



Addis Ababa University
School of Graduate Studies College of Business and Economics
Department of Accounting and Finance.

**Financial Performance of Private Commercial Banks in Ethiopia:
A CAMEL Approach**

By
Tegenu Fiseha Solomon

A thesis Submitted to
The department of Accounting and Finance
Presented in partial fulfillment of the Requirements for the Degree
of Master of Science in accounting and Finance

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Advisor
Abebe Yitayew (PhD)

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This is to Certify that the thesis is prepared by Tegenu Fiseha, entitled Financial Performance of Ethiopian Private Banks, CAMEL approach and submitted in partial fulfillment of the requirements for the Degree of Masters of Science (Department of Accounting and Finance) complies with the regulations of the University and meets the accepted standards with respect to originality and quality.

Signed By the examining committee:

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Chair of Department of Graduate Program Coordinator.

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ACRONYMS

AIB :	Awash International Bank SC
ATM :	Automatic Teller Machine
BIS :	Banking Supervision of International Settlement
BOA :	Bank of Abyssina SC
BSD :	Banking Supervision Directorate
CAR :	Capital Adequacy Ratio
DAB :	Dashen Bank SC
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
UNB :	United Bank SC
WEB :	Wegagen Bank SC

ABSTRACT

The purpose of banking sector for reasonable growth of a nation is no need to asking a question. Hence, this study paper has predicted the effects of internal determinants of profitability 6 senior private Ethiopian commercial banks over the period of 2004 up to 2018 and thereby ranked the financial performance of the respective private banks based on CAMEL model. This study paper used fixed effects least square method to estimate the effect of banks 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 results indicated that the bank specific factors incorporated in the CAMEL model affects to the extent of 88.09% of the changes in profitability of the private commercial banks of Ethiopia. Furthermore, 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, NIB, UNB, and BOA have held from 1st to 3rd rank based on the CAMEL model composite rating system.

CHAPTER ONE: INTRODUCTION

1.1. Background of the Study

Most of the time banks service is to gather money from various sources and give it in the form of loan to others to use it for different business and non- business activities and the bank (which is the mediator) pay and receive interests in various rates.

The financial system in Ethiopia has also improved following rapid growth in the number of participating institutions including the scope and services rendered. Essentially, the system comprises the regulatory authorities, banks, non – bank financial institutions with non- existent financial markets.

When a bank gets fail it may try to borrow the money from other solvent banks in order to pay its depositors. 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).

CAMEL is a model which is most of the time utilized to rate financial performance of commercial banks base on six factors. The CAMELS acronym stands for "Capital adequacy, Asset quality, Management, Earnings, Liquidity, and Sensitivity."

CAMEL has the ability to improve banks overall performance by creating a sense of competition among each other.

The internal factors of a bank is such firms factors that emanate from the performance and polices of internal management. Efficiency, liquidity, profitability, capital structure, and quality of assets are some of the internal factors of a firm.

Market concentration, ownership, and other macroeconomic factors such as economic growth and inflation are classified as factors external to the firms.

The research paper will used past formation and/ or years of existence in the banking industry to analyze the effect of bank specific factors over profitability.

Based on the National Bank of Ethiopia (regulatory organ) Ethiopian commercial banks can be divided in to there major classes: Large, long stayed commercial banks that have existed long before the financial sector reform measures are introduce(Commercial Bank of Ethiopia), Medium: banks that are established immediately after the financial reform announced, banks that have existed from 15 to 23 years are found in this classes, and banks that stayed in the industry less than ten years of services are classified as small.

All the selected banks for this study are under the medium category because all of the banks stayed 15 or more years in the industry. To be specific, Awash international bank(AIB) , Bank of Abyssinia (BOA), Dashen Bank sc (DAB), Nib international Bank(NIB), United Bank sc (UNB) and Wegagen Bank sc (WEB) are the banks selected for the desire study.

1.1.1. The development of Financial Sector

For a long period of time the financial sector of Ethiopia was bottlenecked by the policy the government issued and the capital the country expend on huge projects.

Now a days the financial sector of Ethiopia consist of both governmental and non-governmental financial sectors such as banks, insurances, micro finances both in city and outside of a city(up country).

Out of the financial sectors of the country 93% of it consisted by banking industry.

1.1.2. Ethiopian Banking Sector and its Regulator Environment

The proclamation has given powers and duties to the National Bank of Ethiopia 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 and stability of the ;banking system of the country

1.2.3. Ethiopian Banking System

Ethiopian banking history, in its modern sense, began towards the end of the reign of Emperor Menelik called the Bank of Abyssinia, or in Amharic “Ye –Itopya Bank” it has a relationship with Egyptian banks and founded in around 1905. Ten years later, 1915, the Bank began issuing bank notes.

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).

1.2.4. The Challenges and Prospects of the Banking Industry

The ever developing of economy of the country related with its great bankable population is believed to have a big potential to increase the customer base in the banking industry. Additionally there is no external (foreign) investors involvement in the short run investment in the banking sector is believed to be an attractive sector to invest for internal (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.

1.2.5. Currently Offered Services By Banking Industry

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

1.3. Statement of the Problem

The Ethiopian government has implemented a number of reforms in the banking sector. However, all the measures taken to improve the sector fall short. The existing Ethiopian financial sector is not offer adequate & competitive services on the required scale and it is not yet competitive & efficient. Admassu and Asayehegn (2014)

The main obstacle the banking industry faces is not utilize (use) electronic banking systems in the process of delivering the services and supplying limited financial products, expensive branch expansion, concentration of urban areas over the past two decades. (Addis fortune 20, July 2015)

The private banks of Ethiopia must perform their services on adequate and timely bases to stay in the industry healthy competent and profitable.

To perform this the impact of bank specific factors (independent variables) on profitability of private banks in Ethiopia that attempts to properly analyze and rank the financial and / or operational results using CAMEL model is almost very limited to the level of awareness of the researcher. This particular study try to fill the gap in this area.

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 effect of banking specific variables on the profitability of private commercial banks in Ethiopia and to rank the banks based on their performances.

Specific Objectives:

Specific objectives that resulting from the general objective and focused in the study are:

- ❖ To describe what CAMEL performance measure is for banks.
- ❖ To detect the strong point and the weakness of CAMEL as a performance measure for private banks of Ethiopia.
- ❖ To recognize the main bank profit variables and / or to measure the importance of the profit drivers in Ethiopian Private Commercial Banks.
- ❖ To assess the performance of the selected private commercial banks by rating each bank specific proxy (in a multi – dimensional way)
- ❖ To recognize the CAMEL role in the supervision of banking activity.

1.4.2. Research Questions

- ❖ What is the principle of CAMEL in relation with performance measure in commercial banks?
- ❖ Which bank specific performance drivers are key factors in determining the profitability of Ethiopian Private Commercial banks?
- ❖ What are the advantage and disadvantage of CAMEL model bank performance measure approach?

- ❖ The reason why the CAMEL rating system play a crucial role in banking supervision?
- ❖ How significant does the variables identified affect the banks profitability?

1.4.3. Significance of the study

- ❖ To help bank management give good emphasis on the management of selected variables and work thoroughly to increase their respective banks profitability and competence.
- ❖ It minimize the knowledge gap about CAMEL model rating on served in bank staffs and advise bank staffs in general and bank management in particular to acquire comprehensive knowledge about CAMEL rating.
- ❖ To be used as a stepping stone for further research on

1.5. Scope of the study

The study is going to use the data of six senior private commercial banks of Ethiopia for the years 2004 to 2018(15 years) however, results will be generalized to cover all private Commercial Banks of Ethiopia.

