asset quality) is severe in private banks than state owned banks. This implies the problem of default risk is affacting private banks in especial condition.

This emperical finding also same with the qualitative findings (feed-back from CFO of each commercial banks). All CFO of each commercial banks respond about the practical impact of non-performing loan on their banks like this*: when loan is non-performing, interest income is suspended and calculated at the time of collection and it requires additional provision. Based on this fact, non-performing loan means no interest income, rather provision expense for estimated uncollected amount.* Because of this CR is the main determinants of sectors' profitability.

Even though, NBE set directive No. SBB/ 29/ 2002 under article 4 to limit the single borrower loan limit, which protact the commercial banks from credit risk, the commercial banks still operat under riskey business environment. This implies the NBE directive makers fail to identify the correct source of credit risk problem.

Liquidity Risk (LR):- Concerning the liquidity risk, the regression results in this research implies that the relation between liquidity risk and ROAA is positive and

significant at 10% significancy level. This result implies that less liquid banks have higher ROAA, which is consistent with the researchers' expectations and the piror emperical findings (e.g Ommeren, 2011; Rasiah, 2010 and Eichengreen and Gibson, 2001). From their finding they check that the bank with more liquidity risk has the more return of assets (ROAA). According to their justification the primary reason behind the positive relation between liquidity risk and profitability is; firstly, based on the risk-return hypothesis, more liquidity risk is associated with higher expected returns. Secondly, utilization of idle funds have the higher returns on liquid assets may also positively affect the profitability of those institutions with surplus liquidity (reduction of opportunity cost). Even though, short-term borrowings are costly and the loss of income from the sale of liquid assets will tend to have an adverse effect on profitability.

In Ethiopia banking business environment the bank with little liquid assets have more asset return. This is consist with the above emperical facts. However, liquidity risk has insignificant effect on interest margin of Ethiopian commercial banks. According to the regression result (see table 4.9 from the appendix I) the private banks have little liquid assets than the state owned banks (i.e liquidity risk is positive and statistically significant for private banks). This indicate the private banks are more utilized idle cash and cash equivalent assets effectively than the state banks. But this require wise manager with effective liquidity management system.

Loan and advances (LOTA):- Regarding loan and advance it has positive and highly significant (at 1% significancy level) effect on asset return (ROAA). This result is consistant with the previous finding (Sastrosuwito and Suzuki, 2011 and Belayneh,

2011). They conclude the positive impact of LOTA on banks profitability. However, LOTA has negative but statistically insignificant effect on interest margin of the sampled commercial banks. This negative cofficient indicate, as discussed from the above, the commercial banks of Ethiopia especially the private banks are affacted by credit risk. This implies the existance of large non-performing loan from the total loan and advance.

Deposit liability (DTA):- Concering DTA, it has positive and significant effect on the assets return (ROAA) and interest margin (NIM) of Ethiopian commercial banks at 5% and 1% significancy level respectively. This research finding is consistant with the piror emperical evidence (e.g. Rasiah, 2010 and Moin, 2008). They suggested that, the primary function of the commercial banks are collecting deposits and giving loan to the public from this deposits. So, the competitiveness and the profitability of the bank is depend on the degree of well performing of this activity. However, this finding is contradicated with the finding of some researchers (e.g Ommeren, 2011 and Belayeneh, 2011), they belived that, Since, time and savings, deposits represent a relatively higher cost source of funds, the more a commercial bank is committed to time and saving deposit, the higher would be the funding cost and hence the lower the profits.

As it discused, regarding separate performance interest margin of state owned and private banks from table 4.10 (see from the appendix I), the state owned commercial banks of Ethiopia are more competitive than the private banks in terms of deposit collection. Because interest margin of the state owned banks are more positively and significantly affect by DTA but it is insignificant for private banks.

Expenses management (EXM) :- The results indicate that expenses management is negative and highly significant determinant of Ethiopian commercial banks profitability. This is consistent with prior emperical evidence (e.g. Aburime, 2008; Berger, 1995; Athanasoglou *et al.*, 2005 and Guru et al., 2002) suggesting that operating expenses appear to be an important determinant of profitability. Clearly, efficient cost management is a prerequisite for improved profitability of banks. However, their negative effect means that there is a lack of efficiency in expenses management since banks pass part of increased cost to customers and the remaining part to profits. Because of this cost management is the proxy for management quality.

This highly significant and negative coefficient of the cost to income ratio shows the existance of inefficient cost management system (poor quality of management) in Ethiopia commercial banks. Surprisingly, the poor expenses management is one of the main contributors to poor profitability performance of Ethiopian commercial banks. Because; efficient cost management is a prerequisite for improved profitability of Ethiopian commercial banks, since the banks have not reached the maturity level required to link quality effects from increased spending to higher bank costs. According to the finding both state and private are affected by poor cost management system (see table 4.9 and 4.10 from appendix I). Might be, the main reason is that operating, administrative and personnel expenses are may relatively high during the last twelve year (2000-2011) operation period. From the qualitative findings the CFOs are agree the management quality (efficient cost management) is the main determinants of banks profitability. But

they do not belive Ethiopian commercial banks managers' are inefficient to manage the cost.

Efficiency and productivity (EP):- Estimation results in this study revealed that efficiency and productivity growth has a positive and significant effect on profitability. This findings also supported by qualitative findings from CFOs of banks. They reflect that, due to banks are service rendering organization and most employees are front-line workers, this variable extremely determine the profitability of the banks.This suggests that higher productivity growth generates income that is partly channeled to bank profits. In other words, Ethiopian commercial banks increase their profits from improved labor productivity, which, among other things, is a result of the higher quality of newly hired labor and improve the performance of the total number of employees. This finding is consistent with that of Athanasoglou et al. (2005) and Ramlall (2009) indicates that the higher the efficiency and productivity level of a bank, the higher the profits level.

As discused from table 4.9 and 4.10 (see from the appendix I) private bank's employees are more efficiency and productive than state owned bank's employees interms of both return on asset and interest margin in case Ethiopia commercial banks industry. This employees efficiency and productivity is the indicator of quality of human resource department managers. So, the sampled private banks of Ethiopia have prudent and proven decision maker human resource managers than the state owned banks of Ethiopia.

Bank Size (BSIZ):- Next, the researcher find bank size has negative and highly significant effect on profitability interm of asset return at 1% significant level. This

inverse relationship between bank size and profitability, significant in return on asset cases, suggesting that larger banks tend to earn lower profits. This is consistent with prior emperical evidence suggesting that diseconomics scale for large banks due to possible bureaucratic bottlenecks and managerial inefficiencies or economics of scale for small banks (e.g. Athanasoglou *et al.*, 2005 on Greece banks, Aburime, 2008 on Nigeria banks and Ngo, 2006 Australian bank). In addition to these researchers, Kosmidou et al. (2006) compare the performance of UK banks over the period 1998- 2002 and find that smaller banks performed better than larger banks. In contrary, this study inconsistent with the Market-Power (MP) hypothesis, which stated relative size of a firm expands its market power and profits increases. And also with other emperical literatures (e.g. Athanasoglou, 2006 South Eastern European banks and Kosmidou, 2008 on Greece banks,) concluded that size is economics of scale for large banks.

