Addis Ababa University

College of Business and Economics

Analysis of Financial Performance of Selected Commercial Banks in Ethiopia

Ashenafi Beyene

A Thesis Submitted to

The Department of Accounting and Finance

Presented in partial Fulfillment of the Requirements for the Degree of Masters of Science in Accounting and Finance

February, 2022

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Declaration

I, Ashenafi Beyene Jimma, certify that the thesis entitled "**Analysis of Financial Performance of Selected Commercial Banks in Ethiopia."** have carried out independently and submitted in partial fulfillment of the requirements for the Degree of Masters of Science (Accounting and Finance) with the guidance and support of the research advisor**.** The thesis complies with the regulations of the university and that all the sources of materials used for the purpose of this thesis have been duly acknowledged.

Declared by:

Name: Ashenafi Beyene Jimma

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

Signed by the examining committee:

Examiner Lemessa Bayissa (Phd) Signature----------Date----------

Examiner Laxmikantham Padakanti (Phd) Signature----------Date----------

Advisor Takele Fufa (Phd) Signature----------Date----------

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Chair of Department of Graduate Program Coordinator

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Table of Contents

Contents **Pages**

List of Tables

Pages

List of Figures

Pages

Acronyms

AIB:	Awash International Bank
AQ:	Asset Quality
BB:	Berhan Bank
CA:	Capital Adequacy
CAR:	Capital Adequacy Ratio
CAMEL:	Capital Adequacy, Asset Quality, Management Efficiency, Earning Quality and Liquidity
CBE:	Commercial Bank of Ethiopia
CBO:	Cooperative Bank of Oromia
DB:	Dashen Bank S.Co.
EQ:	Earning Quality
GDP	**Gross Domestic Product**
LIB:	Lion International Bank
LIQ:	Liquidity
ME:	Management Efficiency
NBE:	National Bank of Ethiopia
NIB:	Nib Bank S.Co.
NIM:	Net Interest Margin
OCE:	Operating Cost Efficiency
OIB:	Oromia International Bank
ROA:	Return on Assets
ROE:	Return on Equity
SIZE:	Size of the Bank
UB:	United Bank
WB:	Wegagen Bank
ZB:	Zemen Bank

Abstract

The purpose of this study was to analyze the financial performance of commercial banks in Ethiopia using the CAMEL method. The research was carried out on ten commercial banks, using data from their annual reports from 2011 to 2020. The overall goal of this study was to investigate the interconnection between CAMEL ratios and profitability, as well as the effects of CAMEL variables, bank size, and operating cost efficiency on profitability measurements of return on asset, as well as to rank banks included in this study based on their financial performances. The study used a quantitative technique from one of the three business and social research approaches. In addition to CAMEL factors, this study employed ROA as a dependent variable and bank size and operating cost efficiency as independent variables. For econometric analysis and descriptive statics for CAMEL ratios, bank size and operating cost efficiency, the researcher employed data from annual report of the banks. To test the hypothesis and evaluate the relative importance of each independent variable included in the CAMEL framework to explain dependent variables, fixed effect regression analysis was performed. The econometric analysis revealed that asset quality, earning quality, liquidity, bank size, and operating cost efficiency were significant variables in explaining ROA, although capital adequacy and management efficiency were not. According to the study, banks shall concentrate on raising their total asset by mobilizing deposits and converting them to loans, as total asset or bank size is a determinant factor in raising return on asset.

Key words: CAMEL, Financial performance, Bank size, Operating cost efficiency

CHAPTER ONE

1. INTRODUCTION

1.1 Background of Study

Modern banking is one of the most important enterprises operating on the periphery of both the national and international financial systems. Funds can be allocated, invested, or moved between economic sectors using the financial system. Banks act as financial intermediaries, facilitating trade and capital development by channeling funds from surplus to deficit economic units. A well-regulated financial sector is critical to the health of both the national and global economies. According to Ncube and Senbet (1994) cited in Chirwa (2001), "a well-functioning financial system is essential not just for domestic capital mobilization but also for establishing a competitive edge in the global capital market. The banking sector is the primary source of long-term investment funds and is the bedrock of economic growth" (Mulualem, 2015).

Based on the numerous financial literatures, commercial banks are unquestionably among the most important financial institutions in the economy. Commercial banks ensure economic and social stability by providing financial services to the general population, businesses, and corporations. As a result, bankers must work inside the financial system in order to collect deposits, offer loans, and provide a variety of other financial services to their clients. They must do so in an environment that is heavily regulated, with the primary goal of safeguarding the public interest (Rose, 2002).

Bank performance is vital to measure since it has an impact on the smooth flow of the entire economy. Profitability, efficiency, solvency, and liquidity are all terms used to describe a bank's financial performance. It helps all stakeholders to evaluate how a bank generates money by guiding them through the process. Economic development is aided by high-performing banks because they make the saving-investment process more seamless, efficient, and accessible. Performance measurement systems are vital for evaluating the achievement of corporate goals, developing development strategies, making investment decisions, and paying managers (Teker, Teker, & Kent, 2011).

Corporate accountants and investors alike scrutinize a company's financial accounts in order to assess its financial health, which allows them to obtain a thorough picture of profitability. The ability of a bank to generate long-term profitability is referred to as its financial performance (Anteneh, 2018).

However, it become increasingly difficult to evaluate economic entities based on reported financial statements because managers can manipulate them to disguise potential problems. The primary technique are the use of nonrecurring extraordinary transactions, discretionary interpretation of reporting requirements, goodwill reporting, discretionary timing of reported loan charge-offs. Off-balance sheet special purpose entities, and accounting changes that mask true operating performance. (Scott & Timothy, 2006). The net effect is to potentially distort the magnitude of period-ending balance sheet figures, net income, and related ratios, which makes comparison difficult over time.

To calculate profitability, a variety of measures and financial ratios are used. The CAMEL technique is typically the most chosen approach and parameters used by regulators and many experts. The CAMEL grading criterion (Capital adequacy, asset quality, management efficiency, earnings quality, and liquidity) is used to examine and evaluate the bank's performance and financial soundness. In terms of frequency, check spread over, and concentration, the CAMEL supervisory criteria in the banking sector are a major and significant improvement over the preceding criterions, according to Misra & Aspal (2013), Basel (2011), cited in Wesen (2019) Melaku (2016).

The CAMEL technique is an important instrument for assessing a bank's relative financial soundness and recommending essential solutions to remedy a bank's weaknesses. The CAMEL rating is a subjective model that shows a bank's financial strength; the CAMEL ranking, on the other hand, reveals the bank's relative position in comparison to other banks (Anteneh, 2018). CAMEL (s) ratios were explored by Nurazil and Evans (2005) to see if they may be used to forecast bank collapse. The findings revealed that the capital adequacy ratio, asset quality, management, profits, liquidity, and bank size all play a statistically significant role in predicting bank failure. Olweny and Shipo (2011) found that poor asset quality and low levels of liquidity are the two major causes of bank failure. Poor asset quality led to many bank failures in Kenya in the early 1980s (Mulalem, 2015). Kaya (2010), as referenced by Serhat Yukse (2015), examines the relationship between CAMELs rating and the

likelihood of a bank's collapse using data from Turkish commercial banks from 1997 to 2000, and finds that only 17% of the institutions deemed successful by the CAMELs system failed.

Bank performance is important because of its effect on the performance of the whole economy. The global financial crisis of 2007-2009 has shown this implication of bank performance in national and international level. The banking environment in Ethiopia has undergone many regulatory and financial reforms for the period of two decades. These reforms have brought about many structural changes in the banking sector of the country. Despite these changes, currently the banking industry in Ethiopia is characterized by little and inefficient competition, operational inefficiency and insufficient competition and perhaps dominated by the big government owned commercial bank. These peculiar characteristics of the country's banking industry are a clear indication of relatively poor performance of the sector. Thus, it is important to evaluate and analyze the bank performance critically for an efficient management of banking operations as well as to ensure financial soundness of the banking industry.

Taking the foregoing discussion into account, the goal of this study is to use the CAMEL model to analyze the financial performance of commercial banks in Ethiopia. When analyzing a bank's financial performance, the model takes into account crucial components. Capital, Assets, Management, Earnings, and Liquidity are among these crucial components. The components are rated on a scale of 1 to 5, and this serves as the foundation for the composite rating, which likewise ranged from 1 to 5.

1.2 Overview of Ethiopian Banking System

In 1905, Emperor Minilik II and the British-owned National Bank of Egypt signed an agreement that marked the beginning of modern banking in Ethiopia. Following the agreement, the Bank of Abyssinia was established on February 16, 1906. The Egyptian National Bank was in charge of the entire bank. Within the first fifteen years of its operation, the bank was given complete authority to issue bank notes and monitors coins that were to be legal money. Bank of Abyssinia opened branches throughout the country. Bank of Abyssinia had trouble familiarizing the people with the banking service because the society was new to

it at the time. As a result, the bank lost money despite its monopoly position in 1914 (Melaku, 2016).

In general, during its brief life, Bank of Abyssinia only did limited operations, such as monitoring government accounts, providing modest export finance, and doing different government jobs. Furthermore, under immense pressure for being inefficient and profit-driven, the Bank agreed to cease operations and be liquidated in order to decouple banking from foreign control and make the institution responsible for Ethiopia's credit needs. Thus, shortly after Emperor Haile Selassie took power in 1931, the Bank of Abyssinia was formally superseded by the Bank of Ethiopia.

The new Bank of Ethiopia, a solely Ethiopian organization, was the continent's first indigenous bank, formed by official order on August 29, 1931, with a capital of £750,000. The Bank of Ethiopia took over the Bank of Abyssinia's commercial activities and was given the authority to issue notes and coins. The bank, which had branches throughout the country, continued to operate well until the Italian invasion in 1935. During the invasion, the Italians set up branches of its major banks, including Banco di Roma, Banko di Napoli, and Banca Nazionale del Lavoro, in Ethiopia's major cities. However, they all ceased operation soon after liberation except Banco di Roma and Banco di Napoli which remained in Asmara. In 1941 another foreign bank, Barclays Bank arrived in Ethiopia with British forces and set up financial services in Addis Ababa until 1943, when it was forced to leave. The Ethiopian State Bank thereafter went into full operation on April 15, 1943. As the agency of the Ministry of Finance, it operated as Ethiopia's Central Bank and had the authority to issue bank notes and coins. By bank declaration issued in December of 1963, this bank ceased to exist. The National Bank of Ethiopia and Commercial Bank of Ethiopia were established in 1963 by a law that divided the functions of commercial and central banking, restricting their maximum ownership to 49 percent and requiring Ethiopians to own the remaining balance (Anteneh, 2018).

Addis Ababa Bank Share Company, Ethiopia's first privately held bank, was founded on Ethiopian initiative and began operations in 1964. Other financial institutions such as the Imperial Savings and Home Ownership Public Association (ISHOPA) operated in the country, specializing in providing loans for the construction of residential houses and to individuals backed by their savings. There was also Ethiopia's savings and Mortgage

Corporation. Agriculture Bank, on the other hand, was founded in 1945 and is still active today. However, the Ethiopian Investment Bank took its place in 1951. The bank's name was changed to Ethiopian Investment Corporation Share Company in 1965. Proclamation No55 of 1970, on the other hand, formed the Agricultural and Industrial Development Bank Share Company, which took over the assets and liabilities of the former Ethiopian Development Bank and Investment Corporation (Melaku, 2016).

Following the establishment of socialism in 1974, the government expanded its economic control and nationalized all big enterprises. As a result, in 1976, the three private-owned banks Addis Ababa Bank, Banco di Roma, and Banco di Napoli merged to become Addis Bank, Ethiopia's second-largest bank. By proclamation No. 184 on August 2, 1980, the Addis Bank and Commercial Bank of Ethiopia S.C. were amalgamated to form the country's sole commercial bank until the establishment of commercial banks in 1994. The Imperial Savings and Home Ownership Public Association and the Savings and Mortgage Corporations S.C were also amalgamated to form the Housing and Saving Bank. The Agricultural and Industrial Bank, which was established in 1970 with 100% state control, was brought under the cover of the National Bank of Ethiopia by Proclamation No.99 of 1976. It was then renamed Agricultural and Industrial Development Bank by proclamation No.158 of 1979. (AIDB). The financial industry left behind by the socialist-oriented government consisted of only three banks, each with a monopoly in its own market. The banks at the end of the socialist era were the National Bank of Ethiopia (NBE), the Commercial Bank of Ethiopia (CBE) and Agricultural and Industrial Development Bank (AIDB).

The EPRDF announced a liberal economy system when the Dergue dictatorship fell apart in 1991. In accordance with this, Ethiopia's monetary and banking proclamation of 1994 created the National Bank of Ethiopia as a judicial body apart from the government and defined its basic functions (Anteneh, 2018).

Monetary and Banking Proclamation No.83/1994 and the licensing and supervision of Banking Business No. 84/1994 laid down the legal basis for investment in the banking sector. Consequently, shortly after the proclamation the first private bank, Awash International Bank was established in 1994. With around 100,000 Shareholders, the 16 private banks currently operating in Ethiopia are Awash Bank (AB), Dashen Bank (DB), Cooperative Bank of Oromia (CBO), United Bank (UB), Wegagen Bank (WB), Nib Bank (NB), Bank of

Abyssinia (BOA), Oromia International Bank (OIB), Addis International Bank (AIB), Berehan Bank (BB), Abay Bank (AB), Debub Global Bank (DGB), Zemen Bank (ZB), Buna Bank (BUB), Lion International Bank (LIB) and Enat Bank (EB).

1.3 Statement of the Problem

Banks, as financial institutions, serve a unique role in the economy by bridging the gap between saving and investing. The banking sector acts as an engine in increasing modern trade and commerce for business firms and individual merchants in the pursuit of profit (Melaku, 2016). However, there are a number of issues or determinants that can obstruct the smooth operation of the financial system in general, and the banking sector in developing nations like Ethiopia in particular. Bank lending, bank size, management efficiency, deposit volume, bank liquidity, bank capitalization level, and bank growth are examples of micro or bank specific characteristics. External factors are macroeconomic variables that are unrelated to bank management yet affect the operation and performance of financial institutions (Gaiotti and Secchi, 2006). They include the monetary, economic, and legal environments Bank performance could also be affected by external factors as social, economic, political and technological environments.