1.6. Limitation of the study

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

1.7. Organization of the Paper

This research report is organized into five chapters. The first chapter is introduction, Chapter two describes the review of related literature. The third chapter is about the methods used by the study. Chapter four provides the data description, analysis resultants, and its interpretation. Finally, chapter five presents the conclusion and recommendation.

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 market 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. Zerayehuetal.,(2013)also argued that survival into day'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. Bank Profitability Theory

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)

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. Bank Profitability Determinants

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.

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. 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.

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 sult, 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.

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 Shiphoo(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 two important characteristics:

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

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 Neceurin 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.

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.

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 andNazir,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 Noninterest 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.

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.

According to Kamau in Olweny and Shiphoo (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.

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.

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.

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.

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).

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).

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.

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.

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.

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.

Habtamu (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 2002-2011. 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, 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.

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.

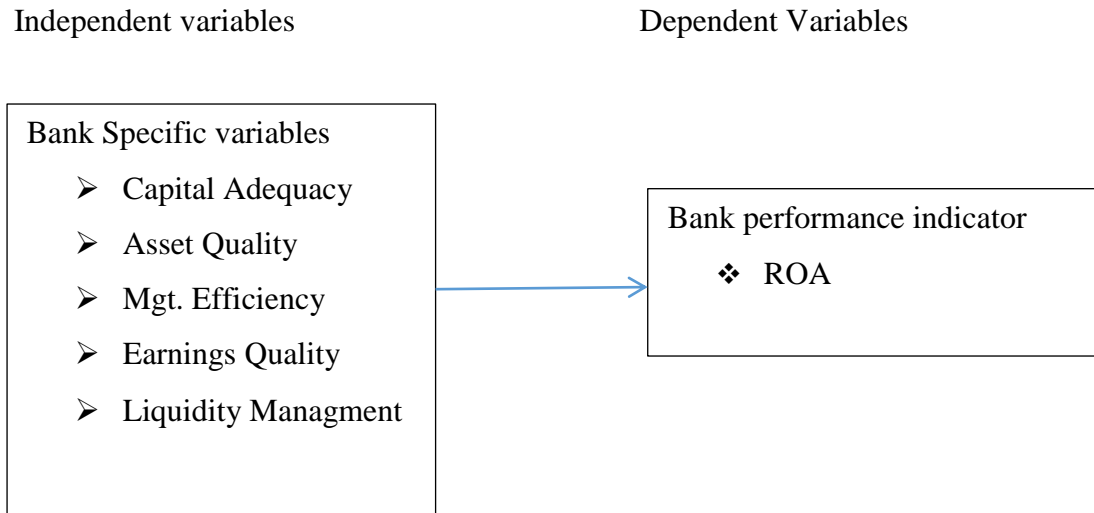
2.5.3. Conclusion and Knowledge Gap

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



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 conclusion. For the purpose of the present study, the researcher 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 there by rank the financial performance of the target banks using CAMEL mode.

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.

This particular study has employed quantitative research approach and both primary and secondary data collections methods were utilized. To gather primary data, interview 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, various software is used to analyze secondary data has been collected from NBE and financial statements of the respective banks.

3.2. Sample Design

3.2.1. Population or Universe

Based on recently availed information from National Bank Of Ethiopia, there are Eighteen banks in Ethiopia, out of which, Seventeen are Commercial banks and one is Development bank. Among the total Eighteen banks two of them are owned by the government and the remaining are privately owned. Hence, the sixteen private commercial banks can be treated as population of the study.

3.2.2. Frame of the Sample

Amongst the total private commercial banks, six of them have stayed for 15 or more years in the business and the remaining 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 for 15 or more years in the industry.

3.2.3. Sampling

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

3.3. Types of Data

To measure private commercial banks performance in Ethiopia, the type of data for the study were more of a quantitative so that it could be measured and ranked. The data from the sample banks were gathered from published financial statement of the respective private commercial banks and respective websites of the banks to be investigated, and different bulletins and publications of the NBE.

3.4 Methods of Data Collections

To collect the data both primary and secondary data collection methods were employed. The primary data was be 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 acting at risk managment are team leaders and finance department heads in the

respective banks and an officials 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 Analysis of Data

The data that was be collected is 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 be employed. The ranking process of the targeted banks was accomplished using multi-dimensional parameters in order to incorporate different aspects of each bank specific variable.

3.6 Specification of Model

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 here below:

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

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 Assumptions of Model

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 was examined), descriptive statistics were used.
- ❖ Multi- collinearity (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 check the problem of heteroscedasticity of disturbance terms)

3.8 . Description of Variables:

3.8.1. Dependent Variable

ROA- Return on Assets 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 banks 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 managements efficiency to control expenses.(Tsfaye,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 deposits ratio (LADP) has been considered so as to comply with the regulatory organ.
(Misra&Aspal,2013;Tsfaye,2014)

CHAPTER FOUR: ANALYSIS AND DISCUSSION

Introduction

There are three parts for the analysis and discussion. 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. Higher averages scores indicate higher rank except for debt to equity, allowance for doubtful loans to 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.

The level of significance of each bank specific proxy on the profitability has been discussed. At the end, individual perception about CAMEL frame work and the actual practice therein has been assessed using one of the primary data collection methods (interview) with the representative of each bank and with the representative of the regulatory organ (BSD) who is an authorized to comment.

4.1 process of Ranking

4.1.1.1 Capital Adequacy has emerged as one of the main indicators of the financial performance of banks. It reflects the overall financial condition of the banks and also the ability of management to meet the need of additional capital.

Capital adequacy can be calculated in many ways: Total Equity over Total Assets, Debt to Equity Ratio, and Advances to Assets Ratio has been considered for this particular study.

Table-1: Capital Adequacy Ratio

Capital Adequacy Ratio (%)								
S/N	Year	AIB	BOA	DAB	NIB	UNB	WEB	Avg.
1	2004	9.78	11.18	6.48	14.12	19.4	10.46	11.90
2	2005	8.76	12.18	6.43	13.87	14.24	11.32	11.13
3	2006	10.24	12.35	7.11	12.93	11.65	11.14	10.90
4	2007	10.29	14.18	8.49	14.06	11.94	11.29	11.71
5	2008	11.33	11.87	9.02	16.3	16.49	11.58	12.77
6	2009	11.68	9.48	8.1	15.17	11.18	16.34	71.95
7	2010	11.83	9.32	7.54	15.36	10.82	18.32	12.2
8	2011	12.93	9.08	9.53	16.47	11.66	16.59	12.71
9	2012	13.49	11.01	10.43	18.46	12.54	19.22	14.19
10	2013	11.47	10.94	10.36	18.22	12.04	17.61	13.44
11	2014	11.81	13.56	11.83	18.27	14.05	19.07	14.77
12	2015	10.29	14.18	8.49	14.06	11.94	11.29	11.71
13	2016	11.33	11.87	9.02	16.3	16.49	11.58	12.77
14	2017	12.39	9.83	9.34	16.39	14.4	14.68	12.84
15	2018	11.68	9.48	8.1	15.17	11.18	16.34	11.99
	Average	11.29	11.37	8.68	15.68	13.33	14.46	16.47
	Rank	5	4	6	1	3	2	

Source: Researcher's Own Computation

As seen in the above table, nib international bank, wegagen bank and united bank consists a rank from one to third and dashen bank is the last rank. Moreover, the average capital ratio for the study period is seen to be above the minimum requirement set by the regulatory organ.