The finding of this study implies that in Ethiopia banking industry the large size banks (e.g. CBE) are adversely affected their profitability by their size. This might, due to the existance of bureaucratic bottlenecks system and managerial inefficiencies to manage their assets. In other way the smaller size banks might be advantageous by their size to generating more return from their assets. In addition to asset performance, bank size also affect the interest margin of the samped banks negatively but it is statistically insignificant at 10% significancy level. In fact, the negative coefficients bring to limelight the possibility that diseconomies exist, which adversely affect their profitability.

Non-Interest Income (NII):-This is the last and important of bank-specific variables. Financial emperical studies stated that income from fee based activities has positve

impact on banks profitability on the ground that by more aggressively selling services other than loans such as brokerage, insurance and trust services, bankers have found a promising channel for boosting the income statement by diversifying their income sources, and for insulating their banks more adequately from fluctuations in interest rates and loan default risk (e.g. Rasiah, 2010). Further more, higher diversification regarding banks' income sources towards derivative instruments and other fee-based activities shows a positive effect on banks profitability on the Korean banking sector Sufian (2011). In addition to this, in the banking industry of Ethiopia as checked by (Belayneh, 2011) there is apositive relation between non-interest income and profitability.

Consist with the above researchers, this study finds a positive and highly significant impact of NII (at 1% significancy level) on Ethiopian commercial banks profitability interms of asset return. This could be attributable to the fact that Ethiopian banking sector is undergoing a gradual transform away from the traditional business of deposit and lending, financial intermediation and towards provision of other financial services including foreign currency exchange, modern money transfer system etc. However, according to regression result (see table 4.8D) NII has negative and highly statistical significant (at 1% significancy leve) effect on interest margin of the commercial banks this implies the commercial banks gradually transform away from traditional saving and leanding practice to modern service based financial activity. This implies the banks tries to escape away from interest rates fluctuations and loan default risk.

Market Concentration (MCON):- It is the only industry-specific variable of the study. The empirical results show that concentration affects bank profitability negatively, but

this effect is statistically insignificant. Hence, this study finds no evidence to support the SCP hypothesis. This outcome is inconsistance with (Berger et al., 1989; Short, 1979 and Goddard et al., 2004) and other more recent studies, which claim that concentration is usually positive related to profitability once other effects are controlled for in the profitability equation.

In this study, two important points are come out regarding marking power: Firstly, as discussed above, the relatively low value of the coefficient of the lagged profitability variable is consistent with low market power of the single bank in the industry. Secondly, the estimation results show that market power is statistically insignificant for commercial banks. This is consistant in line with considerable fall of the HH index from 2000 – 2011 (when a series of private banks are established). However, the sign is negative in line with (Belayneh, 2011) but his researcher found statistically significant, suggesting that the industry was moving to a more competitive structure and hence profitability should have declined.

But from the qualitative findings the CFOs of the commercial banks they belive the existance of market concentration in Ethiopia commercial banks industry. Because they stated that, the first case, more than 50% firm distribution of the sector is concentrated in the capital city of the country. The second and the important case is almost there is no products/service diversification in the financial industry, the new banks established with out new service line expansion. So, the first entry bank determine their desired level of profit.

Economic Growth (GDP):- Turning to the macroeconomic variables, the researcher observe that GDP has highly statistical significant and positive impact on ROAA and NIM at 1% and 5% significancy level respectively. This results about GDP support the argument of the positive association between economic growth and the financial sector performance that revealed by the numbers of researchers (e.g. Neely and Wheelock, 1997; Demirguc-Kunt and Huizinga, 2000; Athanasoglou et al., 2005 and Bikker and Hu, 2002). concluded that positive and strong correlation existed between economic growth (GDP) and bank profitability. This is because the default risk is lower in upturn than in downturn economy and another important point is higher economic growth may lead to a greater demand for both interest bearing and non-interest bearing financial services.

Like with the emprical evidence, the study also justified a positive and highly significant impact of Ethiopia real GDP growth and banks profitability interm of both asset return and interest margin. This is because, as discussed in the litreture part, the current Ethiopian economy growth could create a new and potential demand for financial services and it might reduce the probablity of default loan. This quantitative finding also assure by qualitative result from the CFOs of the commercial banks, they justified the positive impact of the nation economy growth to the financial sector profitability.

According to the emperical result of this study (see table 4.9 from the appendix I) the private banks of Ethiopia are more beneficiary than the state owned banks from the current stimulated economic growth of the country. According to the emperical evidence, Neely and Wheelock (1997) the upturn of the economy of the country is the main source of the increment of the per capita income of the nation. Private banks also the

composition of share holders, because of this percapita income, the shares component of bank capital also increase. As discused for the above capital is the main determinants of banks profitability. This is might the reason for this situation.

Interest rate policy (IRP):- The last important macroeconomic variable is interest rate policy. The estimation results of the research indicate that interest rate policy of the country has positive and significant (at 10% significancy level) effect on interest margin of the commercial banks of Ethiopia. This finding confirm with the earlier emperical findings (e.g. Vong and Chan, 2008) suggesting that the gap between lending interst rate and saving interest rate (spread) most of the time it provide positive return to the pofitability of the banks. Even though, it depend on the situation and policy of the country. In Ethiopia banking business environment, this positive effect of national bank interest rate policy indicated the leanding interest rate is greater than the saving rate or the existance of positive spread in the commercial banking industry. However, this interest rate policy has insignificant effect on ROAA.

Finally, as discused from the introduction part of the study, there were three general hypothesis developed from banking area theories and empirical studies. Under this hypothesis there are twelve sub hypothesis developed. The first hypothesis (hypothesis A) said that bank specific determinants have significant effect on banks profitability. Under this hypothesis, hypothesis: A_1, A_3, A_4, A_5, A_7,A_8 and A_9 said that capital adequacy, depoit liability, liquidity risk. Loan and advance, efficiency and poductivity, bank size and non-interest income respectively have positve relationship with profitability of banks. Among these variables except bank size (hypothesis A_8) all

hypothesis are fail to reject by the study because all specified determinants are positive and significant factors of Ethiopian banks profitability. But hypothesis A_8 is reject because bank size has negative and significant effect on Ethiopian commercial banks profitability. In addition to this, hypothesis A_2 and A_6 said that, credit risk and expense management respectively have negative effect on profitability. These two hypothesis are fail to reject on this research because, both determinants have negative and significant effect on profitability of Ethiopian commercial banks. The second hypothesis (hypothesis B) stated that industry-specific variable (market concentration) has direct positive relation with profitability of commercial banks. This hypothesis is rejected by the study because MCON has negative and insignificant effect on commercial banks of Ethiopia. The last hypothesis (hypothesis C) explained that macroeconomic determinants have significant effect and relation on banks profitability. Hypothesis C_1 and C_2, Under this hypothesis, described that GDP and interst rate policy have direct positve relation with profitability respectively. The result of ths study fail to reject these hypothesis, since both GDP and IRP hve positve and significant effect on profitability of Ethiopian commercial banks.