Without knowing the drivers of banks' financial activity, analyzing their financial performance would be difficult. A variety of researches have been undertaken in different places around the world to investigate the factors that influence bank financial performance. For example, Mulualem G., (2015) looked at Ethiopian banks (Okoth, V. & Gemechu. B., 2013) looked at Kenyan banks (Murthy and Sree, 2003) looked at Oman banks (Sufian F., 2011) looked at Korean banks, and so on. Although, all of these and other researchers conducted study on the area of banks' financial performance analysis, the determinants have been debated for many years and still unresolved academic issues in financial literature (Anteneh, 2018). In fact what makes the financial performance determinants debate thrilling is the determinants are dynamic through time to time and differ with the nature of operating of the firm from place to place (Flamini, et al., 2009).

Studies show, there are no universally accepted findings on what determines financial performance of banking sector, because countries vary each other in their financial systems, political systems, economic systems and operating environments. Notably in Ethiopia the

banking sector is unstudied area, though, few studies have been conducted on financial performance of Ethiopian commercial banks. Recent data asserts that mostly the banking sector has accomplished a trend of growing profitability, the contributing factors, whether internal or external, to the greatest profitability earned by the banking industry was not well analyzed. It is important therefore, to understand if banking sector profitability is being driven by internal (Micro) factors which are the focus of this study. This raises some important issue: To what extent internal factors impact the performance of banks? Which internal factors have significant impact than the other? This will help to identify which internal factors contributed most for the success of some commercial banks among the group and there by helps to identify the determinants for better performance of Ethiopian banks. This study, hence basically intends to systematically identify and measure internal factors that impact the performance of Ethiopian banking sector using data from 2011-2020. The rationale behind focusing on bank specific variables is due to the existing less competitive and highly protected Ethiopian banking environment. Furthermore, the external factors are not expected to differ among the target banks that are selected for this particular study because all are operating under the same financial system, same regulatory organ and are within the same geographical area. The study has different perspectives than the usually observed performance measures applied in most studies done in Ethiopia and other countries. The gaps in literature this study tried to incorporate include:

• The research works done in Ethiopia do not incorporated key variables like Operating Cost Efficiency (OCE) in the performance measurement of banks.

• This study will also contribute to literature by empirically re-confirming (or otherwise) the results of the previous studies on the determinants of financial performance of commercial banks, especially with regard to Ethiopia's situation using RoA as performance measure.

Therefore, this study will use Return on Asset (RoA) as dependent variable and Bank Size (Size), Operational Cost Efficiency (OCE) as independent variable in addition to CAMEL variables, to test whether Size, OCE and CAMEL variables have impact on profitability measurements. This will fill the aforementioned gap by focusing only on bank specific factors by including new determinant variable like OCE. The study also uses more recent data 2011 – 2020.

1.4 Research Question

1. To what extent do bank specific internal factors affect the financial performance of
2. Commercial Banks in Ethiopia?
3. To what extent does Bank Size (Size) affect the financial performance of
4. Commercial Banks in Ethiopia?
5. To what extent does Operational Cost Efficiency (OCE) affect the financial performance of Commercial Banks in Ethiopia?

1.5 Objectives of the Study

1.5.1 General Objective

The overall objective of this study is to analyze the effect of CAMEL variables, bank size, and operating cost efficiency on profitability measurements of Return on Asset and to rank commercial banks that were included under this study.

1.5.2 Specific Objective

With a view to achieve the above general objective, the study has the following specific objectives:

1. To evaluate the effect of capital adequacy on banks' performance.
2. To examine the importance of asset quality on banks' performance.
3. To determine the role of management efficiency on banks' performance.
4. To examine the impact of earning quality on banks' performance.
5. To investigate the effect of liquidity on banks' performance.
6. To identify the impact bank size on banks performance.
7. To estimate the impact of operating cost efficiency on Ethiopia Commercial banks performance.

1.6 Hypothesis of Study

The study has developed the following hypotheses based on existing theory and empirical studies related to factors affecting the performance of Commercial Banks in Ethiopia.

H_1: There is a significant relationship between capital adequacy ratios and banks' performance.

H_2: There is a significant relationship between asset quality ratios and banks' performance.

H_3: There is a significant relationship between management efficiency ratios and banks' performance.

H_4: There is a significant relationship between earning quality ratios and banks' performance.

H_5: There is a significant relationship between liquidity ratios and banks' performance.

H_6: There is a significant relationship between bank size and banks' performance.

H_7: There is a significant relationship between OCE and banks' performance.

1.7 Significance of the Study

The study has sought out the internal factors which determine the financial performance of commercial banks in Ethiopia. The knowledge of such determinant factors has theoretical as well as practical significance. The theoretical related significance relates to further validation of some of the factors identified as determinants of financial performance based on empirical data from Ethiopia. Furthermore, it will help to know the overall performance and soundness of Commercial Banks in Ethiopia. It help to analyze the concept of the camel model approach and know which variables have significant contribution to financial performance measure of Commercial Banks in Ethiopia.

The study will also help all parties including bank managers, regulators, depositors, investors and researchers on the topic, for Bank Manager to ensure their risk levels are not too high, and to take possible measures if they are, for regulators to identify banks requiring special supervisory attention or concern and government to frame national policy by taking such determinants into account, for depositors to deposit or withdraw money, for investors to evaluate the performance of the bank when they are investing as well as post investment return and for researchers to validate some of the factors affecting the financial performance of Commercial Banks.

1.8 Scope and Limitation of the Study

The scope of the study was cover commercial banks established and currently performing in Ethiopia. The study was taking into account the performance of the banks for the period ranging from 2011 & 2020 G.C. As a result, it includes one government owned banks namely

CBE and nine private owned commercial banks namely, **AIB, DB, WB, BB, LIB, CBO, ZB,CBO, ZB, OIB and NIB.**

The finding of this research was likely to have certain limitations. The data covers only quantitative variables. These parameters alone are not sufficient to make an overall assessment of financial system's performance. The assessment of financial performance may also depend on a broad range of qualitative elements. In particular, financial performance may also be affected by prevailing economic and political conditions.

1.9 Organization of the Study

This study was organized under the following chapter structure. Chapter one is introduction which includes background of the study, statement of the problem, objectives of the study, hypothesis of the study, significance of the study, scope and limitation of the study.

Chapter two include literature review about CAMEL approach both theoretical and empirical part. Chapter three is about research design, methodology and organization of the paper. This chapter includes research approach, data type and data source, sample size and sampling techniques, empirical model specification and data analysis. Chapter four is all about discussion of results and findings and last chapter will summarize the study by forwarding summary conclusion and recommendation.

CHAPTER TWO

2. LITERATURE REVIEW

2.1 Theoretical Literature Review

Since the introduction of Structural Adjustment Programs (SAP) in the late 1980s, the banking industry has seen significant changes in its operating environment. Countries have lessened government involvement, loosened interest rate regulations, and welcomed multinational banks (Ismi, 2004). Enterprises from industrialized countries have become increasingly prominent in developing countries as a result of this change, either through subsidiaries and branches or through the acquisition of foreign firms. Since the 1980s, many foreign banks have opened branches or subsidiaries in various parts of the world. Researchers have taken an interest in examining bank performance in connection to these developments.

It is self-evident that a healthy and prosperous banking industry can survive negative shocks and contribute to financial system stability (Athanasoglou et al., 2005). Furthermore, commercial banks play an important part in a country's economic development. Banks play a critical role in the efficient allocation of resources in countries by mobilizing resources for productive activities through their intermediation function. They move money from individuals who aren't doing anything helpful with it to others who are aside from resource allocation. Excellent bank performance provides shareholders with a satisfactory return on their investment. When there is a profit, there will be an investment, which will result in economic growth. Poor banking performance, on the other hand, has a negative impact on economic growth and development. Runs, failures, and crises can all result from poor performance. As happened in the United States in 2007, a banking crisis can lead to a financial crisis, which can lead to an economic disaster (Marshall, 2009). That is why governments use their central banks to regulate the banking industry in order to create a sound and healthy banking system that avoids banking crises and protects depositors and the economy (Heffernan, 1996; Shekhar and Shekher, 2007).

As a result, banking performance was given due consideration in order to avoid the crisis. In many of the articles reviewed that bank performance is primarily represented by quantitative financial measures. The application of two industrial organization models, the Market Power (MP) and Efficiency Structure (ES) theories, to studies on bank performance began in the

late 1980s/early 1990s (Athanasoglou et al., 2005). The MP hypothesis, which is used in banking, states that the market structure of the industry influences bank performance. The ES hypothesis, on the other hand, states that banks make a lot of money because they are more efficient than other businesses. According to Nzongang and Atemnkeng in Olweny and Shipho, "the balanced portfolio theory has also added greater insight into the study of bank profitability" (Olweny and Shipho, 2011).

Within the MP theory, there are two separate approaches: the Structure–Conduct–Performance (SCP) and the Relative Market Power Hypothesis (RMP). According to the SCP method, the level of concentration in the banking sector gives rise to the opportunity for banks to gain market dominance, which could increase their profitability. Regardless of whether they believe bank profitability is influenced by market share, banks in more concentrated markets are more likely to make abnormal profits as a result of their ability to lower deposit rates and charge higher loan rates as a result of collusive or monopolistic reasons than banks in less concentrated markets. It assumes that only large banks with differentiated products can influence prices and increase profits. They are able to exercise market power and earn non-competitive profits.

The ES hypothesis, on the other hand, claims that banks make a lot of money because they are more efficient than the rest of the economy. Within ES, there are two main approaches: the X-efficiency hypothesis and the Scale efficiency hypothesis. More efficient enterprises are more profitable, according to the X – efficiency method, because their costs are lower. Such businesses tend to gain huge market shares, which can lead to higher levels of market concentration, although there is no link between market concentration and profitability (Athenasoglou et al., 2005).Rather than disparities in management or production technology, the scale approach stresses economies of scale. Through economies of scale, larger companies can achieve lower unit costs and bigger profits. This enables large firms to acquire market shares, which may manifest in higher concentration and then profitability.

According to the aforementioned theoretical study, MP theory assumes that bank profitability is impacted by external market conditions, whereas ES theory assumes that bank performance is mostly influenced by internal efficiencies and managerial actions. Several banking company models have been developed to address various elements of bank behavior, but none of them is accepted as a comprehensive description of all bank activity.

From the above theories, it is possible to conclude that bank performance is influenced by both internal and external factors. According to Atharoasoglou et al, (2005) the internal factors include bank size, capital, management efficiency and risk management capacity. There are still some scholars contend that the major external factors that influence bank performance are macro-economic variables such as interest rate, inflation, economic growth and other factors like ownership.

2.2 Bank Performance Indicators

Profit is the ultimate purpose of a commercial bank. To achieve this lofty goal, strategies are devised and various activities are carried out. This isn't to say that commercial banks don't have other objectives. Commercial banks may also have social and economic objectives. The purpose of this study, on the other hand, is to address the first major goal: profitability. Commercial banks' profitability is measured using a range of criteria, including Net Interest Margin (NIM), Return on Equity (RoE), and Return on Assets (RoA) (Murthy and Sree,2003; Alexandru et al.,2008).

2.2.1 Return on Asset (RoA)

The ability of management to collect deposits at a fair cost and deploy them in lucrative assets is measured by return on asset (RoA). The RoA is calculated by dividing the year's net income by total assets, which is usually the average value during the year. This figure depicts the amount of net income made per Birr of assets. The higher the bank's return on assets (ROA), the more profitable it is (Mulualem, 2015).

2.2.2 Return on Equity (RoE)

The return on equity (RoE) is a financial measure that compares a company's profit to the total amount of shareholder stock invested or located on the balance sheet. The return on investment (RoI) is what investors are looking for. A company with a high return on equity is more likely to be capable of earning cash on its own. As a result, the greater the RoE, the better the company's profit production. Kharawish (2011) goes on to say that “RoE is the ratio of Net Income after Taxes divided by Total Equity Capital”. It is the rate of return earned by the bank's investors on their cash invested in the bank. The return on equity (RoE) measures how well a bank's management is utilizing its assets (Anteneh, 2018).

Thus, it can be deducted from the above statement that the better the RoE the more effective the management in utilizing the shareholders capital.

2.2.3 Net Interest Margin (NIM)

NIM is a measure of the difference between the interest income generated by banks and the amount of interest paid out to their lenders relative to the amount of their (interest earning) assets. It usually expressed as a percentage of what the financial institution earns on loans in a specific time period and other assets minus the interest paid on borrowed funds divided by the average amount of the assets on which it earned income in that time period (the average earning assets). The NIM variable is defined as the net interest income divided by total earning assets (Gul et al., 2011).

The difference between the interest revenue the bank obtains on loans and securities and the interest expense of its borrowed money is known as the net interest margin. It indicates the cost of bank intermediation services as well as the bank's efficiency. The bigger the net interest margin, the more profitable the bank is and the more stable it is. As a result, it is one of the most important indicators of bank profitability. A bigger net interest margin, on the other hand, could suggest riskier lending practices associated with a large loan loss provision (Khrawish, 2011).

2.3 Determinants of Bank Performance

Bank performance drivers can be divided into internal (internal) and external (macroeconomic) elements (Aburime, 2005). The output is determined by stochastic variables. Individual bank features that influence the bank's performance are known as internal factors. Internal decisions made by management and the board of directors have a significant impact on these aspects. External factors are sector- or country-wide elements that affect bank profitability and are beyond the control of the company.

2.3.1 Bank Specific Factors/ Internal Factors

Several studies have used CAMEL model to examine factors affecting bank profitability with success. The system was developed by the US Federal Deposit Insurance Corporation (FDIC) for “early identification of problems in banks operation” (Uzhegova, 2010). Though some alternative bank performance evaluation models have been proposed, he CAMEL,

framework is the most widely used model and it is recommended by Basel Committee on Bank Supervision and IMF (Bara, 2005).

2.3.1.1 Capital Adequacy

The sufficiency of the amount of equity to absorb any shocks that the bank may face is referred to as capital adequacy (Kosmidou, 2009). Capital adequacy is a measure of a bank's internal strength which can help a bank survive a crisis. Opening new branches, fresh lending in high-risk but profitable regions, human recruitment, and diversification of operations through subsidiaries or specially constructed branches are all examples of how capital adequacy can affect a bank's overall performance. Recognizing the importance of capital adequacy, the National Bank of Ethiopia (NBE) has established particular metrics to assess banks' capital adequacy, including the Capital Adequacy Ratio (CAR) (Directive No. SBB/9/95). The regulation spelled out the calculation mechanism and conversion factors for both on and off-balance sheet entities, and it mandated that all banks maintain capital levels of at least 8% of their risk-weighted assets (Solomon Z., 2018).

Although most people agree that statutory capital requirements are important to avoid moral hazard, there is disagreement on how much capital is sufficient. Bankers claim that obtaining extra equity is expensive and complex, and that greater requirements limit their competitiveness. Regulators want higher minimum requirements to minimize bank failures (Koch, 1995).