4.1.1.2. Debt to Equity Ratio

Debt Equity ratio shows the power of the bank to use either debt or equity to finance. 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	2004	10.42	7.21	14.56	6.21	6.02	7.84	8.71
2	2005	8.76	7.1	13.07	6.73	7.58	7.98	8.54
3	2006	8.72	6.05	10.78	6.11	7.37	7.86	7.82
4	2007	7.82	7.43	10.08	5.13	5.06	7.64	7.19
5	2008	7.07	9.17	9.71	5.1	5.94	5.81	7.13
6	2009	7.56	9.55	11.35	5.59	7.95	5.12	7.85
7	2010	7.45	9.74	12.25	5.51	8.24	4.46	7.94
8	2011	6.73	10.01	9.5	5.07	7.57	5.03	7.32
9	2012	6.41	8.08	8.58	4.42	6.97	4.2	6.44
10	2013	7.72	8.14	8.65	4.49	7.31	4.68	6.83
11	2014	7.47	6.37	7.45	4.47	6.12	4.24	6.02
12	2015	8.72	6.05	10.78	6.11	7.37	7.86	7.82
13	2016	7.82	7.43	10.08	5.13	5.06	7.64	7.19
14	2017	7.07	9.17	9.71	5.1	5.94	5.81	7.13
15	2018	7.56	9.55	11.35	5.59	7.95	5.12	7.85
	Average	7.82	8.07	10.53	5.38	6.83	6.09	7.45
	Rank	4	5	6	1	3	2	

As Seen from the above table, less ratio shows that there is lessor obligation, 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	2004	53.45	60.69	63.13	63.03	56.97	64.74	60.34
2	2005	57.95	59.99	65.26	65.42	55.27	62	60.98
3	2006	63.37	69.27	69.6	72.77	62.79	70.52	68.05
4	2007	65.59	67.87	66.02	69.7	64.59	61.93	65.95
5	2008	56.8	65.98	55.97	57.92	57.23	56.9	58.47
6	2009	42.24	49.46	45.74	46.18	46.26	41.27	45.19
7	2010	39.6	50.21	40.87	42.64	44.34	43.09	43.46
8	2011	39.41	45.56	42.42	38.91	42.42	36.1	40.80
9	2012	46.11	47.3	46.37	44.82	46.49	42.72	45.64
10	2013	51.89	46.42	44.88	49.68	47.21	45.12	47.53
11	2014	52.13	44.88	42.94	50.32	42.47	40.96	45.62
12	2015	63.37	69.27	69.6	72.77	62.79	70.52	68.05
13	2016	65.59	67.87	66.02	69.7	64.59	61.93	65.95
14	2017	56.8	65.98	55.97	57.92	57.23	56.9	58.47
15	2018	42.24	49.46	45.74	46.18	46.26	41.27	45.19
	Average	53.10	57.35	54.70	56.53	53.13	53.06	54.65
	Rank	5	1	3	2	4	6	

Source: Researcher's Own Computation

In the above table, BOA is seen to be relatively at the top with highest average of 57.35 followed by NIB with an average score of 56.53. On the other hand, WEB is the least performer in this regard with an average score of 53.06.

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, BOA, and DAB 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		Debit - Equity		Advances/Assets		Group Rank	
	%	Rank	Times	Rank	Rank	%	Avg.	Rank
AIB	11.29	5	7.82	4	53.1	5	4.67	3
BOA	11.37	4	8.07	5	57.35	1	3.33	2
DAB	8.68	6	10.53	6	54.7	3	5.00	4
NIB	15.68	1	5.38	1	56.53	2	1.33	1
UNB	13.33	3	6.83	3	53.13	4	3.33	2
WEB	14.46	2	6.09	2	53.06	6	3.33	2

4.1.2 Assets Quality

The purpose of calculating asset quality is to understand and shows the ratio of Nonperforming assets to 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 used to know the quality of the banks.

4.1.2.1 Total Non-Performing Loans to Gross Loans

This ratio reflects /measures the loss incurred due to poor loan quality. 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 (%)						
		AIB	BOA	DAB	NIB	UNB	WEB	Avg.
1	2004	18.39	17.51	7.44	8.77	9.9	12.24	12.38
2	2005	12.02	12.4	6.72	11.22	8.45	8.41	9.87
3	2006	9.56	4.94	6.21	8.47	4.18	4.85	6.37
4	2007	7.36	10.54	5.95	5.56	4.59	5.25	6.54
5	2008	8.66	12.87	5.89	6.73	3.98	8.39	7.75
6	2009	5.78	14.75	7.39	11.16	4.62	7.7	8.57
7	2010	5.47	6.98	3	7.37	3.76	3.47	5.01
8	2011	3.81	3.97	3.38	5.04	3.35	3.51	3.84
9	2012	1.91	3.76	2.44	2.47	1.53	2.98	2.52
10	2013	2.29	2.75	2.97	3.76	2.53	2.7	2.83
11	2014	3.19	3.37	3.29	3.08	1.73	2.63	2.88
12	2015	9.56	4.94	6.21	8.47	4.18	4.85	6.37
13	2016	7.36	10.54	5.95	5.56	4.59	5.25	6.54
14	2017	8.66	12.87	5.89	6.73	3.98	8.39	7.75
15	2018	5.78	14.75	7.39	11.16	4.62	7.7	8.57
	Average	7.32	9.13	5.34	7.04	4.40	5.89	6.52
	Rank	5	6	2	4	1	3	

Among all of the selected private commercial banks, United Bank has the best result that makes it perform better than the competitors . Similarly, DAB&WEB stood 2nd and 3rd respectively. On the contrary, the NPL status for BOA was on average around 9% during the study period.

4.1.2.2 Total Investments to Total Assets

The calculated ratio is used as a tool to measure the percentage of total assets expend on investments. A big ratio means conservative policy of a bank to provide safeguard to the investments against NPAs.

Table- 6: The Ratio of total investment to total assets

S/N	Year	Total Investment to Total Assets Ratio (%)						
		AIB	BOA	DAB	NIB	UNB	WEB	Avg.
1	2004	25.76	18.99	16.62	13.87	28.93	16.23	20.07
2	2005	22.69	9.38	13.86	11.66	27.03	21.66	17.71
3	2006	19.23	7.16	12.63	10.36	10.44	10.98	11.80
4	2007	11.2	13.55	11.17	9.67	21.44	20.17	14.53
5	2008	13.82	12.55	6.85	14.68	16.49	12.99	12.90
6	2009	13.11	6.85	7.06	4.51	13.26	8.47	8.88
7	2010	24.67	10.16	30	19.11	11.28	22.76	19.66
8	2011	27.55	19.29	26.66	22.98	21.36	24.21	23.68
9	2012	34.02	27.61	29.1	28.99	26.93	32.41	29.84
10	2013	29.39	27.91	31.76	27.13	32.41	32.91	30.25
11	2014	11.42	29.96	29.26	26.37	32	6.5	22.59
12	2015	19.23	7.16	12.63	10.36	10.44	10.98	11.80
13	2016	11.2	13.55	11.17	9.67	21.44	20.17	14.53
14	2017	13.82	12.55	6.85	14.68	16.49	12.99	12.90
15	2018	13.11	6.85	7.06	4.51	13.26	8.47	8.88
	Average	19.35	14.90	16.85	15.24	20.21	17.46	17.33
	Rank	5	1	3	2	6	4	

