Financial Performance analysis of Commercial Banks in Ethiopia: A CAMEL Approach

Anteneh Teshome

A Thesis Submitted to

The Department of Accounting and Finance

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

Addis Ababa University

Addis Ababa, Ethiopia

February, 2018

Statement of Declaration

I, Anteneh Teshome Gebre have carried out independently a research work on "Financial Performance analysis of Commercial Banks in Ethiopia- CAMEL Approach "in partial fulfillment of the requirements degree of master of science in Accounting and Finance with the guidance and support of the research advisor.

This study is my own work that has not been submitted for any degree or diploma program in this or other institution and that all source of materials used for this thesis have been duly acknowledged**.**

Anteneh Teshome

Signature_____

Date _____

Addis Ababa University

School of Graduate Studies

This is to certify that the thesis prepared by Anteneh Teshome, entitled: Financial Performance analysis of Commercial Banks in Ethiopia- CAMEL Approach and Submitted in partial fulfillment of therequirements 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 _____ Signature _____ Date _____

Examiner_____ Signature _____ Date _____

Advisor Abebe Yitayew (Phd) Signature _____ Date _____

_____

Chair of Department of Graduate Program Coordinator.

Acknowledgments

First and foremost my very special thanks goes to ***the mother of the lord Jesus cries, holy of holies saint marry*** *for giving me the motivation, skill and discipline to make it successful.*

I would like to extend my heartfelt appreciation and gratitude to my advisor Abebe Yitayew (PHD), for his guidance in shaping my knowledge, encouragement and very valuable comments to write my thesis.

I would like to add my special thanks to my lovely family, my darling wife, W/roRahel Getachew, and, my carrying mother, Wolansa Teshome, they had been always my motivation source by believing in me and giving courage to me all the time, last but not least to my lovely children's, Semernah Anteneh and Dan Anteneh, for their patience, because I am using their time during the whole process of my MA.

Finally, I would like to add my special note of admiration & gratitude to my families & friends whose names are not listed above, without your moral support and encouragement; it would difficult to be successful in this regard

Abstract

This study was focused on the area of financial performance analysis of commercial banks by using CAMEL approach in Ethiopian banking industry. The study was conducted on 11 commercial banks, by collecting data from their annual reports from year 2011 to 2016. The overall objective of this study was to analyze the effects of CAMEL variables, bank size and net interest margin on profitability measurements of return on asset and return on equity, to rank banks included under this study based on their financial performances and this study also aimed to investigate the interconnection between CAMEL ratios with profitability, late and early establishment of banks.. The study used quantitative approach from the three methods of conducting business and social research. This study used ROA and ROE as dependent variable and bank size and net interest margin as independent variable in addition to CAMEL variables. The researcher was used panel data for econometric analysis and descriptive statics for CAMEL ratios. Both the econometrics part and descriptive part were analyzed by descriptive analysis. Fixed effect regression analysis was also used to test the hypothesis and to determine the relative importance of each independent variable included in the CAMEL framework to explain dependent variables. During the ranking process by composite CAMEL, BUNA, ZB and ABAY was ranked from 1st to 3rd place which were established later. The econometric analysis showed that, asset quality, management efficiency, liquidity, size of the bank and net interest margin were significant variables to explain ROA, unlike capital adequacy and earning quality which were not significant variable. Similarly, capital adequacy, asset quality, management efficiency, liquidity, and net interest margin were significant variables to explain ROE, but earning quality and size of the bank were not significant variable to influence ROE. In general for banks whose capital adequacy, asset quality, management efficiency and liquidity position were low as compared to peer banks shall inject some capital, improve their asset quality, control their cost and control their liquidity position respectively in order not lose public trust. In connection with their determinant factor to increase return on equity banks shall give special attentions to asset quality, management efficiency, liquidity and net interest margin. Banks shall also concentrate on increasing their total asset by mobilizing deposit and converting the deposit to loan, as total asset or size of the bank is a determinant factor to increase return on asset,

Key words CAMEL, financial performance

Table of Contents **Page No.**

ACRONYMS

ABAY: Abay Bank SC

AIB: Awash International Bank SC

AQ: Asset Quality

BIB: Birhan International Bank SC

BJ:Bera-Jarque

BOA: Bank of Abyssinia SC

BUNA: Buna International Bank SC

CA: Capital adequacy

CAR: Capital Adequacy Ratio

CAMEL: Capital adequacy, Asset Quality, Management efficiency, earning quality and liquidity

CBE: Commercial bank of Ethiopia

DB: Dashen Bank SC

EQ: Earning quality

LIQ: Liquidity

ME: Management efficiency

NBE: National bank of Ethiopia

NIB: Nib International Bank SC

NIM: Net Interest Margin

ROA: Return on Assets

ROE: Return on Equity

SIZE: Size of the bank

UB: United Bank SC

WB: Wegagen Bank SC

ZB: Zemen Bank S.C

List of tables:

CHAPTER ONE

1. INTRODUCTION

1.1. Overview of Ethiopian banks

It was in 1905 that the first bank, "Bank of Abyssinia", was established based on the agreement signed between Emperor Minilik II and the National Bank of Egypt, which was owned by the British with a capital Pound Sterling 500,000. The Bank was given full rights to issue bank notes and monitor coins which were to be legal tender.The Ethiopian Government, under Emperor Haile Sellassie, closed the Bank of Abyssinia, paid compensation to its shareholders and established the Bank of Ethiopia which was fully owned by Ethiopians, with a capital of pound Sterling 750,000 which was started its operation in 1932. During the Italian occupation (1936-1941), the operation of the Bank of Ethiopia came to a halt, but a number of Italian financial institutions were working in the country. These were Banco Di Roma, Banco Di Napoli and Banca Nazionale Del Lavora. It should also be mentioned that Barclays Bank had opened a branch and operated in Ethiopia during 1942-43.

With the departure of the Italians and the restoration of Emperor Haile Selassie's government, the State Bank of Ethiopia was established in 1943 with a capital of 1 million Maria Theresa Dollars.In 1945 the Agricultural Bank was established but was replaced by the Development Bank of Ethiopia in 1951, which changed in to the Agricultural and Industrial Development Bank in 1970. In 1946 Banque Del Indochine was opened and functioned until 1963. In 1963, the Imperial Savings and Home Ownership Public Association (ISHOPA) and the Investment Bank of Ethiopia were founded. In 1965, the later was renamed Ethiopian Development Corporation S.C. In the same year, the Savings and Mortgage Company of Ethiopia S.C. was also founded. In 1963, the State Bank of Ethiopia split into the National Bank of Ethiopia and the Commercial Bank of Ethiopia S.C. with the purpose of segregating the functions of central banking from those of commercial banking.

The first privately owned company in banking business was the Addis Ababa Bank S.C., established in 1964. Thus, until the end of 1974, there were state owned, foreign owned and Ethiopian owned banks in Ethiopia. Following the 1974 Revolution, on January 1, 1975 all private banks and 13 insurance companies were nationalized and along with state owned banks, placed under the coordination, supervision and control of the National Bank of Ethiopia. In 1976, the Ethiopian Investment and Savings S.C. was merged with the Ethiopian government saving

and Mortgage Company to form the Housing and Savings Bank.The Agricultural and Industrial Development Bank continued under the same name until 1994 when it was renamed as the Development Bank of Ethiopia. Thus, from 1975 to 1994 there were four state owned banks and one state owned insurance company, i.e., the National Bank of Ethiopia (The Central Bank), the Commercial Bank of Ethiopia, the Housing and Savings Bank, the Development Bank of Ethiopia and the Ethiopian Insurance Corporation.

