



Financial Performance of Private Commercial Banks in Ethiopia:

A CAMEL Approach

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This is to certify that the thesis prepared by Ermias Mengesha, entitled: Financial Performance of Private Commercial Banks in Ethiopia: A CAMEL Approach and Submitted in partial fulfillment of the requirements for the Degree of Master of Science (Accounting and Finance) complies with the regulations of the University and meets the accepted standards with respect to originality and quality.

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ABSTRACT

The role of banking sector for sustainable growth of a nation is unquestionable. Hence, this paper has investigated the effects of internal determinants of profitability of six senior private Ethiopian commercial banks over the period 2000-2014 and thereby ranked the overall financial performance of the respective banks based on CAMEL model. This paper used fixed effect least square method to estimate the impact of bank specific factors and detailed descriptive statistics and regression analysis has been used to assess the relationships between the bank specific variables that comprise CAMEL model and return on assets has been used as a measure of profitability. The findings indicated that bank specific factors incorporated in the CAMEL model affect to the extent of 67.5% of the changes in profitability of the private commercial banks in Ethiopia. Moreover, ranking of the respective banks was made based on the aggregate of multi-dimensional parameters of each bank specific proxies found in the CAMEL model. As a result, UNB, NIB, and BOA have held from 1st to 3rd rank based on the CAMEL model composite rating system.

Key words: *CAMEL model, Multi-dimensional ranking, Ethiopian private commercial banks*

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ACRONYMS

AFDB: African Development Bank

AIB: Awash International Bank SC

ATM: Automatic Teller Machine

BIS: Banking Supervision of International Settlement

BOA: Bank of Abyssinia SC

BSD: Banking Supervision Directorate

CAR: Capital Adequacy Ratio

CBK: Central Bank of Kenya

DAB: Dashen Bank SC

ECB: European Central Bank

GDP: Gross Domestic Product

ICT: Information Communication Technology

IMF: International Monetary Fund

MFIs: Micro Finance Institution's

NBE: National Bank of Ethiopia

NIB: Nib International Bank SC

NIM: Net Interest Margin

ROA: Return on Assets

ROE: Return on Equity

RBS: Risk Based Supervision

SSA: Sub Saharan Africa

UNB: United Bank SC

WEB: Wegagen Bank SC

CHAPTER ONE: INTRODUCTION

1.1 Background of the Study

Though economic development of a particular country is dependent on a number of factors such as industrial growth and development, modernization of agriculture, expansion of domestic and foreign trade, its dependence to largest extent on the banking sector is undeniable and/or banks play a key role in improving economic efficiency by channeling funds from resource surplus unit to those with limited access and/or the needy. Misra & Aspal (2013)

According to Zerayehu et al., (2013) a sound financial system is indispensable for a healthy and vibrant economy. The financial system in Ethiopia, which is characterized as highly profitable, concentrated, and moderately competitive is dominated by banking Industry and it is also amongst the major under banked economy in the world (World Bank, 2013). The development of a vibrant and active private banking system that complements with the existing public sector work is considered important to Ethiopia's economic progress according to the professional advice of group of experts working in well-known financial organization like WB, AfDB, and IMF. (Keatinge, 2014)

Hence, maximum care should be taken in order to maintain the safety and soundness of commercial banks in Ethiopia. Any failure/incident/ in the banking industry especially in a country where the commercial banks dominate the financial sector will definitely have a contagious effect that can lead to bank runs and crises. Hence, it would be mandatory to scrutinize and take proactive measures to maintain the health of the economy and build up the public confidence. While doing so, bank performance measures such as CAMEL model are believed to be amongst the major internal supervisory tools for evaluating the soundness of financial firms and/or detect problems ahead of time. (Dang, 2011; Barr et al., 2002)

Even though there are many aspects of performance measurements' of commercial banks that can be analyzed, CAMEL framework is the most widely used model to evaluate performances of commercial banks due to its widely acceptance in the world and other advantages it possess. CAMEL represents Capital adequacy, Asset quality, Management efficiency, Earnings

performance and Liquidity. As stated earlier, despite its ability in early signaling potential danger, CAMEL has the ability to improve their overall performance of banks by creating a sense of competition among each other.

Most of the studies on bank profitability have categorized the determinants of profitability into endogenous and exogenous factors. The endogenous factors are those firm specific factors that result from the decision and policies of management. Hence, efficiency, profitability, liquidity, capital structure, and asset quality ratios are among the endogenous factors. On the other hand, market concentration, ownership, and other macroeconomic factors such as economic growth and inflation are classified as exogenous factors. Unlike in Ethiopia, there are many literatures and arguments as to which factors determine commercial banks profitability in the developed world.

Hence, owing to existence of very limited literature in the subject matter and inspired by CAMEL model advantages, the paper tried to explore the effects and/or impacts of the bank specific factors on Ethiopian private commercial banks profitability. The rationale behind focusing on bank specific variables only is owing to the existing less competitive and highly protected Ethiopian banking environment. Moreover, the exogenous factors are not expected to differ among the target banks that are selected for this particular study since all are operating under the same financial system, same regulatory organ and are within the same geographic area (Ethiopia). Therefore, this paper solely seeks to examine the effect of bank specific variables on profitability using CAMEL model and thereby tries to rank the overall financial performance of selected private commercial banks.

The paper has used historical formation and/or years of existence in the industry so as to systematically analyze the effects of bank specific factors over profitability. According to the information from the NBE (regulatory organ) Ethiopian commercial banks can be broadly categorize into three major strata's: Large, long stayed commercial banks that have existed long before the financial sector reform measures are introduced (CBE and CBB), Medium : banks that are established immediately after the financial liberalization, banks that have existed from 15 to 20 years are found in this category, and banks that have lived in the industry for less than a

decade are classified as small. Hence, all the target banks selected for this particular study are classified under the medium category since all of them have stayed 15 or more years in the business. To be specific, Awash International Bank (AIB), Bank of Abyssinia (BOA), Dashen Bank SC (DAB), Nib International Bank SC (NIB), United Bank SC (UNB), and Wegagen Bank SC (WEB) are the banks that were selected for the desired end and/or study.

1.2 Overview of Ethiopian Financial Sector

1.2.1 Financial Sector Development

The financial sector in Ethiopia is composed of the banking industry, insurance companies, microfinance institutions, saving and credit cooperatives and the informal financial sector. The banking industry accounts about 95% of the total financial sector assets, implying that the financial sector is under developed, and activities that banks could perform are legally limited, which in turn contribute to lesser contestability. (Zerayehu et al., 2013)

Ethiopia's banking industry is closed and generally less developed than its regional peers. The industry comprise one state owned development bank and 18 commercial banks, two of which are state-owned including the dominant commercial bank of Ethiopia (CBE), with assets accounting for approximately 70 percent of the industry's total holdings. The banking industry's nonperforming loan ratio is commendably low, and profitability is good, but the dominance of public sector banking certainly restricts financial intermediation and economic growth. It contrasts with regional and international peer countries where banking industries have a much higher share of private sector and foreign participation. (Keatinge, 2014)

Financial intermediation is relatively low in Ethiopia and it is in declining trend. Financial intermediation is a driving force for economic development. In 2011, credit to private sector was around 14 percent of the gross domestic product (GDP). This indicates that it is falling behind its sub-Saharan African peers, which was compared to be 23 percent on average. Despite the overall disintermediation trend, the Ethiopian financial sector continues to have the potential to be a driver of economic growth. The banking sector remains, stable, well capitalized and continues to be highly profitable. The Ethiopian banking sector ranks higher than the SSA average in terms of

profitability measured on the basis of Return on Equity (ROE). High profitability is also explained by limited competition. Moreover, the bank assets concentration index indicates that Ethiopian banking sector is much more concentrated than SSA and low income group averages. Moreover, the non-performing loan ratio is reported to be at its lowest level, i.e., 1.4 percent. (World Bank, 2013)

As per the information disclosed in the NBE's Second Quarter Report (2014/15), the Ethiopian financial system is comprised of one central bank (NBE), 19 commercial banks of which three are owned by the government, 32 micro-finance institutions' (MFIs), 17 insurance companies of which 16 are privately owned, two pension funds namely: Social Security Authority and Private Sector Social Welfare Agency and numerous savings and microcredit associations.

1.2.2 Regulatory Environment in Ethiopian Banking Sector

Regulation of the banking sector is necessary in order to ensure that the excessive risk taking not to lead in to bankruptcy. In Ethiopia, proclamation no., 591/2008 has paved the legal framework for the banking industry. The proclamation has given powers and duties to the NBE to regulate, license and supervise banking industry so as to play an important role in economic development, in payment and settlement system, in macroeconomic stability, and to ensure safety, soundness & stability of the banking system of the country.

On the other hand, the regulatory organ and/or banking regulation must take an approach that doesn't necessarily restrict activities of commercial banks, place them at competitive disadvantage with less regulated firms, or hinder the ability of banks to serve their customers' financial needs.

According to the information disclosed in (Birritu 120), the Banking Supervision Directorate (BSD) has currently 23 supervisory, 3 credit bureau, and 3 administrative staffs. Hence, the National Bank of Ethiopia is not only criticized for its very restrictive approach in the banking industry; but also, it is criticized by the stake holders in the industry for its incapability to cope up with the ever changing banking industry's environment with its present organizational set up, number & composition of man power, technological readiness, and overall regulatory capability.

1.2.3 An over view of Ethiopian Banking System

Modern banking in Ethiopia was introduced in 1905 by an agreement between the then Ethiopian Emperor Menelik II and a representative of the British owned National bank of Egypt. The stated agreement has led to the establishment of bank of Abyssinia and it has been inaugurated in Feb 16, 1906. Later on in the 1930's, the bank was bought by the Ethiopian government and the State Bank of Ethiopia was established by a proclamation issued in August 1942. This bank was later disintegrated into two different banks forming the National Bank of Ethiopia and the Commercial Bank of Ethiopia. (Leulseged 2005; Alemayehu 2006)

In the history of Ethiopian banking industry, Addis Ababa Bank Share Company was the first private Ethiopian bank that had been established by the Ethiopian citizens' initiative and with the collaboration of National and Grandly bank London which had a possession of 40 percent of the total share holdings. The stated company had started its operation in 1964 with a paid up capital of two million. In the pre-1974 era, there hardly was any banking competitive environment, since the banking industry was dominated by a single government owned State Bank of Ethiopia. (Zerayehu et al., 2013)

After the termination of fragile and inefficient state-dominated banking sector that has existed in Ethiopia from 1974-1991, the current government restructured and introduced a new Banking and Monetary proclamation that gave more autonomy and further clarified the National Bank of Ethiopia's activities as a regulator and supervisor of the banking sector. Moreover, the reform has legalized investment in the domestic private banking sector in 1994 under proclamation no., 84/1994 that marked the beginning of a new era in the Ethiopian banking sector. Admasu & Asayehegn (2014)

In the Ethiopian banking industry, there exist only two forms of bank ownership: fully government owned or fully privately owned. No hybrid form of the two forms of ownership or the involvement of foreign ownership exists. (Tesfaye, 2014)

To sum up, the banking industry in Ethiopia is highly regulated and closed from foreign competition. Banks operate extremely in conservative lending policies and require physical collateral for virtually all loans constrain inclusive growth. Key risks to financial stability & inclusive growth include: Unpredictable inflation; foreign exchange shortage exacerbated by unstable export performance; lack of skilled manpower in the banking industry; collateral based lending is constraining private sector lending and alternative financing mechanism is lacking; ineffective ICT infrastructure on account of very weak internet connectivity; regulatory burden and/or tightening of regulations (the 27% NBE bill and entry barrier by increasing the capital requirement can be mentioned) ; restriction of foreign bank entry ; lack of standardized accounting practices, and very weak and less organized risk management practices. Getnet (2012)

1.2.4 Nature of Competition

Competition in the banking industry has indisputable effect on financial stability and economic growth. However, the impact on efficiency and stability is not always positive (Allen & Gale, 2004). According to scholars, higher competition in the banking industry can lead to a more efficient financial system on one hand and profits realized from the difference between deposit and loan rate might be highly reduced on the other hand.

According to Spong (2000), competition is a driving force in keeping banks innovative in their operations and in designing new services for customers. Moreover, competition and efficiency depend on the number of banks operating in a market, the freedom of other banks to enter and compete, and the ability of banks to achieve appropriate size for serving their customers.

Some banking industry analysts also argue that the Ethiopian banking sector has been relatively isolated from competition for a long time, hence; it has stayed relatively underdeveloped. By the same token, the fact that local banks are a little bit protected makes them lag behind in terms of technology, services, customer centricity, and banking practices.

According to Zerayehu et al., (2013) , the adoption of financial innovation and usage of technological advances are narrower in scope in the Ethiopian banking system though some rudimentary developments in ATM, VISA card payment system and telephone banking services for balance enquiry, and broadband local money transfer-using internet are observed. In general, banks in Ethiopian case are competing in terms of service quality and efficiency (including use of technological advances), branch network expansions, advertising and prices, put in the order of their significance.

1.2.5 Prospects and Challenges

The ever growing economy of the nation coupled with its huge bankable population is believed to have a huge potential to expand the customer base in the banking sector. Besides, since there is no foreign investors' involvement in the short run; investment in the banking sector is believed to be an attractive sector to invest for domestic investors. Simeneh (2013)

By the same token, Keatinge (2014) has argued that the underdevelopment of the banking industry can be manifested in the small proportion of deposit, limited offer of saving products, and limited offer of credit to the private sector. By comparing the level of access to financial services in a neighboring country such as Kenya, it can be deduced that there is considerable room for expansion of these services in Ethiopia. Kenya has 5.2 commercial bank branches and 9.5 ATM per 100,000 adults, in contrast with Ethiopia's 2.0 and 0.3 respectively. Moreover, expanding private sector and increasing financial intermediation are key elements of this much-needed reform that will underpin economic growth.

On the contrary, the Ethiopian government is reported to have high interference in the decision making process of the private commercial banks. For instance, the banks were forced to limit their lending in order to control inflation for the past few years and it has ended with a condition of allocating 27 percent of their lending to the government with an interest rate of three percent starting from April, 2011. The National bank of Ethiopia has issued a directive "Establishment and operation of National Bank of Ethiopia Bills Market Directive No., MFA/NBE BILLS/001/2011 which requires all banks in Ethiopia to purchase NBE bills to the amount of 27% of the disbursement towards loans and advances. The bills have a maturity period of five

years and bear interest at the rate of 3% per annum, payable on annual basis. (Simeneh, 2013; World Bank, 2013; Admasu & Asayehegn, 2014; Keatinge, 2014)

Hence, the ever growing economy trend & the huge bankable population potential on one hand, and stringent regulatory interference by the NBE on the other hand, will definitely bring both an opportunity and entail a threat to the banking industry in general and to the private commercial banks in particular. In other words, the issues addressed above will definitely have their own impact on the profitability and contestability level of commercial banks.

1.2.6 Currently offered Services:

According to (Simeneh, 2013), Credit Facility, Customer's Accounts and Transactions Services, International Banking Service, and Fund Transfer are the major banking services that are being offered by the existing Ethiopian banking system.

1.3 Statement of the problem:

Zerayehu et al., (2013) concluded that competition in the Ethiopian banking industry is labeled as incontestable and difficult to enter owing to legal, technological and economic policy factors. As a matter of fact, the Ethiopian government has implemented a number of reforms in the banking sector since it took power. However, all the measures taken to improve the banking sector significantly fall short. Hence, the existing Ethiopian financial sector is not able to offer adequate and competitive services on the scale required and it is not yet competitive and efficient. Admassu & Asayehgn (2014).