4.1.2.3 Allowance for Doubtful Loans to Loans Outstanding

Allowance for doubtful loans to loans outstanding ratio is the best measure of asset quality. In this case, highest average score shows higher un collectability and lower average score means the reverse. Hence, the bank with higher AFDL will get the lowest rank and the rank 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 (%)						
		AIB	BOA	DAB	NIB	UNB	WEB	Avg.
1	2004	7.72	7.59	3.73	3.82	3.91	5.83	5.43
2	2005	6.2	4.94	3.23	4.15	3.88	5.09	4.58
3	2006	4.91	3.11	2.65	3.86	2.89	4.83	3.71
4	2007	4.34	4.69	2.48	3.41	3.05	4.41	3.73
5	2008	4.64	8.89	2.33	3.78	2.69	5.92	4.71
6	2009	5.49	9.83	2.29	4.59	3.07	6.11	5.23
7	2010	4.7	7.42	2.18	3.89	3.63	3.96	4.30
8	2011	3.64	3.33	1.99	4.12	2.78	4.54	3.40
9	2012	2.7	2.57	2.15	2.72	2.33	2.43	2.48
10	2013	2.31	1.99	2.14	2.51	1.87	2.24	2.18
11	2014	2.27	0	0	0	1.46	1.67	0.90
12	2015	4.91	3.11	2.65	3.86	2.89	4.83	3.71
13	2016	4.34	4.69	2.48	3.41	3.05	4.41	3.73
14	2017	4.64	8.89	2.33	3.78	2.69	5.92	4.71
15	2018	5.49	9.83	2.29	4.59	3.07	6.11	5.23
	Average	4.55	5.39	2.33	3.50	2.88	4.55	3.87
	Rank	4	6	1	3	2	4	

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

4.1.2.4 Allowance for Doubtful Loans to Total Assets

Quality of the advances is better when the ratio is small. In line with the stated fact, DAB, UNB & NIB are amongst the banks with better quality of advances respectively in contrast.

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

S/N	Year	Allowance for Doubtful Loans to Total Assets Ratio (%)						
		AIB	BOA	DAB	NIB	UNB	WEB	Avg.
1	2004	4.12	4.61	2.35	2.41	2.23	3.77	3.25
2	2005	3.59	2.97	2.11	2.71	2.14	3.16	2.78
3	2006	3.11	2.15	1.85	2.81	1.81	3.41	2.52
4	2007	2.85	3.18	1.64	2.38	1.97	2.73	2.46
5	2008	2.63	5.87	1.3	2.19	1.54	3.37	2.82
6	2009	2.32	4.86	1.05	2.12	1.42	2.52	2.38
7	2010	1.86	3.73	0.89	1.66	1.61	1.71	1.91
8	2011	1.43	1.52	0.84	1.6	1.18	1.64	1.37
9	2012	1.25	1.21	1	1.22	1.08	1.04	1.13
10	2013	1.2	0.92	0.96	1.25	0.88	1.01	1.04
11	2014	1.19	0	0	0	0.62	0.68	0.42
12	2015	3.11	2.15	1.85	2.81	1.81	3.41	2.52
13	2016	2.85	3.18	1.64	2.38	1.97	2.73	2.46
14	2017	2.63	5.87	1.3	2.19	1.54	3.37	2.82
15	2018	2.32	4.86	1.05	2.12	1.42	2.52	2.38
	Average	2.43	3.14	1.32	1.99	1.55	2.47	2.15
	Rank	4	6	1	3	2	5	

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, DAB is in better position with an average rank of 1.00 in NPLs to Gross Advance, Total Investments to Total Assets, AFDL to Advances, and AFDL to Total Assets ratio. As we see from the table, Awash International Bank S.c. has the least average score and the composite ratio shows the bank improve its assets quality to compute with competitors.

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		Grand Total	
	%	Rank	%	Rank	%	Rank	%	Rank		
AIB	7.32	5	19.35	3	4.55	4	2.43	4	8.41	6
BOA	9.13	6	14.9	1	5.39	6	3.14	6	8.14	5
DAB	5.34	2	16.85	3	2.33	1	1.32	1	6.46	1
NIB	7.04	4	15.24	2	3.5	3	1.99	3	6.94	2
UNB	4.4	1	20.21	6	2.88	2	1.55	2	7.26	3
WEB	5.89	3	17.46	4	4.55	4	2.47	5	7.59	4

4.1.3 Management Efficiency

This ratio is used to measure management efficiency by assigning premium to better performing banks and by discourage poorly managed ones. So to get good result 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 assessed.

4.1.3.1 Non-interest Expense to Gross Expense

This parameter is used to measure management’s attention 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	2004	66.29	57.97	64.04	65.91	69.44	72.31	65.99
2	2005	63.83	52.86	62.04	65.22	64.58	74.71	63.87
3	2006	58.97	58.16	63.19	58.75	56.06	72.22	61.23
4	2007	55.4	65.12	59.03	58.82	61.9	67.07	61.22
5	2008	51.6	71.31	51.93	60.76	59.09	62.66	59.56
6	2009	56.36	56.78	50.62	63.77	58.49	61.57	57.93
7	2010	53.87	53.31	50.99	66.91	60.46	69.35	59.15
8	2011	50.42	54.49	50.13	61.86	52.92	71.95	56.96
9	2012	50.87	52.02	50.71	58.92	53.18	64.31	55.00
10	2013	55.31	52.07	51.2	59.78	58.83	65.46	57.11
11	2014	56.46	52.18	51.73	59.87	64.71	65.52	58.41
12	2015	58.97	58.16	63.19	58.75	56.06	72.22	61.23
13	2016	55.4	65.12	59.03	58.82	61.9	67.07	61.22
14	2017	51.6	71.31	51.93	60.76	59.09	62.66	59.56
15	2018	56.36	56.78	50.62	63.77	58.49	61.57	57.93
	Average	56.11	58.51	55.36	61.51	59.68	67.38	59.76
	Rank	2	3	1	5	4	6	

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

Total advances to total deposits measure the ability of the bank's management to change deposits in to earnings. 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 77.31% and it is followed BOA with 71.21% and the least performer in this regard is AIB with an average ratio of 66.01%

Table-11: Total Advances to Total Deposits Ratio

S/N	Year	Total Advances to Total Deposits Ratio (%)						
		AIB	BOA	DAB	NIB	UNB	WEB	Avg.
1	2004	63.36	75.45	77.59	94.47	72.18	84.25	77.88
2	2005	66.49	75.85	78.79	92.64	68.55	77.8	76.69
3	2006	72.93	90.17	85.7	101.58	82.3	89.6	87.05
4	2007	80.72	84.71	82.04	96.7	91.5	79.11	85.80
5	2008	70.75	81	71.23	85.59	76.14	79.13	77.31
6	2009	54.68	60.28	56.18	44.74	59.51	42.56	52.99
7	2010	51.52	61.35	49.77	61.69	55.32	63.06	57.12
8	2011	51.48	54.58	52.51	53.66	54.02	48.85	52.52
9	2012	59.81	57.56	57.75	63.53	60.45	61.93	60.17
10	2013	61.45	55.34	55.91	68.26	58.43	62.11	60.25
11	2014	77.94	55.64	53.33	68.25	56.08	54.92	61.03
12	2015	72.93	90.17	85.7	101.58	82.3	89.6	87.05
13	2016	80.72	84.71	82.04	96.7	91.5	79.11	85.80
14	2017	70.75	81	71.23	85.59	76.14	79.13	77.31
15	2018	54.68	60.28	56.18	44.74	59.51	42.56	52.99
	Average	66.01	71.21	67.73	77.31	69.60	68.91	70.13
	Rank	6	2	5	1	3	4	

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 38.08%, 27.70%, and 27.16% were registered for DAB, AIB, and WEB and it has given them the chance to hold 1st to 3rd of the available ranks respectively.