After the overthrow of the Dergue regime by the EPRDF, new economic policy replaced centrally planned economic system with a market-oriented system and ushered in the private sector. In line with this, Monetary and Banking proclamation of 1994 established the national bank of Ethiopia as a judicial entity, separated from the government and outlined its main function.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 by 486 shareholders. And currently there are 18 banks, of which 16 private banks and the rest 2 are government owned banks excluding the central bank NBE.(www.nbe.gov.et)

1.2. Back ground of the study

Financial performance of banks refers to the capacity in generating sustainable profitability. Traditional method of applying financial ratios to evaluate bank's state of performance has been long practiced.CAMEL approach is used to evaluate financial performances of banks because; it benefits the banks management to evaluatetheir financial health and performance.CAMEL approach is significant tool to assess the relative financial strength of a bank and to suggest necessary measures to improve weaknesses of a bank.. CAMEL rating is a subjective model which indicates financial strength of a bank, whereas CAMEL ranking indicates the banks relative position with reference to other banks.

Saminathan (2016).Nurazi and Evans (2005) investigated whether CAMEL(S) ratios could be used to predict bank failure. The results suggested that adequacy ratio, assets quality, management, earnings, liquidity and bank size are statistically significant in explaining bank failure. Olweny and Shipo (2011) found that poor asset quality and low levels ofliquidity are the two major causes of bank failures. Poor asset quality led to many bank failures in Kenya in the early 1980s. Kaya (2001) as cited on Serhat Yukse (l2015), analyzes the relationship of

CAMELS rating and possibility of failure of a bank by using 1997 and 2000 data of Turkish commercial banks and finds that only 17% of the banks pointed out as successful by CAMELS system have failed.

Pekkaya (2002), Canba Ģ (2005), Karacabey (2007) and Baoyacıoğlu (2009) as cited on Gulgzoztorul 2011, are some other researchers trying to find whether or not CAMELS can predict bank failure. However, they cannot reach a consensus in terms of prediction power of CAMELS rating Çinko&Avcı, (2008).Barker and Holdsworth(1993) found that, the CAMEL system is useful, even after controlling for a wide range of publicly available information about the condition and performance of banks. This composite index further acts as a bank's failure predicting model. The rating is assigned based on both quantitative and qualitative information of the bank. If a bank's index is less than two, it is regarded as a high-quality bank, whereas institutions with grade four or five are rated to be insolvent (Curry, Elmer and Fissel, 2009.) as cited on Abdulazeez(2014), The up to date examination ratings helps to identify if the banks require increased supervisory attention well before they actually fail.

Vivid V. Tuna (2013) used a CAMEL model for making a comparative analysis between two banks in Indonesia to determine level of health of the banks. Finally, he concluded that he didn't get any significant difference between the two banks in their financial soundness. On the other hand Prasad, K.V.N. and Ravinder, G.(2012) has used CAMEL model to analyze the financial performance of nationalized banks in India. In their study they analyzed the CAMEL ratios of 20 bank and they ranked these banks based on their performance. Mekonnen and Kedir (2015)tried to analyze whether CAMELS method is effective in order to measure the performance of Ethiopian banks from 2003 to 2013. They used regression analysis so as to achieve this objective. They concluded that CAMELS method is successful to show the performance of Ethiopian banks.

1.3. Statement of the problem

Profit is the final goal of commercial banks in every aspects of their service. All the strategies and activities performed are to realize this impressive objective. Beside these goals, commercial banks also have social and economic goals. Though, the goal of this study is in connection with the first and foremost objective of profitability. Among different ratios used to measure the performance of commercial banks, Return on Asset and Return on Equityare the major ones. VincentOkoth (2013), Murthy and Sree(2003); Alexandru et al., (2008).On the other hand as

noted by Mustafa (2014), the two widely used profitability measurements in order to assess commercial banks' performance are return on total assets (ROA) and return on total equity (ROE). These measures have been used by analysts and bank regulators is for, assessing industry performance and, on other hand for, forecasting market structure trends which is used to predict bank failures and mergers and finally, for other purposes where a profitability measure is wanted Gilbert and Wheelock, (2007).

According to Ansarul Haque(2014), the role of Return on Asset (ROA) is to display the percentage of profit which any company's gain against its entire capital investment. It measures efficiency of the company in using its assets to generate net income. Higher values of the return on assets show that the company is more effectively managing its assets to produce greater amount of net income. Ashish Gupta (2015).ROE is a financial ratio that refers to how much profit a company earned compared to the total amount of shareholder equity invested or found on the balance sheet or it is what the shareholders look in return for their investment Vincent Okoth(2013). Further, it accentuates over the well management of the organization in order to channelize the capital of the shareholders in right direction to achieve the desired goals. (Ansarul Haque (2014).

Various studies had used these profitability indicators either by selecting bothof them at once or either of the two separatelyas profitability measurements. To the best of researcher's knowledge, in our country, no other studies have used net interest margin and banks size as independent variable to explain dependent variable return on asset and return of equity in addition to CAMEL variables and also no other studies in our nation investigate the interconnection between CAMEL ratios and top profitability, early and late establishment. Net Interest Margin (NIM) is defined as the balance of the interest income retained by the banks after meeting interest payment obligation to its depositors. The higher the net interest margin, the higher the bank's profit and the more stable the bank is. Thus, it is one of the key measures of bank profitability measurement. Vincent Okoth(2013). Bank size is here represented by total asset of corresponding banks.

This is, therefore, this study were used ROA and ROE as dependent variable and bank size and net interest margin as independent variable in addition to CAMEL variables, to test weather bank size; net interest margin and CAMEL variables have impact on profitability measurements and to investigate the interconnection between CAMEL ratios with top profitability, early and late establishment. Thus, this study would be conducted with the intention of filling this gap. Accordingly, the researcher would try to answer the following research questions.

1. Does the Bank's size affect banks' performance?

2. Does net interest margin affect banks' performance?
3. Does capital adequacy of the bank affect banks' performance?
4. Does asset quality affect banks' performance?
5. Does management efficiency affect banks' performance?
6. Does earning quality affect banks' performance?
7. Does liquidity affect banks' performance?

1.4. Objectives of the study

1.4.1. General objectives

The overall objective of this study was to analyze the effects of CAMEL variables, bank size and net interest margin on profitability measurements of return on asset and return on equity and to rank banks included under this study based on their financial performances from year 2011 to 2016.

1.4.2. Specific objectives

The researchers also would have the under listed specific objectives.

- To evaluate the impact of Bank size on banks' performance
- To evaluate the impact of net interest margin on Ethiopian commercial bank performance
- To assess the effect of capital adequacy on banks' performance
- To measure the importance of asset quality on banks' performance
- To assess the role of management efficiency on banks' performance
- To investigate the impact of earning quality on banks' performance;
- To assess the effect of liquidity on banks' performance.
- To evaluate late or early established banks were successful or not by CAMEL ratios and:
- To assess top profitable private banks were successful by CAMEL ratios or not.

In line with the research questions and objectives, the following hypotheses were tested.

H1: Bank's size positively and significantly affects banks' performance.

HA: Bank's size does not significantly affect banks' performance

H2: Net interest margin positively and significantly affects banks' performance

HA: Net interest margin does not significantly affect banks' performance

H3: Capital adequacy of the bank positively and significantly affects banks' performance.

HA: Capital adequacy of the bank does not significantly affect banks' performance.

H4: Asset quality of the bank positively and significantly affects banks' performance.

HA: Asset quality of the bank does not significantly affects banks' performance.

H5: Management efficiency positively and significantly affects banks' performance.

HA: Management efficiency does not significantly affect banks' performance.

H6: Earning quality positively and significantly affects banks' performance

HA: Earning quality does not significantly affect banks' performance

H7: Liquidity positively and significantly affects banks' performance.

HA: Liquidity does not significantly affect banks' performance.