Moreover, the Ethiopian banking sector has been known for supplying limited financial products, expensive branch expansions, low levels of technology utilization, huge reliance on manual work, and concentration on urban areas over the past two decades. Therefore, private commercial banks cannot continue doing business using traditional business models in this very competitive industry and need to upgrade their overall competitiveness. (Addis Fortune 20 July 2015)

The economic crisis that has started in the US in the year 2008 was mainly emanated from bank failures. As a matter of fact, it has alerted the need for frequent bank examinations all over the world. Thus, Ethiopian commercial banks need to learn timely on how to stay healthy, competent and profitable in a very competitive and dynamic business environment. To do so, the impact of bank specific factors (independent variables) on profitability of private commercial banks in Ethiopia that strives to properly analyze and rank the financial and/or operational results using CAMEL model is almost non-existent and/or very limited to the level of awareness of the researcher. Hence, this particular research is meant to fill the gap in this regard.

1.4 Research Objectives & Research Questions:

1.4.1 Research Objectives

General Objective:

The general objective of the study is to determine and evaluate the effects of banking specific factors on the profitability commercial banks in Ethiopia and to rank the respective private commercial banks based on their performances.

Specific Objectives:

Specific objectives that are derived from the general objective and needed to be addressed in the study are:

- (i.) To identify the key bank profit drivers and/or to measure the significance level of the profit drivers in Ethiopian private commercial banks
- (ii.) To evaluate the performance of the selected private commercials by rating each bank specific proxy (in a multi -dimensional way)

1.4.2 Research Questions

- (i)** What is the essence of CAMEL?
- (ii)** What are the pros and cons of CAMEL model bank performance measure approach?
- (iii)** Which private commercial banks are performing better under CAMEL model bank performance?
- (iv)** Why does the CAMEL rating system play a crucial role in banking supervision?
- (v)** Which category of bank specific performance drivers are key factors in explaining the profitability of Ethiopian Private Commercial Banks?

(vi) How significant does the variables identified affect the banks' profitability

1.5 Significance of the study:

- ✓ To assist bank management give due emphasis on the management of identified variables and work thoroughly to enhance their respective bank's profitability and competence
- ✓ It will assist investors in understanding the current situation (strength & weaknesses) of Private commercial banks in Ethiopia which in turn will help investors to make knowledge and information based decisions
- ✓ It pin points the knowledge gap about CAMEL model rating observed in bank staffs and advises bank staffs in general and bank management in particular to acquire comprehensive knowledge about CAMEL rating.
- ✓ To be used as a spring board for other advanced researchers

1.6 Scope of the study:

The study is going to use the data's of six senior private commercial banks for the years 2000-2014 (15 years) ; however, results can be generalized to cover all private commercial banks.

1.7 Limitation of the study:

The study is limited to bank specific variables that comprised CAMEL model only.

1.8 Thesis method and structure:

Introduction→→ Literature Review→→ Research Method→→ Quantitative Research (using Primary data: interview & Secondary data: books, journals, working papers, internet sources, etc.)→→ Empirical Research→→ Analysis of findings→→Conclusion

CHAPTER TWO: LITERATURE REVIEW

Introduction:

A healthy and vibrant economy requires a financial system that moves funds from people who save to people who have productive investment opportunities. The financial system is complex in both structure and function throughout the world. It includes many different types of institutions': banks, insurance companies, mutual funds, stock and bond markets, etc.

According to Spong (2000), efficiency and competition are closely linked. In a competitive banking system, banks must operate efficiently and utilize their resources wisely if they are to keep their customers and remain in business. Zerayehu et al., (2013) also argued that survival in today's competitive environment totally depends on performance and growth. Competition has implications for efficiency, innovation, pricing, availability of choice, consumer welfare, and the allocation of resources in the economy.

2.1. Theories of Bank Profitability

According to literatures, bank performance studies have been started in the late 1980s and/or early 1990s. These studies revolve on different theories. For Instance, the signaling theory, which elaborates the relationship between capital and profitability, suggests that higher capital is a positive signal to the market of the value of bank. (Berger, 1995)

By the same token, a lower leverage indicates that banks perform better than their competitors who can't raise their equity without further deteriorating the profitability (Ommeren, 2011).

Bankruptcy cost hypothesis on the other hand, argues that in case where bankruptcy costs are unexpectedly high, a bank holds more equity to avoid period of distress (Berger, 1995). Hence, both the signaling theory and bankruptcy cost hypothesis support the existence of a positive relationship between capital and profitability. However, the risk-return hypothesis suggests that increasing risks, by increasing leverage of the firm, leads to higher expected return (profitability) on one hand and it will definitely reduce the equity to asset ratio (represented by capital) on the other hand. Thus, risk-return hypothesis predicts a negative relationship between capital and profitability. (Obamuyi, 2013)

Contrary to the above argument, Modigliani - Miller theorem conclude that no relationship exists between the capital structure (debt or equity financing) and the market value of the bank (Modigliani and Miller, 1958). In other words, no relationship exists between equity to asset ratio and funding costs or profitability under perfect market. However, when the concept of Money Market's perfect market is scrutinized there is no such a thing in the real world owing to agency problem, information asymmetry problem, existence of transaction costs, etc. Thus, when the perfect market does not hold there could be a possible negative relationship between capital and profitability. (Ommeren, 2011)

Olweny and Shipho (2011) argued that the Market Power theory (MP) assumes bank profitability is a function of external market factors, while the Efficiency Structure (ES) theories and the balanced portfolio theory largely assume that bank performance is influenced by internal efficiencies and managerial decisions. Despite the existence of several models to deal with bank specific aspects, none of the models are believed to be sufficient to express all bank specific behaviors in a holistic manner, the researchers asserted,

2.2. Determinants of Banks Profitability

In the literature, there are mainly two (Internal & External factors) and sometimes three (Macroeconomic, Industry specific, and bank specific factors) ways of classifying bank performance determinants. (Toddard et al., 2004; Panayiotis et al., 2005)

2.2.1. External Factors/Macro-economic Factors

Panayiotis et al. (2005), Afanasieff et al. (2002) stated that, macroeconomic policy stability, Gross Domestic Product, Inflation, Interest rate and political stability are believed to be the major macroeconomic factors that affect the performances of banks. According to Nassreddine et.al in Onuonga (2014), the external determinants of bank profits are related to both the economic and legal environments in which the banks operate.

2.2.2. Bank Specific Factors/Internal Factors

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

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

Andreas and Gabrielle (2009) stated that the bank profitability is usually measured by internal determinants which include bank specific variables. Athanasoglou et al, (2006) argued that profitability is a function of internal factors that are mainly influenced by a bank's management decisions and policy objectives such as the level of liquidity, provisioning policy, capital adequacy, expense management and bank size, and the external factors such as ownership, market concentration and stock market development, and other macroeconomic factors.

However, the main focus of this particular study is to investigate the impact of bank specific factors on banks profitability and there by rank the overall performance of the respective bank by using CAMEL model (bank specific) proxies. Needless to say, even though the main focus of this particular study is mainly confined to quantitative measure of bank specific variables; It should be properly noted that quantitative performance measurements by their nature are not comprehensive enough since they lack to incorporate qualitative elements such as monetary policy, regulation and supervision, financial sector openness, institutional environment, financial sector and non-bank, the management style and risk taking behavior of the bank itself. Any financial sector indicators lacking these qualitative elements could not be complete enough to capture the true level of the sector. (Creane, 2004)

2.3. Performance Measurement in Banks

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

Various literatures written by academicians also assert that profitability is the bottom line or ultimate performance result showing the net effects of bank policies and activities in a financial year. As a matter of fact, numerous factors such as inflation, accounting policy, high level of competition, etc., may have an influence on a bank's profitability. In due course, wide varieties of ratios are discussed and different measures of profitability of commercial banks have been suggested.

For instance, Net Interest Margin (NIM), Return on Assets (ROA), and Return on Equity were identified by Ahmed (2003) are in use in the literature since then. Profitability measures according to Akinola (2008) include Profit before Tax (PBT), Profit after Tax (PAT), ROE, Rate of Return on Capital (ROC) and ROA. Some other, studies on profitability have also used returns on average bank assets (ROAA), net interest margin (NIM) and return on average equity (ROAE) to measure profitability according to Francis (2013). However, owing to divergent views among scholars on the superiority of one indicator over the others as measures of profitability, there is no clear cut stand as to which best fits. Nonetheless, most literatures confine the profitability measure only to the three widely used measures namely Return on Assets (ROA), Return on Equity (ROE), and Net Interest Margin (NIM). Accordingly, some scholars select either of the three and some others preach to select three of them at once.

In line with the above discussion, the researcher has used ROA as measure of profitability for this particular study owing to the limitations of NIM & ROE. NIM is reported to have two major limitations. First, it doesn't measure the total profitability of the bank as most of them earn fees and other non-interest income through service like brokerage and deposit account services without taking account operating expenses, such as personnel and facilities costs, or credit costs. Besides, net interest margin of two banks can't be contrasted as both the banks are poles apart in their own way in the nature of their activities, composition of customer base, etc. [http: // www.readyratios.com](http://www.readyratios.com)

ROE is also indicated to have a lot of limitations. First, it is not risk sensitive. A decomposition of ROE shows that a risk component represented by leverage can boost ROE in a substantial manner. Second, ROE is unable to indicate risky assets and their solvency situation. Third, ROE failed to discriminate the best performing banks from the others in terms of sustainability of their results especially in the 2008 banking crises. Fourth, ROE is a short term indicator and must be

interpreted as a snapshot of the current health of institutions. It does not take into account either institution's long term strategy or the long term damages caused by the crisis. Its weaknesses are even more obvious in times of stress, when there is a climate of uncertainty surrounding the medium term profitability of institutions. (ECB, 2010)

Flamini et al., (2009) has also argued that analysis of ROE disregards financial leverage and the risk associated with it. Hence, for the reasons stated above, ROA is considered as key proxy for bank profitability, instead of the alternative return on equity (ROE) & net interest margin (NIM).

ROA measurement includes all of a business's assets including those which arise out of contribution by investors. Moreover, the inclusion of liabilities makes ROA even more valuable as an internal measurement tool, particularly in evaluating the performance of different departments or divisions of a company. www.referenceforbusiness.com

2.4. Meaning, Significance, and Drawbacks of CAMEL

2.4.1. Meaning & Development

CAMEL is an acronym for five components of bank safety and soundness (Dang, 2011). CAMEL stands for Capital Adequacy, Asset quality, Management Efficiency, Earnings Performance and Liquidity. In some literatures, the CAMEL model adds (S) to refer sensitivity to market risk.

According to Uzhegova in Olweny and Shipho (2011), CAMEL was developed by the US Federal Deposit Insurance Corporation (FDIC) for “early identification of problems in banks’ operation”. According to Dang (2011), CAMEL rating was first adopted by the Federal Financial Institution Examination Council on November 13 1979, and then adopted by the National Credit Union Administration in October 1987. Kebir & Dey (2012) stated that CAMEL rating was originally adopted by the regulators of North American Commercial Banks and it covers five areas of performance, namely, Capital Adequacy, Asset Quality, Management Efficiency, Earning Ability and Liquidity.

2.4.1.1. Capital Adequacy

Almost every aspect of banking is either directly or indirectly influenced by the availability and cost of capital. Capital is one of the key factors to be considered when safety and soundness of a particular bank is assessed. An adequate capital base serves as a safety net for a variety of risks to which an institution is exposed in the course of its business. Capital absorbs possible losses and thus provides a basis for maintaining depositor confidence in a bank. Capital also is the ultimate determinant of a bank's lending capacity.

Capital adequacy reflects the overall financial condition of the banks and also the ability of management to meet the need for additional capital. Consequently, the capital of a bank should have three important characteristics:

- It must be permanent
- It must not impose mandatory fixed charges against earnings
- It must allow for legal subordination to the rights of depositors and other creditors.

Owing to the bank's inherent low capital to asset ratio, regulatory authorities in most countries started to introduce certain capital adequacy requirement in order to encourage prudent management of the risk associated with balance sheet structure. Hence, the Basel Committee on Banking Supervision in the late 1980's lead the initiative to develop a risk based capital adequacy standard called Basel I Accord in order to strengthen the soundness and ability of the international banking system and in order to diminish the source of competitive inequality among international banks. Moreover, emergence of new instruments with complex risk profiles –increasing volatility and internalization and the trend towards financial conglomerates has further prompted on going changes to Basel I and eventually led to the introduction of Basel Accord II in 1999. Hence, the Basel II Accord includes two additional pillars; an enhanced supervisory review process (pillar 2) and effective use of market discipline (pillar 3) in addition to the minimum capital requirement. All the three pillars are mutually reinforcing and no one pillar should be viewed as more important than the other. Greuning & Bratanovic (2009)

Owing to its crucial role in reducing the number of bank failures and losses to depositors, the capital structure of a particular bank is highly regulated. For instance, the National Bank of Ethiopia (NBE) has set a specific measure of the capital adequacy position of banks and/or Capital Adequacy Ratio (CAR) under Directive No., SBB/9/95 & SBB/50/2011 clearly set out the computation mechanism and the conversion factors for both on and off balance items and it strictly set for all banks not to maintain their capital level below 8% of their risk weighed assets. Dang (2011) also asserted, the major intention of holding capital is to build the internal strength of the bank to withstand losses during crisis.

According to Beckmann (2007), high capital leads to low profits since banks with high capital ratio are risk-averse, they ignore risky investment opportunities. As a result, investors demand a lower return on their capital in exchange for lower risk. Moreover, Tesfaye (2014) has argued that holding high capital level and/or a higher CAR ratio reduces the ROE due to two mechanisms: A higher ratio indicates a lower risk, and the theory of markets to balanced advocating a strong relationship at risk and profitability would lead us to infer a lower profitability.

On the other hand, Gavila et al (2009) argued that although capital is expensive in terms of expected return, highly capitalized banks face lower cost of bankruptcy, lower need for external funding especially in the emerging economies where external borrowing is difficult. Thus, well capitalized banks should be profitable than lowly capitalized banks. According to Neceur in Olweny and Shipho (2011), a strong positive impact of capitalization to ROA was reported after the study on 10 Tunisian banks was conducted for about twenty years using a panel regression model.

According to Dang (2011), the adequacy of capital is examined based up on the two most important measures by dividing Capital to Risk Weighted Assets, and the ratio of capital to assets. By the same token, capital adequacy can be scrutinized by dividing Capital to Risk Weighted Assets, Debt to Equity Ratio, Advances to Assets, and Government Securities to Total Investments. Misra & Aspal (2013)

2.4.1.2. Asset Quality

The asset side of a bank's balance sheet is another bank specific variable that affects the profitability of a bank. The bank asset includes various asset components such as cash, deposit with other banks including reserves at the NBE (In Ethiopian case), loans, investments, fixed assets etc.; there seems an agreement to focus on the quality of the loan portfolio. More often bank loan of a bank is the major asset that generates the major share of the banks income. Hence the quality of loan portfolio determines the profitability of banks. According to Dang (2011), the loan portfolio quality has a direct bearing on a bank profitability.

The quality of assets is an important parameter to examine the degree of financial strength. Moreover, the foremost objective to measure the asset quality is to ascertain the composition of non-performing assets (NPAs) as percentage of the total assets. Kumar et al., (2012) have used Net NPA to Net Advances ratio to indicate the extent of Non-Performing Asset in the portfolios of the banks and the extent of damage this particular asset class can have on the financial performance. Hence, they believed such dimension of CAMEL analysis conveys the portfolio risk the bank is subjected to and the effects it could have in the overall performance of the bank.

Non- Performing loans to Gross Loans, Allowance for Doubtful loans to Loans outstanding, Gross NPAs to Net Advances ratio, Net NPAs to Net Advances ratio, Total Investments to Total Assets ratio, Net NPAs to Total Assets ratio, and Percentage Change in Net NPAs are some of the ratios considered to assess asset quality according to literatures.