Table-12: Return on Equity Ratio

S/N	Year	Return on Equity Ratio (%)						
		AIB	BOA	DAB	NIB	UNB	WEB	Avg.
1	2004	17.81	22.22	37.21	23.49	7.49	28.83	22.84
2	2005	19.84	27.29	34.22	23.17	28.05	31.07	27.27
3	2006	29.32	25.91	42.29	22.79	27.85	32.64	30.13
4	2007	38.78	16.65	40.19	21.41	23.23	34.04	29.05
5	2008	27.71	3.54	37.5	22.1	22	27.54	23.40
6	2009	21.23	21.4	32.91	23.16	18.95	25.06	23.79
7	2010	29.35	25.35	37.68	24.42	30.14	23.66	28.43
8	2011	32.08	28.98	38.71	23.61	30.13	27.06	30.10
9	2012	27.03	27.66	40.44	21.21	29.74	22.86	28.16
10	2013	28.06	21.52	31.33	18.75	18.56	19.99	23.04
11	2014	27.26	33.97	45.82	16.38	53.48	15.34	32.04
12	2015	29.32	25.91	42.29	22.79	27.85	32.64	30.13
13	2016	38.78	16.65	40.19	21.41	23.23	34.04	29.05
14	2017	27.71	3.54	37.5	22.1	22	27.54	23.40
15	2018	21.23	21.4	32.91	23.16	18.95	25.06	23.79
	Average	27.70	21.47	38.08	22.00	25.44	27.16	26.97
	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, Bank of Abyssina and Nib banks 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 (%)						Avg.
		AIB	BOA	DAB	NIB	UNB	WEB	
1	2004	3.84	6.12	4.37	4.49	4.01	5.79	4.77
2	2005	4.22	5.1	4.74	4.79	4.29	4.95	4.68
3	2006	4.64	5.82	5.32	5.28	4.44	5.31	5.14
4	2007	5.6	5.95	5.3	5.64	5.59	5.32	5.57
5	2008	5.21	5.91	5.36	5.75	5.26	5.77	5.54
6	2009	4.3	5.04	4.47	5.28	4.51	4.57	4.70
7	2010	3.81	4.17	3.91	4.45	4.26	4.3	4.15
8	2011	3.9	5.11	4.12	4.68	4.39	3.91	4.35
9	2012	5.6	6.04	5.12	5.24	5.91	5.29	5.53
10	2013	5.99	4.91	5.17	6.24	6.03	5.63	5.66
11	2014	6.92	6.51	5.19	5.31	6.09	5.87	5.98
12	2015	4.64	5.82	5.32	5.28	4.44	5.31	5.14
13	2016	5.6	5.95	5.3	5.64	5.59	5.32	5.57
14	2017	5.21	5.91	5.36	5.75	5.26	5.77	5.54
15	2018	4.3	5.04	4.47	5.28	4.51	4.57	4.70
	Average	4.92	5.56	4.90	5.27	4.97	5.18	5.13
	Rank	5	1	6	2	4	3	

In this regard BOA, NIB, and WEB are ranked from first to third respectively whereas DAB has stood 6th with an average interest income ratio of 4.84% during the period of analysis.

4.1.3.5 Composite Management Efficiency

On the basis of group averages of the four ratios WEB(42.16%), NIB%DAB(41.52%), and UNB(39.92) has held the rank from first to third based on average scores, AIB 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		Grand Total	
	%	Rank	%	Rank	%	Rank	%	Rank	Avg.	Rank
AIB	66.01	6	27.7	2	4.92	5	56.11	2	3.75	5.00
BOA	71.21	2	21.47	6	5.56	1	58.51	3	3.00	3.00
DAB	67.73	5	38.08	1	4.9	6	55.36	1	3.25	4.00
NIB	77.31	1	22	5	5.27	2	61.51	5	3.25	4.00
UNB	69.6	3	25.44	4	4.97	4	59.68	4	3.75	5.00
WEB	68.91	4	27.16	3	5.18	3	67.38	6	4.00	6.00

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	2004	1.47	2.4	2.09	2.81	1.04	2.81	2.10
2	2005	1.71	2.97	2.08	2.66	2.89	2.97	2.55
3	2006	2.64	3	2.93	2.86	2.75	3.14	2.89
4	2007	3.73	1.97	3.1	2.92	2.93	3.22	2.98
5	2008	2.97	0.35	3.05	3.1	2.8	3.37	2.61
6	2009	2.23	1.83	2.57	3.2	2.02	3.54	2.57
7	2010	3.12	2.23	2.62	3.37	2.95	3.88	3.03
8	2011	3.57	2.49	3.07	3.46	3	4.01	3.27
9	2012	3.3	2.63	3.72	3.46	3.39	4.03	3.42
10	2013	3.42	2.14	3.07	3.27	2.14	3.3	2.89
11	2014	3.51	3.97	4.84	2.76	2.15	2.71	3.32
12	2015	2.64	3	2.93	2.86	2.75	3.14	2.89
13	2016	3.73	1.97	3.1	2.92	2.93	3.22	2.98
14	2017	2.97	0.35	3.05	3.1	2.8	3.37	2.61
15	2018	2.23	1.83	2.57	3.2	2.02	3.54	2.57
	Average	2.88	2.21	2.99	3.06	2.57	3.35	2.84
	Rank	4	6	3	2	5	1	

Source: Researcher's Own Computation

As exhibited above, WEB is at the top with an average ratio of 3.35 followed by NIB and DAB with 3.06 and 2.99 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 the most source of revenue for private and governmental banks. The ratio reflects the banks capability in generating income from its lending activities. Interest income consists of 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						
		AIB	BOA	DAB	NIB	UNB	WEB	Aver.
1	2004	54.84	78.86	60.94	60.22	58.7	60	62.3
2	2005	63.09	69.08	69.23	61.48	50.55	53.33	61.1
3	2006	60.09	75	65.94	66.46	56.35	54.55	63.1
4	2007	62.45	75.66	65.98	70.67	63.54	57.81	66.0
5	2008	59.34	72.65	62.69	66.25	61.07	55.35	62.9
6	2009	57.86	68.15	57.54	59.62	60.87	49.47	58.9
7	2010	44.17	55.86	50.05	47.84	49.12	43.72	48.5
8	2011	42.55	60.2	47.06	50.68	53.72	38.64	48.8
9	2012	60.2	68.76	52.02	57.11	62.38	51.98	58.7
10	2013	59.81	68.74	56.19	67.02	66.37	61.51	63.3
11	2014	63.41	61.95	45.7	67.02	68.77	61.74	61.4
12	2015	60.09	75	65.94	66.46	56.35	54.55	63.1
13	2016	62.45	75.66	65.98	70.67	63.54	57.81	66.0
14	2017	59.34	72.65	62.69	66.25	61.07	55.35	62.9
15	2018	57.86	68.15	57.54	59.62	60.87	49.47	58.9
	Average	57.84	69.76	59.03	62.49	59.55	53.69	60.4
	Rank	5	1	4	2	3	6	

Source: Researcher's Own Computation

As exhibited above, BOA is on top position with highest average score of 69.76 followed by NIB and UNB with average scores of 62.49 and 59.55 respectively. WEB is seen to stood last with average score of 53.69.