1.5. Significance of the study

1.5.1. For banks

The researcher wouldbelieve that, this research would provide a number of important notices to the banks management, regulators, and investors in Ethiopian banking industry. These may include policy changes, new strategy development and supervision for implementation of the already applied policies & strategies concerning its day to day operations that would considerably affect the net incomes and associated risks of the banks.

1.5.2. For research gap

This research would fill the gaps by testing bank size; net interest margin and CAMEL variable have significant impact on banks' profitability measurements of ROA and ROE in the Ethiopian banking industryfrom the year 2011 to 2016.

1.5.3. For Other Researchers

The research would provide information to other researchers as a starting point or may serve as an additional source of reference on the literature and would also provide an opportunity for future research to deeply investigate on this issue.

1.6. Scope of andLimitation of the study

The scope of the study was limited to the evaluation of financial performances of commercial banks registered by the NBE using CAMEL approach for the period of6 year's data i.e., 2011-2016. This study was conducted on the current body of knowledge and studies conducted in other countries context.

The researcher was unable to get the data for values of non-performing loans from the selected banks due to its secrecy, and obliged to use allowance for doubtful account for the computation of asset quality. Unavailability of information for the six CAMELS variable (S), which is, sensitivity to market, forces not to be included under this study.

CHAPTER TWO

2. LITRATURE REVIEW

2.1. Introduction

Banks play very significant role in the economies of the nation. The well-being of the economy is highly related to the soundness of its banking system. Financial performance of banks refers to the capacity in generating sustainable profitability. According to Olweny and Shipho, (2011) a more organized study of bank performance started in the late 1980's with the application of Market Power and Efficiency Structure theories. Banks Performance is measured at two levels, one is at the management and regulatory level of the respective banks and another is at external rating agencies. The main objective of regulatory and supervisory rating systems is to measure the bank performance at internal level and its compliance with regulatory requirements to keep the bank on right track. These ratings are highly confidential and are only available to the bank management. External credit rating agencies examine and evaluate the banks and issue ratings for the general public and investors in particulars Haseeb (2011).Olweny and Shipho (2011) also argued that the Market Power theory assumes bank profitability is a function of external market factors, whereas the Efficiency Structure theories and the balanced portfolio theory largely assume that bank performance is under the influence of internal efficiencies and managerial decisions.

According to Vincent Okoth (2013), bank performance is highly influenced by both internal and external factors. The internal factors are within the scope of the bank and are easy to be manipulated and differ from bank to bank. It includes bank size, capital, management efficiency and risk management capacity Vincent Okoth (2013).Athanasoglou et al, (2006) argued that profitability is a function of internal factors that are mainly influenced by a bank's management decisions and policy objectives such as the level of liquidity, provisioning policy, capital adequacy, expense management and bank size On the other hand externalfactors are macroeconomic variables such as interest rate, inflation, economic growth and other factors like ownership Vincent Okoth (2013).

Various studies have used different models to evaluate banks performance. Data Envelopment Analysis (DEA) is one of the measures of bank performance which is used to measure the production or performance function of DMUs (decision making unit). DEA evaluates the inputs

consumed and outputs produced by DMUs and identify those units that comprise an efficient frontier and those that lie below this frontier. The standard DEA models have an input and output orientation. An input orientation identifies the efficient consumption of resources while holding outputs constant. An output orientation identifies the efficient level of output given existing resource consumption. The output orientation provides estimates of the amount by which outputs could be proportionally expanded given existing input levels R. hoque, (2012) and Karan S. Thagunna (2013).

The other method for bank performance analysis is Z score. The Z score was first developed by NYU Professor Edward Altman in 1968. The Z score methodology was developed to provide a more effective financial assessment tool for credit risk analysts and lenders. The model claims for more than 70% accuracy in predicting corporate bankruptcy. Nishi Sharma & Mayanka (2013).The Z score method examines liquidity; profitability; reinvested earnings and leverage which are integrated into a single composite score Roli Pradhan (2014). The Z score is also a critical business tool manager utilizes to make informed business decisions to improve the financial health of the business by assessing the factors contributing to poor financial health, which enables managers to initiate actions to be taken to improve the score of these factors contributing to financial distress.

CAMEL rating approach is also other contributor in the financial performance analysis of banks. CAMELS rating is a supervisory rating system first developed in the U.S. to label a banks overall condition. It was become functional to every bank and credit union in the U.S. and outside the U.S. by various banking supervisory regulators. The short form "CAMEL" refers to the five components of a bank's condition namely: *C*apital adequacy, *A*sset quality, *M*anagement efficiency, *E*arnings, and *L*iquidity, before the sixth component, *S*ensitivity to market risk, was added in 1997 and became "CAMELS". Each of the component factors is rated on a scale of 1 (best) to 5 (worst). According to Wirnkar &Tanko, 2008 as cited on Gulgzoztorul (2011), rate of 1 stands for sound in every respect, a rate of 2 shows sound but has modest weaknesses, 3 indicates weaknesses, 4 implies serious weaknesses and finally a rating of 5 tells us critical weaknesses. In U.S this rating system is used by federal banking supervisors like (Federal Reserve, Federal Deposit Insurance Corporation (FDIC), and the Office of the Comptroller of the Currency (OCC) and other financial supervisory agencies to provide a convenient summary of bank conditions (Wikipedia).

The main focus of this study is to analyze the performances of Ethiopian commercial banks by using CAMEL approach. As argued by Andreas and Gabrielle (2009), bank profitability is usually measured by internal determinants which include bank specific variables. However, the main focus of this particular study is to investigate the impact of bank specific factors on banks profitability. CAMEL approach is used because, according to Misra and Aspal (2013) "CAMEL rating criteria has become a concise and indispensable tool for examiners and regulators"; and also as noted by Dakito Alemu (2015) in recent days, the most commonly used approach of evaluating the overall performance of financial institutions as shown/proven in different literatures is CAMEL rating system and finally, as concluded by Kaya (2001), only 17% of the banks pointed out as successful by CAMELS system have failed which means 83% of the prediction of CAMEL is correct in relation with their failure.

2.2. CAMELS in brief

Bank's supervisory agencies are responsible for monitoring the financial conditions of commercial banks and enforcing related legislation and regulatory policy. Accordingly, CAMELS rating are one of the rating systems applied for regulatory policy and to rank the overall performances of commercial banks.CAMEL is a standardized financial rating system having short form of five measures namely: Capital adequacy, Asset quality, Management efficiency, Earnings quality and Liquidity. CAMEL method is commonly used for the evaluation of performance and ranking of banks. According to (Yuva P, 2016), CAMEL rating is a subjective model which indicates financial strength of a bank, whereas CAMEL ranking indicates the banks relative position with reference to other banks. Each of these performance indicators are described below:

2.5.1. Capital adequacy

Capital adequacy shows whether banks have adequate capital in order to meet the withdrawal demand of its customers in crisis period. In other words, it reflects whether the bank has enough capital to bear unexpected losses arising in the future (Türker Kaya, 2001 as cited on Serhat Yuksel, Hasan Dincer and Umit Hacioglu(2015). According to Misra&Aspal (2013), it is prominent indicators of the financial health of a banking system. It is very useful for a bank to conserve & protect stakeholders' confidence and preventing the bank from being bankrupt.According to Chen, 2003 to prevent the bank from failure it is necessary to maintain a

significant level of capital adequacy. The following ratios are included under this category by various researchers for analysis purpose.