Chapter Five

Summary, Conclusion and Recommendation

It is fact, a strong and healthy financial system is a prerequisite for sustainable economic growth of a given country. In order to survive negative shocks and maintain a good financial stability, the fanacial managers and policy maker should identify the key performance determinants of commercial banks. Because of this, the current study specified an empirical framework to investigate the effect of bank-specific, industry-specific and macroeconomic determinants on the profitability of Ethiopian commercial banks from 2000 to 2011. Over the last twelve years a number of important changes occurred in the Ethiopian commercial banking industry, leading to increased competition and pressure bank profitability. The study also used an appropriate econometric methodology for the estimation of variables coefficient under fixed effect regression models. The following sections discussed about the final conclusion remarks of the study and applicable recommendations.

5.1 Summary and Conclusion

- As observed from table 4.7A and 4.7B regression result, the explanatory power of the bank-specific determinants only interms of R^2 for both ROAA and NIM models are 81% and 79% repectively. But, as observed from table 4.8C and 4.8D, when the external (both industry-specific and macroeconomic) determinants

enter into the regression the explanator power of the models (ROAA and NIM) interms of R^2 increased to 84% ar.d 81% correspondingly. From this, the researcher can conclude that, the profitability of Ethiopian commercial banks explained by both internal and external determinants. However, profitability is more explained by bank-specific variables than the external variables.

- As discussed from table 4.10E and 4.10F emperical result, the cofficient of lagged variables (lagROAA and lagNIM) are statistically highly significant at 10% and 1% significancy level respectively. This significant coefficient of the lagged profitability variable confirms the dynamic character of the model specification. Even though, the fixed effect model specification is more relevant for this study. In the present study the cofficient of lagged variables, (γ) has a value of approximately 0.12 and 0.31 for the two models respectively. Based on emperical explanation and the cofficient value of γ on current study the researcher checked that, Ethiopian commercial banks are able to generate a positive profit in the previous year, it is likely that the banks are able to generate a positive profit this year (profits seem to persist to a moderate extent). And the presence of the indicator of fairly competitive market structure in the current Ethiopian commercial banking industry, especialy competition among private banks.
- Turning to the explanatory variables, the coefficient of the capital adequacy (CA) is positive and it is statistically highly significant determinants of profitability for two ROAA and NIM models at 1% and 5% significancy level respectively. It reflecting the sound financial condition of Ethiopian commercial banks. The

researcher can conclude that, efficient capital is the main determinants of asset return performance and interest margin of the commercial banks of Ethiopia.

- This study aconfirms a negative and highly significant relationship between credit risk and profitability in Ethiopia commercial banking sector both ROAA and NIM models at 5% and 1% significancy level respectively. Since CR has negative and significant impact on profitability of the sector, the problem symptom of asset quality is present in Ethiopian commercial banking industry. According to table 4.9 and 4.10 (see from the appendix I) the p-value of CR for private banks significant for both asset return and interest margin but insignificant for state owned banks. From this the researcher checked that the problem of credit risk (asset quality) is severe in private banks than state owned banks.
- Concerning the liquidity risk, the regression results in this research imply that the relation between liquidity risk and ROAA is positive and significant at 10% significancy level. This result implies that, banks those have less liquid assets earned higher ROAA than banks those have high liquid assets in Ethiopia. Accorging to the regression result (see table 4.10 from the appendix) the private banks have little liquid assets than the state owned banks. Based on this, the researcher can conclude that, the private banks are more utilized idle cash and cash equivalent assets effectively. But this require wise manager with effective liquidity management system. However, liquidity risk has insignificant effect on interest margin of the commercial banks of Ethiopia.
- Regarding loan and advance it has positive and highly significant (at 1% significancy level) effect on asset return (ROAA). However, LOTA has negative

but statistically insignificant effect on interest margin of the sampled commercial banks. This negative cofficient indicate, as discussed from the above the commercial banks of Ethiopia especially the private banks are affacted by credit risk. This implies the existance of large non-performing loan from the total loan and advance.

- Concerning deposit liability, it has positive and significant effect on the assets return (ROAA) and interest margin (NIM) of Ethiopian commercial banks at 5% and 1% significancy level respectively. As discuse regarding separate performance NIM of state owned and private banks from table 4.10 (see from the appendix), interest margin of the state owned banks are more positively and significantly affect by deposit liability but it is insignificant for private banks. This finding implies that, the state owned commercial banks of Ethiopia are more competitive than the private banks interm of deposit collection.
- Concerning expenses management, the results indicate that expenses management is negative and highly significant determinant of Ethiopian commercial banks profitability interm of both return on asset and interest margin. Since, expenses management is proxy for management quality, this highly significant and negative coefficient of the cost to income ratio shows the existance of inefficient cost management system (poor quality of management) in Ethiopia commercial banks. This indicate that, the poor expenses management is one of the main contributors to poor profitability performance of Ethiopian commercial banks. This factor is affected both the state owned and private banks.

- Regarding efficiency and productivity, estimation results in this study revealed that efficiency and productivity growth has a positive and significant effect on profitability. This suggests that, other things remain constant, Ethiopian commercial banks increase their profits from improved labor productivity, which is a result of the higher quality of newly hired labor and improvement of the performance of the total number of employees. According to the separat regression of state owned and private banks, private bank's employees are more efficiency and productive than state owned bank's employees interm of both return on asset and interest margin in case Ethiopia commercial banks industry. This employees efficiency and productivity is the indicator of quality of human resource department managers.
- Next, the researcher find bank size has negative and highly significant effect on profitability interm of asset return at 1% significant level. This inverse relationship between bank size and profitability, significant in return on asset cases, suggesting that larger banks tend to earn lower profits. This indicate, the Ethiopian commercial banking industry is inconsistant with the Market-Power (MP) hypothesis, which stated relative size of a firm expands its market power and profits increases. From this result the researcher conclud that, in Ethiopia banking industry the large size banks (e.g. CBE) are adversely affected their profitability by their size. Probably, this might due to the existance of bureaucratic bottlenecks sysyem and managerial inefficiencies to manage their assets.
- Regarding to non-interest income, this study finds a positive and highly significant impact of NII (at 1% significancy level) on Ethiopian commercial

banks profitability interm of asset return. This could be attributable to the fact that Ethiopian banking sector is undergoing a gradual transform away from the traditional business of deposit and leanding, financial intermediation and towards provision of other financial services including foreign currency exchange, modern money transfer system etc. However according to regression result (see table 4.8D) NII has negative and hihgly statistical significant (at 1% significancy level) effect on interest margin of the commercial banks. This implies the commercial banks gradually transform away from traditional saving and lending practice to modern service based financial activity. Other things remain constant, This implies the banks tries to escape away from interest rates fluctuations and loan default risk. To sum up this point, non-interest income activity is important for Ethiopian commercial banks, especially at time of loan default risk and interest rate flactuation.