4.1.4.3 Net Interest Margin (NIM) to Total Assets

Non Interest Margin is the difference between the interest income and the interest expended. It is expressed as percentage of total assets. A bigger 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	2004	2.15	4.29	2.84	3.29	2.37	4.21	3.19
2	2005	2.7	3.5	3.22	3.41	2.7	3.59	3.19
3	2006	3.01	4.38	3.85	3.65	2.63	3.76	3.55
4	2007	3.99	4.18	3.76	4.03	3.76	3.74	3.91
5	2008	3.01	3.72	3.3	4.05	3.32	3.61	3.50
6	2009	2.43	2.99	2.41	3.7	2.62	2.93	2.85
7	2010	1.86	2.15	1.89	2.96	2.49	3	2.39
8	2011	1.83	2.86	1.9	2.99	2.51	2.67	2.46
9	2012	3.22	3.51	2.78	3.41	3.64	3.62	3.36
10	2013	3.55	2.85	2.69	4.22	3.55	3.97	3.47
11	2014	4.22	3.71	2.58	3.59	3.72	3.82	3.61
12	2015	3.01	4.38	3.85	3.65	2.63	3.76	3.55
13	2016	3.99	4.18	3.76	4.03	3.76	3.74	3.91
14	2017	3.01	3.72	3.3	4.05	3.32	3.61	3.50
15	2018	2.43	2.99	2.41	3.7	2.62	2.93	2.85
	Average	2.96	3.56	2.97	3.65	3.04	3.53	3.29
	Rank	6	2	5	1	4	3	

Source: Researcher's Own Computation

In this parameter, NIB, BOA, and WEB have held the rank from 1st to 3rd with average net interest margin ratio of 3.65, 3.56, and 3.53 respectively. AIB scored the last position with average net interest margin of 2.96. Thus, AIB'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 BOA, NIB, and UNB held the ranks from 1st to 3rd respectively. The last position in the composite earning quality parameter is held by WEB.

Table – 18: Composite Earning

Bank	Net Profit to Total Assets		Interst income to total income		Net income margin over Total Assets		Grand Total	
	%	Rank	%	Ran k	%	Rank	Avg.	Rank
AIB	2.88	4	57.84	5	2.96	6	5.00	5
BOA	2.21	6	69.76	1	3.56	2	3.00	2
DAB	2.99	3	59.03	4	2.97	5	4.00	4
NIB	3.06	2	62.49	2	3.65	1	1.67	1
UNB	2.57	5	59.55	3	3.04	4	4.00	4
WE B	3.35	1	53.69	6	3.53	3	3.33	3

Source: Researcher's Own Computatio

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 important 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 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	2004	42.88	39.62	32.57	26.54	43.03	35.88	36.75
2	2005	38.9	36.9	29.85	26.79	45.11	38.37	35.99
3	2006	31.45	27.56	25.27	21.46	37.09	29.26	28.68
4	2007	29.45	30.09	27.66	26.7	34.72	37.93	31.09
5	2008	38.26	33.79	37.25	36.52	42.65	43.71	38.70
6	2009	49.62	49.23	48.32	48.57	53.44	56.98	51.03
7	2010	49.62	49.23	48.32	48.57	53.44	56.98	51.03
8	2011	50.89	47.17	42.54	51.38	55.55	52.87	50.07
9	2012	40.02	39.79	42.48	51.24	46.07	51.37	45.16
10	2013	26.48	30.62	32.96	36.02	32.58	33.44	32.02
11	2014	24.04	19.46	30.69	24.66	20.67	26.7	24.37
12	2015	38.07	24.35	29.79	17.83	28.76	15.92	25.79
13	2016	31.45	27.56	25.27	21.46	37.09	29.26	28.68
14	2017	29.45	30.09	27.66	26.7	34.72	37.93	31.09
15	2018	38.26	33.79	37.25	36.52	42.65	43.71	38.70
	Average	37.26	34.62	34.53	33.40	40.50	39.35	36.61
	Rank	3	4	5	6	1	2	

Source: Researcher's Own Computation

As exhibited above, UNB, WEB, and AIB held from 1st to 3rd with an average ratio of 40.50, 39.35, and 37.26 respectively in this particular parameter. To the contrary, NIB is seen to be at the bottom of the rank with an average ratio of 33.40.

4.1.5.2 Liquid Assets to Total Deposits

Liquid Assets to total deposits ratio measures the liquidity available to the depositors of a bank. It is assessed by dividing the liquid assets with total deposits. In this particular parameter, UNB, WEB, and AIB 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 52.73, 50.58, and 46.82. On the other hand, DAB is seen to be in the lowest position with an average liquid asset (LA) to total deposit (TD) ratio of 42.75.

Table-20: Liquid Assets to Total Deposits Ratio

S/N	Year	Liquid Assets to Total Deposits (%)						Aver.
		AIB	BOA	DAB	NIB	UNB	WEB	
1	2004	50.84	49.25	40.04	39.78	54.51	46.69	46.85
2	2005	44.64	46.65	36.04	37.94	55.95	48.14	44.89
3	2006	36.19	35.88	31.12	29.96	48.61	37.18	36.49
4	2007	36.25	37.56	34.38	37.04	49.19	48.46	40.48
5	2008	47.65	41.48	47.4	53.97	56.73	60.79	51.34
6	2009	64.23	60	59.34	47.06	68.75	58.77	59.69
7	2010	66.21	57.64	51.8	74.34	69.31	77.39	66.12
8	2011	52.27	47.67	52.58	70.66	58.67	69.51	58.56
9	2012	34.34	37.26	41.05	51.06	42.36	48.47	42.42
10	2013	28.47	23.2	38.24	33.88	25.57	36.75	31.02
11	2014	56.91	30.19	37	24.18	37.99	21.34	34.60
12	2015	36.19	35.88	31.12	29.96	48.61	37.18	36.49
13	2016	36.25	37.56	34.38	37.04	49.19	48.46	40.48
14	2017	47.65	41.48	47.4	53.97	56.73	60.79	51.34
15	2018	64.23	60	59.34	47.06	68.75	58.77	59.69
	Average	46.82	42.78	42.75	44.53	52.73	50.58	46.70
	Rank	3	5	6	4	1	2	