Capital Adequacy Ratio (CAR) measures the ability of the bank to absorbing loses arising from risk assets. The higher the ratio represents better performance of the bank. According to (Yuva P., 2016), It shall be computed as tier I capital +tier II capital/risk weighted asset.Tier I capital represents for Equity Share Capital + Disclosed Reserves and Tier II capital is the sum of Undisclosed Reserves + General loss Reserves + Subordinate term debts (Jayanta k. 2012).Debt to equity ratio (leverage ratio)represents the degree of leverage of a bank. It shows how much proportion of the bank business is financed through equity and how much through debt. It is calculated by dividing sum of total borrowing and deposits with shareholders' net worth. Higher ratio is an indication of less protection for the depositors and creditors and lower ratio is seen as better performance of the bank. Misra & Aspal (2013).Advance to asset ratio indicates the proportion of loans and advances deployed to the total funds.Higher the ratio better is the availability of funds for loans and advances out of their totalassets and vice versa. Jayanta k. 2012).Government Securities to total investment ratio shows the percentage of risk-free investment in bank's investment portfolio. It will be computed as **[**(Investment in government securities inside the country +Investment in government securities outside the country)/ Total Investment**]** × 100. Higher government securities to total investment ratio is an indication of risk-free investment in bank's investment portfolio. However, it may affect the return on investment because of lower return from government securities.

2.5.2. Asset quality

The quality of assets is an important parameter to gauge the strength of a bank. The logic behind calculating the asset quality is to determine the employment of assets in investment using net income as a fraction of the bank total assets (ROA) Dakito Alemu (2015**).**One important objective of the financial sector reforms is to improve the quality of loan assets and assets have been classified into performing and nonperforming assets. Assets that have low quality usually have higher possibility to become a Non-Performing Loan. Non-Performing loans are usually bad debts that are in default or they are near to be in default. According to Sangmi and Nazir (2010), Asset quality is classified as: Standard assets are those assets that are performing and loan is paying interest and installment at due date, further they do not carry more than normal risk. Formerly, no provisions were 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 fully developed weaknesses that jeopardize the liquidation of a debt.Doubtful assets are those assets that have remained substandard for 18 months. The provision of 100% of the provisions is to be made by the realizable value of the security to which a bank has recourse. The quality of assets has been examined with the help of following three ratios:

Net NPAs to Total Assetsreflects the efficiency of bank in assessing the credit risk and recovering the debts. In this ratio, the Net NPAs are measured as a percentage of total assets. The lower the ratio reflects, the better is the quality of advances. Misra&Aspal (2013). According to Misra&Aspal (2013) and (Jayanta k. 2012), Net NPAs to Net Advancesis the most standard measure to judge the assets quality, measuring the net nonperforming assets as a percentage of net advances. Net NPA will be computed as Net NPAs = Gross NPAs – (Provisions on NPAs + Interest on suspense account.Investments to total asset ratio is used as a tool to measure the percentage of total assets locked up in investment. Alternatively, it indicates the extent of development of assets in investment as against advances. This ratio is used as a proxy to measure the quality of assets.

2.5.3. Management Efficiency

As per (Jayanta k. 2012), management is most important ingredient that ensures the sound functioning of banks. It is another essential component of the CAMEL model that guarantee the growth and survival of a bank.(Misra&Aspal (2013).With increased competition in the banking sector, efficiency and effectiveness have become the rule as banks constantly strive to improve the productivity of their employees. In order to satisfy customers, banks maintained extended working hours, flexible time schedules, outsourcing marketing etc. The performance of Management capacity is usually qualitative and can be understood through the subjective evaluation of Management systems, organization culture, and control mechanisms and so on. However, the capacity of the management of a bank can also be gauged with the help of certain ratios as follows (Sangmi and Nazir, 2010).

According to Yuva P, 2016) and Jayanta k. 2012, total advances to total deposits ratio measures the efficiency of management in converting the deposits available with the bank into high earning advances. Total deposits include demand deposits, savings deposits, term deposits and deposits of other banks. According to the above authors, total advances also include the

receivables.Improvement and enlargement of business (total of deposits and advances) is the main function of banks. Increase in business per employee is an important indicator of productivity of banks because employees are generally considered as input and business as output of a bank. This ratio is used to find out whether the bank is relatively under or over staffed. Higher the ratio better is the productivity efficiency of the employees of the banks.Profit per employee is used to measure the productivity efficiency of employees of the banks or according to (Yuva P, 2016), this ratio is a ratio to check efficiency of the bank in maximizing profit per employee. Improvement in profit per employee advocates efficiency of the management effective utilization of employee as an input and profit as a measure of output.Expenditure to income is one of the management efficiency measurement, which is used to measures the amount of expenditure incurred to generate a 1 birr income. The lower the ratio is better performance of the management.

2.5.4. Earning Quality

The Earnings/Profit is a Conventional Parameter of measuring financial performance. Higher income generally reflects a lack of financial difficulties and so would be expected to reduce the likelihood of failure of a bank (Cole and Gunther, 1996). It is another important parameter for judging the operational performance of a bank. Total income of a bank is divided into two parts. Income from core activities (i.e. income from lending operations) and income generated by non-core activities like investments, treasury operations, corporate advisory services etc.(Jayanta k. 2012).The excellence of earnings determines the capability of a bank to earn consistently. It mainly determines the profitability and productivity of the bank, explains the growth and sustainability in future earnings capacity. In order to measure earning quality of the bank the following ratios were used in different literatures.(NIM) is an important measure of a bank's core income i.e. income from lending operations. NIM is the difference between the interest income and the interest expended. In the computation of Net interest margin to total asset, NIM is expressed as a percentage of total assets. A higher spread indicates the better earnings given the total assets and vice versa.

Net profit to total asset ratio reflects the return on assets employed or the efficiency in utilization of assets. It is calculated by dividing the net profits with total assets of the bank. Higher the ratio reflects better earning potential of a bank in the future. Misra &Aspal (2013)Percentage growth in net profitis the ratio of percentage growth in net profit after tax over the previous year or last year. Higher the ratio better is the profitability of the bank and vice versa.Operating profit to total

asset ratioindicates how much a bank can earn from its operation after meeting its operating expenses for every birr investment in total asset. Higher the ratio shows the better profitability of the bank and vice versa. The interest income to total income ratio reflects the banks capability in generating income from its lending activities. Interest income includes income on loans and advances, interest earned on deposits maintained in different banks.Non-interest income is any income earned by the banks other than interest income. Non-Interest income to total incomeratio of non-interest income to total income measures the income from various operations other than lending as a percentage of total income.

2.5.5. Liquidity

Public deposit their money in banks mainly for two reasons, the first one is for safety and the other is to earn interest income. Thus, repayment of deposits along with timely payment of interest is of crucial importance for a bank. For this reason, banks should always maintain sufficient liquidity. Liquidity shows the ability of the banks to discharge their liabilities as and when they mature. Or, it is the ability of the banks to convert non-cash assets into cash as and when needed. In order to examine the liquidity position of banks, there are four ratios used by different authors. Liquid Assets to demand deposits ratio measures the ability of a bank to meet the demand for withdrawal of cash from demand deposits in a particular year. It is calculated by dividing liquid assets by total demand deposits. Liquid assets include cash in hand, balances with banks in country and outside the country and money at call on short notice.(Jayanta k. 2012).

Liquid assets to total depositsratio indicates the ability of the bank to meet its deposit obligations with available liquid funds. Total deposits include demand deposits, savings deposits, term deposits and other deposits.Liquid assets to total assetsmeasure of liquidity indicate the percentage of a bank's total assets in liquid form. Higher the percentage better is the liquidity and vice versa.Term deposit to total deposit ratio indicates that total proportion of term deposit in the total deposit. If the proportion of term deposit is more in total deposit that is not good for long term survival of any bank. Lowest ratio of term deposit to total deposit is favorable one. (Ashish Gupta, 2015)

2.3. Empirical review

Siva and Natarajan (2011) empirically tested the applicability of CAMEL and its consequential impact on the performance of SBI Groups. The study found that CAMEL scanning helps the bank to diagnose its financial health and alert the bank to take preventive steps for its sustainability. Prasuna (2004) examined the performance of 65 Indian banks according to the CAMEL Model and concluded that better service quality, innovative products and better bargains were beneficial because of the prevailing tough competition. Saminathan (2016) evaluated financial performance of 18 private banks, 25 public banks and 8 foreign Indian banks for the purpose of ranking one against the other. The result shows that there is a statistically significant difference between the CAMEL ratios of the selected Public Sector Banks, Private Sector Banks and Foreign Banks in India.