- Concerning industry-specific variable, The empirical results show that concentration affects bank profitability negatively, but this effect is statistically insignificant. Hence, this study finds no evidence to support the SCP hypothesis. From this conclude that, the industry was moving to a more competitive structure at the current time.
- Finally, with regard to the macroeconomic indicators, GDP has highly statistically significant and positive impact on ROAA and NIM at 1% and 5% significancy level respectively on Ethiopian commercial banking industry. These results about GDP support the argument of the positive association between economic growth and the financial sector performance revealed by the emperical financial literature.

The finding of the this research indicate that, the current Ethiopian economy growth could create a new and potential demand for financial services and it might reduce the probablity of default loan. However, interest rate policy is significant only on NIM model. According to the estimation results of this model the research finding indicate that interest rate policy of the country has positive and significant (at 10% significancy level) effect on interest margin of the commercial banks of Ethiopia. In Ethiopia banking business environment, this positive effect of national bank interest rate policy indicated the lending interest rate is greater than the saving rate or the existance of positive spread in the commercial banking industry. From this can conclude that, the current economic growth of the country can stimulat the banking industry by creart positive financial environment. Other important point is, interest policy is not the problem of banking industry.

- Generaly, according to the regression result capital adequacy, expenses management, liquidity risk and non-interest income have common significant effects on both state and private bank sector. However, variables like credit risk, loan and advance, efficiency and productivity and economic growth have special effects on private banks only. Unlike to this, deposit liability has especial effect on state banks performance.

5.2 Recommendation and Further Research

- Overall these empirical results provide evidence that, the profitability of Ethiopian commercial banks are shaped by bank-specific factors (that are

affected by bank-level management) and macroeconomic variables that are not the direct result of a bank's managerial decisions. Yet, industry structure does not seem to significantly affect. So, the banks' managers and policy makers should give high concern and setdirection to manage properly bank-specific determinants of profitability.

- The commercial banking industry generally, private banks in particularlly should curb the impact of credit risk (non prforming loan) by improving their inspection techniques to identifying quality borrowers, gathering sufficient information about the borrowers, improve Poor enforcement of creditor rights and obligation, if there is and strengthening the legal environment of the business. Otherwise it may bring a series collapse against the sector as well as the nation economy.
- Liquidity risk has positive and significat effect on commercial banks industry in general and private banks in particular in Ethiopia. This implies the presence of less liquidity assets. So, banks those have less liquidity asset should have effective and efficient liquidity management system. If not, the cost of short term borrowing may affect profitability negatively for future.
- The commercial banks should give more attention in reduction of expenses and other duplication of capital costs, to improve the profitability of the industry. By redusing operating, administrative and personnel expense through using common facilities such as ATM.

- The state owned banks should properly utilized the idle human resource to improve profitability. However, the private banks should proprly manage the high utilization of employees, to sustain the efficiency and productivity of employees' to improve the profitability the banks
- The commercial banks of Ethiopia should more shift in to non-interest income. Because, this source of income is more crucial during loan default risk and interest rate flactuation occur.
- The large commercial banks should improve managerial efficiency and the bureatratic bottlenecks system to reduce diseconomic scale of large size banks.

In this researching area, the futur researcher shall conduct research on the issue like current government land policy (collateral perspective) and bond purchasing priniciple imposed on the banks by the government (27% disbursement) to observe their effect on the profitability of commercial banks.

Reference

Aburime, U. T. (2008). Impact of Political Affiliation on Bank Profitability in Nigeria. *African Journal of Accounting, Economics, Finance and Banking Research*, Vol.4, No. 4, pp. 61-75.

Albertazzi, U., & Gambacorta, L. (2009). Bank profitability and the business cycle. *Journal of Financial Stability*, Issue, 5, pp. 393-409.

Altai, Y. (2005). Bank Ownership and Efficiency. *Journal of Money, Credit and Banking, Vol. 33 No.* 4, pp. 926-954.

Angbazo, L. (1997).Commercial Bank Interest Margins, Default Risk, Interest-rate Risk, and Off-balance Sheet Banking. *Journal of Banking and Finance*, Vol. 21, pp. 55-87.

Arellano, M., Bond, S.R. (1991). Some tests of specification for panel data: Monte Carlo evidence and an application to employment equations. Review of Economic Studies, Issue 58, pp. 277-297.

Athanasoglou P. P., Brissimis S.N. and Delis M.D. (2005). Bank-specific, Industry-specific and Macroeconomic determinants of bank profitability. *Working paper No. 25.*

Athanasoglou, P. P., Sophocles, N. B., & Delis, M. D. (2008). Bank-specific, industry-specific and macroeconomic determinants of bank profitability. *International Financial Markets, Institutions and Money,* Vol.18, No.2, 121-136.

Athanasoglou, P., Delis, M. and Staikouras C. (2006). Determinants of Bank profitability in the South Eastern European region, *Munich Personal RePEc Archive (MPRA)* Paper No. 10274.

Badola, B. and Verma R. (2006). Determinants of profitability of banks in India a multivariate analysis, *Delhi Business Review* X, Vol. 7, No. 2, pp. 11 – 19.

Befekadu Degefe (1995). The development of money, monetary institutions and monetary policy in Ethiopia. *An Economic History of Ethiopia: Vol. 1: The Imperial Era 1941-75.*

Belay Gedey (1990). Money, Banking and Insurance in Ethiopia, Addis Ababa: Berhanena Selam Printing Press (In Amharic).

Berger, A. N. (1995). The Profit-Structure Relationship in Banking-Tests of Market-Power and Efficient-Structure Hypotheses. *Journal of Money, Credit and Banking*, Vol. 27, No.2, pp. 404-31.

Berger, A. N. and Humphrey,D. B., (1997). Efficiency of financial institutions: international survey and directions for future research. *European Journal of Operational Research* Vol. 98, pp. 175–212.

Berger, A.N., Bonime, S.D., Covitz, D.M., Hancock, D. (2000). Why are bank profits so persistent? The roles of product market competition, informational opacity, and regional/macroeconomic shocks. *Journal of Banking and Finance*, issue 24, pp.1203-1235.

Berger, A. N. and Hannan, T. (1989). The Price-Concentration Relationship in Banking. *Review of Economics & Statistics*, Vol. 71, No. 2, Pp. 291-99.

Bikker, J. and Hu, H. (2002). Cyclical patterns in profits, provisioning and lending of banks and procyclicality of the new Basel capital requirements. *BNL Quarterly Review* 221, pp.143-175.

Bobakova, I.V. (2003). Raising the Profitability of Commercial Banks.Journal of International Finance, Volume XI, pp. 21-25.