4.1.5.3 Liquid Assets to Demand Deposits

Liquid Assets to Demand Deposits 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	2004	264.46	281.61	139.97	144.54	245.76	109.07	197.57
2	2005	205.21	227.93	128.75	158.9	253.4	105.08	179.88
3	2006	161.85	193.8	110.59	133.03	179.15	91.17	144.93
4	2007	187.06	200	122.78	164.54	196.88	109.14	163.40
5	2008	223.52	183.72	180.33	198.66	205.64	151.39	190.54
6	2009	281.29	222.59	214.75	226.26	224.77	155.94	220.93
7	2010	292.34	242.99	193.55	234.38	218.04	171.53	225.47
8	2011	201	181.98	182.68	202.22	174.12	132.85	179.14
9	2012	146.45	154.74	131.46	147.65	158.7	119.81	143.14
10	2013	108.57	95.78	142.08	106.17	91.2	92.38	106.03
11	2014	184.7	148.27	142.15	76.29	127.72	57.99	122.85
12	2015	161.85	193.8	110.59	133.03	179.15	91.17	144.93
13	2016	187.06	200	122.78	164.54	196.88	109.14	163.40
14	2017	223.52	183.72	180.33	198.66	205.64	151.39	190.54
15	2018	281.29	222.59	214.75	226.26	224.77	155.94	220.93
	Average	207.3	195.6	154.5	167.7	192.1	120.3	172.91
	Rank	1	2	5	4	3	6	

Source: Researcher's Own Computation

As exhibited above, AIB (207.3), BOA (195.6), and UNB (192.10) 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 three parameters, UNB (2.00), AIB (2.33), WEB (3.00) 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		Grand Total	
	%	Rank	%	Rank	%	Rank	%	Rank
AIB	37.26	3	46.82	3	207.3	1	2.33	2
BOA	34.62	4	42.78	5	195.60	2	3.67	4
DAB	34.53	5	42.75	6	154.50	5	5.33	6
NIB	33.4	6	44.53	4	167.70	4	4.67	5
UNB	40.5	1	52.73	1	192.10	3	1.67	1
WEB	39.35	2	50.58	2	120.30	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	3	6	5	5	2	4.20	6
BOA	2	5	3	2	4	3.20	3
DAB	4	1	4	4	6	3.80	5
NIB	1	2	4	1	5	2.60	1
UNB	2	3	5	4	1	3.00	2
WEB	2	4	6	3	3	3.60	4

Table-23 depicts the group and/or grand ranking of the medium banks of Ethiopian Private commercial banks for the period 2004-2018. Hence, NIB, UNB and UNB held from 1st to 3rd of the rank based on CAMEL model overall performance.

4.2 E-view Results

4.2.1 Results of the Descriptive statistics

The following table presents the results of the descriptive statistics of both the dependent variable (ROA) and the independent variables (selected bank specific variables).

From the results displayed below, the analysis of the means shows the following descriptive statistics: Profitability (M=2.844,SD=0.351),asset quality (M=6.519,SD=2.793), capital adequacy (M=16.466,SD=15.385), liquidity management (M=46.697,SD=10.683), earning quality (M=60.393,SD=5.259), and management efficiency (M=59.758,SD=2.813) hence earning quality has the highest mean (M=60.393) with the deviation from mean 5.2r58. On the other hand, the lowest standard deviation for probability (0.351) indicates that all the data's are clustered around the mean and thus more reliable.

Descriptive statistics for the variables

	ROA	AQ	CA	LM	EQ	ME
Mean	2.843556	6.519111	16.46556	46.69733	60.39256	59.75833
Median	2.886667	6.541667	12.71000	44.89333	62.26000	59.55833
Maximum	3.421667	12.37500	71.95000	66.11500	66.01833	65.99333
Minimum	2.103333	2.515000	10.90333	31.01833	48.46000	55.00167
Std. Dev.	0.350842	2.793987	15.38549	10.68341	5.258536	2.813385
Observations	15	15	15	15	15	15

4.2.2 Discussion on econometric results

Diagnostic tests and regression analysis is discussed in this part.

4.2.2.1 Diagnostic tests

Brooks (2008), CLRM is based on sets of assumptions: the errors have zero mean, the variance of the errors is constant and finite totals of X_t , the errors are linearly independent of one another, there is no common behavior among the error and corresponding x-variate, and the error terms are normally distributed.

4.2.2.1.1 Test for Heteroskedasticity

It is used to test for heteroskedasticity in a linear regression model and assumes that the error terms are normally distributed. It assessed whether the variance of the error from a regression is depends on the independent variables.

According to Brooks (2008), there are a number of heteroskedasticity tests, however, the most used is white specification is selected for the purpose of this study.

Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	1.090408	Prob. F(5,9)	0.4275
Obs*R-squared	5.658758	Prob. Chi-Square(5)	0.3409
Scaled explained SS	3.926297	Prob. Chi-Square(5)	0.5601

As per the information disclosed in the table a above both the results of the F-statistic and chi square version 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

Autocorrelation is assumed the errors are uncorrelated one another. Thus, the null term hypothesis is meant for checking whether the error terms are auto/serially/ correlated or not. The measurement could be either by Durbin-Watson statistic or by the Breusch – Godfrey test.

As it can be seen from the equation estimation, the DW statistic result seen to be 1.9717 (near 2). According to Brooks (2008), autocorrelation value near 2 indicates non – existence of autocorrelation. On the other hand, a value near to zero indicates positive autocorrelation, and a value near to 4 indicates negative autocorrelation.

4.2.2.1.3 Test for Normality

One of the best commonly used 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 statics should not be significant at 5% significance level.

As it can be seen from annex computed, 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 tells that there is no correlation among the explanatory variable. 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-1, a maximum correlation of 0.46 between Asset Quality and Earning Quality is observed. According to Cooper and Schindler (2009), a correlation between the explanatory variables is said to be series 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 generalized 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 normally by the aforementioned scholars.

4.2.2.2 Results of the Fixed Effect Regression

As indicated in the regression analysis table below, the bank specific variables that comprise CAMEL model to a large extent (88.09%) determine the profitability of private commercial banks in Ethiopia. The remaining 11.91% 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)

Dependent Variable: ROA
 Method: Least Squares
 Date: 02/03/21 Time: 21:34
 Sample: 2004 2018
 Included observations: 15

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.067166	0.012178	5.515253	0.0000
AQ	-0.170144	0.015338	-11.09322	0.0000
CA	0.000664	0.002858	0.232496	0.8208
LM	0.010318	0.004906	2.103076	0.0618
EQ	0.008954	0.010594	0.845162	0.0124
ME	0.048849	0.013460	3.629210	0.0046
R-squared	0.880915	Mean dependent var	2.843556	
Adjusted R-squared	0.833281	S.D. dependent var	0.350842	
S.E. of regression	0.143253	Akaike info criterion	-0.787206	
Sum squared resid	0.205214	Schwarz criterion	-0.551190	
Log likelihood	10.90405	Hannan-Quinn criter.	-0.789720	
F- statics	14.7403	Durbin-Watson stata		
Prob(F-statistic)	0.00000			

The fixed effects coefficients of the regressors' indicate how much Return On Assets (ROA) changes at the time there is a change in the variables such as capital adequacy, asset quality, management efficiency, earning quality, and liquidity management. When we see the table above the overall regression is statistically significant, $F=14.74$ and $P=0.00000$. Thus it supports the fact that bank specific variables such as capital adequacy, asset quality, management efficiency, earning quality, and liquidity management are important factors in determine the profitability of private commercial banks in Ethiopia.

Moreover, the coefficient of multiple determinants (R^2), which indicates, the quality of the fitness of the model, shows that about 88.09% of the changes in profitability of private commercial banks in Ethiopia are cause by variables incorporated in the CAMEL model.

As indicated in the above regression analysis table, Asset quality has a negative but statistically significant effect on the return on asset (ROA). This shows that management can increase its profitability by carefully watching the health status of its assets (loans and advances). Moreover best administration and control of loan portfolio (the diversification of loans in different sectors can minimize loan concentration and risky business be easily managed) is required to manage the default as low as possible.