Abdulazeez(2014)investigated the financial performances of Saudi commercial banks during the period 2000-2013. A sample of 21 commercial banks comprising of 10 foreign owned banks and 11 Saudi domestic banks for the captioned 14 years period have been used in the study .Panel data Linear Multiple Regression model and Ordinary Least Squares have been used in the present study to estimate the impact of the driver ratios like capital adequacy, asset quality, operational efficiency, bank size, net loan to total deposits, liquid assets to total assets. On the financial parameters like Return on Equity (ROE), Return on Asset(ROA), Net Interest Margin (NIM).The study found that at the pool level, that capital adequacy, operational efficiency, bank size, net loan to total deposits and liquid assets to total assets have positive and significant relationship with ROA but asset quality has negative and significant relationship with ROA. Similarly, capital adequacy, bank size and liquid assets to total assets have positive significant relationship with ROE, whereas net loan to total deposits has positive but insignificant relationship with ROE. Asset quality has negative and significant relationship and operational efficiency has negative but insignificant relationship with ROE. All the determinant variables excepting capital adequacy and operational efficiency of banks have positive significant relationship with NIM. Capital adequacy has positive but insignificant relationship with NIM and operational efficiency has negative but significant relationship with NIM.

Tarawneh (2006) found that the banks having high total capital, deposits, credits, or total assets does not always means that has healthier profitability performance. The operational efficiency and asset management, in adding to the bank size, positively influenced the financial performance of these banks. In the light of his empirical study he concluded that the operational

efficiency and asset management, in addition to the bank size, strongly and positively influenced financial performance of the banks.

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, find positive correlation between ROA and asset management ratio. Khizer et.al. (2011), in his study about profitability indicators of banks in Pakistan for the period of 2006-2009 find that profitability is directly and positively affected by operating efficiency, assets management ratios, and size when using ROA as profitability indicator. The association between profitability and other indicators is different, when using ROE as profitability indicator. ROE is positively related with assets management and negative association was found with size and operating efficiency.

Rizwan Jan 2014 analyzed financial performance of top ten Private commercial private banks in Pakistan. The study used Regression analysis and correlation technique in order to address the issue. Returns on asset and interest income were taken as dependent variables while bank size, asset management and operational efficiency were taken as independent variables. The results showed that, ROA of the banks were strongly and negatively influenced by the bank size. Operational efficiency is negatively related with the ROA. Other dependent variable interest income of the banks was strongly and positively influenced by the bank size and is statistically significant. Interest income showed negative relation with the operational efficiency and results were also statistically significant.

Ansarul Haque(2014) evaluated the concurrent performance of chosen few major Indian banks from 2009 -2013 following the global financial slump of 2008. In order to judge their performance, he compares the financial position of Banks and to prove the viability, he had used the parameters Return on Asset, Return on Equity and Net Interest Margin. In order to check whether there is significant difference of profitability means among different banking groups, he used analysis of variance (ANOVA).The result indicates that there is no significant means in difference of profitability among various banking groups in respect to ROA and NIM, yet a significant means of difference is seen among the peer groups in terms of ROE. In the paper on financial performance of commercial banks, the financial performance of the two major banks namely J&K Bank and Punjab National Bank operating in northern India has been evaluated by using CAMEL model. Its result reveals that the position of the banks under study is sound and

commendable so far their capital adequacy, asset quality, management capability and liquidity are concerned (Sangmi and Tabasum, 2010).

Srinivas K., SarojaL (2013) compared and analyzed the Financial Performance of HDFC and ICICI Bank . For the purpose of analysis of comparative financial performance of the selected banks by using CAMELS model with t-test. The result showed that there is no significance difference between the ICICI and HDFC bank's financial performance but the ICICI bank performance is slightly less compared with HDFC. Reddy K. Sriharsha (2012) analyzed relative performance of banks in India using CAMEL approach. It is found that public sector banks have appreciably improved indicating positive impact of the reforms in liberalizing interest rates, rationalizing directed credit an Investments and increasing competition.

Mulualem(2015) examined financial performance of 14 Ethiopian Commercial Banks using CAMEL approach from year 2010 to 2014.The study used quantitative research approach, and analyzed by using multiple linear regression models for two profitability measures: ROE and ROA. Fixed effect regression model was applied to investigate the impact & relationship of CAMEL factors with bank profitability measures separately. The empirical result shows that capital adequacy, Asset Quality and Management efficiency have negative relation whereas earning and liquidity shows positive relationship with both profitability measures with strong statically significance except Capital Adequacy which is insignificant for ROA whereas Asset quality for ROE.

Dakito Alemu 2015 studied banks performance with the title" Assessment of Banking Performance using Capital Adequacy in Ethiopia" to evaluate the financial performance of banking sector in Ethiopia and also to see the relation between capital adequacy and bank's performance of 8 banks for the period of 2000-2013. In order to address these, he used both descriptive and econometric analyses. The descriptive analyses were made using CAMEL approach and central tendency measures. The result shows that, as compared to other banks NIB's overall performance was good. In addition to the descriptive data analysis, the study also employed regression model, GLS, which is used to see whether capital adequacy which is measured by the amount of shareholders fund affect the bank performance which is measured by Return on asset (ROA). The finding shows that, shareholders' fund is the main factor that determines the performance of banking industry Therefore; there exist positive relationship between capital adequacy and bank performance.

2.4. Conclusion forresearch gap

Most of the studies discussed above were supporting the CAMEL variables are significant to explain the dependent variables return on asset and return on equity positively. Other countries studies considered the impact of bank size and other variables in addition to CAMEL variables to check their effect on profitability measurements of return on asset and return on equity. To the best of researcher awareness, in our nations studies doesn't include size of the bank and net interest margin beside to CAMEL variables to influence profitability measurements of return on asset and return on equity. This is therefore; bank size and net interest margins would be considered beside CAMEL variables to know their effect on profitability measurements.

2.5. Conceptual Framework

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

Independent variables

- Capital adequacy
- Asset quality
- Management efficiency
- Earning quality
- Liquidity
- Size
- Net interest margin ratio

Dependent Variables

ROA

&

ROE

CHAPTER THREE

RESEARCH DESIGN AND METHODOLOGY

3.1. Study Area and Approach

This study was focused on the area of financial performance analysis of commercial banks by using CAMEL approach inEthiopian banking industry. The research was conducted on 11commercial banks operating in Ethiopia.As noted in Creswell (2009) there are three approaches that are used in conducting business and social research. These are 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 research approach is a means for exploring and understanding the meaning individuals or groups ascribe to a social or human problem with intent of developing a theory or pattern inductively (Creswell 2009). Qualitative research approach is one in which the investigator often makes knowledge claims based primarily on the multiple meanings of individual experiences, socially and historically constructed meanings, participation in issues, collaboration or change oriented with an intent of developing a theory (Creswell 2003). Finally, mixed methods approach is an approach to inquiry that combines or associates both qualitative and quantitative forms (Creswell 2009). Accordingly, the researcher was used quantitative research approach to evaluatefinancial performances of commercial banks by different variables of CAMEL approach and also by considering the effects of bank size and NIM. Based on the results found from these banks, the researcherconcluded the results to the target population

3.2. Target Population

The target population was all 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.