2.4.1.3. Management Efficiency

Management efficiency is one of the key internal factors that determine the bank profitability but appears to be one of the complex subjects to capture with financial ratios (Ongore, 2013). However, different authors try to use financial ratios of the financial statements to act as proxy for management efficiency. One of these ratios used to measure management quality is operating profit to total income (revenue) ratio (Rahman et al. 2009; Sangmi and Nazir, 2010). However, some used the ratio of costs to total assets (Nassreddine, 2013).

Tesfaye (2014), explained that management efficiency means adherence with set norms, ability to plan and respond to changing environment, leadership and administrative capability of the bank. Hence, the management efficiency of a particular bank could be obtained by dividing Non-interest Expense to Gross Expense. He also asserted that measurement of management efficiency requires getting deep into evaluation of the management systems, organizational discipline, control systems, quality of staff, and others in his study. Moreover, he pin pointed that no single quantitative measure of management performance is set in the Ethiopian context.

As per Misra & Aspal (2013) management efficiency can be measured by dividing Total Advances to Total Deposits, Interest Income over total assets, Profit per Employee (dividing profit after tax earned with the total number of employees) , Business per employee (It is arrived by dividing the total business by total number of employees , business in this context means the sum of total deposits and total advances in a particular year), Return on Equity (profit after tax is expressed as a percentage of equity).

2.4.1.4. Earning Quality

Earning quality primarily determines the profitability of a bank and explains its sustainability and growth of future earnings. Moreover, dimensions like (i). level, trend, and stability of earnings, (ii) Quality and sources of earnings, (iii) ability to augment capital through retained earnings, (iv) Exposure to market risks, (v) Provisions for loan losses also significantly decide the financial performance of banks according to Kumar et al., (2012).

Hence, the following ratios can be considered in the dimension of earning ability of banks and it can be indicated by dividing Operating Profit to average working funds, Operating Profit to Total Assets, Net profit to Total Assets or Average Assets, Interest Income to Total Income, Non-Interest Income to Total Income, and Spread or Net Interest Margin (NIM) to Total Assets.

2.4.1.5. Liquidity

Liquidity indicates the ability of the bank to meet its financial obligation in a timely and effective manner. There are variations among scholars with regard the measurement ratios. The most common financial ratios that reflect the liquidity position of a bank according to Samad (2004) are customer deposit to total assets and total loans to customer deposits. Other scholars use

different use financial ratio to measure liquidity. For Instance, Ilhomovich (2009) used cash to deposit ratio to measure the liquidity level of banks in Malaysia.

According to Kamau in Olweny and Shipho (2011) the trade- offs exist between return and liquidity risk since the decision to be more liquid is going to be at the expense of some investment decisions. Hence, high liquidity ratio indicates a less risky and less profitable bank.

On the other hand, the study conducted by (Said and Tumin, 2011) in China and Malaysia found that liquidity level of banks has no relationship with the performance of banks.

According to literatures, liquidity of a particular bank can be measured in a lot of ways. Amongst dividing Liquid Assets to Total Assets, Liquid Assets to Total Deposits, Liquid Assets to Demand Deposits, Advances to Deposits or Total Loans to Total Customer Deposits and Approved Securities to Total Assets can indicate the desired result.

In the Ethiopian context there seems clear measure of the liquidity: the liquid asset to deposit ratio, as it can be seen from directive no., SBB /57/2014 of the National Bank of Ethiopia, the minimum liquid asset of any domestic bank is set to be not less than 15% of the Bank's net current liability. Moreover, directive no., SBB /55/2013 dictates banks to hold 5% of their liquid asset in primary reserve assets. (NBE; Tesfaye, 2014)

2.4.2. Significance

Barr et al. (2002) viewed CAMEL rating as a concise and indispensable tool for examiners and regulators. Hence, a bank's health conditions is ensured by reviewing different aspects of a bank based on variety of information sources such as financial statement, funding sources, macroeconomic data, budget and cash flow.

Dang (2011), argued that CAMEL has proven to be an effective internal supervisory tool for evaluating the soundness of a financial firm. The paper also asserted that the model reflects excellently the conditions and performances of banks over years as well as enriches the on-site (which include regular visit on banks followed by the interviews with management, evaluating the accuracy of the financial statements, accounting records, internal controls and the compliance with law and regulations) and off-site examination (mainly through off-site tools: *Supervisory Screens & Econometric models*) to bring better assessments towards bank's conditions. Its purpose is

to provide an accurate and consistent evaluation of a bank's financial condition and operations in the areas such as capital, asset quality, management, earning ability and liquidity. The strength of these factors is also believed to determine the overall strength of the bank. Furthermore, CAMEL model also help to summarize significant compliance information needed for regulators. It also assists the regulatory organs to ensure the degree of supervisory concern and type of supervisory response to generate timely warnings to minimize the diverse effects on banks.

Kebir & Dey (2012) stated CAMEL as a rating system generally used by the government policy circle, regulating bodies regulating commercial banks, i.e., central banks and non-governmental policy research centers for the purpose of assessing the soundness of a savings association or a bank. With regard to the background of introducing CAMEL, It was originally adopted by the regulators of North American Commercial Banks and it covers five areas of performance, namely, Capital Adequacy, Asset Quality, Management Efficiency, Earning Ability and Liquidity.

The main endeavor of CAMEL system is to detect problems before they manifest and/or the prime objective of the CAMEL model of rating banking institutions is to catch up the comparative performances of various banks (Bodla and Verma, 2006). Joshi and Joshi (2012) also explained CAMEL as a ratio-based model for evaluating the performances of banks.

2.4.3. CAMEL & Ratings

According to Wikipedia, CAMEL rating system is designed to take into account and reflect all significant financial and operational factors examiners assess in their evaluation of an institutions' performance. Institutions' are rated using a combination of specific financial ratios and examiner qualitative judgements. Ratings are given from 1 (best) to 5 (worst).

Fitch (1990) stated that CAMEL's bank rating is used by banks management to evaluate financial health and performance. Each component of these ratings is calculated on a 1 to 5 scale, being accumulated into a composite evaluation in similar manner. This composite index further acts as a bank's failure predicting model. The rating is assigned based on both quantitative and qualitative information of the bank. If a bank's index is less than two, it is regarded as a high-quality bank, whereas institutions' with grade four or five are rated to be insolvent Curry, Elmer, and Fissel cited in Dang (2011).

Kambhamettle (2012) has also argued that composite ratings are calculated after the ratios for all indicators components have been calculated and combined to obtain a single rank that determines the overall performance of banks being investigated. In line with the stated fact, banks rated 1 and 2 are considered strong, while those rated 3, 4 or 5 are considered weak.

2.4.4. Limitations:

Despite its benefit, CAMEL model has limitations. For instance, Mazzillo (1993) has elaborated that the CAMEL model does not necessarily capture the seriousness of the situation even if the banks being scrutinized have potentials to fail. Moreover, the information for the calculation of these ratings is based on the internal operations of the bank. Therefore, local economic developments that might bring future problems are not taken into account, since they do not reflect the condition of the banks. In other words, CAMEL model performance measures generally focus on a measurement of the condition of the bank at present time, i.e., when the bank is examined and it does effectively track risk factors that may provide for future losses.

Gaytan and Johnson cited in Dang (2011) also argued that CAMEL model is only parallel with the performance of the bank at the time of examination, while the variables in the bank are highly volatile to market forces. Nonetheless, CAMEL model is still very much popular among regulators due to its effectiveness.

2.5. Empirical Evidence:

Soundness is a key factor in any financial sector. One of the major measures of economic development and financial growth of a country has been the soundness of its banks and soundness of the banking sector is synonymous with efficiency, productivity, profitability, stability and a shock free environment. Achieving stability in banking sector is only the beginning of a sound banking system. Hence, it is important to measure soundness across various banks in the country, identify the weaker sections of the banking sector. Devise appropriate strategies and policies to lift these sections (Kumar, et al., 2012).

While investigating determinants of bank profitability, identifying similarities and differences across the various economies studied by previous researchers is unquestionable. Needless to say, study on the factors that affect banks' profitability in the developed world has been empirically examined by many authors unlike to that of the developing world. Therefore, the study on this issue especially from the developing world is advisable in order to boost competition and protect adverse effects in the banking sector.

2.5.1. Previous studies (International level)

Khrawish (2011) scrutinized Jordanian commercial bank profitability from 2000 through 2010, and categorized the factors affecting profitability into internal and external factors. The author found that there is significant and positive relationship between return on asset (ROA) and the bank size, total liabilities / total assets, total equity total assets, net interest margin and exchange of commercial banks and that there is significant and negative relationship between ROA of the commercial banks and annual growth rate of for gross domestic product and inflation rate. Ramadan et al (2011) has investigated 100 observations of 10 banks over the period 2001-2010 by using two measures of bank's profitability: the rate of return on asset (ROA) and the rate of Return on equity (ROE). The research results indicated that the Jordanian bank's characteristics explain a significant part of the variation in bank profitability. In other words, high profitability in the Jordanian banking sector tends to be associated with well capitalized banks, high lending activities, low credit risk, and the efficiency of cost management. The study also showed that size did not support the significant scale of economies for Jordanian banks. Gul et al. (2011) examined the relationship between bank- specific and macro-economic characteristics over bank profitability by using data of top fifteen Pakistani commercial banks over the period 2005-2009. The paper used the Pooled Ordinary Least Squares (POLS) method to investigate the impact of assets, loans, equity, deposits, economic growth, inflation and market capitalization on major profitability indicators that is , return on assets (ROA), return on equity (ROE), return on capital employed (ROCE) and net interest margin (NIM) separately . The empirical results pointed out that the internal and external factors have strong impact on the banks profitability.

Olweny and Shipho (2011) have tried to conduct to determine the effects of bank specific factors: capital adequacy, Asset quality, operational cost efficiency, and income diversification on the profitability of commercial banks in Kenya. Moreover, they have tried to analyze and evaluated the effects of market structure factors such as foreign ownership and market concentration in the profitability of commercial banks in Kenya. They have adopted an explanatory approach by using panel data research design and annual financial statements of 38 Kenyan commercial banks from 2002 to 2008 were obtained for the purpose of the study from CBK and Banking survey 2009. The data was analyzed using multiple linear regression method.

Hence, they have found that all the bank specific factors had a statistically significant impact on profitability, while none of the market factors had a significant impact. Their study recommends policies that would encourage revenue diversification, reduce operational costs, minimize credit risk and encourage banks to minimize their liquidity holdings.

Onuonga (2014) has aimed to study the profitability of Kenya's Top Six Commercial Banks over the period 2008-2013. She used generalized least squares method to estimate the impact of bank assets, Capital, deposits, loan and assets quality on banks profitability. She also used return on assets (ROA) on her study as a measure of profitability. As it can be noted from the study, bank size, capital strength, ownership, operations expense, and diversification significantly affect profitability of the top six commercial banks. Her study insisted that the Kenyan government need to set policies that encourage commercial banks to raise their assets and capital base so as to enhance the performance of the banking sector. The study has also implied that the commercial banks need to invest in technologies and management skills that minimize costs of operation and since the impact is believed to positively impact the growth and survival of the banks.

The effects of bank capital, bank size, expense management, interest income and the economic condition of on bank's profitability in Nigeria has been investigated by Obamuyi (2013). The fixed effects regression model was employed on a panel data obtained from the financial statements of 20 banks from 2006 to 2012. The results indicate that improved bank capital and interest income, as well as efficient expense management and favorable economic condition, contribute to higher banks' performance and growth in Nigeria. As a result, the paper advised the

Nigerian government to encourage banks to regularly raise their capital and to create enabling environment that will accelerate economic growth in the country.

2.5.2. Previous studies (Country level)

In the Ethiopian case, the numbers of researches conducted to scrutinize the determinants of profitability in Ethiopian commercial banks are very limited and scanty. However, the researcher has found it worthy to mention some from the very few and more recently conducted studies:

Tesfaye (2014) has investigated determinants of Ethiopian banks performance by considering bank specific and external variables on selected banks' profitability for the year 1990-2012. He used accounting measure called Return on Asset (ROA) to represent Bank's performance. By doing so, he asserted that bank specific variables by large explained the variation in profitability.

On the other hand, bank's capital and liquidity are not significant to affect the performance of banks according to his finding. He has also declared that bank size and macro –economic variables such as real GDP growth ratio have no significant impact on banks' profitability unlike inflation rate whose impact was indicated to be significant on the performance of Ethiopian commercial banks.

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

Similarly, Amdemikael (2012) has tried to examine the bank specific, industry specific, and macroeconomic specific factors affecting bank profitability for a total of eight commercial banks in Ethiopia covering the period of 2000-2011 by adopting a mixed research method approach,

i.e., documentary analysis and in depth interviews. The Finding indicates that capital strength, income diversification, bank size and gross domestic product have statistically significant and positive relationship with banks profitability. He also pointed out that variables such as operational efficiency and asset quality have a negative and statistically significant relationship with banks profitability. On the other hand, he argued that the relationship for liquidity risk, concentration and inflation was not statistically insignificant. The study suggested reengineering on the banks key internal drivers might result in enhancing the profitability. He also recommended banks to focus on macro level factors despite the internal ones and he pin pointed to loosen the 27% bond purchase requirement set by the government on every credit transaction.

Mulualem (2015) has also tried to analyze and rank the financial performance of 14 commercial banks in Ethiopia by using CAMEL approach & panel data for the years 2010 to 2014. He also used quantitative research approach and multiple regression models with two profitability measures: ROE and ROA. As it can be seen from the paper fixed effect regression model was applied to investigate the impact and relationship of CAMEL factors: Capital adequacy, Asset quality, Management Efficiency, Earning and Liquidity on the aforementioned bank profitability measures separately. His finding indicated that capital adequacy, asset quality, and management efficiency have negative relation whereas earnings and liquidity showed positive relationship and strong statistical significance for both profitability measures. On the other hand, capital adequacy for ROA and asset quality for ROE was in -significant according to the paper. The study finally suggested that banks need to re-engineer and focus on the banks internal drivers to enhance profitability of commercial banks in Ethiopia.

2.5.3. Conclusion and Knowledge Gap

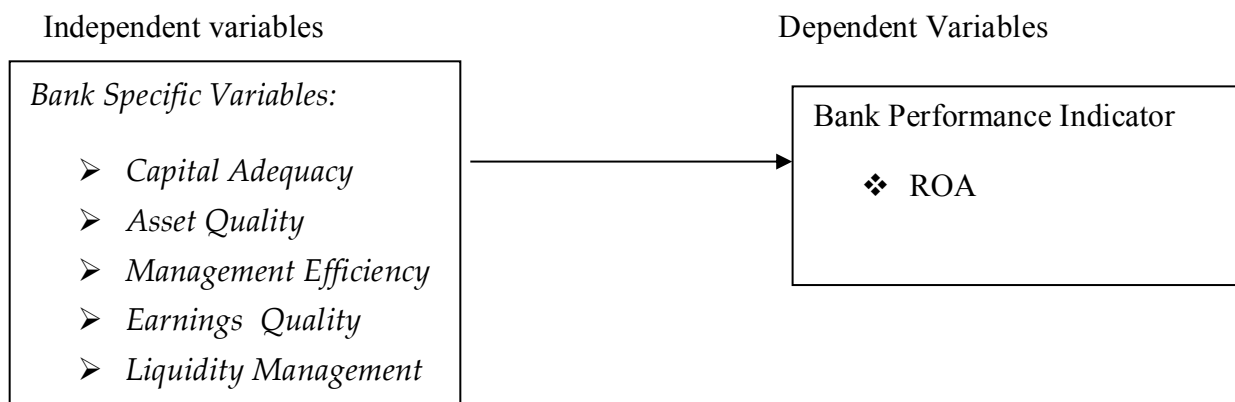
Despite the limited number of research works on the topic within the nation, there is no adequate research that has tried to rank the overall performance of Ethiopian private commercial banks using CAMEL model. To be specific, there is no research work that has tried to rank and at the same time to investigate the impact of bank specific factors (independent variables) on profitability of private commercial banks in Ethiopia to the level of awareness of the researcher. Even most of the research works on international level that are conducted to assess determinants of commercial banks profitability, either end up by ranking overall performances of commercial banks based on CAMEL model or they simply try to draw the relationship between dependent

and independent variables and/or try to explore the impact of the independent variables on the dependent variable (profitability in this case). As stated earlier, even though Mulalem (2015) has tried to rank the performance of commercial banks based on CAMEL model, his approach suffers a lot. Despite his selection of very narrow study period (five years), he doesn't segregate the respective banks in a logical manner so as to make his study systematic and more meaningful (the performances of the banks under study were ranked without considering their business stay in the industry). In other words, he simply contrasted banks that need not to be contrasted at normal circumstance. Moreover, he has simply picked a single (limited) parameter to rank the respective banks while in reality there are a lot more ways to assess the overall performance of each bank specific proxy at the time of ranking.