For analysis purpose Capital adequacy ratio, Equity Capital to Total Assets, Leverage Ratio, etc…is used to measure capital adequacy.

Table 2.1. Capital Ratios Analysis

Ratios	Formula
CAR	$\frac{\text{Tier 1 Capital + Tier 2 Capital}}{\text{Risk – Weighted Asset}}$
Equity Capital to Total Assets	$\frac{\text{Total Capital}}{\text{Total Asset}}$
Leverage Ratio	$\frac{\text{Debt}}{\text{Total Share Holders' Equity}}$

Source: (Solomon, 2018)

In the above table, Tier 1 Capital represents for Equity Share Capital + Disclosed Reserves and Tier II capital is the sum of Undisclosed Reserves + General loss Reserves + Subordinate term debts. Debt to equity ratio (leverage ratio) represents the degree of leverage of a bank. It shows how much proportion of the bank business are finances through equity and how much through debt. It is calculated by dividing sum of total borrowing and deposits with shareholders' equity. Higher ratio is an indication of less protection for the depositors and creditors and lower ratio is seen as better performance of the bank.

2.3.1.2 Asset Quality

The quality of assets is an important factor in determining a bank's financial strength. One of the things that affect the health of a bank is credit risk. The quality of assets owned by a particular bank determines the level of credit risk. The risk exposure of a bank's assets is determined by trends in non-performing loans, as well as the health and profitability of bank borrowers (Baral, 2005). According to Aburime (2008), a bank's profitability is determined by its ability to anticipate, avoid, and manage risks, as well as its ability to pay losses caused by such risks.

Even while the asset side of the bank's balance sheet includes multiple asset components such as cash, deposit with banks including reserve at NBE, loans, investments, fixed assets, and so on, there appears to be an agreement to focus on the loan portfolio's quality. This appears to be attributable to substantial loans on the bank balance sheet, which are the result of banks' inherited intermediation activity. Furthermore, a bank's principal asset, which creates the majority of the bank's revenue, is frequently a bank loan. As a result, the quality of a bank's loan portfolio influences its profitability. Losses resulting from delinquent loans provide the greatest risk to a bank, and they have a significant impact on its performance (Dang, 2011). Liu and Wilson (2010) find that a deterioration of the credit quality reduces the RoA and RoE. According to Sangmi and Nazir (2010), the advances of a bank are to be disclosed in classified manner as, Standard Asset (Advance), Sub-Standard Asset/Advance, Doubtful Asset/Advance, Loss Asset/Advance. Standard assets are those assets that are performing and loanee is paying interest and installment at due date, further they do not carry more than risk. Formerly; no provision was required. Sub-standard assets are those assets that have been classified as non-performing for a period less than or equal to three quarters. In such cases, the current net worth of the borrower/guarantor or the current market value of the

security charged is not enough to ensure recovery fully. It has a fully developed weakness that jeopardizes the liquidation of the debt. Doubtful assets are those assets that have remained sub-standard for 18 months. The provisions of 100% of the provisions are to be made by the realizable value of the security to which a bank has recourse. Loss assets are the ones where loss has been identified but the amount has not been written off wholly or partly. Such an asset is uncollectible / unrecoverable and of such little value that its continuance as a bankable asset is not warranted although there may be some salvages value. Since the losses of assets are to be written off, 100% provision is needed to make for loss assets.

Under the above classification, the advance/asset which ceases to earn income/interest is termed as non-performing asset and banks has to keep a provision for its probable loss. More NPAs more sub-standards, doubtful and loss assets which is total for the future financial performance of a bank. Therefore, keeping NPAs minimum should be the attempt of every conscious bank. The asset quality will be estimated based up on the following key financial ratios.

Table 2.2. Asset Quality Ratio Analysis

Ratios	Formula
NPLs to Total Loans	$\frac{\text{NPLs}}{\text{Total Loans}}$
NPLs to Total Equity	$\frac{\text{NPLs}}{\text{Total Equity}}$
Allowance for Loan Loss Ratio	$\frac{\text{Allowance for Loan Loss}}{\text{Total Loan}}$

Source: (Solomon, 2018)

2.3.1.3 Management Efficiency

It's a different way of assessing a bank's financial health. It has to do with a company's ability to use its resources efficiently, increasing revenue, and lowering operating costs, all of which may be quantified using various financial relationships or ratios. It's also used to determine whether a bank is overstaffed or understaffed. It also assesses the bank's efficiency in terms of maximizing profits per employee. Advances/total deposit, total advance and total deposit/number of employees, and profit/number of employees can all be used to calculate it (Srinivasan and Saminatham, 2016).Though there are no set rules for evaluating management

effectiveness, the CAMEL approach provides insight into a few statistics that can be used to demonstrate bank management effectiveness, such as business per employee, profit per employee, and net interest income (Muralidhara and Lingam, 2017).Total interest expenditures to total deposit ratio (interest expense to total deposit), total loans and advances to total deposits ratio (loans and advances, deposits), and return on net worth (profit after tax/net worth) are all used by Tadios (2016) to determine managerial efficiency.

The management efficiency ratio is the most negatively linked variable with RoA and RoE, according to Mulualem (2015). Another important component of the CAMEL model that assures a bank's survival and growth is management efficiency. In past research, the management was represented by two ratios: operating costs to net operating income ratio and operating expenses to assets ratio.

The operating costs to net operating income ratio shows what percentage of a bank's revenue is used to cover operational expenses. It provides information on managerial efficiency in terms of costs versus revenue generated. According to Olweny (2011), as reported in Mulualem (2015), the ratio of operating costs to net operating revenue was used to determine the operating efficiency of Kenyan commercial banks, and he discovered that inefficiency in operating costs leads to low profitability. The operational expenses to assets ratio shows how much a bank spends in comparison to its size. The cost-to-income ratio was comparable, but it was unaffected by interest rate changes.

Table 2.3. Management Quality Ratio Analysis

Ratios	Formula
Cost to Income	$\frac{\text{Cost}}{\text{Income}}$
Operating Cost to Net Operating Income	$\frac{\text{Operating Cost}}{\text{Operating Income}}$

Source: (Solomon, 2018)

2.3.1.4 Earning Quality

Earnings/profit is a common metric for assessing financial performance. Higher income is seen to indicate a lack of financial troubles, reducing the likelihood of a bank's failure (Cole

and Gunther, 1996). Financial statement users can utilize earnings information to evaluate management performance, measure earning potential, forecast future earnings, and analyze risk. Profits, including those declared by banks are frequently used as a benchmark for investors when making investment decisions. Quality profit is profit that helps users make better judgments.

The quantity of qualified earnings is one of the bank's performance indicators. Earnings may be of such high quality if the bank is able to obtain them on a consistent and long-term basis, rather than only on a temporary one. It is usual to assess the permanence of earnings quality from the standpoint of its decision-making utility. The larger the percentage of earnings that add to the equity's value, the higher the earnings quality. The capacity of current earnings to predict future earnings is the second measure of earnings quality. High-quality earnings, in this situation, are earnings with a high ability to predict future earnings (Alhadad and Al-Own, 2017).

The profitability is estimated upon the following financial ratios,

Table 2.4. Earnings Quality Ratio Analysis

Ratios	Formula
Net Interest Income Margin (NIM)	$\frac{\text{Net Interest Income}}{\text{Total Loan and Advance}}$
Return on Asset (RoA)	$\frac{\text{Net Interest Income}}{\text{Total Asset}}$

Source: (Solomon, 2018)

2.3.1.5 Liquidity

The ability of a financial organization to meet all valid demands for funds is known as liquidity (Yeager and Seitz, 1989). It can also be described as a bank's ability to fund asset growth and meet debts as they become due without incurring unacceptably high losses (Bank for International Settlement 2008). “A bank needs to hold liquid assets to meet the cash requirements of its clients,” Moore (2009:9) noted. “If the institution does not have the resources to satisfy its customers' demand, it must borrow from the interbank market or the central bank.” It follows therefore that a bank unable to meet its customers’ demand leaves

itself exposed to a run and more importantly, a systematic lack of confidence in the banking system.

Liquidity ratios were measured in a variety of ways by different researchers. For example, Mulualem, (2015), Ongore and Gemechu (2013), and Dawit (2016) calculated it as total loan/total customer deposit, and this ratio shows that the bank has a superior liquidity position than its competitors. Another researcher (Ermias, 2016) used liquid assets to total assets, liquid assets to total deposits, and liquid assets to demand deposits to assess bank liquidity. The ratio of cash to total assets and the ratio of total liquid assets to total deposit were also used by Srinivasan and Saminathan (2016) to assess the liquidity status of banks. But, the most common financial ratios that reflect the liquidity position of a bank according to Samad (2004) as cited on the study of Ermias (2016) are customer deposit to total assets and total loan to customer deposits.

The profitability is estimated based upon the following key financial ratios,

Table 2.5. Liquidity Ratio Analysis

Ratios	Formula
Customer Deposits to Total Assets	$\frac{\text{Total Customer Deposit}}{\text{Total Assets}}$
Total Loan to Customer Deposits (LTD)	$\frac{\text{Total Loan}}{\text{Total Customer Deposit}}$

Source: (Solomon, 2018)

2.3.1.6 Bank Size

As previously said, profitability refers to a company's ability to make profit year after year. Banking profitability is critical because it creates job opportunities for people while also providing revenue for the government in the form of taxes. The viability of banks is primarily reliant on their profitability. The ability of a banking organization to provide a diverse range of services is not a sufficient indicator of its long-term viability (Murthy & Sree, 2003).

Although commercial banks of all sizes provide credit and other financial products to their customers, Javaid et al, (2011) argue that large banks have sufficient capital to meet the

credit demands of large businesses and operate at a scale that allows them to provide more specialized banking products more efficiently, resulting in higher profits.

2.3.1.7 Operating Cost Efficiency

Poor spending management is one of the key causes of low profitability (Sufian and Chong, 2008). Operating expense efficiency is commonly used to analyze managerial efficiency in banks in the literature on bank performance. Beck and Fuchs (2004) investigated the many factors that lead to Kenyan banks' large interest spread. One of the most critical components of the high interest rate spread was shown to be overheads. An examination of the overheads revealed that they were primarily driven by staff salary costs, which were found to be significantly higher than those of other banks in Sub-Saharan African (SSA) countries.

Although it appears that the link between expenses and profits is obvious, meaning that higher expenses equal lower earnings and vice versa, this is not always the case. The rationale for this is that higher expenses may be linked to a higher volume of banking activity and, as a result, higher income. Costs are passed on to clients in relatively uncompetitive marketplaces where banks have market dominance; thus, there would be a positive association between overhead costs and profitability (Flamini et al., 2009).

Table 2.6. Operating Cost Ration Analysis

Ratios	Formula
Operating Expense to Operating Income	$\frac{\text{Operating Expense}}{\text{Operating Income}}$

Source: (Solomon, 2018)

2.3.2 External Factors/ Macroeconomic Factors

Other macroeconomic variables that affect bank performance include macroeconomic policy stability, Gross Domestic Product, Inflation, Interest Rates, and Political Instability. For example, the demand for bank assets is influenced by GDP trends. Demand for lending reduces during periods of diminishing GDP growth, which has a negative impact on bank profitability. In contrast to a recession, the demand for credit is high in a thriving economy as measured by positive GDP growth (Athanasoglou et al., 2005).

2.4 Empirical Literature Review

Academic scholars and administrators used the CAMEL model in recent decades to analyze the financial performance of banks; both public and private banks. In order to review the empirical study various identifying similarities and differences across the various economies were studied by previous researchers and a summary of some of these studies are given below:

In recent decades, academic scholars and administrators have utilized the CAMEL model to examine the financial performance of public and private banks. Previous researchers examined numerous identifying similarities and differences across many economies in order to review the empirical study, and a synopsis of some of these studies is provided below:

Okumu and Oyugi (2016) used the CAMEL approach (capital adequacy, asset quality, management efficiency, and liquidity management) as an independent variable and RoA as a proxy for measuring the financial performance of the selected institutions as a dependent variable to investigate the factors influencing financial performance of Saving and Credit Cooperative Societies (SACCOs) in Kisumu County, Kenya. The findings revealed that capital adequacy, asset quality, managerial efficiency, and liquidity management all influence SACCO financial performance in Kisumu County.

Mulualem (2015) used the CAMEL technique to assess the financial performance of 14 Ethiopian Commercial Banks from 2010 to 2014. The study used a quantitative research approach and investigated two profitability measures: RoA and RoE, using a multiple linear regression model. The influence and association of CAMEL characteristics with bank profitability measures were investigated individually using a fixed effect regression model. The empirical findings show that capital adequacy, asset quality, and management efficiency have a negative relationship, whereas earnings and liquidity have a positive relationship with both profitability measures with strong statistical significance, with the exception of capital adequacy, which is significant for RoA but not for RoE.

Mekonnen et al, (2015) used the CAMEL framework to assess the soundness of the Ethiopian banking industry, gathering secondary data from audited financial reports. Their findings show that the CAMEL framework is the best measurement for Ethiopian banks,

providing a comprehensive result that assists the governor in formulating well-defined policies and procedures.

Bank deposits, according to Tariq and Usman (2014), have a direct positive association with a bank's profitability. When compared to banks with low deposits, banks with larger deposits report higher levels of profitability. The significant profitability can be attributable to the high interest earned on funds given to customers from the bank's deposits.

According to Ostadi and Monsef (2014), an increase in bank deposits correlates to an increase in bank profitability. An increase in bank deposits led to an increase in bank capital, according to the study. As a result of the growth in bank capital, banks were able to produce more revenue through increasing loan facilities and other services. After a while, the banks' profit margins increased. As a result, an increase in deposits resulted in an increase in profit.

According to the literature, huge businesses are supposed to be profitable at a high rate. However, research suggests that tiny businesses develop considerably more quickly than larger businesses. Unlike larger organizations, which engage in risky long-term investments, smaller enterprises avoid investments that require a lot of money. This has an impact on major organizations' liquidity, and it may expose them to significant financial losses. Smaller businesses have a more secure cash situation and can seize possibilities that will boost their profits in the short term. Furthermore, it was discovered that the theories that guided this research had a mixed reaction to the relationship between business size and commercial bank profitability, with proponents and detractors holding conflicting and convergent viewpoints. They disagree about the relationship between business size and profitability growth. Some people find a good relationship, while others find a bad relationship, a terrible relationship, or no relationship at all.