3.3. Sample Size and Sampling Method

As noted above, the target population would be all commercial banks registered by NBE and under operation in the country currently. Among this, the study was conducted on 11 commercial banks operating in Ethiopia, which 61% of the total population. The sampling technique used is purposive sampling. Because, it allows focusing on particular characteristics of a population that are of interest, which will best enable to answer research questions. Purposive sampling may be defined as selecting units based on specific purposes associated with answering a research questions or it is a type of sampling in which particular settings, or events are deliberately

selected for the important of information they can provide that cannot be gotten as well from other choices. Accordingly, for this research purpose, the selection would be, 1 from the government owned bank, which is, commercial banks of Ethiopia.Five banksfromtop five profitable private banks during the captioned period to recognize whether strong relationship between profit of the respective banks and CAMEL ratios exists or not. The five top profitable banks during the study periods were Awash international bank, Dashen bank, Wegagen Bank, Nib international bank and united bank. Four banks,from private banks which have been established earlier, to know whether strong relationship between early establishment and CAMEL ratios exist or not.The four banks which were established earlier were AIB, BOA, DB and WB, but AIB, DB and WB were included by top profitability criteria and BOA was included by this principles. The rest 4 will be from the recently established private banks and who has data for the captioned period, to know whether late establishment have negative effect on CAMEL ratios or not. Accordingly, ABAY, BIB, BUNA and ZB were late established and have 6 years date. Based on the results found from these banks, the researcher wouldconclude the results to the target population.

3.4.Methods of Data Collection

This study used secondary data, which was annual report of the selected banks from year 2011 to 2016. The researcher believes that the period of 6 years date were sufficient to track the financial performance commercial banks for the balanced panel data, because as the number of years increased, the late established banks would not be included for this study.

3.5.Dependent variable of the study

Theultimate goal of commercial banks is profit in every aspects of their service. As noted by Mustafa 2014, the two most widely used profitability measurements in order to assess commercial banks' performance are return on total assets (ROA) and return on total equity (ROE).Various studies had used these profitability indicators either by selecting bothof them at once or either of the two separatelyas profitability measurements. Accordingly, the researcher used the twodependent variables, namely return on asset (ROA) and return on equity (ROE) for this particular study.

Return on asset measures efficiency of the company in using its assets to generate net income. Higher values of the return on assets shows that the company is more effectively managing its assets to produce greater amount of net income.It is computed as the ratio of net income after tax to total assets of the bank. Return on Equity measures the profit earned per birr of capital

invested.ROE is a financial ratio that refers to how much profit a company earned compared to the total amount of shareholder equity invested or found on the balance sheet or it is what the shareholders look in return for their investment (Vincent Okoth 2013).It is computed as the ratio of net income after tax to total equity capital of the bank.

3.6. Independent variable of the study

This study would have seven independent variables, which includes capital adequacy, asset quality, management efficiency, earning quality, liquidity, size and net interest margin.

- **Capital adequacy**

This ratio serves as a mirror to see banks themselves whether they have adequate capital in order to meet the withdrawal demand of its customers in crisis period. From the four ratios included under this group capital adequacy ratio (CAR) would best explain the issue, because it measures the ability of the bank to absorb losses arising from risk asset. Capital adequacy ratio is computed as the ratio of total capital to total asset.

- **Asset quality**

It is an important parameter to gauge the strength of a bank in relation with quality of its asset. From the three ratios, it is represented by the ratio of allowance for doubtful account to net advance ratio, because according to Misra&Aspal (2013) and (Jayanta k. 2012), it is the most standard measure to judge the assets quality.

- **Management efficiency**

Nowadays there is an increasing trend of competition in the banking sector, and efficiency and effectiveness have become the rule as banks constantly strive to improve the productivity of their employees. From the four ratios included under this category, expenditure to income ratios would best explain this parameter of CAMEL, because it is used to measure the efficiency by spending fewer amounts of cents to generate a one birr income.

- **Earning quality**

It mainly determines the profitability and productivity of the bank, and explains the growth and sustainability in future earnings capacity. Accordingly, percentage growth of profit from year to year represented the earning quality from the six ratios included under this study. It was selected

because; it measures the sustainability of profitability. It is computed as profit of this year over to profit of last year minus one.

- **Liquidity**

In general liquidity measures the ability of the banks to convert non-cash assets into cash as and when needed. Thus, the ratio of liquid asset to total deposit were selected from the four ratios included under this thesis, because it would best explain by indicating the ability of the bank to meet its deposit obligations with available liquid funds and it also considers total deposit rather than fraction of deposit. It is computed as the ratio of liquid assets to total deposits.

- **Net interest margin**

Nowadays banks are competing for interest payments to its depositors, especially for term deposits and NIM isthe balance of the interest income retained by the banks after meeting interest payment obligation to its depositors. It is computed as the difference between interest income and interest expense to interest income.

- **Size**

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.

3.7. Model specification

Model 1 is used to test the relationship between independent variable and ROA:

$$ROA_{it} = B_0 + B_1 CA_{it} + B_2 AQ_{it} + B_3 ME_{it} + B_4 EQ_{it} + B_5 LIQ_{it} + B_6 NIM_{it} + B_7 SIZE_{it} + E_{it}$$

Model 2 is used to test the Relationship between independent Variable and ROE:

$$ROE_{it} = B_0 + B_1 CA_{it} + B_2 AQ_{it} + B_3 ME_{it} + B_4 EQ_{it} + B_5 LIQ_{it} + B_6 NIM_{it} + B_7 SIZE_{it} + E_{it}$$

Where:

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

ROA_{it} *= Performance of Bank i at time t*

ROE_{it} *= Performance of Bank i at time t*

B_0 *= Intercept*

CA_{it} *= Capital adequacy of bank i at time t*

AQ_{it} *= Asset quality of bank i at time t*

ME_{it} *= Management efficiency of Bank i at time t*

EQ_{it} *= Earnings quality of Bank i at time t*

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

NIM_{it} = net interest margin of bank i at time t

$SIZE_{it}$= size of bank i at time t

$B_1 – B_7$= Coefficients of parameters

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

3.8. Methods of Data Analysis

The researcher was used panel data for econometric analysis and descriptive statics for CAMEL ratios. Panel model were used, because it helps to identify a common group of characteristics and at the same time taking the account of heterogeneity that is present among individual units. The collected panel data were analyzed by deceptive analysis, because it will use to quantitatively describe the important features of the variables using mean, maximum minimum and standard deviations. Hausman test were performed to choose between random effect regression method and fixed effect regression method, and found that fixed effect method of analysis would best fit for this particular study. Fixed effect regression analysis was used to test the hypothesis and to determine the relative importance of each independent variable included in the CAMEL framework to explain dependent variables. 1% and 5% significance level were used to test the significance of independent variables to influence profitability measurement variables of return on asset and return on equity and moreover E-view 8 software was used to examine the econometric analysis part.

3.9. Organization of the study

The study was organized under the following chapter structure. Chapter one is introduction which, includes statement of the problem, research questions, objectives of the research, 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 and Methodology. This chapter includes data source, sampling techniques, data analysis and empirical model. Chapter four is all about discussion of results and findings and the last chapter will summarize the study by forwarding summary conclusion and recommendation.

CHAPTER FOUR
ANALYSIS AND DISCUSSION

4. Descriptive analysis

In this part the various CAMEL ratios of capital adequacy, asset quality, management efficacy, earning quality and liquidity would be discussed in detail with help of corresponding tables.

4.1 Capital adequacy

To prevent any financial institution from failure, it is necessary to keep substantial amount of capital. This ratio generally reflects whether the bank has enough capital to bear unexpected losses arising in the future.In order to measure capital adequacy of banks four important ratios have been used, namely capital adequacy, debt to equity ratio, advance to asset ratio and government securities to total investment ratio.