2.6. Conceptual Framework

The conceptual schema of the relationship between the dependent variable (ROA) and independent (bank specific) variables is depicted here below:

Figure-1: Conceptual schema of the relationship between the variables



Source: Self -extracted

CHAPTER THREE: METHODOLOGY

Methodology describes the research route to be followed, the instrument to be used, universe and sample of the study for the data to be collected, the tools of analysis used and pattern of deducing conclusions. For the purpose of the present study, the research instrument used is the CAMEL model which is the recent innovation in the area of financial performance evaluation of banks.

3.1. Research Design:

The main objective of the study was to investigate the effect of bank specific variables on the profitability of private commercial banks in Ethiopia and thereby rank the financial performance of the target banks using CAMEL model. In doing so, the study adopted explanatory approach by using balanced panel data research to realize the stated objective. According to (Hsiao, 2005; Plasmans, 2006) cited in Onuonga (2014), panel data set have several advantages over the usual cross sectional or time series data. To mention some: its efficiency with respect to random sampling and ease of identification, its ability to reduce collinearity among explanatory variables and its ability to aggregate as aggregation may vary over time .

In line with the stated fact, there are three estimation procedures used in panel data sets: pooled OLS (common constant method), fixed effects (FE), or random Effects (RE) estimations. Hausman specifications test (1978) guides the choice of the appropriate panel data model either fixed affects method or Random effects model after testing the data. On the other hand, Gujarati (2014) argued that there will be little difference in the values of the parameters estimated by fixed effect model (FE) and random effect model (RE) if T (the number of time series data) is relatively large and N (number of cross sectional units) is small. Since the number of time series which is 15 years is greater than the number of cross sectional units, which are only six banks in this particular study, choice will be based up on computational convenience. Hence, fixed effect model is selected for this particular study.

Moreover, (Brooks, 2008; Verbeek, 2004; and Wooldridge, 2004) asserted that FE is more appropriate when the entities in the sample effectively constitute the entire population and/or sample frame. In this case, all private commercial banks that have stayed 15 or more years have been incorporated in this particular study. Therefore, FE estimation procedure has been selected.

This particular study has employed quantitative research approach and both primary and secondary data collections methods were utilized. To gather primary data, interview was conducted with the representative of the regulatory organ and employees who are very proximate to the respective banks' management so as to assess the level of awareness of CAMEL model and its real application in the Ethiopian commercial banks. On the other hand, E-views 6 software was used to analyze secondary data that has been collected from the NBE and financial statements of the respective banks.

3.2. Sample Design:

3.2.1. Population or Universe

According to recently availed information from the regulatory organ (NBE), there are nineteen banks in Ethiopia, out of which, eighteen are commercial banks and one is a development bank. Among the total nineteen banks three of them are owned by the government and the remaining sixteen are privately owned. Hence, the sixteen private commercial banks can be treated as population of the study.

3.2.2. Sample Frame

As stated earlier, amongst the total sixteen private commercial banks, six of them have stayed 15 or more years in the business and the remaining ten private commercial banks have stayed less than or equal to ten years. Thus, the sample frame of this particular study is private commercial banks that have stayed 15 or more years.

3.2.3. Sample Units, Sample Technique, and Sample size /Sampling /

Out of the total sixteen private commercial banks, only six senior private commercial banks that had been in operation for 15 or more years were selected for the purpose of the study (purposive sampling). In other words, the bank selection is done following the historical time formation of banks.

3.3. Data Source/Types of Data:

Since it is all about the measure of private commercial banks performance in Ethiopia, the type of data for the study will be more of a quantitative so that it could be measured and ranked. In other words, though mixed research method is believed to be more efficient to address the short comings being observed in each method, the quantitative method will be much helpful when we speak about performance measures. The data from the sample banks were gathered from published financial statements of the respective private commercial banks & respective websites of the banks to be investigated, and different bulletins and publications of the NBE. The coverage of data for this particular study is from 2000-2014. In line with the afore-stated fact, various documents mainly from secondary sources like Books, Journals, Magazines, Reports and Internet were reviewed to demonstrate familiarity gaps.

3.4. Data Collection Methods:

Both primary and secondary data collection methods were employed. The primary data was collected by questioner type interview. Since the focus of this particular study is on very limited sample size (six banks) and /or the target respondents were six individuals who are acting as risk management team leaders and finance department heads in the respective banks & an official at the National Bank of Ethiopia (NBE-Banking Supervision Directorate), interview is selected. The interview was framed in a manner that all respondents provide valuable information about their familiarity to CAMEL framework. As stated earlier, the secondary data was collected from NBE, websites of private commercial banks, annual reports, financial statements and other published and unpublished sources.

3.5. Data Analysis:

The collected data was analyzed using descriptive statistics (mean, median, minimum, maximum, and standard deviation) correlation analysis (to find out the relationship between the variables) and other econometric analyses were employed. Moreover, the ranking process of the targeted banks was accomplished using multi-dimensional parameters in order to incorporate different aspects of each bank specific variable. The results and/or ranks obtained in each bank specific proxy were once again summarized into a grand group composite rank-CAMEL so as to get the overall picture. As stated earlier, the financial data's were analyzed using econometric views software (E-views).

3.6. Model Specification:

The performance indicator utilized for this particular study is Return on Assets (ROA) and the major determinants (independent variables) considered were Capital Adequacy, Asset Quality, Management Efficiency, Earning Quality, and Liquidity. Hence, the econometric model utilized for regression analysis is depicted here below:

$$\pi_{it} = \alpha_0 + \alpha_1 CA_{it} + \alpha_2 AQ_{it} + \alpha_3 ME_{it} + \alpha_4 EQ_{it} + \alpha_5 LM_{it} + \varepsilon_{it} \dots \dots \dots (1)$$

Where:

- . π_{it} = Performance of Bank i at time t as expressed by ROA
- . α_0 = Intercept
- . CA_{it} = Capital Adequacy of bank i at time t
- . AQ_{it} = Asset Quality of bank i at time t
- . ME_{it} = Management Efficiency of Bank i at time t
- . EQ_{it} = Earnings Quality of Bank i at time t
- . LM_{it} = Liquidity Ratio of Bank i at time t
- . $\alpha_1 - \alpha_5$ = Coefficients parameters
- . ε_{it} = Error term where i is cross sectional and t time identifier

3.7. Model Assumptions:

The following diagnostic tests were carried in order to ensure the data is in conformity with the basic assumptions of classical linear regression model.

- Normality test: (To check for normality, i.e., kurtosis and skewness of the distribution of the data will be examined) descriptive statistics were used.
- Multicollinearity (To check whether there is a strong correlation among the independent variables exists or not)
- Auto correlation (To check whether there exists a serial relationship in the error terms)
- Heteroscedasticity (To detect the problem of heteroscedasticity of disturbance terms)

3.8. Description of Variables:

3.8.1. Dependent Variable

The return on assets (ROA) is financial ratio used to measure the relationship of earning to total assets. ROA is regarded as the best and widely used indicator of earnings and profitability. According to Jahan (2012) ROA assesses how efficiently a bank is managing its revenues and expenses and it is also a tool that measures how a particular management of a bank is efficient enough to generate profit using available financial data and real assets.

3.8.2. Independent Variables

- **Capital Adequacy:** Availability of capital affects every aspect of banking either directly or indirectly. As stated earlier, we can find a lot of ways to determine capital Adequacy ratio in the literature. Hence, total capital to total asset ratio (CAR) is considered for this particular study. (Dang, 2011)
- **Asset Quality:** The asset side of a bank's balance sheet is another bank specific variable that affects the profitability of a bank. Moreover, the quality of assets is an important parameter to examine the degree of financial strength. Thus, total non-performing loans to gross loans ratio is considered. (Nazir, 2010; Dang, 2011; Ongore & Gemechu, 2013)

- **Management Efficiency:** It is one of the key factors that determine the bank profitability and it is also one of the complex subjects to capture the financial ratios. However, non-interest expense to gross expense (NITE) is considered to estimate the management's efficiency to control expenses. (Tefaye, 2014)
- **Earning Quality:** It primarily determines the profitability of a bank and explains its sustainability and growth. Interest income to total income ratio is considered to check the earning quality. (Misra & Aspal, 2013)
- **Liquidity Management:** Liquidity indicates the ability of the bank to meet its financial obligation. A lot of approaches are there in the literature to address liquidity ratio in banks, however, Liquid Assets to total deposit ratio (LADP) has been considered so as to comply with the regulatory organ. (Misra & Aspal, 2013; Tefaye, 2014)

CHAPTER FOUR: ANALYSIS AND DISCUSSION

Introduction:

The analysis and discussion part has held three parts. The first part is the ranking process of the respective banks in a very detailed manner. The effect of tie during the ranking process was handled by assigning the average rank of the consecutive ranks. Moreover, higher averages scores indicate higher rank except for debt to equity, allowance for doubtful loans to loans outstanding, non-interest expense to gross expense, and investment to total asset ratios, in which the reverse is true. In the second part, E-view outputs that indicate the relationship of bank specific factors (independent variables) with profitability measure (ROA) has been thoroughly discussed. Moreover, the level of significance of each bank specific proxy on the profitability has been discussed. Finally, individual perception about CAMEL framework & the actual practice therein has been assessed using one of the primary data collection methods (interview) with the representatives of each bank and with the representative of the regulatory organ (BSD) who is an authorized to comment.

4.1. The Ranking Process

4.1.1. Capital Adequacy:

As discussed earlier, capital adequacy has emerged as one of the major indicators of the financial health of banks. Hence, it reflects the overall financial condition of the banks and also the ability of management to meet the need of additional capital. Capital also serves as an indicator whether the respective bank has sufficient capital to absorb any possible shock or not. Though capital adequacy can be scrutinized in a lot of ways; Total Equity over Total Assets, Debt to Equity Ratio, and Advances to Assets Ratio has been considered for this particular study.

4.1.1.1. Capital Adequacy Ratio:

As per the National Bank of Ethiopia (NBE) directive, Ethiopian banks are required to maintain a minimum capital adequacy ratio of 8 percent of their risk weighed assets. As stated earlier, though there are a lot of ways to compute CAR, however, capital to total assets ratio has been considered for the sake of this particular study.

Table-1: Capital Adequacy Ratio

S/N	Year	Capital Adequacy Ratio (%)						Avg.
		AIB	BOA	DAB	NIB	UNB	WEB	
1	2000	12.38	17.13	8.90	25.32	27.97	9.73	16.91
2	2001	11.47	16.41	8.45	18.45	29.44	9.95	15.69
3	2002	11.78	12.35	8.21	18.54	28.03	9.91	14.80
4	2003	9.78	11.18	6.48	14.12	19.40	10.46	11.90
5	2004	8.76	12.18	6.43	13.87	14.24	11.32	11.13
6	2005	10.24	12.35	7.11	12.93	11.65	11.14	10.90
7	2006	10.29	14.18	8.49	14.06	11.94	11.29	11.71
8	2007	11.33	11.87	9.02	16.30	16.49	11.58	12.77
9	2008	12.39	9.83	9.34	16.39	14.40	14.68	12.84
10	2009	11.68	9.48	8.10	15.17	11.18	16.34	11.99
11	2010	11.83	9.32	7.54	15.36	10.82	18.32	12.20
12	2011	12.93	9.08	9.53	16.47	11.66	16.59	12.71
13	2012	13.49	11.01	10.43	18.46	12.54	19.22	14.19
14	2013	11.47	10.94	10.36	18.22	12.04	17.61	13.44
15	2014	11.81	13.56	11.83	18.27	14.05	19.07	14.77
16	Average	11.44	12.06	8.68	16.80	16.39	13.81	13.20
17	Rank	5	4	6	1	2	3	

Source: Researcher's Own Computation

As exhibited above, NIB, UNB, and WEB held the rank from first to third respectively and DAB is seen to be the last. Moreover, the average capital ratio for the study period is seen to be above the minimum requirement set by the regulatory organ. However, three of the targeted banks (AIB, BOA, and DAB) are seen to have less than peer average.

4.1.1.2. Debt to Equity Ratio:

This ratio indicates the degree of leverage of a bank. It indicates how much of the bank business is financed through debt and how much through equity. Higher ratio indicates less protection for the creditors and depositors and vice versa in the banking system.

Table-2: Debt-Equity Ratio

S/N	Year	Debt-Equity Ratio (Times)						Avg.
		AIB	BOA	DAB	NIB	UNB	WEB	
1	2000	7.07	4.84	10.23	2.95	2.58	9.28	6.16
2	2001	7.72	5.10	10.83	4.42	2.40	9.05	6.59
3	2002	7.49	7.10	11.18	4.39	2.57	9.09	6.97
4	2003	9.23	7.95	14.43	6.08	4.15	8.56	8.40
5	2004	10.42	7.21	14.56	6.21	6.02	7.84	8.71
6	2005	8.76	7.10	13.07	6.73	7.58	7.98	8.54
7	2006	8.72	6.05	10.78	6.11	7.37	7.86	7.81
8	2007	7.82	7.43	10.08	5.13	5.06	7.64	7.19
9	2008	7.07	9.17	9.71	5.10	5.94	5.81	7.14
10	2009	7.56	9.55	11.35	5.59	7.95	5.12	7.85
11	2010	7.45	9.74	12.25	5.51	8.24	4.46	7.94
12	2011	6.73	10.01	9.50	5.07	7.57	5.03	7.32
13	2012	6.41	8.08	8.58	4.42	6.97	4.20	6.45
14	2013	7.72	8.14	8.65	4.49	7.31	4.68	6.83
15	2014	7.47	6.37	7.45	4.47	6.12	4.24	6.02
16	Average	7.84	7.59	10.85	5.11	5.86	6.72	7.33
17	Rank	5	4	6	1	2	3	

Source: Researcher's Own Computation

Here, minimum debt to equity ratio indicates lessor indebtedness/obligation/. Higher ratio indicates higher indebtedness which in turn may lead to liquidity crunch. Hence, NIB is indicated to have minimum commitment to third parties when compared with its peers whereas DAB is seen to be the most indebted bank when it is compared with its peers.

4.1.1.3. Advances to Assets Ratio:

This ratio indicates the bank's aggressiveness in lending. Though aggressive lending (increasing the level of credit) might have its own limitations, better (high) profitability is anticipated by doing so in general. It must be also noted that the total advances include receivables and higher ratio is preferred to a lower one.