Rizwan (2014) examined the financial performance of Pakistan's top ten private commercial banks. In order to address the problem, the researchers applied regression analysis and correlation techniques. Bank size, asset management, and operational efficiency were used as independent variables, while RoA and interest income were used as dependent variables. The findings revealed that the size of the bank had a large and negative impact on the RoA of the banks. The RoA is inversely proportional to operational efficiency.

It's worth noting that a bank's chances are impeded by a variety of variables, including high operational costs and tight regulations, among others. Various studies have been undertaken to investigate the factors that influence bank profitability. The quality of assets, loan quality, and size are only a few of the criteria that have been found. Others have shown a link between bank size and profitability, particularly when compared to larger banks. Some say that smaller businesses can specialize because their activities and processes are less complex than those of larger businesses, resulting in increased consumer trust.

Ongor and Gemechu (2013) used explanatory statements based on secondary data acquired from published statements accounts of all commercial banks in Kenya for ten years to represent the factors of financial performance of commercial banks in Kenya (2001 to 2010). They used RoA, RoE, and OCE as dependent variables, and bank-specific parameters including capital adequacy, asset quality, management efficiency, and liquidity management as explanatory variables, as well as macroeconomic variables like GDP growth rate and inflation rate.

The study showed that capital adequacy, asset quality and management efficiency significantly affect the performance of commercial banks. However, the effect of liquidity on the performance of commercial banks is not strong.

Al-Qudah and Jaradat (2013) studied the impact of the size of banks on their profitability. The research revealed that increase profitability measured by return on assets and profitability occurred as a result of an increase in the number of financial services offered to customers.

Olweny and Shipho (2011) used panel data from 38 commercial banks from 2002 to 2008 to examine the influence of bank sectoral-factors on commercial bank profitability in Kenya. The researchers came to the conclusion that bank-specific factors had a greater impact on commercial bank profitability in Kenya than market factors. Profitable commercial banks, according to the study, are those that strive to improve their capital bases, reduce operational costs, improve asset quality by lowering the rate of non-performing loans, use revenue diversification strategies rather than focused strategies, and keep the appropriate amount of liquid assets.

Kharawish (2011) accessed the Jordanian commercial bank profitability from 2000 through 2010, and categorized the factors affecting profitability into internal and external factors. The researcher found that there is significant and positive relationship between Return on Asset (ROA) and bank size, total liabilities/total assets, total equity/total assets, net interest margin and exchange rate of the commercial banks. In addition, Lelisa (2014), as referenced in Solomon (2018), studies the determinants of Ethiopian bank performance during the period 1990-2012, taking into account bank specific and external variables on selected banks' profitability. The accounting metric Return on Assets (RoA) is used to represent bank performance in the empirical study. The analysis discovered that bank-specific characteristics account for the majority of the variance in profitability. The findings are similar to those of Olweny and Shipho (2011) and Khrawish (2011), which were discussed previously. Lelisa also commented that a bank's capital and liquidity condition have little bearing on the performance of the bank.

Ahmad (2011) in his study of the financial performance of seven Jordanian commercial banks used RoA as a measure of banks performance and the bank size, assets management and operational efficiency as three independent variables affecting RoA. He concluded that there is a strong negative correlation between RoA and bank size and with operational efficiency, while, finds positive correlation between RoA and asset management ratio.

When utilizing RoA as a profitability indicator, Khizer et al, (2011) finds that profitability is directly and favorably affected by operating efficiency, assets management ratios, and size in their research of profitability indicators of banks in Pakistan for the period 2006-2009. When using RoE as a profitability indicator, the relationship between profitability and other indicators is different. Asset management has a favorable relationship with RoE, but size and operating efficiency have a negative relationship.

In Oman, Tarawneh (2006) looked at the financial statements of five banks from 1999 to 2003 and used simple regression to evaluate the impact of asset management, operational efficiency, and bank size on their financial performance. His studies revealed that operational efficiency, asset management, and bank size all had a significant impact on bank financial success.

Murthy and Sree (2003) also looked at the performance of large and small banks in the United States, finding that large institutions faced more cost reductions than smaller banks. It

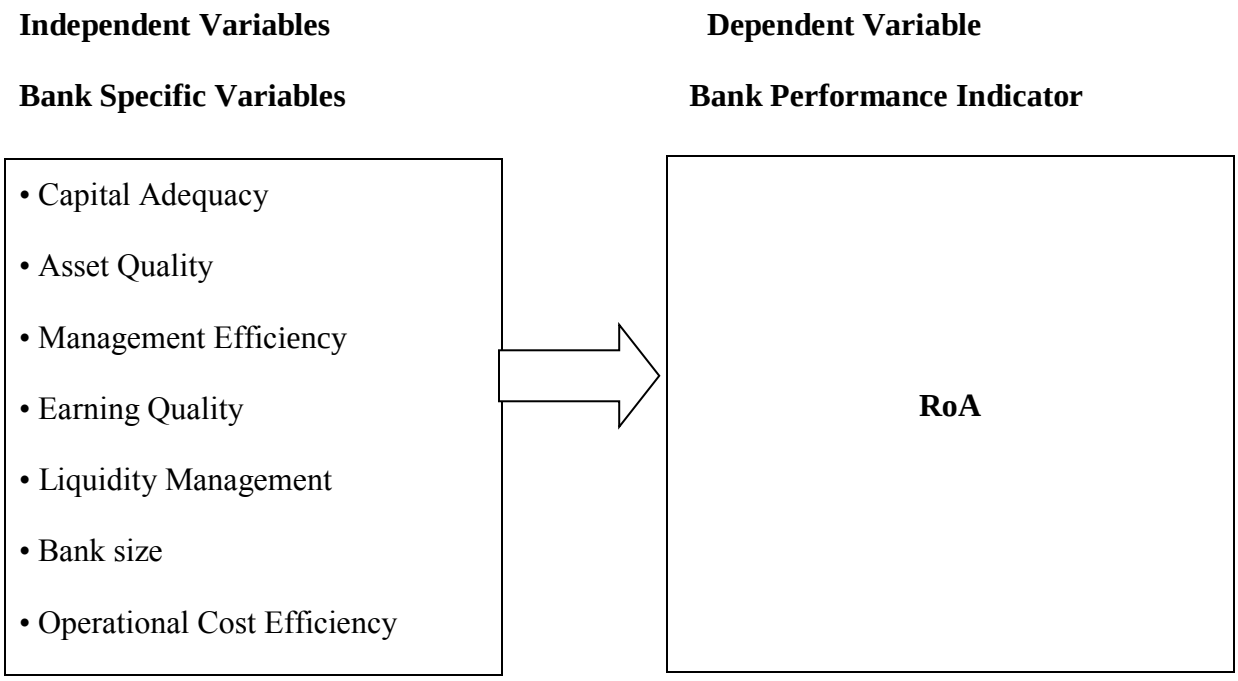
was discovered that when the bank grew in size, considerable cost reductions occurred, resulting in improved performance.

2.5 Conclusion for Research Gap

Most of the studies discussed above were supporting the CAMEL variables are significant to explain the dependent variables RoA and RoE positively. Other countries studies considered the impact of bank size and other variables in addition to CAMEL variables to check this effect on the profitability measurements of RoA and RoE. To the best of the researcher's knowledge, in our country studies doesn't include size of the bank and operating cost efficiency beside to CAMEL variables to influence probability measurements of RoA and RoE. This is therefore; bank size and operating cost efficiency would be considered beside CAMEL variables to know their effect on profitability measurements.

2.6 Conceptual Framework

The conceptual representation of the relationship between the dependent variable RoA and independent (bank specific) variables is presented here under:



Source: Compiled by the author, 2022

Figure 2.1: Schematic Diagram showing the relationship between variables

CHAPTER THREE

RESEARCH DESIGN AND METHODOLOGY

This chapter discusses the research methodology that was employed to carry out this study. It starts by discussing the research design and proceeds with a discussion about the nature and instruments of data collection and sample design.

3.1 Research Design and Approach

This research used both explanatory and descriptive design. A research describes CAMEL variables, Bank size and operating cost efficiency and measures a relationship between those variables with performance of banks. Thus, mixed designs were employed.

This study focuses on the analysis of financial performance of commercial banks in Ethiopia using CAMEL approach. The research was conducted on 10 commercial banks operating in Ethiopia. According to Creswell (2009) there are three approaches that are used in conducting business and social research. These include quantitative, qualitative, and mixed methods approach. Quantitative research is a means for testing objective theories by examining the relationship among variables (Creswell, 2009). On the other hand, qualitative approach is a means for exploring and understanding the meaning of individuals or groups ascribe to a social or human problem with intent of developing a theory or pattern inductively (Creswell, 2009). Accordingly, the research was used quantitative research approach to analyze the financial performance of commercial banks by different variables of CAMEL approach and also by considering the effects of bank size and operational cost efficiency (OCE). Based on the results that were found from these banks, the researcher concludes the result to the target population.

3.2 Target Population

The target population was 10 commercial banks registered by NBE and under operation in the country currently. At this time, there are 18 banks in Ethiopia, in which two of them are government owned and the rest 16 are private banks. The study didn't include all commercial banks due to unavailability of audited financial statement on their respective website. As a result, the study used 10 commercial banks namely CBE, AIB, DB, WB, CBO, LIB, ZB, OIB, NIB and BB.

3.3 Data Type and Data Source

This empirical study is primarily based on quantitative secondary data mainly collected from audited financial statements covering the period of 2011-2020 G.C as these data is recent. The data obtained from the respective website of each banks and this data was mainly used to see the effect of independent variable on dependent variable (if any). Therefore, there was critical review of secondary data obtained from annual audited financial statements of bank for the period of ten years' and different research related to the current study was also be examined.

3.4 Sample size and Sampling Technique

All eighteen commercial banks in Ethiopia will be considered as a target population of the research from which sample will be selected. Among the population, this study was cover 10 commercial banks which represent 55.55% of the total population. Purposive sampling is chosen to deliberately select sample banks. This is because purposive sampling will allows focusing on particular characteristics of a population that of interest, which will best enable to answer research questions. Accordingly, ten commercial banks purposively selected as a sample because of availability of well-organized audited financial statements for the year 2011 to 2020. Hence, Commercial Bank of Ethiopia (CBE), Awash Bank (AB), Dashen Bank (DB), Wegagen Bank (WB), Lion International Bank (LIB), Cooperative Bank of Oromia (CBO), BB (Berhan Bank), Zemen Bank (ZB), OIB (Oromia International Bank) and NIB (Nib International Bank). Based on the results found from these banks, the researcher would conclude the result to the targeted population.

3.5 Variables of the Study

This study would have one dependent variable which return on Asset (RoA) and seven independent variables, which includes capital adequacy, asset quality, management efficiency, earning quality, liquidity, size and operating cost efficiency.

3.5.1 Dependent Variable

The efficiency with which a corporation uses its assets to generate net income is measured by return on asset (RoA). Higher return on assets values indicates that the company is more

successfully managing its assets to generate more net income. It's calculated as the bank's net income after taxes divided by total assets.

3.5.2 Independent Variable

Capital adequacy

This ratio serves as a mirror to determine if banks have enough capital to meet client withdrawal demands during a crisis. The ability of the bank to absorb losses emerging from risk assets is measured by the capital adequacy ratio (CAR), which is one of the four ratios included in this category. The capital adequacy ratio is calculated by dividing total capital by total assets.

Asset quality

It's a crucial metric for determining a bank's strength in relation to the quality of its assets. The ratio of provision for doubtful accounts to net advance ratio is the most standard measure to determine asset quality, according to Misra &Aspal (2013) and (Jayanta k. 2012).

Management efficiency

In today's banking industry, there is a growing trend of rivalry, and efficiency and effectiveness have become the norm as banks aim to increase employee productivity. The expenditure to income ratios would be the most common of the four ratios listed in this category.

This CAMEL parameter is best explained because it is used to quantify efficiency by spending fewer cents to generate one birr income.

Earning quality

It primarily determines the bank's profitability and productivity, as well as the future earnings capacity's growth and sustainability. As a result, the earning quality from the six ratios included in this study was represented by the percentage growth of profit from year to year. It was chosen because it assesses the long-term viability of a business. It's calculated by dividing this year's profit by last year's profit minus one.

Liquidity

In general, liquidity refers to a bank's ability to transform non-cash assets into cash as needed. Thus, among the four ratios presented in this thesis, the liquid asset to total deposit ratio was chosen because it best explains the bank's ability to fulfill its deposit obligations with available liquid funds and because it analyzes entire deposit rather than fraction of deposit. The ratio of liquid assets to total deposits is used to calculate it.

Operating cost efficiency

Operational efficiency is primarily a metric that measures the efficiency of profit earned as a function of operating costs. The operating ratio compares a company's total operating expenditures (OPEX) to net revenues to determine management efficiency. The operating ratio demonstrates how well a company's management keeps costs low while increasing revenue or sales. The lower the ratio, the more efficient the business is at generating income compared to overall expenditure.

Size

Bank size represents the ownership of assets by banks. High asset ownership enables banks to offer more financial services at low cos. Size is here represented by total assets of corresponding banks. By this variable we would identify the relationship between total assets of the banks and their profitability.

3.6 Model Specification

Model 1will be used to test the relationship between independent variable and RoA:

$$RoA_{it}=B_0+B_1CA_{it}+B_2AQ_{it}+B_3ME_{it}+B_4EQ_{it}+B_5LIQ_{it}+B_6SIZE_{it}+B_7OCE_{it}+E_{it}$$

Where:

Subscript I refer to firm I, and subscript t refers to year t.

RoA_{it}*=Performance of Bank* $_i$ *at time* $_t$

B_O*= 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*

LIQ_{it}=*Liquidity of Bank i at time t*

$SIZE_{it}$=*Size of Bank i at time t*

OCE_{it}=*Operating cost efficiency of Bank i at time t*

E_{it}=*Error term where i is cross sectional and t time identifier*

B_1-B_7=*Coefficient of parameters*

E_{it}=*Error term where i is cross sectional and t time identifier*

3.7. Methods of Data Analysis

For econometric analysis, the researcher employed multilinear regression model, and for descriptive statics used CAMEL ratios. The multilinear regression model was selected because it allows for the identification of a common set of attributes while also accounting for the variation that exists across individual units. Descriptive analysis was used to evaluate the acquired data since it will employ mean, maximum, minimum, and standard deviations to quantitatively represent the key properties of the variables. Furthermore, linear regression analysis was used to assess the strength of the association between the dependent and independent variables. The relative importance of each independent variable in impacting the bank's performance was determined using a multiple linear regression model. Thus, to test the hypothesis and evaluate the relative importance of each independent variable included in the CAMEL framework to explain dependent variables, fixed effect regression analysis was performed. The significance of independent factors to affect profitability measurement variables of return on asset and return on equity was tested using a 1% and 5% significance level, and stata software was utilized to investigate the econometric analysis component.