4.1.1. Capital adequacy ratio

As demonstrated on table 1, the first three highest ratios were recorded by ABAY, BUNA and WB with average score of 19.74, 19.10 and 17.83 on the periods under study respectively, which means , if loses arises from risk assets, ABAY,BUNA and WB absorbs 19.74%, 19.10% and 17.83% from their equity capital respectively. The lowest average percentage was registered by the giant government bank CBE which is 4.63%. The average score also shows a declining trend from year to year except for year 2014.

4.1.2. Debt to equity ratio

Debt to equity ratio on table 2 shows how much proportion of the bank was financed through equity and how much from debt. Accordingly, ABAY was ranked in the 1stplace withan average score of 4.54, BUNA was also ranked next to ABAY with an average score of 4.57 and WB was positioned in the 3rd place with score of 4.62. This means debt of ABAY, BUNA and WB were 4.54, 4.57 and 4.62 times to that of their equity.CBE was placed on the last position due to its highest debt proportion on average 20.85 times to that of equity. The average score was also shows an increasing trend from year to year except for year 2014.

4.1.3. Advance to Asset ratio.

As noted from the table 3 BUNA, NIB and BOA were positioned from 1st to 3rd place with score of 48.82, 47.65 and 46.05 respectively, which means BUNA, NIB and BOA makes 48.82%, 47.65% and 46.05% of their total asset available for loan and advances. These indicates better performance as compared to peer banks like ZB who makes available 42.31% and the last poisoned bank CBE which make open 35.89% of its total asset. The overall average score was also shows an increasing trend from year to year except for 2014 which indicates a slight decline from 2013.

4.1.4. Government securities to total investment ratio.

This ratio is an indication of risk free investments in government securities. Accordingly, as displayed on table 4, CBE, BOA and ZB were takes the position from first to third place with an average score of 99.98, 99.7 and 99.53 respectively, means 99.98%, 99.7% and 99.53% of the above mentioned banks investment is risk free. The last positioned bank by this ratio is BIB with an average score of 96.96%. Fluctuating trend was seen in this ratio from year to year on their overall performance.

4.1.5. Composite Capital Adequacy

Figures on table 5 demonstrates composite capital adequacy of commercial banks under this study. Accordingly ABAY, BUNA and WB took the position from 1st to 3rd place with an average score of 3.5, 3.8 and 4.8 respectively. The giant government bank CBE, placed on the last position with score of 8.5, due to its poor performance on capital adequacy, debt to equity ratio and advance to asset ratio.

4.2. Asset quality

Asset quality is another very important issue of banks, because as we see from table 3, the ratio of loan from total asset for listed banks on the captioned period is 44%. Loan assets that have low quality usually have higher possibility to become a Non-Performing Loan. Non-Performing loans are usually bad debts that are in default or they are near to be in default.

4.2.1. Allowance for doubtful account to Total Assets ratio

It tells us the efficiency of banks to recover its lending's. The lower ratio is considered to be best performance of banks and vice versa. As it is exhibited from table 6, best performers were ABAY, BIB and BUNA which accounts allowances of 0.54%, 0.6% and 0.61% respectively

from their total assets. The highest ratio or lowest performance was registered by ZB which is 2.15% from its total asset, due to its highest allowance record especially from 2013-2014.

4.2.2. Allowance for doubtful account to net Advance ratio

This is the most widely used standard measure of asset quality in relation to loan given by banks. The lower ratio denotes better quality of the asset i.e. loan, and higher ratio stands for lower quality of the loan. Table 7 presents efficiency of the bank in this regard. Therefore, ABAY (1.24%), BUNA (1.26%) and BIB (1.41%) were registered the lowest ratio. The highest percentage or week performance was recorded by ZB (5.52%). On average all banks under this **s**tudy accounts 2.3% of their net advance as allowance on the captioned period.

4.2.3. Investments to total asset ratio

This ratio is an indication of the growth of investment by banks beside their lending activities. Figures on table 8 tells us that, the giant government bank, CBE takes the lead in this regard with an average score of 45%, the next banks were WB (24%) and ZB (23.4%). The last and lowest percentage was recorded by BIB (16%). This means from their total asset CBE, WB, ZB and BIB investment accounts takes proportion of 45%, 24%, 23.4% and 16% respectively on government securities and other investment sectors

4.2.4. Composite Asset Quality

As exhibited from table 9 composite asset quality of ABAY was ranked in the 1st place, UB was placed next to ABAY and the last positioned bank in this regard was AIB with values of 3, 4 and 8.7 respectively. ABAY was placed in 1st place because of its best performance in allowance for doubtful account to total asset ratio and allowance for doubtful account to net advance ratio.

4.3. Management efficiency

Banks' management is most important ingredient that ensures the sound functioning of its activities. The performance of Management capacity is usually qualitative and can be understood through the subjective evaluation of Management systems, organization culture, and control mechanisms and so on. However, the capacity of the management of a bank can also be gauged with the help of certain ratios.

4.3.1. Total Advances to Total Deposits:

This ratio is an implication of management efficiency towards converting customer deposits to loans. As displayed on table 10, BUNA, NIB and AIB management converts 68.3%, 64.7% and 61.5% of their deposits to loans as compared to CBE, the last performer, which converts 46% of its deposit to loans. Average performance of all banks under this study shows an increasing trend except for year 2013 and 2014 that shows a slight decline. On the other hand, the average performance percentage raised from 54% in year 2011 to 62% in year 2016.

4.3.2. Business per Employee

Granting Loans and collection of deposits are the main functions or business of commercial banks. This ratio is an important indicator of productivity of banks since employees are generally considered as input and business as output of a bank. As exhibited on table 11, CBE, ZB and BUNA banks were positioned from 1st to 3rd, which implies that these banks are under staffed as compared to the last ranked bank WB.

4.3.3. Profit per employee

This ratio is used to check efficiency of the banks' management in utilizing employees to maximize profit of the bank by taking employees as input and profit as output. Figures on table 12 displays that, business per employee CBE ranked in the first place with profit value of birr 368,362 per employee.ZB and DB were positioned in 2nd and 3rd place with profit per employee score of birr 353,696 and 165,383 respectively. The lowest score was recorded by ABAY with value of birr 86,156 profit per employee.

4.3.4. Expenditure to Income Ratio

As the name indicated this ratio is used to measure how much expense will be incurred in order to generate a 1 birr profit. Accordingly, as we observe from table 13, CBE, ZB and WB spend 41, 54 and 55 cents to get 1 birr income respectively. The highest cost incurred by ABAY which was 76 cents. On average all banks incur 58 cents to generate a one birr income.

4.3.5. Composite Management Efficiency

Table 14 of composite management efficiency notifies us that, ZB, CBE and BUNA banks management best performance on expenditure to income ratio, business per employee and profit per employee helps to take the position from 1st to 3rd place on this composite management efficiency ratio, while BOA's low performance obliged to be ranked on the last position

4.4.Earning Quality

Earning is an important parameter for judging the operational performance of a bank.It mainly determines the profitability and productivity of the bank and explains the growth and sustainability in future earnings capacity.

4.4.1. Net Interest Margin (NIM) to Total Assets

It is an important measure of the banks income from their lending activities. A higher ratio demonstrates higher earning capacity and vice versa. Accordingly as displayed on table 15, NIB, BUNA and WB took the position from 1st to 3rd place with highest earning capacity of 4.02%, 3.84% and 3.72 respectively. The least earning capacity was recorded by ZB which is 1.89%.On average all banks earning capacity shows an increasing trend from year to year.