Table-3: Advances to Assets Ratio

S/N	Year	Advances to Assets (%)						Aver.
		AIB	BOA	DAB	NIB	UNB	WEB	
1	2000	58.89	72.70	61.62	37.34	61.54	50.97	57.18
2	2001	61.85	76.67	64.91	62.50	62.62	59.01	64.59
3	2002	57.28	58.58	58.68	60.67	51.91	62.85	58.33
4	2003	57.10	60.69	63.64	62.15	61.83	64.23	61.61
5	2004	53.45	60.69	63.13	63.03	56.97	64.74	60.34
6	2005	57.95	59.99	65.26	65.42	55.27	62.00	60.98
7	2006	63.37	69.27	69.60	72.77	62.79	70.52	68.05
8	2007	65.59	67.87	66.02	69.70	64.59	61.93	65.95
9	2008	56.80	65.98	55.97	57.92	57.23	56.90	58.47
10	2009	42.24	49.46	45.74	46.18	46.26	41.27	45.19
11	2010	39.60	50.21	40.87	42.64	44.34	43.09	43.46
12	2011	39.41	45.56	42.42	38.91	42.42	36.10	40.80
13	2012	46.11	47.30	46.37	44.82	46.49	42.72	45.63
14	2013	51.89	46.42	44.88	49.68	47.21	45.12	47.53
15	2014	52.13	44.88	42.94	50.32	42.47	40.96	45.62
16	Average	53.58	58.42	55.47	54.94	53.60	53.49	54.91
17	Rank	5	1	2	3	4	6	

Source: Researcher's Own Computation

In the above table, BOA is seen to be relatively at the top with highest average of 58.42 followed by DAB with an average score of 55.47. On the other hand, WEB is the least performer in this regard with an average score of 53.49.

4.1.1.4. Composite Capital Adequacy:

On the basis of group averages of the three parameters selected to rank the capital adequacy status of the six banks: NIB, UNB, and BOA held from first to third of the ranks respectively and AIB stood last in this composite capital adequacy parameter.

Table-4: Composite Capital Adequacy

Bank	CAR		Debt-Equity		Advances/Assets		Group Rank	
	%	Rank	Times	Rank	%	Rank	Avg.	Rank
AIB	11.4	5	7.84	5	53.58	5	5	6
BOA	12.06	4	7.59	4	58.42	1	3	3
DAB	8.68	6	10.85	6	55.47	2	4.67	5
NIB	16.80	1	5.11	1	54.94	3	1.67	1
UNB	16.39	2	5.86	2	53.60	4	2.67	2
WEB	13.81	3	6.72	3	53.49	6	4	4

Source: NBE & Own Computation

4.1.2 Assets Quality:

The prime objective of measuring the assets quality is to ascertain the component of Non-performing Assets (NPAs) as percentage of the total assets. In the Ethiopian case, it is worthy to mention Directive No. SBB/43/2008 under the title “Asset Classification & Provisioning” that dictates the bank’s non- performing loan not to exceed 5%. Based on this directive , loans or advances with pre-established repayment programs or overdrafts and loans or advances that do not have a pre-established repayment program is termed non-performing when principal and/or interest is due and uncollected for ninety consecutive days or more beyond the scheduled payment or maturity. Therefore, Non-performing assets to gross loans, total investments to total assets ratio, and Allowance for Doubtful Loans to Loans outstanding ratio, and Allowance for Doubtful Loans to Total Assets ratio is considered to assess the asset quality of the respective banks.

4.1.2.1 Total Non-Performing Loans to Gross Loans:

This ratio reflects /measures the loss incurred due to poor loan quality. In this ratio, NPLs are measured as percentage of Total Loans. The lower the ratio reflects, the better is the quality of advances.

Table-5: NPLs to Gross Loans Ratio

S/N	Year	Non-Performing Loan Ratios (%)						Avg.
		AIB	BOA	DAB	NIB	UNB	WEB	
1	2000	30.27	4.21	15.95	0.00	7.95	19.08	12.91
2	2001	20.50	3.20	10.92	1.90	7.71	13.66	9.65
3	2002	24.02	37.95	14.22	8.64	15.95	12.94	18.95
4	2003	25.13	28.43	8.89	12.34	9.93	10.86	15.93
5	2004	18.39	17.51	7.44	8.77	9.90	12.24	12.38
6	2005	12.02	12.40	6.72	11.22	8.45	8.41	9.87
7	2006	9.56	4.94	6.21	8.47	4.18	4.85	6.37
8	2007	7.36	10.54	5.95	5.56	4.59	5.25	6.54
9	2008	8.66	12.87	5.89	6.73	3.98	8.39	7.75
10	2009	5.78	14.75	7.39	11.16	4.62	7.70	8.57
11	2010	5.47	6.98	3.00	7.37	3.76	3.47	5.01
12	2011	3.81	3.97	3.38	5.04	3.35	3.51	3.84
13	2012	1.91	3.76	2.44	2.47	1.53	2.98	2.52
14	2013	2.29	2.75	2.97	3.76	2.53	2.70	2.83
15	2014	3.19	3.37	3.29	3.08	1.73	2.63	2.88
16	Average	11.89	11.18	6.98	6.43	6.01	7.91	8.40
17	Rank	6	5	3	2	1	4	

Source: NBE & Own Computation

When the average NPAs ratio of each bank over the study period is observed UNB has least average score which makes it better performer than its competitors. Similarly, NIB & DAB stood 2nd and 3rd respectively. On the contrary, the NPL status for AIB was on average around 12% during the study period.

4.1.2.2 Total Investments to Total Assets:

Total investments to total assets indicate the extent of deployment of assets in investment as against advances. This ratio is used as a tool to measure the percentage of total assets locked up in investments. A higher ratio means conservative policy of a bank to provide safeguard to the investments against NPAs.

Table-6: Total Investment to Total Assets Ratio

S/N	Year	Total Investment to Total Assets Ratio (%)						Avg.
		AIB	BOA	DAB	NIB	UNB	WEB	
1	2000	25.82	8.77	18.38	34.18	13.29	21.60	20.34
2	2001	17.42	9.93	18.36	16.07	11.68	12.35	14.30
3	2002	18.53	7.88	23.76	17.98	20.06	9.91	16.35
4	2003	29.91	10.95	19.94	14.46	14.93	15.75	17.66
5	2004	25.76	18.99	16.62	13.87	28.93	16.23	20.07
6	2005	22.69	9.38	13.86	11.66	27.03	21.66	17.71
7	2006	19.23	7.16	12.63	10.36	10.44	10.98	11.80
8	2007	11.20	13.55	11.17	9.67	21.44	20.17	14.53
9	2008	13.82	12.55	6.85	14.68	16.49	12.99	12.90
10	2009	13.11	6.85	7.06	4.51	13.26	8.47	8.88
11	2010	24.67	10.16	30.00	19.11	11.28	22.76	19.66
12	2011	27.55	19.29	26.66	22.98	21.36	24.21	23.68
13	2012	34.02	27.61	29.10	28.99	26.93	32.41	29.84
14	2013	29.39	27.91	31.76	27.13	32.41	32.91	30.25
15	2014	11.42	29.96	29.26	26.37	32.00	6.50	22.58
16	Average	21.64	14.73	19.69	18.14	20.10	17.93	18.70
17	Rank	6	1	4	3	5	2	

Source: Own Computation

4.1.2.3 Allowance for Doubtful Loans to Loans Outstanding:

According to literatures, it is the most standard measure of asset quality measuring. In this case, highest average score means higher probability of un-collectability or default and minimum allowance for un-collectability means minimum level of default. Hence, the bank with higher AFDL will get the lowest rank and the bank with lowest AFDL will get the higher rank.

Table-7: Allowance for Doubtful Loans to Loans Outstanding Ratio

S/N	Year	Allowance for Doubtful Loans to Loans Outstanding ratio (%)						Avg.
		AIB	BOA	DAB	NIB	UNB	WEB	
1	2000	3.13	1.53	3.38	0.00	1.14	2.67	1.97
2	2001	3.39	2.62	3.22	0.00	0.75	4.36	2.39
3	2002	3.77	5.68	3.10	1.23	1.23	4.93	3.32
4	2003	5.50	7.66	3.87	4.00	2.41	5.08	4.75
5	2004	7.72	7.59	3.73	3.82	3.91	5.83	5.43
6	2005	6.20	4.94	3.23	4.15	3.88	5.09	4.58
7	2006	4.91	3.11	2.65	3.86	2.89	4.83	3.71
8	2007	4.34	4.69	2.48	3.41	3.05	4.41	3.73
9	2008	4.64	8.89	2.33	3.78	2.69	5.92	4.71
10	2009	5.49	9.83	2.29	4.59	3.07	6.11	5.23
11	2010	4.70	7.42	2.18	3.89	3.63	3.96	4.30
12	2011	3.64	3.33	1.99	4.12	2.78	4.54	3.40
13	2012	2.70	2.57	2.15	2.72	2.33	2.43	2.48
14	2013	2.31	1.99	2.14	2.51	1.87	2.24	2.18
15	2014	2.27	0.00	0.00	0.00	1.46	1.67	0.90
16	Average	4.31	4.79	2.58	2.81	2.47	4.27	3.54
17	Rank	5	6	2	3	1	4	

Source: NBE & Own Computation

As exhibited above, BOA has held highest allowance for uncollectable loans and advances followed by AIB. On the contrary, UNB is seen to have the least average probability of default.

4.1.2.4 Allowance for Doubtful Loans to Total Assets:

This ratio discloses the efficiency of bank in assessing the credit risk and, to an extent, recovering the debts. The lower the ratio reflects, the better is quality of advances. In line with the stated fact, UNB, DAB & NIB are amongst the banks with better quality of advances respectively in contrast.

Table-8: Allowance for Doubtful Loans to Total Assets Ratio

S/N	Year	Allowance for Doubtful Loans to Total Assets Ratio (%)						Avg.
		AIB	BOA	DAB	NIB	UNB	WEB	
1	2000	1.84	1.11	2.08	0.00	0.70	1.36	1.18
2	2001	2.09	2.01	2.09	0.00	0.47	2.57	1.54
3	2002	2.16	3.33	1.82	0.75	0.64	3.10	1.96
4	2003	3.14	4.65	2.46	2.49	1.49	3.26	2.92
5	2004	4.12	4.61	2.35	2.41	2.23	3.77	3.25
6	2005	3.59	2.97	2.11	2.71	2.14	3.16	2.78
7	2006	3.11	2.15	1.85	2.81	1.81	3.41	2.52
8	2007	2.85	3.18	1.64	2.38	1.97	2.73	2.46
9	2008	2.63	5.87	1.30	2.19	1.54	3.37	2.82
10	2009	2.32	4.86	1.05	2.12	1.42	2.52	2.38
11	2010	1.86	3.73	0.89	1.66	1.61	1.71	1.91
12	2011	1.43	1.52	0.84	1.60	1.18	1.64	1.37
13	2012	1.25	1.21	1.00	1.22	1.08	1.04	1.13
14	2013	1.20	0.92	0.96	1.25	0.88	1.01	1.04
15	2014	1.19	0.00	0.00	0.00	0.62	0.68	0.42
16	Average	2.32	2.81	1.50	1.57	1.32	2.36	1.98
17	Rank	4	6	2	3	1	5	

Source: NBE & Own Computation

4.1.2.5 Composite Asset Quality:

Based on the availed data, average group ratios of the above four asset quality assessment ratios have been considered. Hence, UNB is in better position with an average rank of 2.00 in NPLs to Gross Advance, Total Investments to Total Assets, AFDL to Advances, and AFDL to Total Assets ratio. Here, AIB is ranked sixth on the average of the four parameters selected to assess assets quality. In other words, the composite ratio tells that AIB need to improve its asset quality in order to cope up with and/or excel from its peers.

Table-9: Composite Asset Quality

Bank	NPAS to Gross Advances		Total Invest. to Total Assets		A.F.D.L to Total Loans		A.F.D.L to Total Assets		Group Rank	
	%	Rank	%	Rank	%	Rank	%	Rank	Avg.	Rank
AIB	11.89	6	21.64	6	4.31	5	2.32	4	5.25	6
BOA	11.18	5	14.73	1	4.79	6	2.81	6	4.50	5
DAB	6.98	3	19.69	4	2.58	2	1.50	2	2.75	2.5
NIB	6.43	2	18.14	3	2.81	3	1.57	3	2.75	2.5
UNB	6.01	1	20.1	5	2.47	1	1.32	1	2.00	1
WEB	7.91	4	17.93	2	4.27	4	2.36	5	3.75	4

Source: Researcher's Own Computation

4.1.3 Management Efficiency:

Management efficiency is another vital component of the CAMEL model that ensures the survival and growth of a bank. This parameter is used to evaluate management efficiency by assigning premium to better performing banks and by discounting poorly managed ones. So as to see better picture in this regard, Non-interest Expense to Gross Expense ratio, Total Advances to Total Deposits ratio, Return on Equity, and Interest Income over Total Assets ratios are considered.

4.1.3.1 Non-interest Expense to Gross Expense:

This parameter is used to gauge management's control over expenses. The more the ratio the less efficient the management is to control its expenses. Hence, better rank will be fetched if the ratio is minimal in contrast and worse will be the result if the ratio is higher in contrast.

Table-10: Non-interest Expense to Gross Expense

S/N	Year	Non-Interest Expense to Gross Expense						Aver.
		AIB	BOA	DAB	NIB	UNB	WEB	
1	2000	51.22	57.50	59.18	75.00	77.78	63.16	63.97
2	2001	48.28	50.00	56.34	64.29	71.43	63.04	58.90
3	2002	53.23	52.78	52.63	56.52	64.71	60.00	56.64
4	2003	68.67	63.01	62.62	76.60	75.00	67.31	68.87
5	2004	66.29	57.97	64.04	65.91	69.44	72.31	65.99
6	2005	63.83	52.86	62.04	65.22	64.58	74.71	63.87
7	2006	58.97	58.16	63.19	58.75	56.06	72.22	61.23
8	2007	55.40	65.12	59.03	58.82	61.90	67.07	61.22
9	2008	51.60	71.31	51.93	60.76	59.09	62.66	59.56
10	2009	56.36	56.78	50.62	63.77	58.49	61.57	57.93
11	2010	53.87	53.31	50.99	66.91	60.46	69.35	59.15
12	2011	50.42	54.49	50.13	61.86	52.92	71.95	56.96
13	2012	50.87	52.02	50.71	58.92	53.18	64.31	55.00
14	2013	55.31	52.07	51.20	59.78	58.83	65.46	57.11
15	2014	56.46	52.18	51.73	59.87	64.71	65.52	58.41
16	Average	56.05	56.64	55.76	63.53	63.24	66.71	60.32
17	Rank	2	3	1	5	4	6	

Source: Researcher's Own Computation

As exhibited above, DAB, AIB, and BOA are seen to be relatively efficient when compared with their peers and they held the ranks from 1st to 3rd respectively.

4.1.3.2 Total Advances to Total Deposits:

The ratio measures the efficiency of management in converting the deposits available with the bank into high earning advances. Total deposits include demand deposits, savings deposits, term deposits and deposits of other banks. According to literatures, total advances also include the receivables. As per the average score displayed in table-11, NIB has the highest Advances to Total Deposits ratio 79.68% and it is followed UNB with 76.10% and the least performer in this regard is AIB with an average ratio of 66.58%.