Bourke, P. (1989). Concentration and other determinants of bank profitability in Europe, North America and Australia. *Journal of Banking and Finance,* Issue, 13, pp. 65-79.

Brooks, C. (2008). Introductory Econometrics for Finanace. 2nd edition. Newyork: Cambridge University press.

Byeongyong , Paul Choi and Mary A. W. (2005). An Empirical Investigation of market structure, efficiency, and performance in property-liability insurance. *Journal of Risk and Insurance,* Volume 72, pp. 35 - 39.

Clarke, R., Davies, S. and Waterson, M. (1984).The Profitability-Concentration Relation: Market Power or Efficiency. *Journal of Industrial Economics*, Vol.32, No. 4, pp.435-450.

Cooper, D. C., & Schindler, P. S. (2009). Business Research Methods. 9th edn.Tata McGraw-Hill. New Delhi.

Davydenko, A., (2010). Determinants of Bank Profitability in Ukraine. *Undergraduate Economic Review*, Vol. 7, Nop. 1, pp. 9 – 18.

Deepak, K. and Abebaw, K. G. (2011). Financial performance and ownership structure of Ethiopian commercial banks. Journal of Economics and International Finance Vol. 4 (1), pp. 1–8.

De young, R. And Rice, T. (2004). Non interest income and financial peforemance at U.S. commercial Banks. *U.S. Finanvial Review*, Issue,39, pp.101 – 127.

Demirguc-Kunt, A & Detragiache, E., (2000). Monitoring Banking sector fragility: a multivariate logit approach. *World Bank Economic Review, Oxford University Press,* Vol. 14, No. 2, pp. 287-307.

Demirguc-Kunt, A., & Huizinga, H. (1999). Determinants of Commercial Bank Interest Margins and Profitability: Some International Evidence. *The World Bank Economic Review,* Vol. 13, No. 2, pp. 379-408.

Eichengreen, B., & Gibson, H.D. (2001). Greek banking at the dawn of the new millennium. *CEPR discussion Paper.*

Flamini, V., McDonald, C. and Schumacher, L. (2009). The Determinants of Commercial Ban profitability in Sub-Saharan Africa. *IMF working paper*, (09/15).

Fries, S., Neven, D. and Seabright, P. (2002). Bank Performance in Transition Economies. *European Bank for Reconstruction and Development Working Paper*, No. 76. pp. 115 – 122.

Geda Alemayehu and Tony A. (2001). Ethiopia's New Financial Sector and Its Regulation, Discussion Paper No.55, pp. 150 – 211.

Goddard, J., Molyneux, P. and Wilson, S. J. (2004). The profitability of European Banks: a cross-sectional and dynamic panel analysis. *The Manchester School,* Vol. 72, No. 3, pp. 363–381 and pp. 1463–6786.

Goldberg, L. G. and Anoop R. (1996). The Structure-performance Relationship for European Banking. *Journal of Banking & Finance*, Vol. 20, No. 4, pp. 45-71.

Golin, J. (2001). The Bank Credit Analysis Handbook: A Guide for Analysts, Bankers and Investors. New York: John Wiley and Sons.

Guru B., J., Staunton and Balashanmugam. (2002). Determinants of commercial bank profitability in Malaysia. *University Multimedia working papers, pp. 19 - 27.*

Hailegeorgis Belayneh (2011). Determinants of Commercial Banks profitability: an empirical study on Ethiopian commercial banks. Unpublished Master's thesis, Addis Ababa University, School of Business and Public Administration, Addis Ababa.

Hair, J F, Black, W C, Babin, B J, Anderson, R E, and Tatham, R L. (2006), *Multivariate Data Analysis*, 6 thedn., New Jersey: Pearson Education

Haron, S. (2004). Determinants of Islamic Banking profitability. *Global Journal of Finance and economics,* Vol. 1, No.1, pp.2 – 22.

Hellman, Thomas, Murdock, Kevin, Stiglitz, Joseph, E. (2008). Liberalization, moral hazard in banking and prudential regulation: Are capital controls enough? *American Economic Review, Vol.* 90, No. 1, pp.147–165.

Hussain, H and Bhatti, G.A. (2010). Evidence on Structure Conduct Performance Hypothesis in Pakistani Commercial Banks. *International Journal of Business and Management,* Vol. 5, No. 9, pp: 174-187.

International Monetary Fund (2002). Financial Soundness Indicators: Analytical Aspects and Country Practices. Occasional Paper 212, Washington.

Izhar, H. and Asutay, M. (2007). Estimating the Profitability of Islamic Banking: Evidence from Bank Muamalat Indonesia. *Review of Islamic Economics*, Vol. 11, No. , pp. 17-29.

Kosmidou, K. (2008). The determinants of Bank's profit in Greece during the period of EU Financial Integration. *Manegerial Finance,* Issue, 34, pp. 146 – 159.

Kosmidou, K., and Zopounidis, C. (2008). Management of Bank performance in Greece. *South-eastern Europ Journal of Economics*, Issue, 1, pp. 79 – 95.

Kosmidou, K., Pasiouros, F., and Tsaklanganos, A. (2007). Domestic and Multinational Determinants of forien Bank profit: The case of Greek banks operating abroad. *Journal of Multinational Financial Management*, Issue,17, pp. 1- 15.

Kwan, S. and Eisenbeis, R.A. (2005). Bank Risk, Capitalization and Inefficiency. *Journal of Multinational Financial Management*, Issue, 3, pp. 33 – 48.

Lalith, S. (2010). Market structure, efficiency and performance of banking industry in Sri Lanka. *Journaly of Banks and Bank Systems*, Volume 5, Issue 1, pp. 79 – 95.

Lee, Jong-Wha, Young Soo Lee, and Byung-Sun Lee. (2000). The Determination of Corporate Debt in Korea. *Asian Economic Journal*, Vol. 14, No. 4, pp. 333-356.

Levine, R. (1998). The legal environment, banks, and long run economic growth. *Journal of Money, Credit and Banking,* Vol. 30, No. 10, 596–613.

Mathuva, D,M., (2009). Capital adquacy, Cost income ratio and the performance of commercial Banks; The Kenyan scenario. *The international Journal of Applied Economics and Finance*, Vol. 3, No. 2, pp. 35 – 47.

Modigliani, F., & Miller, M. H. (1958). The Cost of Capital, Corporation Finance and the Theory of Investment. *The American Review,* Vol. 48, No. 3, pp. 261-297.

Moin, M. S. (2008). Performance of Islamic Banking and Conventional Banking in Pakistan: A Comparative Study. Unpublished Master's thesis, University of Skovde, School of Technology and Society, Skovde.

Morris, S., and Shin, H. S. (2010). Illiquidity Component of Credit Risk, Working Paper, Princeton University.

Naceur, S. B., And Goaied, M. (2001).The determinants of commercial bank interest margin and profitability: evidence from Tunisia. Working paper 856365.