On the other hand from the above regression table management efficiency is another bank specific factor that has significant effect on bank's profitability. This shows that strict follow up is required on the bank's expenses in general and non- interest expense in particular. Additionally, efficient management of banks reduces banks failure and/or increase banks profitability.

Earning quality is also seen to have a significant effect on profitability of commercial private banks of Ethiopia. This implies that the bank management needs to focus mainly on its main business rather than awaiting revenue from other sources like wind fall earnings such as from change in foreign currency.

Likewise, capital adequacy, liquidity management 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: Capital Adequacy (CA), Liquidity Management (LM), Earning Quality (EQ) and Management Efficient(ME) are positive, hence it indicates existence of direct relation between the stated independent variables (determinants) and the dependent variable and /or measure of profitability (ROA).on the other hand Asset Quality (AQ) negative, it indicates the existence of inverse relation between the stated independent variables and the dependent variable.

4.3. The Results of Interview

Semi structured interview (see annex-4 and annex – 5) with the National Bank of Ethiopia 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.

4.3.1 Interview with Bank Representatives

The first question that raise about what CAMEL is all was meant to check the awareness level of the respective bank representatives and/or test their knowledge about CAMEL framework. Most of them are less knowledge with the model of CAMEL and/or some have limited knowhow about it.

The banks representatives assumes that understanding of the CAMEL model in detailed is the responsibility of the regulatory organ, as a result most of them were not aware about the advantages and disadvantages of the model.

The question that is raised for the representatives of the bank to know about the advantages and disadvantages of CAMEL framework was not addressed.

Based on the answer of the representative of the banks the researcher has understood that respective banks do not use CAMEL model to analyze their performance.

After detailed analyzing the respondents feedback on interview questions the researcher has realized that the awareness level of the respective banks representatives about the model is very limited.

4.3.2 Interview with Representative of Supervisory Organ

Based on the representative of the National Bank Of Ethiopia, the word CAMEL is consists of capital adequacy, asset quality, management efficiency, earing quality, and liquidity.

The advantage of the model the representative stated that it is a ratio based model used to check the compliance of each private bank with set criteria.

The representative asserted that it is a model that focuses on quantitative aspects and it is a model that evaluates the present situation of a particular bank based on historical data.

The Bank Supervisor Departments CAMEL classification has five categories: strong, satisfactory, fair, deficient, and critically deficient are totally dependent on the banks own trend analysis (in contrast with the banks own prior year performances), peer comparison (peer average).

The BSD said that the CAMEL model is presently used most of the time to check the banks' compliance to the already set rules and regulations (established minimum requirements). For example, commercial banks are required to maintain at least a minimum risk weighted capital of 8%, asset quality is maintained by keeping the maximum NPLs at 5% or less, and the liquidity level of commercial banks must be at all times at least 15% of the net current liabilities.

According to the BSDs information the regulator organ try to do some attempt to adopt CAMEL model, but the is no fully used in a best and standardized manner.

There is difficulty to put in quantitative manner CAMEL model for some of the proxies such as management efficiency and earning quality.

CHAPTER FIVE: CONCLUSION AND RECOMMENDATION

5.1 Conclusion

For a given economy, best and up to date financial system is essential. Most of the performance of the economy is depend of the banking industry. Banks play an important role in the economy for offering a service for people wishing to save, and it also play an important role in offering finance to business who wish to invest and expand. These loans and business investment are important for enabling economic growth. In our country the financial system in dominated by banking industry.

The banking industry in Ethiopian is small, it is under developed, not opened, and characterized by a state share of ownership.

For measuring bank performance CAMEL model has been selected for this particular study because of its popularity across nations, and its importance to identify problems prior to manifestation, its ability to evaluate comparative performances of various commercial banks, and its acceptance it got from well-known institutions’.

The study tried to understand and know the internal factors of the private commercial banks on profitability for a period of 2004 up to 2018 and ranked their performance by CAMEL model. And used interview and secondary panel data from different sources such as National Bank of Ethiopia(NBE) the websites and financial statement of the respective private banks of Ethiopia. The regression analysis was done using fixed effect lease square (values of independent variables are assumed to be fixed i.e constant, and only the dependent variables changes in response to the levels of independent variables) method. The regression analysis output result that incorporated variables in the CAMEL model is seen to be statistically significant and supported the fact that bank specific variables such as; 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 88.09% of the changes in profitability of private commercial banks in Ethiopia are caused by internal variables used in the CAMEL model.

In Ethiopia, private commercial banks know how of CAMEL model is very poor(weak) and Regulatory Organ (NBE) is not properly and fully implement the model as the collected facts during the study.

Both the supervisory organ and the management members at the respective banks are not understand the advantage from the CAMEL mode and there is absence of knowledge about the model.

The results of the study also shows that internal variables such as capital adequacy, asset quality, management efficiency, earning quality, are the significant determinants of the profitability of private commercial banks. Improvement in such internal variables leads to higher profits.

Based on the results obtained from the study the overall performance of the respective private commercial banks using CAMEL model over the study period shows DAB, WEB, AIB and UNB holding form first to third ranks respectively.

5.2 Recommendation

- Private banks in Ethiopia is advised to give training to their staff both on the management levels and at the lower level about the essence of CAMEL and rating using the CAMEL model.
- The banks managers and other staff must share information and knowledge with other banks about the CAMEL model, and strong relations ship found between private banks.
- 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.

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ANNEXES 1 List of Commercial Banks and year of establishment

	Bank Name	Web Site	Year Est.
1	Abay Bank S.C.	http://www.abaybank.com.et	2010
2	Addis International Bank	http://www.addisbanksc.com/	2011
3	Awash International Bank	http://www.awashbank.com/	1994
4	Bank of Abyssinia	http://www.bankofabyssinia.com/	1996
5	Berhan International Bank	http://berhanbanks.com/	2010
6	Bunna International Bank	http://www.bunnabanksc.com/	2009
7	Commercial Bank of Ethiopia	http://www.combanketh.et/	1963
9	Cooperative Bank of Oromia	http://www.coopbankoforomia.com.et/	2005
10	Dashen Bank	http://www.dashenbanksc.com/	2003
11	Debab Global Bank	http://www.debabglobalbank.com/	2012
12	Development Bank of Ethiopia	http://www.dbe.com.et/home/	1909
13	Enat Bank	http://www.enatbanksc.com/	2013
14	Lion International Bank	http://www.anbesabank.com/	2006
15	Nib International Bank	http://www.nibbank-et.com/index.php	1999
16	Oromia International Bank	http://www.orointbank.com/	2008
17	United Bank	http://www.unitedbank.com.et/	1998
18	Wegagaen Bank	http://www.wegagaenbanksc.com/	1997
19	Zemen Bank	http://www.zemenbank.com/	2009

Annex 2-Interview Questions- For Target Bank Representatives

- ✓ What is **CAMEL** and what do you know about **CAMEL** model framework?
- ✓ What are the advantage and disadvantage of **CAMEL** model in bank performance measure approach?
- ✓ Did your bank use **CAMEL model** to measure approach to analyze banks 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 next actions do you take based on the result of the interview communicated from the supervisory organ?
- ✓ Do you think **CAMEL** model bank performance measure as the right tool to measure the bank profitability in Ethiopian Banks? If yes, why? If no, why not?

Annex 3- Interview Questions- For BSD Representative

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