Table-11: Total Advances to Total Deposits Ratio

S/N	Year	Total Advances to Total Deposits Ratio (%)						Avg.
		AIB	BOA	DAB	NIB	UNB	WEB	
1	2000	75.63	108.30	88.10	75.64	115.79	70.24	88.95
2	2001	74.70	105.53	80.59	100.96	103.88	76.61	90.38
3	2002	68.49	73.60	73.22	93.91	86.24	79.45	79.15
4	2003	68.73	75.19	78.16	93.54	101.05	81.11	82.96
5	2004	63.36	75.45	77.59	94.47	72.18	84.25	77.88
6	2005	66.49	75.85	78.79	92.64	68.55	77.80	76.69
7	2006	72.93	90.17	85.70	101.58	82.30	89.60	87.04
8	2007	80.72	84.71	82.04	96.70	91.50	79.11	85.80
9	2008	70.75	81.00	71.23	85.59	76.14	79.13	77.31
10	2009	54.68	60.28	56.18	44.74	59.51	42.56	52.99
11	2010	51.52	61.35	49.77	61.69	55.32	63.06	57.12
12	2011	51.48	54.58	52.51	53.66	54.02	48.85	52.52
13	2012	59.81	57.56	57.75	63.53	60.45	61.93	60.17
14	2013	61.45	55.34	55.91	68.26	58.43	62.11	60.25
15	2014	77.94	55.64	53.33	68.25	56.08	54.92	61.03
16	Average	66.58	74.30	69.39	79.68	76.10	70.05	
17	Rank	6	3	5	1	2	4	72.68

Source: Researcher's Own Computation

4.1.3.3 Return on Equity:

It is a measure of the profitability of a bank. Profit after tax is expressed as a percentage of equity and average score of 33.54%, 23.35%, and 21.95% were registered for DAB, AIB, and WEB and it has given them the chance to hold 1st to 3rd of the available ranks respectively. On the other hand, BOA is the one who held the (6th) rank with an average rate of return of 19.07% to its shareholders.

Table-12: Return on Equity Ratio

S/N	Year	Return on Equity Ratio (%)						Avg.
		AIB	BOA	DAB	NIB	UNB	WEB	
1	2000	20.00	14.81	16.30	2.50	9.23	6.25	11.52
2	2001	11.11	14.07	24.71	23.53	9.71	11.11	15.71
3	2002	10.21	-1.39	22.30	16.15	5.30	9.84	10.40
4	2003	10.45	4.14	21.51	11.61	5.59	14.01	11.22
5	2004	17.81	22.22	37.21	23.49	7.49	28.83	22.84
6	2005	19.84	27.29	34.22	23.17	28.05	31.07	27.27
7	2006	29.32	25.91	42.29	22.79	27.85	32.64	30.13
8	2007	38.78	16.65	40.19	21.41	23.23	34.04	29.05
9	2008	27.71	3.54	37.50	22.10	22.00	27.54	23.40
10	2009	21.23	21.40	32.91	23.16	18.95	25.06	23.79
11	2010	29.35	25.35	37.68	24.42	30.14	23.66	28.43
12	2011	32.08	28.98	38.71	23.61	30.13	27.06	30.10
13	2012	27.03	27.66	40.44	21.21	29.74	22.86	28.16
14	2013	28.06	21.52	31.33	18.75	18.56	19.99	23.04
15	2014	27.26	33.97	45.82	16.38	53.48	15.34	32.04
16	Average	23.35	19.07	33.54	19.62	21.30	21.95	23.14
17	Rank	2	6	1	5	4	3	

Source: Researcher's Own Computation

4.1.3.4 Interest Income over Total Assets:

It is a measure of the interest income earned as percentage of total assets during the study period. As exhibited below in table-13, BOA and WEB has scored above the average score during the study period whereas the interest income score of the remaining four banks during the study period is seen to be below the average score of the peer banks.

Table-13: Interest Income over Total Assets Ratio

S/N	Year	Interest Income over Total Assets (%)						Aver.
		AIB	BOA	DAB	NIB	UNB	WEB	
1	2000	6.59	5.57	5.55	1.90	5.59	5.06	5.04
2	2001	6.28	8.04	6.36	5.65	6.07	6.52	6.49
3	2002	5.49	5.69	5.18	5.43	5.41	6.50	5.62
4	2003	4.14	4.65	4.12	4.18	4.05	4.72	4.31
5	2004	3.84	6.12	4.37	4.49	4.01	5.79	4.77
6	2005	4.22	5.10	4.74	4.79	4.29	4.95	4.68
7	2006	4.64	5.82	5.32	5.28	4.44	5.31	5.14
8	2007	5.60	5.95	5.30	5.64	5.59	5.32	5.56
9	2008	5.21	5.91	5.36	5.75	5.26	5.77	5.54
10	2009	4.30	5.04	4.47	5.28	4.51	4.57	4.70
11	2010	3.81	4.17	3.91	4.45	4.26	4.30	4.15
12	2011	3.90	5.11	4.12	4.68	4.39	3.91	4.35
13	2012	5.60	6.04	5.12	5.24	5.91	5.29	5.53
14	2013	5.99	4.91	5.17	6.24	6.03	5.63	5.66
15	2014	6.92	6.51	5.19	5.31	6.09	5.87	5.98
16	Average	5.10	5.64	4.95	4.96	5.06	5.30	5.17
17	Rank	3	1	6	5	4	2	

Source: Researcher's Own Computation

In this regard BOA, WEB, and AIB are ranked from first to third respectively whereas DAB has stood 6th with an average interest income ratio of 4.95% during the period of analysis.

4.1.3.5 Composite Management Efficiency:

On the basis of group averages of the four ratios AIB, BOA, and DAB has held the first rank (2 in this case) based on average of the three similar ranks with an average score of (3.25), followed by UNB with average score of 3.50. On the other hand, NIB has held the last position and it is seen to be less efficient in controlling its general expenses in contrast.

Table-14: Composite Management Efficiency

Bank	Total Advances to Total Deposits		ROE		Interest Income Over Total Assets		Non-Interest Expense to Gross Expense		Group Rank	
	%	Rank	%	Rank	%	Rank	%	Rank	Avg.	Rank
AIB	66.58	6	23.35	2	5.10	3	56.05	2	3.25	2
BOA	74.3	3	19.07	6	5.64	1	56.64	3	3.25	2
DAB	69.39	5	33.54	1	4.95	6	55.76	1	3.25	2
NIB	79.68	1	19.62	5	4.96	5	63.53	5	4.00	6
UNB	76.10	2	21.30	4	5.06	4	63.24	4	3.50	4
WEB	70.05	4	21.95	3	5.30	2	66.71	6	3.75	5

Source: Researcher's Own Computation

4.1.4 Earning Quality:

Earning quality reflects quality of a bank's profitability and its ability to earn consistently. Therefore, Net Profit to Total assets, Interest Income to Total Income, and Spread or Net Interest Margin (NIM) to Total Assets, are the ratios considered to assess earning quality in the targeted banks.

4.1.4.1 Net Profit to Total Assets:

The ratio reflects the return on assets employed or the efficiency in utilization of assets. It is calculated by dividing the net profit with total assets of the bank. The higher the ratio the better the earning potential of the bank will be.

Table-15: Net Profit to Total Assets Ratio

S/N	Year	Net Profit to Total Assets Ratio (%)						Aver.
		AIB	BOA	DAB	NIB	UNB	WEB	
1	2000	1.98	1.67	1.27	0.63	2.10	0.58	1.37
2	2001	1.21	2.12	1.91	3.57	2.34	1.03	2.03
3	2002	1.08	-0.18	1.62	2.43	1.27	0.93	1.19
4	2003	1.00	0.45	1.36	1.47	1.07	1.24	1.10
5	2004	1.47	2.40	2.09	2.81	1.04	2.81	2.10
6	2005	1.71	2.97	2.08	2.66	2.89	2.97	2.54
7	2006	2.64	3.00	2.93	2.86	2.75	3.14	2.89
8	2007	3.73	1.97	3.10	2.92	2.93	3.22	2.98
9	2008	2.97	0.35	3.05	3.10	2.80	3.37	2.61
10	2009	2.23	1.83	2.57	3.20	2.02	3.54	2.57
11	2010	3.12	2.23	2.62	3.37	2.95	3.88	3.03
12	2011	3.57	2.49	3.07	3.46	3.00	4.01	3.27
13	2012	3.30	2.63	3.72	3.46	3.39	4.03	3.42
14	2013	3.42	2.14	3.07	3.27	2.14	3.30	2.89
15	2014	3.51	3.97	4.84	2.76	2.15	2.71	4.05
16	Average	2.46	2.00	2.62	2.80	2.32	2.72	2.49
17	Rank	4	6	3	1	5	2	

Source: Researcher's Own Computation

As exhibited above, NIB is at the top with an average ratio of 2.80 followed by WEB and DAB with 2.72 and 2.62 respectively. On the other hand, BOA is on the floor when compared with other peers.

4.1.4.2 Interest Income to Total Income:

Interest income is considered as prime source of revenue for banks. The interest income to total income ratio reflects the banks capability in generating income from its lending activities. Interest income includes income on advances, interest on deposits including interest for the balances maintained with the regulatory organ (NBE).

Table-16: Interest Income to Total Income

S/N	Year	Interest Income to Total Income						Aver.
		AIB	BOA	DAB	NIB	UNB	WEB	
1	2000	78.13	65.57	71.64	60.00	57.14	57.78	65.04
2	2001	75.00	80.90	65.42	59.38	59.09	63.33	67.19
3	2002	75.31	81.25	66.96	54.72	70.83	67.74	69.47
4	2003	57.43	76.54	61.19	56.06	61.29	62.69	62.53
5	2004	54.84	78.86	60.94	60.22	58.70	60.00	62.26
6	2005	63.09	69.08	69.23	61.48	50.55	53.33	61.13
7	2006	60.09	75.00	65.94	66.46	56.35	54.55	63.06
8	2007	62.45	75.66	65.98	70.67	63.54	57.81	66.02
9	2008	59.34	72.65	62.69	66.25	61.07	55.35	62.89
10	2009	57.86	68.15	57.54	59.62	60.87	49.47	58.92
11	2010	44.17	55.86	50.05	47.84	49.12	43.72	48.46
12	2011	42.55	60.20	47.06	50.68	53.72	38.64	48.81
13	2012	60.20	68.76	52.02	57.11	62.38	51.98	58.74
14	2013	59.81	68.74	56.19	67.02	66.37	61.51	63.27
15	2014	63.41	61.95	45.70	67.02	68.77	61.74	61.43
16	Average	60.91	70.61	59.90	60.30	59.99	55.98	61.28
17	Rank	2	1	5	3	4	6	

Source: Researcher's Own Computation

As exhibited above, BOA is on top position with highest average score of 70.61 followed by AIB and NIB with average scores of 60.91 and 60.30 respectively. WEB is seen to stood last with average score of 55.98.

4.1.4.3 Net Interest Margin (NIM) to Total Assets:

NIM (Spread) is the difference between the interest income and the interest expended. It is expressed as percentage of total assets. A higher spread indicates the better earnings given the total assets.

Table-17: Net Interest Margin to Total Assets Ratio

S/N	Year	Net Interest Margin (NIM) to Total Assets (%)						Aver.
		AIB	BOA	DAB	NIB	UNB	WEB	
1	2000	3.95	3.20	3.24	1.27	4.20	2.33	3.03
2	2001	2.98	5.02	3.55	4.17	4.21	3.60	3.92
3	2002	2.88	2.71	2.76	3.56	3.50	3.41	3.14
4	2003	2.28	2.63	2.61	2.94	2.77	2.81	2.67
5	2004	2.15	4.29	2.84	3.29	2.37	4.21	3.19
6	2005	2.70	3.50	3.22	3.41	2.70	3.59	3.19
7	2006	3.01	4.38	3.85	3.65	2.63	3.76	3.55
8	2007	3.99	4.18	3.76	4.03	3.76	3.74	3.91
9	2008	3.01	3.72	3.30	4.05	3.32	3.61	3.50
10	2009	2.43	2.99	2.41	3.70	2.62	2.93	2.85
11	2010	1.86	2.15	1.89	2.96	2.49	3.00	2.39
12	2011	1.83	2.86	1.90	2.99	2.51	2.67	2.46
13	2012	3.22	3.51	2.78	3.41	3.64	3.62	3.36
14	2013	3.55	2.85	2.69	4.22	3.55	3.97	3.47
15	2014	4.22	3.71	2.58	3.59	3.72	3.82	3.61
16	Average	2.94	3.45	2.89	3.42	3.20	3.40	3.22
17	Rank	5	1	6	2	4	3	

Source: Researcher's Own Computation

In this parameter, BOA, NIB, and WEB have held the rank from 1st to 3rd with average net interest margin ratio of 3.45, 3.42, and 3.40 respectively. DAB scored the last position with average net interest margin of 2.89. Thus, DAB's NIM is very narrow when compared with its peers.

4.1.4.4 Composite Earning Quality:

Based up on the group averages of three indicators of quality of earning NIB, BOA, and WEB held the ranks from 1st to 3rd respectively. The last position in the composite earning quality parameter is held by DAB.

Table-18: Composite Earning Quality

Bank	Net Profit to Total Assets		Interest Income to Total Income		NIM to Total Assets		Group Rank	
	%	Rank	%	Rank	%	Rank	Avg.	Rank
AIB	2.46	5	60.91	2	2.94	5	4.00	4.5
BOA	2.00	6	70.61	1	3.45	1	2.67	2
DAB	2.62	3	59.90	5	2.89	6	4.67	6
NIB	2.80	1	60.30	3	3.42	2	2.00	1
UNB	2.61	4	59.99	4	3.20	4	4.00	4.5
WEB	2.72	2	55.98	6	3.40	3	3.67	3

Source: Researcher's Own Computation

4.1.5 Liquidity

Liquidity for a bank is a crucial aspect which represents its ability to meet its financial obligations. It is of utmost importance for a bank to maintain correct level liquidity. Hence, Liquid Assets to Total Assets, Liquid Assets to Total Deposits, and Liquid Assets to Demand Deposits are considered.

4.1.5.1 Liquid Assets to Total Assets:

This ratio measures the liquidity available to the depositors of a bank. Liquid assets include cash in hand, balance with NBE, balance with other banks (both in Ethiopia and abroad), and money at call and short notice. Total deposits include demand deposits, term deposits and deposits of other financial institutions.

Table-19: Liquid Assets to Total Assets Ratio

S/N	Year	Liquid Assets over Total Assets (%)						Aver.
		AIB	BOA	DAB	NIB	UNB	WEB	
1	2000	36.23	22.42	37.69	55.06	24.48	46.11	37.00
2	2001	33.74	19.87	32.09	27.38	32.24	38.77	30.68
3	2002	36.24	38.09	34.25	31.27	45.22	35.29	36.73
4	2003	39.61	38.03	32.60	27.57	36.89	35.32	35.00
5	2004	42.88	39.62	32.57	26.54	43.03	35.88	36.75
6	2005	38.90	36.90	29.85	26.79	45.11	38.37	35.99
7	2006	31.45	27.56	25.27	21.46	37.09	29.26	28.68
8	2007	29.45	30.09	27.66	26.70	34.72	37.93	31.09
9	2008	38.26	33.79	37.25	36.52	42.65	43.71	38.69
10	2009	49.62	49.23	48.32	48.57	53.44	56.98	51.03
11	2010	50.89	47.17	42.54	51.38	55.55	52.87	50.07
12	2011	40.02	39.79	42.48	51.24	46.07	51.37	45.16
13	2012	26.48	30.62	32.96	36.02	32.58	33.44	32.02
14	2013	24.04	19.46	30.69	24.66	20.67	26.70	24.37
15	2014	38.07	24.35	29.79	17.83	28.76	15.92	25.79
16	Average	37.06	33.13	34.40	33.93	38.57	38.53	35.94
17	Rank	3	6	4	5	1	2	

Source: Researcher's Own Computation

As exhibited above, UNB, WEB, and AIB held from 1st to 3rd with an average ratio of 38.57, 38.53, and 37.06 respectively in this particular parameter. To the contrary, BOA is seen to be at the bottom of the rank with an average ratio of 37.06.