Naceur, S.B. (2003). The Determinants of the Tunisian Banking Industry Profitability: Panel Evidence. Journal of international finance, Vol. 7, No. 11 pp. 21 -34.

National Bank of Ethiopia (2011). Annual report. [Online], available at http://www.nbe.gov.et accessed on decenber 10, 2011].

National Bank of Ethiopia, Licensing and Supervision of Banking Business Proclamation No.84/1994 (1994). Single Borrower Loan Limit Business Directive No. SBB/29/2002 [Online], available at http://www.nbe.gov.et [accessed on decenber 10, 2011].

National Bank of Ethiopia, Licensing and Supervision of Banking Business Proclamation No. 84/1994 (1994). Computation of Risk Weighted Asset Business Directive No. SBB/9/95. [Online], available at http://www.nbe.gov.et [accessed on decenber 10, 2011].

National Bank of Ethiopia Licensing and Supervision of Banking Business Proclamation No.84/1994 (1994). Minimum Capital Requirement for Banks Directives No. SBB/50/2011 [Online], available at http://www.nbe.gov.et [accessed on decenber 10, 2011].

Neely, M. and. Wheelock, D. (1997). Why does bank performance vary across states? *Federal Reserve Bank of St. Louis Review*, pp. 27-38.

Negarit Gazeta procllamation No. 84/ 1994 (1994). Licensing and supervision of Banking Business, BSPP, Addis Ababa,

Ngo, P., T.H. (2006). Endogenous Capital and Profitability in Banking. *Journal of Economics and Finance,* the Australian National University Working Paper No. 464 ISBN 86831 4641, pp. 54 – 69.

Ommeren, S. (2011). An examination of the Determinants of Banks' Profitability in the European Banking sector. Unpublished Master's thesis, Erasmus University, school of Economics, departments of Finance, Rotterdam.

Pasiouras, F., & Kosmidou, K. (2007). Factors influencing the profitability of domestic and foreign commercial banks in the European Union. *Research in International Business and Finance, Issue. 21, No.2*, pp. 222-237.

Perry, P. (1992). Do banks gain or lose from inflation? *Journal of Retail Banking,* Vol. pp.14 - 30.

Rajan, R. G., & Zingales, L. (1998). Financial dependence and growth. *American Economic Review,* Issue,88, pp. 559–586.

Ramlall, I. (2009). Bank-Specific, Industry-Specific and Macroeconomic Determinants of Profitability in Taiwanese Banking system: Under Panel Data Estimation. *International Research Journal of Finance and Economics,* ISSN 1450-2887 Issue 34, pp. 161-167.

Rasiah, D. (2010). Theoretical framework of profitability as applied to commercial banks in Malaysia. *European Journal of Economics, Finance and Administrative Sciences*, Issue, 19, 74-97.

Sastrosuwitoand, S. & Suzuki, Y. (2011). Post Crisis Indonesian Banking System Profitability: Bank-Specific, Industry-Specific, and Macroeconomic Determinants. *The 2nd International Research Symposium in Service Management Yogyakarta, Indonesia, 26 – 30 July (unpublished).*

Saunders, A., and Cornett, M. M. (2008). Financial Institutions Management: *A Risk Management Approach.* New York: McGraw-Hill.

Short, B.K. (1979) .The Relation between Commercial Bank Profit Rates and Banking Concentration in Canada, Western Europe and Japan. *Journal of Banking and Finance*, Issue, 3, pp. 209-219.

Smirlock, M. (1985). Evidence on the None Relationship between Concentration and Profitability in Banking. *Journal of Money,Credit and Banking*, Vol. 17, No.1, pp. 69-83.

Staikouras, C. K. and Wood, G. E. (2004).The Determinants of European Bank Profitability. *International Business & Economics Research Journal,* Vol. 3, No. 6, pp. 57 – 67.

Stiroh, K.J. and Rumble, A. (2006). The Dark side of Diversification: the case of U.S. Financial holding companies. *Journal of Banking and finance*, Issue, 30, pp. 31 – 61.

Sufian, F. (2011). Profitability of the Korean Banking sector: panel evidence on Bank-specific and Macroeconmic Determinants. *Journal of Economics and Management,* Vol. 7, No. 1, pp. 43 – 72.

Verbeek, M. (2004). A Guide to Modern Econometrics. 2nd ed. *Rotterdam: Erasmus University.*

Vong, A.I and Chan, H. S. (2008). Determinants of Bank Profitability in Macao. Jourrnal of Economics and Finance, Vol. 7 No 19 pp. 93 – 109.

Worthington, I., Chris Briton, and Andy R. (2001). *Economics for Business: Blending Theory and and Practice*; London Prentice Hall.

APPENDICES

Appendix I: Some Important tables

Table 2.1 lists of current Ethioipian commercial banks

Commercial Banks	Establishment year	**Branches**
Public Bank		
Commercial Bank of Ethiopia	1963	490
Construction and Business Bank	1975	30
Total state commercial banks		520
Private Banks		
Awash International Bank	1994	67
Dashen Bank	1995	67
Abyssinia Bank	1996	61
Wegagen Bank	1997	47
United Bank	1998	51
Nib International Bank	1999	52
Cooperative Bank of Oromia	2004	38
Lion International Bank	2006	20
Oromia International Bank	2008	25
Zemen Bank	2008	1
Bunna International Bank	2009	1
Birhan International bank	2009	1
Total Private Banks		431
Total Commercial Banks		950

Source: NBE, 2011 Annual Report (www.nbe.gov.et)

Table 3.2: Variables description

			Variables	Notations	Measurements	Hypothesized relationship
Dependent variables			Profitability	ROA	Net income / total average assets	NA
Independant variables	.			NIM	Net interest incom ÷ earning asset	NA
		Bank – specific Determinants	Capital adequacy	CA	Equity capital ÷ total risk weighted assets	+
			Credit risk	CR	Non performing loan / total investment	-
			Depoit liablity	DTA	Total deposit / total assets	+
			Liquidity risk	LR	Liquid asset /short term customer deposit and other short term borrowing	+
			Loans andAdvances	LOTA	Total loan / total asset	+
			Expenses Mnagement	EXM	Operating expens / tota gross incom	-
			Efficiency and productivity	EP	EBIT / total numbers of employees	+
			Bank size	SIZE	Log of total assets	+
			Non Interest Income	NII	Non-iinterest income / total income	+
		Industry specifi Determinants	Market concentration	MCON	HH Index	+
		Macroeconomic Determinants	Economic growth	GDP	Real GDP growth	+
			Interest rate policy	IRP	spread	+

Table 4.5. Correlation among Explanatory Variables (Multicollinearity test)