CHAPTER FOUR

4. RESULT AND DISCUSSION

The study aims to analyze the effect of CAMEL variables, bank size, and operating cost efficiency on profitability measurements of Return on Asset and to rank commercial banks that were included under this study. This chapter includes the presentation, analysis and discussion of results based on the data findings.

4.1. Descriptive Statistics

In this section the various CAMEL ratios of capital adequacy, asset quality, management efficacy, earning quality, and liquidity will be reviewed in detail with the use of accompanying tables.

Capital Adequacy

To avoid failure, any financial institution must maintain a significant amount of capital. This ratio is used to determine whether a bank has enough capital to withstand unanticipated losses in the future. Capital adequacy is a measure of a bank's internal strength, which can help it weather a storm. It is the capital needed to keep a financial institution's risk exposures in check, such as credit risk, market risk, and operational risk, in order to absorb losses and protect debt holders. Aside from that, it's also critical to meet the bare minimum of legal standards. Capital adequacy ratio, debt to equity ratio, advance to asset ratio, and government securities to total investment ratio are the four key measures used to assess a bank's capital adequacy.

Table 0.1. Total Capital to Total Asset Ratio

NO	Bank	Year										Average	Rank
		2011	2012	2013	2014	2015	2016	2017	2018	2019	2020		
1	**CBE**	5.57	4.85	4.71	4.54	4.23	4.20	9.09	8.23	7.05	6.08	**5.85**	**10**
2	**AIB**	12.05	12.58	11.62	11.75	12.63	12.63	11.46	11.75	12.91	13.41	**12.28**	**7**
3	**DB**	9.53	10.43	10.36	11.83	11.81	11.75	11.53	12.91	12.18	12.18	**11.45**	**8**
4	**WB**	16.59	19.22	17.61	18.60	17.61	1.73	1.90	13.97	14.42	13.38	**13.50**	**5**
5	**ZB**	14.91	11.72	15.19	16.74	15.69	13.59	13.84	13.64	15.88	16.88	**14.81**	**3**
6	**BB**	16.41	18.38	17.36	19.70	17.42	14.73	17.97	15.65	14.58	16.04	**16.83**	**1**
7	**LIB**	19.52	17.93	18.42	17.38	14.03	13.18	13.20	12.63	12.55	12.30	**15.11**	**2**
8	**CBO**	8.00	9.00	8.00	12.00	10.00	11.42	8.56	7.95	7.87	9.74	**9.25**	**9**
9	**NIB**	2.59	18.46	18.22	18.28	16.42	15.91	14.05	12.67	13.08	13.63	**14.33**	**4**
10	**OIB**	15.09	15.70	14.00	12.17	10.41	11.68	10.22	10.89	11.68	13.59	**12.54**	**6**

Source: Researcher's own computation from 2011-2020 banks annual report

Berhan bank, Lion International bank, and Zemen bank had the first three highest ratios, with average scores of 16.83%, 15.11%, and 14.81% for the periods under consideration, indicating that if losses from risk assets occur, Berhan bank, Lion International bank, and Zemen bank absorb 16.83%, 15.11%, and 14.81% of their equity capital, respectively. The largest government bank, CBE, had the lowest average percentage at 5.85%. The average score also shows a declining tendency from year to year.

Asset Quality

Asset quality indicates a financial institution's ability to withstand asset loss, as asset impairment jeopardizes the institution's solvency. The non-performing loans ratios (NPLs), which are a proxy for asset quality, and the allowance or provision to loan loss reserve are highlighted in the asset quality indicators. The bank is required by law to back up bad loans with proper loan loss reserves. The ratio of provision for loan losses to total loans is used to assess the loan portfolio's soundness. The asset quality is determined using approach by dividing the loan loss provision by the total loan. The smaller the loan loss provision to total loan ratio, the better the bank's asset quality is compared to the competition.

Asset quality is a crucial criterion for every financial institution, as the quality of its assets has a significant impact on the institution's ability to earn money. The primary source of banking difficulties is declining asset quality. Asset quality is determined by the quantity and severity of nonperforming assets, recoveries, and provisioning. It will be critical to understand the banking industry's asset quality utilizing various tools, particularly non-performing loan data.

Table 4.2. Allowance for Doubtful Account to Net Advance Ratio

		Year											
NO	**Bank**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**Average**	**Rank**
1	**CBE**	2.51	2.25	2.68	2.83	2.72	2.80	3.00	3.11	3.23	3.30	**2.83**	**8**
2	**AIB**	3.77	2.78	2.36	2.33	1.77	1.55	1.13	0.82	0.87	0.20	**1.70**	**3**
3	**DB**	2.03	2.11	2.14	1.78	1.60	1.87	1.87	0.99	0.65	0.89	**1.63**	**2**
4	**WB**	4.76	2.49	2.28	1.70	1.61	2.22	2.00	1.78	2.21	1.31	**2.04**	**6**
5	**ZB**	1.81	1.82	9.32	9.69	5.86	4.48	4.90	4.45	2.21	4.57	**5.34**	**10**
6	**BB**	1.13	1.19	1.55	1.66	1.40	1.53	1.47	1.45	1.18	1.45	**1.43**	**1**
7	**LIB**	4.5	1.23	1.56	1.63	1.69	1.96	2.52	2.54	1.98	1.85	**1.89**	**5**
8	**CBO**	1.3	1.29	2.53	3.87	2.37	5.84	4.47	2.44	3.53	4.59	**3.29**	**9**
9	**NIB**	4.3	2.79	2.57	2.14	1.53	1.8	1.65	1.52	0.99	0.54	**1.87**	**4**
10	**OIB**	4.2	2.6	2.6	2.2	1.29	2.35	2.49	1.59	1.78	1.28	**2.11**	**7**

Source: Researcher's own computation from 2011-2020 banks annual report

The most generally used standard measure of asset quality in respect to bank loans is shown in Table 4.2. A smaller ratio indicates that the asset, in this case a loan, is of higher quality, while a higher ratio indicates that the loan is of worse quality. As can be seen in Figure 4.2, the bank's efficiency in this area is quite high. The lowest ratios were recorded by Berhan Bank (1.43 %), DB (1.63 %), and AIB (1.7 %). ZB had the highest percentage or weak performance (5.34 %).

Management Efficiency

The most critical factor in ensuring the smooth operation of a bank's operations is its management. The subjective evaluation of Management systems, organizational culture, and control mechanisms, among other things, can be used to understand the performance of Management capability. Certain ratios, on the other hand, can be used to assess a bank's managerial capabilities.

Management quality is defined as the ability of the board of directors and management to identify, measure, and control the risks associated with an institution's activities, as well as to ensure that the institution's operations are safe, sound, and efficient while adhering to all applicable laws and regulations. The subjective evaluation of Management systems, organizational culture, and control mechanisms, among other things, can be used to understand the performance of Management capability. However, certain ratios of off-site examination of a bank can be used to assess the competence of a bank's management. Such abilities can include the management's capacity to deploy its resources aggressively in order to maximize revenue, use the bank's facilities productively, and cut expenses, among other things. In this research the management efficiency is measured by taking the ratio of expenditure to Income. The lower this ratio indicates the management capability to control or minimize cost per unit of revenue generated is relatively better than other banks.

Table 4.3. Expenditure to Income Ratio

NO	Bank	Year										Average	Rank
		2011	2012	2013	2014	2015	2016	2017	2018	2019	2020		
1	CBE	22.07	13.14	13.41	14.40	12.61	0.70	2.61	0.49	0.48	1.50	**8.141**	**1**
2	AIB	39.90	42.90	47.45	62.07	75.56	80.94	65.92	0.38	0.35	15.43	**43.09**	**5**
3	DB	120.98	60.41	78.03	98.35	105.73	115.64	116.74	31.00	24.87	85.45	**83.72**	**10**
4	WB	23.00	56.39	57.08	80.02	77.72	77.93	70.37	73.93	87.52	69.07	**67.303**	**9**
5	ZB	25.03	23.55	28.54	21.37	31.49	28.87	40.67	88.69	78.98	64.03	**43.122**	**6**
6	BB	18.04	28.69	22.46	18.08	25.27	15.34	20.17	18.53	42.35	75.05	**28.398**	**3**
7	LIB	29.05	21.83	20.34	27.40	18.75	19.33	22.49	21.49	19.54	49.59	**24.981**	**2**
8	CBO	34.96	33.96	27.98	24.88	26.01	38.91	41.05	41.09	38.64	32.15	**33.963**	**4**
9	NIB	21.02	23.00	26.16	45.09	47.27	53.81	46.33	134.98	123.81	110.83	**63.23**	**8**
10	OIB	39.56	46.24	45.50	34.79	34.86	59.05	50.32	44.50	49.05	13.89	**41.776**	**7**

Source: Researcher's own computation from 2011-2020 banks annual report

This ratio is used to determine how much expense will be required in order to earn a 1 birr profit, as the name implies. As shown in table 4.3, CBE, LIB, and BB spend 8.141%, 24.98%, and 28.398% cents, respectively, to earn 1 birr income. Dashen Bank had the highest fee, which was 83.72% cents.

Earning Ability

The earning ability of specific banks reflects the bank's overall performance. The banking industry's profitability increases as the bank's performance improves. The banking sector's earning ability is determined by examining how well typical assets generate net interest income. The earning ability of the selected banks is measured by dividing net interest income by total loan in this study. The quality of one's earnings is crucial. This bank-specific parameters that used to measure a bank's ability to get profit; it also explains the bank's long-term viability and growth prospects.

Table 4.4. Net Interest Income to Total Loan and Advance Ratio

NO	Bank	Year										Average	Rank
		2011	2012	2013	2014	2015	2016	2017	2018	2019	2020		
1	CBE	15.19	3.17	14.06	9.85	11.00	11.16	11.19	13.07	12.98	12.51	**10.44**	**4**
2	AIB	10.27	12.49	11.82	6.84	6.71	7.50	7.52	8.77	8.26	9.27	**8.74**	**9**
3	DB	9.91	11.29	11.78	12.10	12.48	1.22	11.69	7.85	7.33	8.00	**9.47**	**6**
4	WB	7.73	8.67	9.01	9.49	9.26	9.08	8.58	9.22	9.27	8.65	**9.07**	**7**
5	ZB	3.09	6.65	8.02	6.98	5.84	4.93	4.22	5.42	6.36	8.91	**6.05**	**10**
6	BB	10.39	11.71	9.06	14.40	11.22	12.44	13.09	9.84	9.28	9.96	**11.38**	**2**
7	LIB	7.30	7.91	8.70	8.77	7.78	8.31	9.53	10.16	9.14	11.11	**8.79**	**8**
8	CBO	12.08	12.62	11.52	11.59	10.69	14.08	11.54	8.36	8.31	8.91	**11.09**	**3**
9	NIB	12.55	12.02	12.88	8.59	8.52	9.97	9.05	8.87	8.54	8.55	**9.80**	**5**
10	OIB	9.48	12.17	12.26	12.90	10.99	14.78	12.93	11.02	10.20	11.11	**12.16**	**1**

Source: Researcher's own computation from 2011-2020 banks annual report

Table 4.4 shows earning quality of selected bank within the time considered. Accordingly, OIB, BB and CBO ranks 1 to 3 by their earning ability within the considered time which gained 12.6%, 11.38% and 11.09% profit per loan granted respectively. The minimum value of earning ability ratio of 6.05% is Zemen Bank earning ability ratio.

Liquidity

One of a bank's most critical functions is liquidity management. The institution will lose money if the funds tapped are not used effectively. There is no return on an idle cash balance in hand. On the other hand, if the bank does not have sufficient liquid cash on hand, it will be unable to pay depositors' demand withdrawals, as well as creditors' installments and, eventually, payment for other contingent liabilities. These will result in an overtrading position for the institution, as well as difficulties in borrowing funds at a high rate. A well-balanced cash position should be maintained by avoiding an insufficient or excessive cash position. Customers deposit funds with the intention of withdrawing their funds, including any accrued interest, as soon as they require it. As a result, banks should constantly maintain a sufficient level of liquidity.

Table 4.5. Total Loan to Total Customer Deposit Ratio

NO	Bank	Year											
		2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Average	Rank
1	CBE	37.42	48.47	44.07	44.98	44.87	46.76	41.19	38.32	36.49	39.21	**43.14**	**10**
2	AIB	49.61	58.19	60.04	59.63	66.22	66.64	72.72	71.46	78.59	79.74	**66.69**	**2**
3	DB	51.46	180.97	203.09	204.86	238.01	54.83	63.77	64.07	72.37	78.64	**135.25**	**1**
4	WB	48.45	64.09	64.14	56.41	61.51	67.75	73.00	73.69	69.95	79.46	**66.32**	**3**
5	ZB	54.51	55.47	50.02	43.01	56.47	59.30	49.83	48.89	50.11	37.41	**51.64**	**9**
6	BB	47.26	52.99	60.34	57.92	61.13	69.89	69.20	65.06	67.05	75.35	**62.95**	**6**
7	LIB	51.38	55.03	61.78	57.36	63.50	67.95	62.52	63.35	70.88	73.02	**62.80**	**7**
8	CBO	39.68	48.74	46.58	66.86	89.12	68.94	67.80	57.94	59.71	65.27	**63.21**	**5**
9	NIB	51.43	61.81	66.55	68.25	70.53	60.47	65.25	62.44	69.59	75.99	**65.61**	**4**
10	OIB	42.89	47.53	58.26	50.59	58.79	55.26	52.50	58.94	68.31	72.16	**56.27**	**8**

Source: Researcher's own computation from 2011-2020 banks annual report

It is used to measure of liquidity which indicates the percentage of a bank's total loan to customer deposit. Table 4.5 indicates that Dashen Bank, Awash International Bank and Wegagen Ban have highest liquid asset position respectively.