4.1.5.2 Liquid Assets to Total Deposits:

This ratio measures the liquidity available to the depositors of a bank. It is calculated by dividing the liquid assets with total deposits. In this particular parameter, UNB, WEB, and NIB are seen to have better liquidity to depositors and they have held from 1st to 3rd of the rank in this regard with an average liquidity ratio of 53.51, 50.44, and 49.70. On the other hand, BOA is seen to be in the lowest position with an average liquid asset (LA) to total deposit (TD) ratio of 41.50.

Table-20: Liquid Assets to Total Deposits Ratio

S/N	Year	Liquid Assets to Total Deposits (%)						Aver.
		AIB	BOA	DAB	NIB	UNB	WEB	
1	2000	46.53	33.40	53.88	111.54	46.05	63.54	59.16
2	2001	40.75	27.34	39.84	44.23	53.49	50.33	42.66
3	2002	43.33	47.85	42.74	48.41	75.13	44.62	50.35
4	2003	47.68	47.12	40.04	41.50	60.28	44.60	46.87
5	2004	50.84	49.25	40.04	39.78	54.51	46.69	46.85
6	2005	44.64	46.65	36.04	37.94	55.95	48.14	44.89
7	2006	36.19	35.88	31.12	29.96	48.61	37.18	36.49
8	2007	36.25	37.56	34.38	37.04	49.19	48.46	40.48
9	2008	47.65	41.48	47.40	53.97	56.73	60.79	51.34
10	2009	64.23	60.00	59.34	47.06	68.75	58.77	59.69
11	2010	66.21	57.64	51.80	74.34	69.31	77.39	66.12
12	2011	52.27	47.67	52.58	70.66	58.67	69.51	58.56
13	2012	34.34	37.26	41.05	51.06	42.36	48.47	42.43
14	2013	28.47	23.20	38.24	33.88	25.57	36.75	31.02
15	2014	56.91	30.19	37.00	24.18	37.99	21.34	34.60
16	Average	46.42	41.50	43.03	49.70	53.51	50.44	47.43
17	Rank	4	6	5	3	1	2	

Source: Researcher's Own Computation

4.1.5.3 Liquid Assets to Demand Deposits:

This ratio measures the ability of a bank to meet the demand from demand deposits in a particular year. In order to provide higher liquidity for depositors, bank has to invest these funds in highly liquid form. It is calculated by dividing the liquid assets with total demand deposits.

Table-21: Liquid Assets to Demand Deposits Ratio

S/N	Year	Liquid Assets to Demand Deposits (%)						Aver.
		AIB	BOA	DAB	NIB	UNB	WEB	
1	2000	208.33	198.77	178.14	235.14	166.67	199.16	197.70
2	2001	225.00	189.36	135.25	150.82	246.43	142.14	181.50
3	2002	242.77	324.63	129.52	175.79	338.10	132.56	223.89
4	2003	226.53	244.93	139.27	160.53	288.33	125.10	197.45
5	2004	264.46	281.61	139.97	144.54	245.76	109.07	197.57
6	2005	205.21	227.93	128.75	158.90	253.40	105.08	179.88
7	2006	161.85	193.80	110.59	133.03	179.15	91.17	144.93
8	2007	187.06	200.00	122.78	164.54	196.88	109.14	163.40
9	2008	223.52	183.72	180.33	198.66	205.64	151.39	190.54
10	2009	281.29	222.59	214.75	226.26	224.77	155.94	220.93
11	2010	292.34	242.99	193.55	234.38	218.04	171.53	225.47
12	2011	201.00	181.98	182.68	202.22	174.12	132.85	179.14
13	2012	146.45	154.74	131.46	147.65	158.70	119.81	143.13
14	2013	108.57	95.78	142.08	106.17	91.20	92.38	106.03
15	2014	1847.00	148.27	142.15	76.29	127.72	57.99	399.90
16	Average	321.43	206.07	151.42	167.66	207.66	126.35	196.77
17	Rank	1	3	5	4	2	6	

Source: Researcher's Own Computation

As exhibited above, AIB (321.43), UNB (207.66), and BOA (206.07) held the ranks from 1st to 3rd respectively based on the higher average liquidity score of the target banks. In contrast, WEB is seen to lag behind when compared with its peers.

4.1.5.4 Composite Liquidity:

Based on the group average ratios of the above three parameters, UNB (1.33), AIB (2.67), WEB (3.33) has held from first to third unlike BOA who ranked 6th.

Table-22: Composite Liquidity

Bank	Liquid Assets to Total Assets		Liquid Assets to Total Deposits		Liquid Assets to Demand Deposits		Group Rank	
	%	Rank	%	Rank	%	Rank	Avg.	Rank
AIB	37.06	3	46.42	4	321.43	1	2.67	2
BOA	33.13	6	41.5	6	206.07	3	5.00	6
DAB	34.40	4	43.03	5	151.42	5	4.67	5
NIB	33.93	5	49.70	3	167.66	4	4.00	4
UNB	38.57	1	53.51	1	207.66	2	1.33	1
WEB	38.53	2	50.44	2	126.35	6	3.33	3

Source: Researcher's Own Computation

4.1.6 Grand Composite Ranking (overall performance):

As exhibited below, the composite ratings of the respective banks have been calculated in order to assess the overall performance of private Ethiopian commercial banks by CAMEL model.

Table-23: Grand Composite Ranking (Overall Performance)

Bank	C	A	M	E	L	Average	Rank
AIB	5.00	5.25	3.25	4	2.67	4.03	6
BOA	3.00	4.50	3.25	2.67	5.00	3.68	3
DAB	4.67	2.75	3.25	4.67	4.67	4.00	5
NIB	1.67	2.75	4.00	2	4.00	2.88	2
UNB	2.67	2.00	3.50	4.00	1.33	2.70	1
WEB	4.00	3.75	3.75	3.67	3.33	3.70	4

Source: Researcher's Own Computation

Table-23 depicts the group and/or grand ranking of the medium banks of Ethiopian Private commercial banks for the period 2000-2014. Hence, UNB, NIB, and BOA held from 1st to 3rd of the rank based on CAMEL model overall performance. As discussed earlier, NIB was on top position with capital adequacy ratio parameter, while AIB got lowest rank. Under the asset quality parameter, UNB held the top rank while AIB held the lowest rank. Under management efficiency parameter the top rank has been taken by AIB, BOA, and DAB jointly and the lowest rank has been held by NIB.

In terms of earning quality parameter, NIB got the top rank and DAB & AIB both held the least rank with similar scores. Under the liquidity parameter UNB stood first and AIB held the lowest.

4.2 E-view Results

4.2.1 Results of the Descriptive statistics

Table-24 below presents the results of the descriptive statistics of both the dependent (ROA) and the independent variables (Selected bank specific variables).

Table-24: Descriptive Statistics for the Variables

	ROA	CA	AQ	ME	EQ	LM
Mean	0.024871	0.130938	0.083999	0.603214	0.612816	0.477057
Median	0.027323	0.118064	0.067250	0.594831	0.610045	0.469042
Maximum	0.048434	0.294393	0.379500	0.777778	0.812500	1.115385
Minimum	-0.001751	0.064251	0.000000	0.482759	0.386390	0.213152
Std. Dev.	0.009798	0.044495	0.068455	0.072099	0.088003	0.142106
Observations	90	90	90	90	90	90

Source: E-views Output

From the results displayed above, the analysis of the means shows the following descriptive statistics: profitability (M= 0.255, SD= 0.009), capital (M= 0.131, SD= 0.044), asset quality (M= 0.084, SD= 0.068), management efficiency (M= 0.603, SD= 0.072), earning quality (M= 0.613, SD= 0.088), and liquidity management (M= 0.477, SD= 0.142). Hence, earning quality has the highest means (M= 0.613) with the deviation from the mean of 8.8%. On the other hand, the lowest standard deviation for profitability (0.009) indicates that all the data's are clustered around the mean and thus more reliable.

4.2.2 Discussion on econometric results

In this part the results of diagnostic tests and the regression analysis are discussed.

4.2.2.1 Diagnostic Tests:

As noted in Brooks (2008), CLRM is based on sets of assumptions: Such as the errors have zero mean, the variance of the errors is constant and finite over all variables of X_t , the errors are linearly independent of one another, there is no relationship between the error and corresponding X-variate, and the error terms are normally distributed. Hence, if these CLMR assumptions hold, the estimators determined by OLS will have a number of desirable properties that is consistent, unbiased, and efficient.

4.2.2.1.1 Test for Heteroscedasticity:

This test involves testing the null hypothesis which states the variance of the errors is constant (assumption of homoscedasticity). In other words, it tries to check whether the errors have constant variance or not. If the test fails to assure existence of constant variance in the errors, heteroscedasticity is evident. According to Brooks (2008), there are a number of heteroscedasticity tests, however; the most popular white specification is selected for the present consumption.

Table-25: Test for Heteroscedasticity: White

Heteroscedasticity Test: White

F-statistic	1.092974	Prob. F(6,83)	0.3735
Obs*R-squared	6.590219	Prob. Chi-Square(6)	0.3604
Scaled explained SS	3.419590	Prob. Chi-Square(6)	0.7546

Source: E-views output

As per the information disclosed in table-25, both the results of the F-statistic and chi square versions are seen to have values above the *P*-value at 5% significance level. Hence, there is no evidence to reject the null hypothesis and to declare existence of heteroscedasticity.

4.2.2.1.2 Test for Autocorrelation:

This assumption basically lies on the notion that states covariance between the error terms over time (or cross-section ally) is zero. In other words, it is assumed that the errors are uncorrelated one another. Thus, the null hypothesis is meant for checking whether the error terms are auto/serially/ correlated or not. The measurement could be either by Durbin-Watson statistic (which is usually calculated automatically and is given in the general estimation output) or by the Breusch-Godfrey test (LM Test). The former one measures first degree relations and the latter one is meant for the measurement of second degree relations and beyond. For the purpose of this paper, DW statistic is considered.

As it can be observed from the equation estimation annex-8, the DW statistic result is seen to be 1.9717 (near 2). According to Brooks (2008), autocorrelation value near 2 indicates non - existence of autocorrelation (though there is a sign of autocorrelation it is not worrisome). On the other hand, a value near to zero indicates positive autocorrelation, and a value near to 4 indicates negative autocorrelation.

As per Field (2009) cited in Tesfaye (2014), D-statistic values less than 1 or greater than 3 are a cause of concern but the autocorrelation can be inferred as less serious (not serious) based up on Field's rule of thumb.

4.2.2.1.3 Test for Normality

One of the most commonly applied tests for normality is the Bera-Jarque (BJ). This assumption lies on the notion that states normal distribution of the error terms is required to conduct single or joint hypothesis tests about the parameters. A normal distribution is not skewed, need to have a kurtosis of 3, and the Bera- Jarque static should not be significant at 5% significance level. Brooks (2008)

While testing for normality, an extreme poor performance in profitability (ROA) was found and adjusted with a dummy variable. The reason for the poor performance of the bank (NIB) at the time was because it was new entrant to the market at the time. Hence, registering weak ROA when compared with others especially when it is in the initial years of any business operation is natural.

As it can be seen from annex-6, the test for normality is achieved with a p value of 77%, kurtosis of 2.65 (near 3), and the standard deviation is seen to be zero (which indicates the data's are clustered around the mean).

4.2.2.1.4 Multi Collinearity Test

This assumption implicitly tells that there is no correlation among the explanatory variable. Hence, they are orthogonal to one another. In other words, adding or removing a variable from a regression equation would not cause the values of the coefficients on the other variables to change. Brooks (2008)

As indicated in annex-7, a maximum correlation of 0.46 between Asset Quality (AQ) and Earning Quality (EQ) is observed. According to Cooper and Schindler (2009), a correlation between the explanatory variables is said to be serious and need to be corrected if the correlation coefficient is above 0.8. Similarly, correlation coefficient to the extent of 0.75 and 0.9 are acceptable according to Mashotra (2007) & Heir et al. (2006) respectively. Hence, it can be deduced that there is no correlation between the explanatory variables in this particular study. As it can be seen from annex-7, the maximum correlation coefficient is by far lower than the correlation coefficient accepted as normal by the aforementioned scholars.

4.2.2.2 Results of the Fixed Effects Regression:

As indicated in the regression analysis table (Table-26), the bank specific variables that comprise CAMEL model to a larger extent (67.5%) determine profitability of private commercial banks in Ethiopia. The remaining 32.5% of the profitability of private commercial banks in Ethiopia is determined by other factors (such as macroeconomic policy stability, legal environment, gross domestic product, Inflation, etc.)

Table-26: Results of Fixed Effect Regression Analysis

Dependent Variable: ROA
 Method: Panel Least Squares
 Sample: 2000 2014
 Periods included: 15
 Cross-sections included: 6
 Total panel (balanced) observations: 90

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.067166	0.012178	5.515253	0.0000
CA	0.036640	0.020016	1.830536	0.0710***
AQ	-0.078038	0.013609	-5.734325	0.0000*
ME	-0.035316	0.011964	-2.951861	0.0042*
EQ	-0.030516	0.011923	-2.559414	0.0124**
LM	-0.000480	0.006938	-0.069117	0.9451
D01	-0.027365	0.008257	-3.314022	0.0014
Effects Specification				
Cross-section fixed (dummy variables)				
R-squared	0.675194	Mean dependent var		0.024871
Adjusted R-squared	0.629388	S.D. dependent var		0.009798
S.E. of regression	0.005965	Akaike info criterion		-7.282309
Sum squared resid	0.002775	Schwarz criterion		-6.949001
Log likelihood	339.7039	Hannan-Quinn criter.		-7.147899
F-statistic	14.74032	Durbin-Watson stat		1.971720
Prob(F-statistic)	0.000000			

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

Source: E-view output

The fixed effects coefficients of the regressors' indicate how much profitability changes when there is a change in the capital, asset quality, management efficiency, earning quality, and liquidity management. Moreover, the overall regression is statistically significant, $F = 14.74$, $p = 0.000000$. Thus, it supports the fact that capital adequacy, asset quality, management efficiency, earning quality, and liquidity management are important factors in determining the profitability of private commercial banks in Ethiopia. The coefficient of multiple determinants (R^2), which indicates, the quality of fitness of the model, shows that about 67.5% of the changes in profitability of private commercial banks in Ethiopia are caused by variables incorporated in the CAMEL model.

By the same token, the relationship between profitability and capital is positive and statistically significant at 10%. Thus, it implies that banks with larger capital are capable of diversifying their business operations by strengthening their ability to assume risk and attract low cost, which in turn will enhance their liquidity position. Hence, the overall effect will be an improvement of their lending, with positive effect on profitability.

As indicated in the regression analysis table (Table-26), asset quality has a negative but statistically significant effect on bank's profitability (ROA). This implies that management can enhance its profitability by carefully watching the health status of its assets (loans and advances). Moreover, systematic administration and monitoring of loan portfolio (the diversification of loans in to different sectors can minimize loan concentration and risky business could be easily managed) is required to manage the default rate as low as possible.

Management efficiency is another bank specific factor that has a negative and significant effect on bank's profitability. This implies that a closer look is required on the bank's expenses in general and non-interest expenses in particular. Moreover, efficient management of banks reduces banks failure and/or enhances banks profitability. As stated by Efficiency structure (ES) hypothesis, an efficiently managed bank will earn higher profits than the less efficient ones.

Likewise, earning quality is seen to have a negative and significant effect on profitability at 5%. This implies that the bank management needs to focus mainly on its core businesses rather than awaiting income from other peripheral works and/or other wind fall earnings such as from change in foreign currency.

On the other hand, the liquidity proxy is seen to have insignificant impact on profitability despite its inverse relation. To sum up, the coefficient variables of most of the bank specific variables : Asset Quality (AQ), Management Efficiency (ME), Earning Quality(EQ) and LM are negative, hence; it indicates existence of inverse relation between the stated independent variables (determinants) and the dependent variable and/or measure of profitability (ROA). On the other hand, Capital Adequacy (CA) is seen to be positive & it is related at 10% significance level.