Corr.	CPA	CR	DTA	EXM	EP	LOTA	LR	BSIZE	NII	MCON	GDP	IRP
CPA	1											
CR	0.395	1										
DTA	-0.404	0.366	1									
EXM	-0.068	0.071	-0.047	1								
EP	-0.015	-0.17	0.087	0.64	1							
LOTA	-0.341	0.109	0.067	0.075	-0.4	1						
LR	0.213	0.129	0.366	0.071	-0.172	0.109	1					
SIZE	-0.366	-0.25	0.347	-0.354	0.782	-0.36	-0.005	1				
NII	0.187	0	-0.029	-0.102	0.378	-0.542	0.065	0.375	1			
MCON	-0.003	-0.18	-0.206	0.326	-0.515	0.168	-0.153	-0.506	-0.47	1		
GDP	0.045	0.038	0.078	-0.424	0.447	-0.082	0.198	0.373	0.344	-0.458	1	
IRP	-0.034	0.133	0.24	-0.165	0.332	-0.08	0.202	0.419	0.324	-0.741	0.22	1

Table 4.9. Fixed Effect Regression Result of state and private banks determinants separatly (ROAA model)

	State banks				Private banks			
Variable	Coefficient	Std. Error	t-Statistic	Prob.	Coefficient	Std. Error	t-Statistic	Prob.
C	0.830168	10.91159	0.076081	0.9409	1.316370	2.275222	0.578568	0.5653
CPA	0.193586	0.094176	2.055571	0.0669*	0.039841	0.020373	1.955519	0.0557*
CR	-0.002087	0.005420	-0.385147	0.7082	-0.001339	0.000704	-1.901685	0.0626*
LR	0.273706	0.164245	1.666453	0.1266	0.042187	0.023938	1.762370	0.0837*
LOTA	0.016785	0.039649	0.423334	0.6810	0.024370	0.008589	2.837405	0.0064***
DTA	-0.006766	0.035849	-0.188745	0.8541	0.010922	0.014188	0.769803	0.4448
EXM	-0.050277	0.016541	-3.039484	0.0125*	-0.039657	0.011098	-3.573183	0.0008***
EP	0.047612	0.042807	1.112245	0.2921	0.061062	0.035515	1.719313	0.0913*
BSIZE	0.271140	0.988963	0.274166	0.7895	-0.435410	0.279462	-1.558031	0.1251
NII	0.053111	0.028324	1.875084	0.0903*	0.030635	0.012034	2.545640	0.0138**
MCON	-0.034624	0.031502	-1.099117	0.2975	-0.013090	0.012309	-1.063431	0.2923
GDP	-0.055990	0.045845	-1.221292	0.2500	0.055959	0.020848	2.684158	0.0096***
IRP	-0.418559	0.428235	-0.977405	0.3514	0.185770	0.236578	0.785236	0.4357

Source: Computed from Eviews result

*Notes: *, ** and *** denotes significant level at 10%, 5% and 1% respactively*

Table 4.10. Fixed Effect Regression Result of state and private banks determinants separatly (NIM model)

	State banks				Private banks			
Variable	Coefficient	Std. Error	t-Statistic	Prob.	Coefficient	Std. Error	t-Statistic	Prob.
C	-7.533980	13.10544	-0.574874	0.5781	6.634940	2.919497	2.272631	0.0271
CPA	0.225692	0.100956	2.235546	0.0494**	0.011675	0.025727	0.453808	0.6518
CR	-0.009503	0.005809	-1.635973	0.1329	-0.001910	0.000884	-2.160829	0.0352**
LR	0.466252	0.181099	2.574566	0.0277**	0.047610	0.031018	1.534912	0.1306
LOTA	0.043454	0.044551	0.975360	0.3524	-0.016253	0.010718	-1.516352	0.1353
DTA	0.084872	0.039325	2.158222	0.0563**	0.016201	0.017831	0.908625	0.3676
EXM	-0.044523	0.015063	-2.955734	0.0144**	-0.028311	0.011616	-2.437182	0.0181**
EP	0.033450	0.047616	0.702501	0.4984	0.069476	0.034988	1.985708	0.0522**
BSIZE	0.353262	1.292619	0.273292	0.7902	-0.172539	0.378169	-0.456249	0.6500
NII	0.006378	0.030363	0.210047	0.8378	-0.094948	0.015114	-6.282106	0.0000***
MCON	-0.012882	0.033841	-0.380668	0.7114	0.007215	0.015463	0.466565	0.6427
GDP	0.001111	0.049343	0.022512	0.9825	0.031952	0.025612	1.247538	0.2176
IRP	-0.214247	0.452427	-0.473551	0.6460	0.273455	0.298338	0.916595	0.3634

Notes: *, ** and *** denotes significant level at 10%, 5% and 1% respactively

Table 4.7. Fixed Effect Regression Result for internal variables

Table 4.7A ROAA Fixed Effect Regression Result for internal variables

ROAA model				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-1.263782	-1.263782	-0.963520	0.3382
CA	0.053707	0.053707	2.801237	0.0064***
CR	-0.001143	-0.001143	-1.611362	0.1111
LR	0.52109	0.052109	2.143892	0.0351**
LOTA	0.024978	0.024978	3.208896	0.0019***
DTA	0.027188	0.027188	2.226271	0.0288**
EXM	-0.046119	-0.046119	-6.560249	0.0000***
EP	0.051646	0.051646	2.638458	0.0100***
BSIZE	-0.169834	-0.169834	-1.025108	0.3084
NII	0.049425	0.049425	4.981550	0.0000***

R^2	*0.811350*	*Adjusted* R^2	*0.773143*
S.E. of regression	*0.581831*	*F-statistic*	*21.2353*
Prob(F-statistic)	*0.000000*	*DW test*	*1.040293*

*Note: *, ** and *** denotes significant level at 10%, 5% and 1% respactively*

Table 4.7B NIM Fixed Effect Regression Result for internal variables

	NIM model			
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.489425	1.870021	0.796475	0.4281
CA	0.066195	0.025782	2.567523	0.0121**
CR	-0.002560	0.000946	-2.704533	0.0084***
LR	0.072436	0.032269	2.244754	0.0276**
LOTA	-0.010533	0.010207	-1.031940	0.3052
DTA	0.062345	0.016259	3.834429	0.0003***
EXM	-0.024361	0.007676	-3.173842	0.0021***
EP	0.034588	0.021854	1.582681	0.1175
BSIZE	0.008416	0.250955	0.033536	0.9733
NII	-0.047224	0.013271	-3.558325	0.0006***

R^2 0.799716 *Adjusted R^2 0.75915*

S.E. of regression 0.775379 *F-statistic 19.71503*

Prob(F-statistic) 0.000000 *DW test 1.266285*

*Note: *, ** and *** denotes significant level at 10%, 5% and 1% respactively*

Appendix II

Eviews Orginal Regression Results

Both internal and external determinants for ROAA

Dependent Variable: ROAA
Method: Panel Least Squares
Date: 05/07/12 Time: 10:30
Sample: 2000 2011
Periods included: 12
Cross-sections included: 8
Total panel (balanced) observations: 96