Table 4.6. Bank Size Analysis based on Total Asset

NO	Bank	Year										Average	Rank
		2011	2012	2013	2014	2015	2016	2017	2018	2019	2020		
1	CBE	25.46	25.79	26.00	26.22	26.44	26.67	26.92	27.08	27.29	27.43	**26.55**	**1**
2	AIB	23.13	23.30	23.60	23.82	23.95	24.16	24.46	24.74	25.04	25.22	**24.13**	**2**
3	DB	23.41	23.59	23.71	23.81	23.93	24.08	24.27	24.54	24.75	24.95	**24.08**	**3**
4	WB	22.81	22.85	23.06	23.17	23.34	23.51	23.77	24.03	24.12	24.37	**23.48**	**4**
5	ZB	21.20	21.60	21.90	22.09	22.31	22.72	23.00	23.24	23.41	23.64	**22.53**	**9**
6	BB	20.63	20.97	21.51	21.76	22.15	22.70	23.07	23.37	23.68	23.78	**22.40**	**10**
7	LIB	21.32	21.62	21.80	22.01	22.49	22.82	23.12	23.38	23.74	24.07	**22.62**	**8**
8	CBO	21.64	22.02	22.60	22.72	23.16	23.09	23.60	24.12	24.46	24.68	**23.22**	**6**
9	NIB	22.69	22.84	22.94	23.10	23.31	23.49	23.77	24.01	24.24	24.47	**23.46**	**5**
10	OIB	21.40	21.75	22.09	22.54	22.98	23.15	23.51	23.89	24.18	24.24	**23.01**	7

Source: Researcher's own computation from 2011-2020 banks annual report

Table 4.6 show size of the selected banks from 2011 to 2020.CBE, Awash International Bank and Dashen Bank ranks one to three respectively by their sizes in the considered time. Whereas, Berhan Bank has the lowest rank of size in the considered time.

Operational Cost Efficiency

The operating expense ratio (OER) is a measurement of the cost to operate a piece of property, compared to the income brought in by the property. It is calculated by dividing a property's operating expense by its gross operating income.

Table 4.7. Operating Expense to Operating Income Ratio

NO	Bank	Year										Average	Rank
		2011	2012	2013	2014	2015	2016	2017	2018	2019	2020		
1	CBE	45.98	31.47	37.63	44.09	50.46	61.21	76.63	71.44	70.37	78.20	**55.41**	**7**
2	AIB	45.55	52.23	58.93	42.67	48.19	51.72	52.62	49.71	42.20	44.57	**49.78**	**3**
3	DB	45.69	48.62	62.33	61.17	79.09	83.59	102.80	61.53	62.93	63.07	**70.26**	**10**
4	WB	30.26	37.90	40.83	51.45	53.61	56.13	55.22	53.26	64.97	59.87	**51.67**	**4**
5	ZB	31.83	36.39	39.88	35.30	44.99	40.51	38.44	46.69	39.58	35.31	**40.22**	**1**
6	BB	45.72	42.63	60.14	59.34	62.83	55.51	59.53	42.26	59.41	63.41	**55.21**	**6**
7	LIB	45.22	38.65	36.72	51.16	42.52	46.46	52.97	51.00	47.89	51.55	**45.92**	**2**
8	CBO	64.51	54.02	50.61	46.04	60.77	96.57	84.29	26.42	70.28	62.45	**61.13**	**8**
9	NIB	47.60	48.71	55.52	48.76	51.47	55.83	51.93	56.12	53.11	52.78	**52.68**	**5**
10	OIB	62.98	71.59	69.37	62.44	65.40	72.06	74.65	49.72	51.67	58.69	**64.61**	**9**

Source: Researcher's own computation from 2011-2020 banks annual report

Table 4.7 shows operational cost efficiency of selected banks in the considered time. The lower operating expense to operating income indicates the higher efficiency to get their income. From the selected banks, Zemen Bank, Lion International Bank and Awash international banks has top three maximum operational cost efficiency its OER were 40.22%, 45.92%, and 45.55% in the considered time. Whereas, Dashen Bank has least operational cost efficiency it has OER of 70.22%.

Table 4.8. Summary of Descriptive Statistics

Descriptive Statistics					
	N	**Minimum**	**Maximum**	**Mean**	**Std. Deviation**
CA	100	1.73	19.70	12.5962	4.14169
AQ	100	.20	9.69	2.4332	1.53147
ME	100	.35	134.98	43.7724	30.99031
EQ	100	.22	15.19	9.7089	2.67234
LR	100	36.49	238.01	65.4130	31.28700
SIZE	100	20.63	27.43	23.5457	1.40006
OCE	100	26.42	102.80	54.1039	13.64640
ROA	100	.53	7.71	4.3059	1.30997
Valid N (listwise)	100				

Source: Researcher's Own Computation, 2021

The mean, maximum, minimum, and standard deviation values for both dependent and independent variables were reported in Table 4.8. The average value of the independent variables With positive values of 12.596%, 2.433%, 43.772%, 9.708% , 65.413%, 23.545%, 54.103% and 4.305%, capital adequacy, asset quality, management efficiency, earning quality, liquidity ratio, bank size and operating cost efficiency respectively. The best capital adequacy ratio of Berhan Bank in 2014 resulted in capital adequacy reaching maximum values of 19.70%, while the lowest capital adequacy of WB in 2016 reach minimum values of 1.73% with a standard deviation of 4.14 %. Poor asset management of Zeman bank on 2014 forces asset quality to bear maximum values of 9.69% and best performance of Awash International bank on 2020 on this regard leads it to have a minimum value of 0.2% and standard deviation values 1.531% of asset quality.

The best cost sensitivity of Awash International Bank in 2019 contributed to management efficiency by having minimum values of cents to get one birr of operational income, and due

to the fact that a poor net profit performance of NIB in 2018 forced you to have maximum. Due to DB's low earnings performance, the earning quality, which is a net profit percentage, had a low value of 1.22% and a maximum performance of CBE its value is 15.19%. With a maximum value of 238.01% and a lowest value of 36.49% in terms of liquidity ratios, this is attributable to DB's highest liquidity position in 2015 and lower due to CBE's lower position in 2019. The standard deviation was found to be 31.28%. The operating cost efficiency has the maximum value 102.8 % due to DB lowest operating cost efficiency and the minimum value 26.42% due to the contribution of CBO higher performance. The standard deviation of OCE was found to be 13.65%. With regards to bank size the maximum bank size recorded in the considered was CBE in 2019 and the lowest bank size was recorded by Berhan bank in 2011.

4.2 Econometrics Analysis

4.2.1 Assumption Tests

4.2.1.1 Multi co linearity Tests

Table 4.9. Correlation matrix of explanatory variables

	ca	aq	me	eq	lr	size	oce	RoA
ca	1.0000							
aq	0.0456	1.0000						
me	-0.0360	0.0039	1.0000					
eq	-0.0836	-0.3578	-0.0799	1.0000				
lr	-0.1335	0.0382	0.6198	0.1894	1.0000			
size	-0.0941	-0.5146	-0.2793	0.6639	-0.0311	1.0000		
oce	-0.2393	0.0217	0.4921	0.3541	0.9148	0.0923	1.0000	
RoA	0.0562	-0.3216	- 0.2918	0.2388	0.1845	0.1574	-0.0984	1.0000

Source: Researcher Own Stata Computation, 2021

In linear regression models, we must determine whether or not there is a link between the explanatory variables. If they are overly correlated, there is an issue known as multicollinearity, in which the explanatory variables partially explain each other. According to Cooper & Schindler (2009) and Masher (2007), as quoted on Mulualem (2015), a correlation coefficient between explanatory variables of less than 0.8 should not be regarded an indication of multicollinearity, but if it is greater than 0.8, it should be rectified because it is a symptom of multicollinearity. As seen in the correlation matrix table above, the maximum correlation was 0.2918 between ME and ROA, which does not reflect multicollinearity.

4.2.1.2 Normality tests

Table 4.10. Test of Normality

Tests of Normality						
	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
ROA	.072	100	.200*	.987	100	.409
*. This is a lower bound of the true significance.						
a. Lilliefors Significance Correction						

Source: Researcher Sample survey analysis, 2021

The null hypothesis for the Shapiro Wilk test of normality is that the data are normally distributed, according to Razali (2011). If the p value is less than 0.05, the null hypothesis is rejected. The p value for the Shapiro Wilk test in this study is 0.409, which is significantly higher than 0.05. As a result of the Interims of the Shapiro-Wilk test, the data can be assumed to be approximately normally distributed.

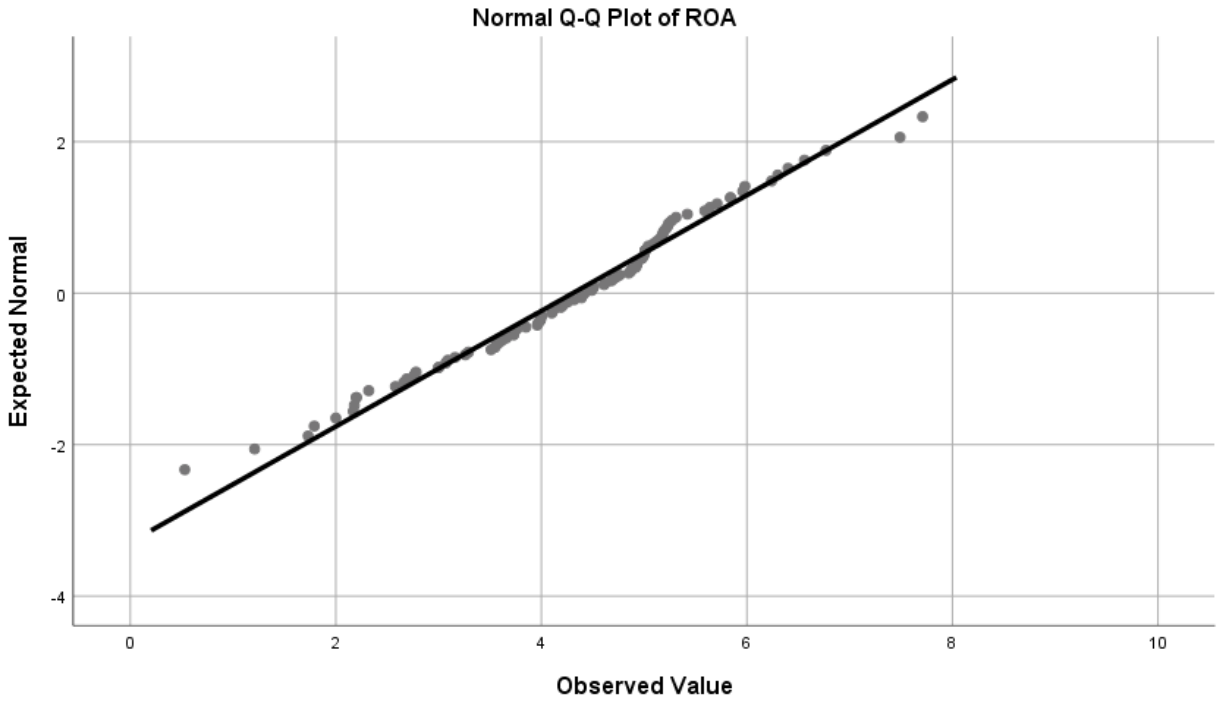


Figure 4.1. Normality test using Q-Q plot test

Figure 4.1 show the dots are aligned along the line which implies the data are normally distributed.

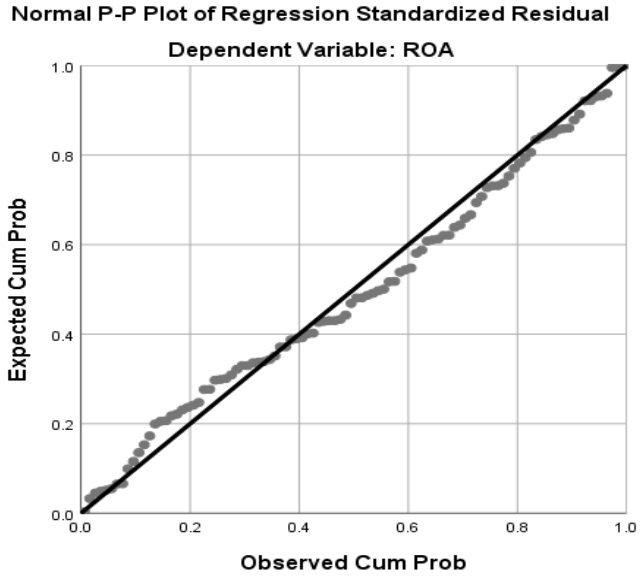


Figure 4.2. Normality test using P-P plot test

As it can be seen figure 4.2 above the expected and observed cumulative probabilities, while not matching perfectly, are fairly similar. This suggests that the residuals are approximately normally distributed.

Table 4.11. Normality test using Z value of Skewness and Kurtosis

Descriptives				
			Statistic	Std. Error
ROA	Mean		4.3059	.13100
	95% Confidence Interval for Mean	Lower Bound	4.0460	
		Upper Bound	4.5658	
	5% Trimmed Mean		4.3156	
	Median		4.4150	
	Variance		1.716	
	Std. Deviation		1.30997	
	Minimum		.53	
	Maximum		7.71	
	Range		7.18	
	Interquartile Range		1.55	
	Skewness		-.235	.241
	Kurtosis		.372	.478

According to Cramer (1998), the Z value of Skewness and Kurtosis should be between -1.96 and +196 in order for the data to be distributed normally. The skewness Z value is (0.241/-0.235), which is -1.02, which is between -1.96 and +1.96. The Z Value of kurtosis, on the other hand, is (0.478/0.372), which is 1.28 and falls between -1.96 and +196, indicating that the data is normally distributed.

4.2.1.3 Homoscedasticity test

The residuals should do not vary systematically with the predicted values by plotting the residuals against the values predicted by the regression model. It can be looking for any evidence that residuals vary in a clear pattern.