4.3 Interview Results:

The very purpose of semi structured interview (See annex-4 & annex- 5) with the NBE official at the BSD and risk management team leaders and/or finance department heads at the respective banks was meant to gather information and/or fill the gap that the study couldn't cover by simply assessing secondary data. The interview had been conducted at different times and places and all the employees selected for the interview are believed to have better information access about the subject matter at hand.

4.3.1 With bank representatives:

To start with, similar answers of each representative of the respective banks were compiled together and only deviations (if any) are to be elaborated. The first question that asks what CAMEL is all about was meant to assess the awareness level of the respective bank representatives and/or to test their familiarity about CAMEL framework. Surprisingly, most of them are less familiar with it and/or some have a very shallow knowledge about it. According to the representatives of the respective target banks; it is up to the regulatory organ to know such issues in a detailed manner. As a result, most of them were not aware about the pros and cons of the model. Hence, the question that aspires to know the perception level of the bank representatives about the advantages and disadvantages of CAMEL framework was not addressed.

Moreover, the researcher has realized from the respondents' feedback that the representatives of the respective banks do not use CAMEL model to analyze their performance. With regard to the question, that aspires to know whether they know the model that the supervisory organ is using to measure their performance and the subsequent action being taken by the respective banks for the comments forwarded from the regulatory organ; most of them said that they don't know what model the supervisory organ is using to assess their performance level but they witnessed that the regulatory organ usually demands feedback from the respective banks if there is a limitation on some results of their operation (for instance, justification is required if there is a capital to asset ratio deterioration and/or Liquidity problem in particular period is observed).

Likewise, almost all the representatives have told the researcher that they are obligated to comply with the already set minimum requirements, existing directives and/or regulations issued by the regulatory and/or supervisory organ any time. Thus, after thoroughly analyzing the respondents' feedback on the interview questions & after noticing the practice thereof, the researcher has realized that the awareness level of the respective banks representatives' about CAMEL model is very limited.

4.3.2 With the supervisory organ representative:

Likewise, the researcher has tried to assess the level of understanding & the real practice regarding the CAMEL model in the BSD so as to have complete picture and to meet the desired objective. The researcher preferred not to mention the name of the individual at the NBE since he is not authorized to discuss the issue. However, the responses gathered from him are presented in the following manner.

According to the BSD's representative at the NBE, the word CAMEL is comprised of capital adequacy, asset quality, management efficiency, earning quality, and liquidity. He also asserted that the supervisory organ has been using CAEL model (excluding management efficiency) since the establishment of banking supervision directorate. With regard to the advantages of the model he stated that it is a ratio based model intended to check the compliance of each bank with already set criteria. On the other hand, he asserted that it is a model that focuses' only five elements that mainly focuses on quantitative aspects & it is a model that evaluates the present situation of a particular bank based on historical data. Therefore, owing to the CAMEL model's limitation, the supervisory organ is currently using CAMEL model along with RBS (Risk Based Supervision). According to him, RBS is a risk based model that gives main emphasis on major activities of a particular bank that are believed to have significant impact /risk/ on the overall operation of banks (such activities could be lending, operation, and liquidity status). Furthermore, he stated that RBS model excels the CAMEL model since it is a forward looking model & it deals with qualitative and quantitative aspects of banks.

The representative of the supervisory organ was also asked whether there is performance based classification and/or standardized ranking that is strictly being followed by the supervisory organ or not. He responded that Ethiopian banks are broadly categorized into three major categories: large (banks who stayed relatively longer period in the industry and that have large asset sizes, CBE is an example), medium Banks (banks who stayed 15 or more years, all the selected banks are in this category), and small (new entrant banks & those who stayed relatively shorter period in the banking business). Hence, the BSD's CAMEL classification has five categories: strong, satisfactory, fair, deficient, and critically deficient are totally dependent on the bank's own trend analysis (In contrast with the bank's own prior year performances), peer comparison (Peer average), and fulfillment of minimum requirements. However, he couldn't deny absence of clear standardized bank rankings that is attached with objective quantitative measure and/or there is no transparent CAMEL variable measure that is being communicated by the regulatory organ to the respective banks.

According to him, the CAMEL model is currently used mainly to check the banks' compliance to the already set norms (established minimum requirements). For instance, banks are required to maintain at least a minimum risk weighted capital requirement of 8%, Asset quality is maintained by keeping the maximum NPLs at 5% or less, and the liquidity level of banks must be at all times at least 15% of the net current liabilities. However, no clear quantitative norm is even set to date for management efficiency and earning quality.

Therefore, even though there is some sort of exercise to adopt CAMEL model by the regulatory organ, it is not yet fully practiced in a transparent, standardized and objective manner. Even there is no clear quantitative norm is set to date for some of the CAMEL proxies such as management efficiency and earning quality. (Please refer annex-2 & annex-3 for standardized and transparent CAMEL variable measure and its interpretation extracted from two different sources)

CHAPTER FIVE: CONCLUSION AND RECOMMENDATION

5.1. CONCLUSION:

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

Needless to say, the basic aim of any management is believed to be to maximize profit which is essential requirement for conducting business. Hence, CAMEL model of bank performance measure has been selected for this particular study owing to its popularity across nations, its appropriateness to detect problems before manifestation, its ability to catch up comparative performances of various banks, its internationally acceptable standardized rating that provides flexibility between on-site and off-site examination, and the acceptance it got from well accredited institutions' like BIS and IMF.

Therefore, the paper tried to investigate the effects of internal determinants of profitability on senior Ethiopian private commercial banks over the period 2000-2014 and thereby ranked the overall performance of each bank based on CAMEL model. The study used primary (interview) and secondary panel data obtained from different sources such as National Bank of Ethiopia (NBE), the websites & financial statements of the respective senior domestic commercial banks. The regression analysis was done using fixed effect least square method. Hence, the regression analysis output result that incorporated variables in the CAMEL model is seen to be statistically significant and supported the fact that argues CAMEL model proxies (bank specific variables) named: capital adequacy, asset quality, management efficiency, earning quality, and liquidity management are important factors in determining the profitability of private commercial banks in Ethiopia. The coefficient of multiple determinants also indicates that 67.5% of the changes in profitability of private commercial banks in Ethiopia are caused by variables incorporated in the CAMEL model.

On the other hand, the level of understanding about CAMEL model in the targeted private Ethiopian commercial banks is very limited and the supervisory organ is not also practicing the model in its fullest (well-articulated) form as per the fact gathered during the study. Hence, neither the management members at the respective banks nor the practice in the supervisory organ are properly internalizing the benefits anticipated from the CAMEL model owing to lack of comprehensive knowledge about CAMEL rating and/or absence of clear and objective performance measurement practice.

The findings also revealed that capital adequacy, asset quality, management efficiency, earning quality, are the major significant determinants of the profitability of the senior private commercial banks. The results also confirmed that improvement in capital strength, asset quality, management efficiency, and earning quality leads to higher profits. Moreover, despite the loose ends to subjective interpretation and the possibility of criticism of any type of ranking of commercial banks; the method of analysis (multi-dimensional ranking method using CAMEL model) still provides simplistic and user friendly version of complex data. Hence, evaluation of financial performance of the banking sector is an effective measure and indicator to check the soundness of economic activities of an economy. As a result, the overall financial performance of the respective banks using CAMEL model over the study period shows UNB, NIB, and BOA holding from first to third ranks respectively.

5.2 RECOMMENDATION:

- Ethiopian commercial banks in general and private commercial banks in particular need to develop their credit risk management capacity in order to avoid poor performance of assets that mainly emanate from loans and advances so as to boost their profitability
- Banks are advised to equip their staffs with comprehensive knowledge about essence of CAMEL and CAMEL rating. Moreover, strong bond between banks and bank supervisors should be in place all the time.
- The Ethiopian commercial banks in general and Ethiopian private commercial banks in particular need to venture into non-traditional areas and generating income through diversified activities other than the core banking activities in order to enhance profitability and sustain growth.
- The Ethiopian banking system need to give due emphasis to efficiency objectives so as to stay competitive and more resilient to economic shocks

Further Research:

- Since quantitative measurements by their very nature lack qualitative elements like monetary policy, regulation and supervision, financial sector openness, management style, etc. Further research can be done by including additional qualitative measurements other than those proxies stated in CAMEL model.

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ANNEXES

Annex-1: List of banks in Ethiopia

	Bank Name	Web Site	Year Est.	No of Branches
1	Abay Bank S.C.	http://www.abaybank.com.et/	2010	79
2	Addis International Bank	http://www.addisbanksc.com/	2011	18
3	Awash International Bank	http://www.awashbank.com/	1994	191
4	Bank of Abyssinia	http://www.bankofabyssinia.com/	1996	111
5	Berhan International Bank	http://berhanbanksc.com/	2010	46
6	Bunna International Bank	http://www.bunnabanksc.com/	2009	72
7	Commercial Bank of Ethiopia	http://www.combanketh.et/	1963	909
8	Construction and Business Bank	http://www.cbb.com.et/Index.html	1983	106
9	Cooperative Bank of Oromia	http://www.coopbankoromia.com.et/	2005	144
10	Dashen Bank	http://www.dashenbanksc.com	2003	146
11	Debub Global Bank	http://www.debubglobalbank.com/	2012	32
12	Development Bank of Ethiopia	http://www.dbe.com.et/home/	1909	43
13	Enat Bank	http://www.enatbanksc.com/	2013	7
14	Lion International Bank	http://www.anbesabank.com/	2006	67
15	Nib International Bank	http://www.nibbank-et.com/index.php	1999	98
16	Oromia International Bank	http://www.oroointbank.com/	2008	115
17	United Bank	http://www.unitedbank.com.et/	1998	108
18	Wegagaen Bank	http://www.wegagenbanksc.com/	1997	98
19	Zemen Bank	http://www.zemenbank.com/	2009	1
	Total			2357

Source: WWW.nbe.gov.et & Wikipedia, the free encyclopedia; Last updated 9 November 2014

Annex-2: Sample CAMEL Variable Measurements

Rating	Performance Category	Capital Adequacy	Asset Quality	Management	Earnings	Liquidity
		Total Capital/ TRWA (%)	(NPA-Provisions) Over Gross-Advances (%)	Total Weighted Score*	Net-Profits/ Total Assets (%)	Net-Liquid Assets/ Total Deposits (%)
1	Strong	19.50%-and above	0-5%	1.0-1.4	Over 3%	Over 34%
2	Satisfactory	15.60%-19.49%	5.1%-10.0%	1.5-2.4	2.0%-2.9%	26%-34%
3	Fair	12.00%-15.59%	10.1%-15.0%	2.5-3.4	1.0%-1.9%	20%-25%
4	Marginal	8.31%-11.99%	15.1%-20.0%	3.5-4.4	0.0%-0.9%	15%-19%
5	Unsatisfactory	8.30 and below	Over 20%	4.5-5.0	Net Loss	Under 15%

Source: Central Bank of Kenya /CBK / Annual Supervision Report (2011) Cited in TOM (2012)

*Salaries & Benefits/Avg. Assets of bank

Annex-3: Sample Interpretation of CAMELS Composite Rating

Rating	Rating Range	Rating Analysis	Interpretation
1	1.00-1.4	Strong	Bank is basically good in every aspect
2	1.6-2.4	Satisfactory	Bank is primarily good in every aspect but has several identified weaknesses
3	2.5-3.4	Fair, with some categories to be watched	Bank has financial, operational, or compliance weaknesses that would give reasons for supervisory concern
4	3.5-4.4	Marginal with some risk of failure	Bank has serious financial weaknesses that could damage future capability to ensure normal growth and development
5	4.5-5.00	Unsatisfactory with high degree of failure	Bank has critical financial weaknesses that give a probability of failure to be extremely high in the near future

Source: Rozzani & Rahman (2013)

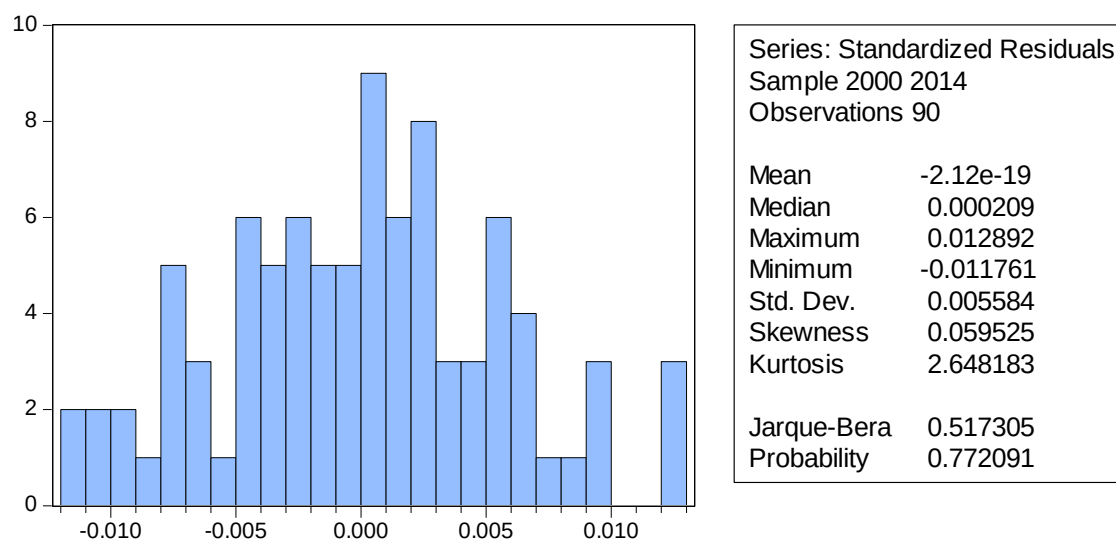
Annex-4: Interview Questions- For Target Bank Representatives

- ✓ What is CAMEL and what do you know about CAMEL model framework?
- ✓ What are the pros and cons of CAMEL model bank performance measure approach?
- ✓ Did your bank use CAMEL model bank performance measure approach to analyze its performance? If yes, since when? If no, why?
- ✓ Does the banking supervisory authority (BSD) supervise your bank performance using CAMEL model? If yes, what is your comment on the result communicated? And/or what subsequent actions do you take based on the result communicated from the supervisory organ?
- ✓ Do you consider CAMEL model bank performance measure as an appropriate tool to measure the bank profitability in Ethiopian Banks? If yes, why? If no, why not?

Annex-5: Interview Questions- For BSD Representative

- ✓ What is CAMEL model?
- ✓ What are the pros and cons of CAMEL model bank performance measure approach?
- ✓ Is there any existing bank performance based classification and/or standardized ranking that is being strictly followed by the supervisory organ?
- ✓ In what way could the CAMEL model assist the existing bank regulatory Organ?
- ✓ Are there any existing minimum statutory requirements that are set by the NBE to be fulfilled by the domestic commercial banks operating in Ethiopia in relation to CAMEL model?
- ✓ What types of parameters are currently in use (if any) to evaluate and rank performance of commercial banks in Ethiopia?

Annex-6: Test for Normality



Source: E-view output

Annex-7: Correlation Matrix

	CA	AQ	ME	EQ	LM
CA	1	-0.200135335	0.429871931	-0.133417253	0.307384209
AQ	-0.200135335	1	0.035250596	0.465720291	0.054195303
ME	0.429871931	0.035250596	1	-0.175402396	0.258095395
EQ	-0.133417253	0.465720291	-0.175402396	1	-0.404306615
LM	0.307384209	0.054195303	0.258095395	-0.404306615	1

Source: E-view output