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.200935	1.905719	0.105438	0.9163
CPA	0.058283	0.018033	3.232031	0.0018
CR	-0.001641	0.000683	-2.401426	0.0188
LR	0.040528	0.023340	1.736372	0.0866
LOTA	0.026511	0.007420	3.572969	0.0006
DTA	0.026754	0.011493	2.327822	0.0226
EXM	-0.036882	0.007034	-5.243367	0.0000
EP	0.067194	0.019200	3.499746	0.0008
BSIZE	-0.515150	0.190032	-2.710858	0.0083
NII	0.040349	0.009649	4.181439	0.0001
MCON	-0.017888	0.011066	-1.616566	0.1101
GDP	0.050121	0.017056	2.938626	0.0044
IRP	0.172371	0.180217	0.956464	0.3419

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.841401	Mean dependent var	2.435543
Adjusted R-squared	0.801752	S.D. dependent var	1.221577
S.E. of regression	0.543909	Akaike info criterion	1.802981
Sum squared resid	22.48358	Schwarz criterion	2.337220
Log likelihood	-66.54307	Hannan-Quinn criter.	2.018929
F-statistic	21.22087	Durbin-Watson stat	1.274073
Prob(F-statistic)	0.000000		

Regression for all determinants of NIM

Dependent Variable: NIM
Method: Panel Least Squares
Date: 05/11/12 Time: 08:27
Sample: 2000 2011
Periods included: 12
Cross-sections included: 8
Total panel (balanced) observations: 96

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.093637	2.681096	-0.034925	0.9722
CPA	0.065185	0.025263	2.580227	0.0118
CR	-0.002762	0.000950	-2.906883	0.0048
LR	0.050855	0.032428	1.568239	0.1210
LOTA	-0.011495	0.010157	-1.131721	0.2613
DTA	0.060704	0.015886	3.821367	0.0003
EXM	-0.018631	0.007957	-2.341424	0.0218
EP	0.048738	0.023066	2.113036	0.0379
BSIZE	-0.284513	0.303967	-0.936000	0.3522
NII	-0.052937	0.013485	-3.925551	0.0002
MCON	0.007906	0.015338	0.515483	0.6077
GDP	0.059080	0.023548	2.508920	0.0142
IRP	0.430473	0.257439	1.672134	0.0986

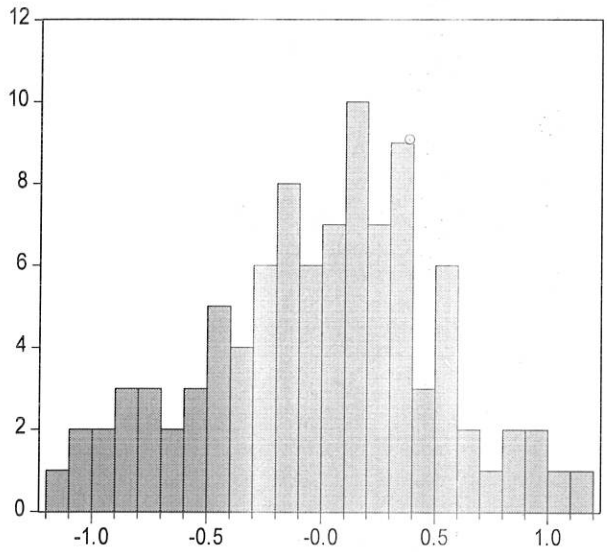
Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.817692	Mean dependent var	4.351354
Adjusted R-squared	0.772115	S.D. dependent var	1.579949
S.E. of regression	0.754225	Akaike info criterion	2.456799
Sum squared resid	43.23297	Schwarz criterion	2.991038
Log likelihood	-97.92635	Hannan-Quinn criter.	2.672747
F-statistic	17.94091	Durbin-Watson stat	1.109627
Prob(F-statistic)	0.000000		

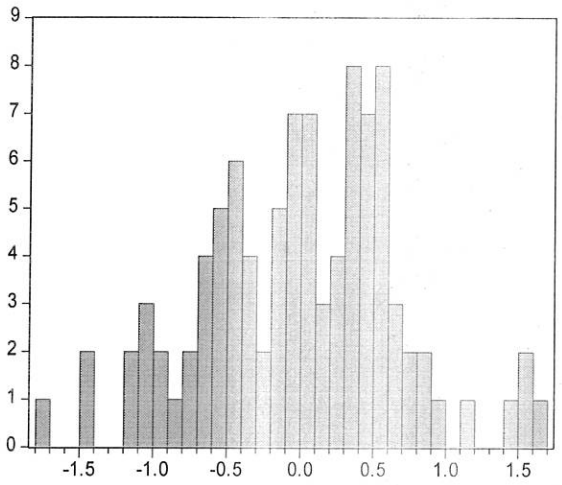
Appendix III; some important figures

ROAA model normality test



Series: Residuals	
Sample 1 96	
Observations 96	
Mean	-1.71e-16
Median	0.073550
Maximum	1.153712
Minimum	-1.102923
Std. Dev.	0.502765
Skewness	-0.140621
Kurtosis	2.708987
Jarque-Bera	0.655142
Probability	0.720672

NIM model normality test



Series: Standardized Residuals	
Sample 2000 2011	
Observations 96	
Mean	9.25e-18
Median	0.019776
Maximum	1.674437
Minimum	-1.739556
Std. Dev.	0.674599
Skewness	-0.031372
Kurtosis	3.082404
Jarque-Bera	0.042910
Probability	0.978774

Appendix v Qualitative Questionnaire

Addis Ababa University

School of Business and public Administration

MBA program

This questionnaire containe open-ended question, you are requested replay all of the question. There is no right or wrong answers, simply answer the question based of your working experiance and the current knowledg about the business environment of your bank in particular and Ethiopia in general. You are kindly rquest to give your honest opinion on each of questions. The information from respondants will be keep confidentially and no any effect on respondants. So, please answer all the question frankly and honestly, your frank and sincer responses wiil be highly appreciated.

Thank you in advance

Questionnaire prepared to ask the chief financial officers of the sampled commercial banks of Ethiopia.

1. How strongly are capital adequacy and profitability of the bank related?

   _____

2. How does non performing loan affect the profitability of your bank?

   _____

3. In what condition will operational risk, liquidity risk, market risk and loan and advance affect the profitability of your bank?

   _____

4. How management quality, productivity, fee based service and amount of total assets relate to profitability in your bank?

   _____

5. Do you believe market concentration exist in Ethiopian banking industry?
   No __ Yes ___
   if your answer is no why not? if your answer is yes,what is its impact on profitability of bank ?

   _____

6. How economic growth of the country contributed to the banks' profitability?

   _____

   _____

7. As we know official figure of inflation in the country is high. Does inflation affect your bank profitability? if yes, how? If no, why not?

   _____

8. How would interest rate policy of the country affect the banks profit?

   _____

9. Which bank directive/s negatively affects your profitability in the future?

   _____

10. Is there any risk related to the current land policy [collateral related] which affects your bank? If yes, how ? if no , why not ?

    _____

Thank you in advance