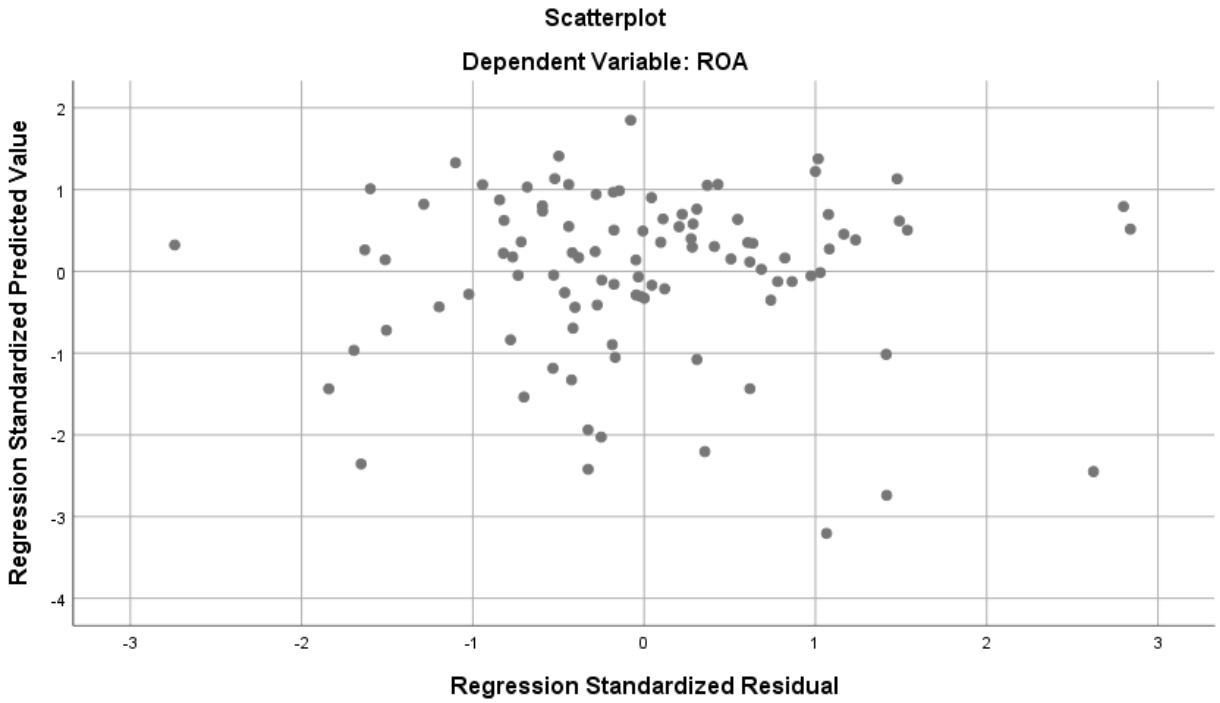


Figure 4.3: Homoscedasticity test using Scatter plot

The data points appear to be reasonably randomly distributed in Figure 4.3, with a very even distribution of residuals at all expected values. As a result, the Homoscedasticity test in this study can be assumed to be met. If, on the other hand, the data points appear to funnel towards the negative end of the x-axis, this indicates that the residuals are more variable at higher anticipated values than at lower projected values. This is troublesome since it implies that the model is more accurate when guessing lower values than it is when estimating higher values. It may be feasible to alter any result measure if the homoscedasticity condition is not met.

4.3. Multi-Linear Regression Analysis

This section contains discussion on the basis of the finding of the study, which will lead to acceptance or rejection of the hypothesis.

Table 4.12. Model Summary

Model Summary[b]				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.714[a]	.510	.473	.95137
a. Predictors: (Constant), EQ, ME, CA, AQ, OCE, SIZE, LR				
b. Dependent Variable: ROA				

The overall bundle of determinant factors of the seven independent variables, such as capital adequacy, management efficiency, earning quality, asset quality, operating cost efficiency, liquidity ratio, and bank size, as shown in Table 4.12, explains 51 percent (R2 = 0.51 of the dependent variable) (return on asset). This means that the independent variables account for 51% of the bank's return on asset, while the remaining 49% is determined by other unaccounted factors in this study. As shown in Table 4.13, the result F= 13.671 is greater than 1 and P0.01, implying that the combination of factors has a statistically significant positive effect on return on asset.

Table 4.13. Anova

ANOVA[a]						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	86.618	7	12.374	13.671	.000[b]
	Residual	83.269	92	.905		
	Total	169.887	99			
a. Dependent Variable: ROA						
b. Predictors: (Constant), E, ME, CA, AQ, OCE, SIZE, LR						

Table 4.14. Regression Analysis of RoA

Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	5.240	.554		9.451	.000
	CA	.003	.025	.010	.127	.899
	AQ	-.331	.063	-.470	-5.287	.000
	ME	-.005	.005	-.099	-.966	.337
	LR	.030	.011	.575	2.631	.010
	SIZE	117	.017	.762	6.713	.000
	OCE	-.033	.011	-.647	-2.972	.004
	EQ	.273	.043	.704	6.374	.000
a. Dependent Variable: ROA						

Source: Researcher Own Computation, 2021

H1: Capital Adequacy has significant impact on performance of Commercial banks. As mentioned earlier in the chapter three Capital to total asset ratio has been used to measure capital adequacy for the purpose of testing the hypothesis return on asset were used to measure bank performance to test the significance of capital adequacy with it. It is observed that p value 0.899 is above the significance level p value 0.05. There for the H1 is rejected.

H2: Asset quality has significant impact on performance of Commercial banks. The second hypothesis of the study at hand states that NPL to total asset ratio has a significant impact on banks performance. For the purpose of testing the hypothesis a regression model is used with intent to study impact of asset quality on bank's performance. It is observed that the asset quality had p value 0.000 which is below the significant level 1%. It is concluding that asset quality significantly affect the ROA as a result the null hypothesis is rejected.

H3: Management Efficiency has significant impact on performance of Commercial banks. The third hypothesis of the study at hand states operational expense to operating income ratio significantly affects performance of banks. It was observed that from the regression result the stated ratio has p value 0.337. Therefore it is concluding that management efficiency ratio doesn't significantly affect the performance commercial banks as a result the null hypothesis is accepted.

H4: Earning Ability has significant impact on performance of Commercial banks. The fourth hypothesis is Net Interest Income to Total loan and advance ratio has been used as a measurement of earning quality of banks. It can be observed that from the regression table the above ratio has a p value 0.000 which is below the level of significant p value 0.01. Therefore the null hypothesis was rejected meaning that the percentage net growth does affect significantly the performance of banks.

H5: Liquidity has significant impact on performance of Commercial banks. As mentioned earlier in the chapter three the liquidity of the banks can be measured by liquid asset to total asset ratio. It was observed that from the regression table of ROA and the mentioned ratio has the p value 0.01which is less than p value.05 this indicates that liquidity of the bank has a significant impact on performance of the commercial banks. Therefore the above hypothesis is accepted.

H6: Bank sizes has significant impact on performance of Commercial banks The six hypothesis of the study at hand states bank size has a significant effect on performance of commercial banks as mentioned earlier total asset has been used to measure the size of the banks .It was observed that from the regression table bank size significant at significant level of 0.000 which is below the significant level p value 0.01. Therefore the hypothesis is accepted.

H7: Operating cost efficiency has significant impact on performance of Commercial banks. The last hypothesis of the study at hand states that Operating cost efficiency has significant effect on performance of commercial banks and it is measured by the ratio of net interest income to interest income. It was observed that from regression analysis table of ROA the p value is 0.000 this is below significant level 0.001 and indicates OCE significantly affect the performance of commercial banks, as a result the null hypothesis is rejected.

The regression between the dependent variable (RoA) and the independent variables is seen in the RoA regression table (table 4.14). As can be seen in the table, the r-square and modified r-square values were 0.51 and 0.473, respectively, implying that the independent variables CA, AQ, ME, EQ, LIQ, OCE, and size together explained 51% of the variation in RoA. Because adjusted r-square ensures that the addition of more independent variables does not create misleadingly high r-square values, and it is also a modified form of r-square that

has been adjusted for the number of predictors in the model, the values of adjusted r-square were employed.

AQ, OCE, LR, EQ and SIZE are significant at the 1% significance level because their probability values are less than 0.01; however, ME and CA are not significant variables to explain RoA. Using the f-statistic, we can quickly determine the overall importance of all independent variables. As a result, the probability values of the f-statistic were 0.0000, which was less than 0.01, indicating that all of the independent variables in the model have a significant effect on the dependent variable (RoA) at the 1% significance level.

The relationship between independent variables and RoA is revealed by the coefficient of independent variables. As a result of the – sign, AQ, ME and OCE appear to have an inverse relationship with RoA, but they actually have a direct relationship with RoA because their decreasing values are a good signal for increasing return on asset, and they are thus represented by the ratio of allowance for doubtful accounts to net loan and the ratio of expense to income. The dependent variable has a direct association with LR, CA, EQ and SIZE. If asset quality, management efficiency (best performance) and operating cost efficiency fell by 1%, RoA would improve by 0.331%, 0.05% and 0.033%, respectively.

If capital adequacy, liquidity, bank size and earning quality all increased by 1 %, RoA would grow by 0.003%, 0.03%, 117% and 0.273%. Despite their negative link, capital management efficiency does not have a substantial association with return on asset.

Finally, the model developed shown below.

$$ROA = 0.003 * CA - 0.331 * AQ - 0.005 * ME + 0.03 * LR + 117 * SIZE - 0.033 * OCE + 0.273 * EQ$$

4.4. Discussion of Results

Capital Adequacy

As shown in Table 4.8 the average value of CAR of the banking sector in Ethiopia is 12.596% which is above the minimum requirement set by Basel accord and adopted by National Bank of Ethiopia 8%. This implies that all banks have a capacity to safeguard their depositors if unanticipated loss occurs. The maximum value of CAR IS 19.70% implies there is a tied up capital in the sector while demanding by investors. The minimum value of CAR

of 1.73% indicates that there are some banks holding below the minimum requirement. Std.deviation of 4.14% indicates there is a little spread among the data series. These findings resemble with the findings of (Solomom et al., 2018).

Asset Quality

For the purpose of evaluating the quality of asset for Ethiopian banking industry this study is using allowance for doubtful account to net advance ratio. As shown in Table 4.8 the average value of the banking sector in Ethiopia is 2.43% which is below the minimum requirement set by National Bank of Ethiopia 5%. That means non performing loan management system of the sector is good. The maximum value of asset quality ratio 9.69% indicates there are banks with higher ratio having high risk exposure. Std.deviation of asset quality ratio of 1.53% implies the data series is less dispersed. My study findings are different from (Solomom et al., 2018).

Management Efficiency

Measure of management quality is subjective by its nature. However, several indicators can jointly serve as an indicator of management soundness. The study measure the quality of manager by using expenditure to income ratio. The average value of banking industry in Ethiopia of management quality is 43.77% as shown in Table 4.8. This implies Ethiopian banking industry on average consume 0.43 cents to generate a single Birr revenue. There are banks which spent more than one Birr to get one Birr revenue. This implies the banking industry have some managers who cannot manage controllable expense efficiently. Whereas there are banks which spent 0.35% of revenue to cover controllable expense which an indication that the industry have some efficient managers who have the capacity to minimize cost up to 0.0035 cents to generate one Birr revenue. Std.deviation of 30.99% of management efficiency ratio indicates there is a very high dispersion on the data series. My study findings is somewhat resemble to the findings of (Mulualem et al., 2015).

Earning Quality

The earning ability of specific banks reflects the bank's overall performance. The earning ability of banking sector has been measured by comparing how well the average assets generate net interest income. The banking industry in Ethiopia on average generates 9.71%

of net interest from every loan granted as shown on Table 4.8. This implies the banking sector can generate on average 0.09 cents net interest for a single Birr loan granted. There are banks in the sector which generate maximum of 15.19% net interest gain credit given. This shows that the banking sector have managers who can utilize their assets efficiently and generate 0.15 cents for each Birr asset utilized. The maximum value of earning ability ratio 0.22% this indicates that even poor performing banks can generate a minimum of 0.002 net interest for each Birr loan granted. Std. deviation of 2.67% of earning ability ratio indicates very little dispersion on the data set. The findings of mu study resemble with (Solomom et al., 2018).

Liquidity

A well balanced liquidity position is the one which avoid insufficient or excessive cash position. This study uses total loan to deposit ratio to measure liquidity position of the banks. As shown in Table 4.8 the maximum liquidity position of banking industry in Ethiopia on average is 65.41%. This implies the banking sector on average gives 0.65 cents of its customers deposit as loan. The sector has a maximum of 238.01% loan deposit ratio. This implies that there are banks that has loaned out every Birr in deposits. It is danger zone because it has no reserve to pay customers for demand deposits. Moreover, the banking industry scores a minimum of 36.49% liquidity position. This indicates that most banks in Ethiopia has loaned out at least 0.36 cents for a single Birr deposit. Std.deviation of 31.29% implies a very high dispersion on the observed data. The findings of this study resemble with that of with (Solomom et al., 2018).

CHAPTER FIVE

5. SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

In this section, the study's primary findings are summarized; inferences are taken based on the findings, and recommendations are made for the banks to improve its performance.

5.1. Summary of Major Findings

The purpose of this study was to examine the financial performance of commercial banks in Ethiopia using the CAMEL method. The research was carried out on 10 commercial banks, accounting for 55.56% of the target population, using data from their annual reports from 2011 to 2020. The overall goal of this study was to investigate the impacts of CAMEL variables, bank size, and operating cost efficiency on profitability measurements of return on asset and return on equity, as well as to rank the banks included in the study based on their financial results. This research was also tried to answer research questions of does the CAMEL variables, OCE and size of banks effect on banks performance. Among the three approaches of conducting business and social research, the researcher used quantitative approach.

This study used RoA as a dependent variable and bank size and operating cost efficiency as independent variables, in addition to CAMEL variables, to test whether bank size, operating cost efficiency, and CAMEL variables have a significant impact on profitability measurements, as well as to see if there is a strong relationship between profit, early and late bank establishment, and CAMEL variables. For econometric analysis and descriptive statics for CAMEL ratios were used in this study. To test the hypothesis and evaluate the relative importance of each independent variable included in the CAMEL framework to explain dependent variables, fixed effect regression analysis was performed. Correlation matrix, and scatter plot test were used to examine multicollinearity, normalcy, and hetroscadeastcity, respectively.

The mean values of dependent variables return on asset indicate a value of 4.305% in the descriptive statistics table. For 100 observations, RoA has maximum values of 7.71% and 0.53%, as well as standard deviation values of 1.309%. Under this analysis, the average capital adequacy of all banks was 12.596%. The best capital adequacy ratio of Berhan Bank in 2014 resulted in capital adequacy reaching maximum values of 19.7%, while the lowest capital adequacy of WB in 2016 reach minimum values of 1.73% with a standard deviation

of 4.14%. Poor asset management of Zeman bank on 2014 forces asset quality to bear maximum values of 9.69% and best performance of Awash International bank on 2020 on this regard leads it to have a minimum value of 0.2% and standard deviation values 1.531% of asset quality.

The best cost sensitivity of Awash International Bank in 2019 contributed to management efficiency by having minimum values of cents to get one birr of operational income, and due to the fact that a poor net profit performance of NIB in 2018 forced you to have maximum. Due to DB's low earnings performance, the earning quality, which is a net profit percentage, had a low value of 1.22% and a maximum performance of CBE its value is 15.19%. With a maximum value of 238.01% and a lowest value of 36.49% in terms of liquidity ratios, this is attributable to DB's highest liquidity position in 2015 and lower due to CBE's lower position in 2019.The standard deviation was found to be 31.28%.The operating cost efficiency has the maximum value 102.8 % due to DB lowest operating cost efficiency and the minimum value 26.42% due to the contribution of CBO higher performance. The standard deviation of OCE was found to be 13.65%. With regards to bank size the maximum bank size recorded in the considered was CBE in 2019 and the lowest bank size was recorded by Berhan bank in 2011.

We may say that the residuals are normally distributed because Shapiro-Wilk value is 0.499, which is substantially higher than 0.05. The researcher conducted the scatter plot test to see if there was a problem with heteroscedasticity in the model, and discovered that the variance of residuals is homoscedastic since it is dispersed throughout the model without forming a funnel.

The r-square value of 51% in the fixed effect regression analysis of RoA indicates that all independent variables together explained 51% of the variation in RoA. At the 1% significance level, asset quality, operating cost efficiency, liquidity ratios, earning quality and bank size were significant, but capital adequacy and management efficiency were not significant variables to explain RoA. Because the probability values of the f-statistic were 0.0000, we can say that all of the independent variables in the model have a significant effect on the dependent variable (RoA) at the 1% significance level. Due to the negative sign, asset quality, management efficiency and operating cost efficiency appear to have an inverse relationship with RoA; however, they have a direct relationship because their reduction and increase have a positive and negative impact on RoA, respectively and liquidity, earning

quality, capital adequacy and bank size has a direct relationship with the dependent variable RoA.

5.2. Conclusion

Banks play a critical part in the economy of the country. The soundness of a country's banking sector has a direct impact on its economic health. One of the rating systems used for regulatory policy and to rate the overall performance of commercial banks is the CAMELS rating. In this study, the CAMEL rating was used to rate banks based on their performance and to determine the relationship between CAMEL characteristics and bank profitability data.

Asset quality, bank size, liquidity, earning quality and operating cost efficiency were the primary significant variables that influenced commercial bank performance on a 1% significant level by return on asset measure. However, capital adequacy and management efficiency have no significant impact on profitability measurements of return on asset. Because of their negative signs, asset quality, operating cost efficiency and management efficiency appear to have an inverse relationship with return on asset and return on equity, but they actually have a direct relationship with them.

5.3. Recommendations

CAMEL is commonly used method for the evaluation of performance and ranking of banks. Based on the findings discussed above, the study makes the following recommendations for banks.

Liquidity, asset quality, operating cost efficiency and size are determinant factors to increase return on asset, banks shall give special attention. Because of its tendency to compound other risks, it is all the more important to manage liquidity risk effectively. Setting up an asset liability management frame work is a first step towards this. Day-to- day analysis of future cash inflows and outflows will provide useful information in this regard.

Credit risk management skills must be developed by commercial banks. As we can see from the asset quality ratio, a high level of non-performing assets, such as loans and advances, has an impact on bank profitability. As a result, banks should better manage their credit risk. This can be done through strengthening the internal risk management system to assist the

identification, measurement and monitoring of credit risk as well as directing the supervision focus towards credit risk. Furthermore, regulatory bodies, particularly the NBE, should encourage and oblige them to have a robust credit risk management practice.

According to the findings, the three financial performance indicators of earning quality, liquidity and bank size all have a positive and very significant link with bank profitability. As a result, Ethiopian commercial banks must establish the optimal degree of liquidity, which will allow them to go the extra mile in facilitating loan requests, producing income, and maximizing interest profit. Banks, on the other hand, should develop and introduce new types of loan products in order to maximize interest margins.

In addition to the fixed effect regression finding, the management efficiency ratio was found to have a negative impact on the profitability of Ethiopian banks. As a result, the bank's management should keep track of expenditure costs and keep the spending-to-income ratio within a healthy range. The bank's administration should pay closer attention to its costs for expenditures and ensure that the bank's costs are used efficiently. Cost control activities like introducing technology based banking services and limiting excessive branch expansions which potentially reduce costs via reducing the number of staff to be employed and the branch opening costs. This should however be done without compromising the future growth motives of bank.

Because the bank's total asset, or size, is a determining factor in boosting return on asset, banks should focus on increasing their total asset by mobilizing deposits and turning them to loans. Banks may also mobilize its assets by build a portfolio of assets capable of earning the greatest interest revenue possible while keeping risks within capable bounds. Commercial banks must also set aside cash reserves sufficient to meet routine demands while devoting remaining funds to short-term commercial loan.

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Annexes I

Capital Adequacy Ratio Analysis

NO	Bank	Year											
		2011	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**Average**	**Rank**
1	**CBE**	5.57	4.85	4.71	4.54	4.23	4.20	9.09	8.23	7.05	6.08	**5.85**	**10**
2	**AIB**	12.05	12.58	11.62	11.75	12.63	12.63	11.46	11.75	12.91	13.41	**12.28**	**7**
3	**DB**	9.53	10.43	10.36	11.83	11.81	11.75	11.53	12.91	12.18	12.18	**11.45**	**8**
4	**WB**	16.59	19.22	17.61	18.60	17.61	1.73	1.90	13.97	14.42	13.38	**13.50**	**5**
5	**ZB**	14.91	11.72	15.19	16.74	15.69	13.59	13.84	13.64	15.88	16.88	**14.81**	**3**
6	**BB**	16.41	18.38	17.36	19.70	17.42	14.73	17.97	15.65	14.58	16.04	**16.83**	**1**
7	**LIB**	19.52	17.93	18.42	17.38	14.03	13.18	13.20	12.63	12.55	12.30	**15.11**	**2**
8	**CBO**	8.00	9.00	8.00	12.00	10.00	11.42	8.56	7.95	7.87	9.74	**9.25**	**9**
9	**NIB**	2.59	18.46	18.22	18.28	16.42	15.91	14.05	12.67	13.08	13.63	**14.33**	**4**
10	**OIB**	15.09	15.70	14.00	12.17	10.41	11.68	10.22	10.89	11.68	13.59	**12.54**	**6**

Annexes II

Asset Quality Analysis using Allowance for doubtful account to net Advance ratio

NO	Bank	Year											
		2011	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**Average**	**Rank**
1	**CBE**	2.51	2.25	2.68	2.83	2.72	2.80	3.00	3.11	3.23	3.30	**2.83**	**8**
2	**AIB**	3.77	2.78	2.36	2.33	1.77	1.55	1.13	0.82	0.87	0.20	**1.70**	**3**
3	**DB**	2.03	2.11	2.14	1.78	1.60	1.87	1.87	0.99	0.65	0.89	**1.63**	**2**
4	**WB**	4.76	2.49	2.28	1.70	1.61	2.22	2.00	1.78	2.21	1.31	**2.04**	**6**
5	**ZB**	1.81	1.82	9.32	9.69	5.86	4.48	4.90	4.45	2.21	4.57	**5.34**	**10**
6	**BB**	1.13	1.19	1.55	1.66	1.40	1.53	1.47	1.45	1.18	1.45	**1.43**	**1**
7	**LIB**	4.5	1.23	1.56	1.63	1.69	1.96	2.52	2.54	1.98	1.85	**1.89**	**5**
8	**CBO**	1.3	1.29	2.53	3.87	2.37	5.84	4.47	2.44	3.53	4.59	**3.29**	**9**
9	**NIB**	4.3	2.79	2.57	2.14	1.53	1.8	1.65	1.52	0.99	0.54	**1.87**	**4**
10	**OIB**	4.2	2.6	2.6	2.2	1.29	2.35	2.49	1.59	1.78	1.28	**2.11**	**7**

Annexes III

Expenditure to Income Ratio

NO	Bank	Year											
		2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Average	Rank
1	CBE	22.07	13.14	13.41	14.40	12.61	0.70	2.61	0.49	0.48	1.50	8.141	1
2	AIB	39.90	42.90	47.45	62.07	75.56	80.94	65.92	0.38	0.35	15.43	43.09	5
3	DB	120.98	60.41	78.03	98.35	105.73	115.64	116.74	31.00	24.87	85.45	83.72	10
4	WB	23.00	56.39	57.08	80.02	77.72	77.93	70.37	73.93	87.52	69.07	67.303	9
5	ZB	25.03	23.55	28.54	21.37	31.49	28.87	40.67	88.69	78.98	64.03	43.122	6
6	BB	18.04	28.69	22.46	18.08	25.27	15.34	20.17	18.53	42.35	75.05	28.398	3
7	LIB	29.05	21.83	20.34	27.40	18.75	19.33	22.49	21.49	19.54	49.59	24.981	2
8	CBO	34.96	33.96	27.98	24.88	26.01	38.91	41.05	41.09	38.64	32.15	33.963	4
9	NIB	21.02	23.00	26.16	45.09	47.27	53.81	46.33	134.98	123.81	110.83	63.23	8
10	OIB	39.56	46.24	45.50	34.79	34.86	59.05	50.32	44.50	49.05	13.89	41.776	7

Annexes IV

Net Interest Income to Total loan and advance ratio

NO	Bank	Year											
		2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Average	Rank
1	CBE	15.19	3.17	14.06	9.85	11.00	11.16	11.19	13.07	12.98	12.51	**10.44**	**4**
2	AIB	10.27	12.49	11.82	6.84	6.71	7.50	7.52	8.77	8.26	9.27	**8.74**	**9**
3	DB	9.91	11.29	11.78	12.10	12.48	1.22	11.69	7.85	7.33	8.00	**9.47**	**6**
4	WB	7.73	8.67	9.01	9.49	9.26	9.08	8.58	9.22	9.27	8.65	**9.07**	**7**
5	ZB	3.09	6.65	8.02	6.98	5.84	4.93	4.22	5.42	6.36	8.91	**6.05**	**10**
6	BB	10.39	11.71	9.06	14.40	11.22	12.44	13.09	9.84	9.28	9.96	**11.38**	**2**
7	LIB	7.30	7.91	8.70	8.77	7.78	8.31	9.53	10.16	9.14	11.11	**8.79**	**8**
8	CBO	12.08	12.62	11.52	11.59	10.69	14.08	11.54	8.36	8.31	8.91	**11.09**	**3**
9	NIB	12.55	12.02	12.88	8.59	8.52	9.97	9.05	8.87	8.54	8.55	**9.80**	**5**
10	OIB	9.48	12.17	12.26	12.90	10.99	14.78	12.93	11.02	10.20	11.11	**12.16**	**1**

Annexes V

Ratio of Total Loan to Total customer deposit

NO	Bank	Year											
		2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Average	Rank
1	CBE	37.42	48.47	44.07	44.98	44.87	46.76	41.19	38.32	36.49	39.21	**43.14**	**10**
2	AIB	49.61	58.19	60.04	59.63	66.22	66.64	72.72	71.46	78.59	79.74	**66.69**	**2**
3	DB	51.46	180.97	203.09	204.86	238.01	54.83	63.77	64.07	72.37	78.64	**135.25**	**1**
4	WB	48.45	64.09	64.14	56.41	61.51	67.75	73.00	73.69	69.95	79.46	**66.32**	**3**
5	ZB	54.51	55.47	50.02	43.01	56.47	59.30	49.83	48.89	50.11	37.41	**51.64**	**9**
6	BB	47.26	52.99	60.34	57.92	61.13	69.89	69.20	65.06	67.05	75.35	**62.95**	**6**
7	LIB	51.38	55.03	61.78	57.36	63.50	67.95	62.52	63.35	70.88	73.02	**62.80**	**7**
8	CBO	39.68	48.74	46.58	66.86	89.12	68.94	67.80	57.94	59.71	65.27	**63.21**	**5**
9	NIB	51.43	61.81	66.55	68.25	70.53	60.47	65.25	62.44	69.59	75.99	**65.61**	**4**
10	OIB	42.89	47.53	58.26	50.59	58.79	55.26	52.50	58.94	68.31	72.16	**56.27**	**8**

Annexes VI

Bank Size of selected banks

NO	Bank	Year											
		2011	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**Average**	**Rank**
1	**CBE**	25.46	25.79	26.00	26.22	26.44	26.67	26.92	27.08	27.29	27.43	**26.55**	**1**
2	**AIB**	23.13	23.30	23.60	23.82	23.95	24.16	24.46	24.74	25.04	25.22	**24.13**	**2**
3	**DB**	23.41	23.59	23.71	23.81	23.93	24.08	24.27	24.54	24.75	24.95	**24.08**	**3**
4	**WB**	22.81	22.85	23.06	23.17	23.34	23.51	23.77	24.03	24.12	24.37	**23.48**	**4**
5	**ZB**	21.20	21.60	21.90	22.09	22.31	22.72	23.00	23.24	23.41	23.64	**22.53**	**9**
6	**BB**	20.63	20.97	21.51	21.76	22.15	22.70	23.07	23.37	23.68	23.78	**22.40**	**10**
7	**LIB**	21.32	21.62	21.80	22.01	22.49	22.82	23.12	23.38	23.74	24.07	**22.62**	**8**
8	**CBO**	21.64	22.02	22.60	22.72	23.16	23.09	23.60	24.12	24.46	24.68	**23.22**	**6**
9	**NIB**	22.69	22.84	22.94	23.10	23.31	23.49	23.77	24.01	24.24	24.47	**23.46**	**5**
10	**OIB**	21.40	21.75	22.09	22.54	22.98	23.15	23.51	23.89	24.18	24.24	**23.01**	**7**

Annexes VII

Operating Expense to Operating Income ratio

NO	Bank	Year											
		2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Average	Rank
1	CBE	45.98	31.47	37.63	44.09	50.46	61.21	76.63	71.44	70.37	78.20	**55.41**	**7**
2	AIB	45.55	52.23	58.93	42.67	48.19	51.72	52.62	49.71	42.20	44.57	**49.78**	**3**
3	DB	45.69	48.62	62.33	61.17	79.09	83.59	102.80	61.53	62.93	63.07	**70.26**	**10**
4	WB	30.26	37.90	40.83	51.45	53.61	56.13	55.22	53.26	64.97	59.87	**51.67**	**4**
5	ZB	31.83	36.39	39.88	35.30	44.99	40.51	38.44	46.69	39.58	35.31	**40.22**	**1**
6	BB	45.72	42.63	60.14	59.34	62.83	55.51	59.53	42.26	59.41	63.41	**55.21**	**6**
7	LIB	45.22	38.65	36.72	51.16	42.52	46.46	52.97	51.00	47.89	51.55	**45.92**	**2**
8	CBO	64.51	54.02	50.61	46.04	60.77	96.57	84.29	26.42	70.28	62.45	**61.13**	**8**
9	NIB	47.60	48.71	55.52	48.76	51.47	55.83	51.93	56.12	53.11	52.78	**52.68**	**5**
10	OIB	62.98	71.59	69.37	62.44	65.40	72.06	74.65	49.72	51.67	58.69	**64.61**	**9**