4.4.2. Net Profit to Total Assets (ROA)

This ratio shows how banks are utilizing their assets to generate profit. As exhibited on table 16, the first 3 highest earning capacities were recorded by ZB, WB and DB with an average earning capacity of 3.48%, 3.16% and 3.1% respectively as compared to the lowest earning 1.76% which was earned by ABAY. On average all banks under this study generated 2.03% net profit from a birr investment on their total asset

4.4.3. Percentage growth in Net Profit

It shows profit percentage increment from year to year. Figures on table 17 shows that, on average ABAY takes the lead by registering highest profit growth on 2012 from the loss of 3.7 million birr on 2011 to a profit of 31.4 million birr in 2012. BIB registered the next highest average profit growth due to its highest growth performance in 2015, and BUNA was recorded the 3rd highest growth rate because of its best performance on 2011.the last average growth was taken by WB which was increased by 10.1%.

4.4.4. Operating profit to total asset ratio

This ratio indicates how much a bank can earn from its operation after meeting its operating expenses for every birr investment in total asset. According to table 18, ZB, WB and DB generates 5.28%, 4.32% and 4.22% operating profit a birr invested in total asset. ABAY bank collects (2.46%) the minimum operating profit from its invested asset.

4.4.5. Interest Income to Total Income

As exhibited on table 19, this ratio measures the proportion of income generated from lending activities and interest earned on deposit made from other banks to total income generated by banks. Accordingly the first three highest ratios were handled by BOA, CBE and UB with an average proportion of 68%, 67% and 65.9% respectively. The least proportion was recorded by ZB, which was 42%. The average percentage shows an increasing trend from year to year.

4.4.6. Non-Interest Income to Total Income

Table 20 demonstrates the share of non-interest income earned by banks from their total income. Non –interest income of ZB, ABAY and DB took the position from 1st to 3rd by the proportion of 58%, 47% and 46.6% from their total income respectively. The lowest share was recorded by BOA which was 32%. Unlike interest income to total income, the average percentage shows a decreasing trend from year to year.

4.4.7. Composite Earning Quality

Composite earning Quality demonstrates profitability and productivity of banks. A figure on table 21 tells us CBE, WB and ZB were positioned on 2nd place with regard to composite earning quality with an average value of 5. Lowest achievement on net profit to total asset ratio and non-interest income to total income leads BOAto take the last position by sharing withUB with an average value of 7.3.

4.5.Liquidity

Customers deposit their money with the anticipation of withdrawal of their deposit including its interest as they need immediately. For this reason banks should alwayspositioned with sufficient amount of liquidity.

4.5.1. Liquid Assets to Demand Deposits

In this ratio banks judge themselves whether they have sufficient amount of liquidity to meet the withdrawal demand of their demand account depositors.Table 22 indicates that, ZB, BIB and ABAY have best position of liquidity i.e. 170.83%, 154.74% and 143.93% respectively as compared to the least liquid bank CBE, which meets 34.69% withdrawal demand of its demand deposit holders. The average of all banks shows a decreasing trend from year to year.

4.5.2. Liquid Assets to Total Deposits

This ratio measures the liquidity position of banks, by showing the capacity of banks to meet the withdrawal demand of all of their customers from liquid assets. Figures on table 23 notifies us

that, the liquid assets of BIB, ABAY and ZB covers 50%, 43.3% and 43% of onetime withdrawal demand of all of their depositors respectively as compared to CBE which only covers 19%.

4.5.3. Liquid Assets to Total Assets

It is used to measure of liquidity which indicates the percentage of a bank's total assets in liquid form. Table 24 indicates that, BIB, ZB and DB liquid asset position were 37%, 32% and 30.4% respectively. The average for all banks shows a fluctuating trend. On average all banks liquid assets were took the proportion of 27.44% from their total asset for the captioned periods under this study.

4.5.4. Term deposits to total deposits

Term deposit is a cost for banks as compared to other deposits. If this ratios shows a higher percentage this may not be good for the survival of the bank. Accordingly figures on table 25 shows that, WB, CBE and BOA were in a better position by having lowest proportion of 3.75%, 5.47% and 5.72% respectively as compared to BUNA which covers 19.64%. The average of all banks shows a decreasing trend from year 2011-20113 and also shows an increasing trend from year 2014-2016.

4.5.5. Composite liquidity

It tells us the liquidity position of banks under this study. Table 26 displays that, BIB and ZB were the most liquid banks as compared to the last positioned bank CBE with values of 1.5 and 8.8 respectively. CBE got the last place due to its lowest position of liquid asset to demand deposit, liquid asset to total asset and liquid asset to total deposit.

4.6. Composite CAMEL

We calculate composite CAMEL with the aim of ranking the overall performances of commercial banks in Ethiopian banking industry included under this study. Accordingly, table 27 of Composite CAMEL places BUNA in 1st place, ZB next to BUNA and ABAY next to ZB. The last positioned bank is this study was AIB due to its lowest performance especially on composite capital adequacy and composite asset quality.

4.7. Econometric analysis

These sections would analyses about various econometric outputs of both dependent variables of return on equity and returnon asset and the seven independent variables. These would include descriptive statistics, Tests of multicollinearity, tests of auto correlation, tests of normality, tests

of hetroscadeastcity and fixed effect regression output of both return on asset and return on equity.

4.7.1. Descriptive statistics

Table 28 descriptive statistics

	ROA	ROE	CA	AQ	ME	EQ	LIQ	SIZE	NIM
Mean	2.77	23.46	14.27	2.30	0.58	51.73	36.94	30,200,000,000	59.98
Median	2.75	19.48	14.12	1.81	0.60	20.31	33.91	9,570,000,000	61.39
Maximum	5.25	71.02	34.49	9.69	1.18	826.00	79.13	385,000,000,000	77.47
Minimum	-0.83	-2.41	4.19	1.01	0.31	-6.94	9.87	457,000,000	32.28
Std. Dev.	0.73	14.15	5.22	1.60	0.12	128.67	15.93	70,600,000,000	9.93
Observations	66	66	66	66	66	66	66	66	66

Source: e-view output

The above displayed table presented to describe mean, median, maximum, minimum and standard deviation values for both dependent and independent variables. As exhibited from the table return on asset and return on equity have a mean value of 2.77% and 23.46%, median values of 2.75% and 19.48%, maximum values of 5.25% and 71.02%, which was registered by Zemen bank on year 2011 and commercial bank of Ethiopia on 2012, both minimum values of -0.83% and -2.41%,were recorded by Abay Bank on 2010/11 budget year, and also have a standard deviation values of 0.73% and 14.15% for 66 observations respectively.

The best capital adequacy ratio of Abay bank on 2011 leads capital adequacy to have maximum values of 34.69% and the lowest capital adequacy of CBE on 2016 obliged capital adequacy to have minimum values of 4.19%. Capital adequacy ratio also has mean values of 14.27%, median values of 14.12% and standard deviation values of 5.22%. Poor asset management of Zemen bank on 2014 forces asset quality to bearmaximum values of 9.69% and best performance of Abay bank on 2011 on this regard leads it to have a minimum value of 1.01%..2.3%, 1.81% and 1.6% were mean, median and standard deviation values of asset quality.

Best cost sensitiveness of commercial banks of Ethiopia on 2012 contribute management efficacy to have minimum values of 0.31cents and due to loss incurred by Abay banks on 2011, it was obliged to have a maximum values of 1.18 birr. 0.58 cents, 060 cents and 0.12cents were mean, median and standard deviation values for management efficiency.Due to highest Profit growth of

Abay bank from loss of 3.7million birr on 2011 to profit of 31.4 million birr on 2012, earning quality have registered maximum, mean, median and standard deviation values 826%, 51.73%, 20.31% and 128.67% respectively. And it hasalso minimum values of -6.94% because of profit decline of Dashen bank on 2013 from 2012.

In connection with highest liquidity position of Abay bank on 2011, liquidity hasa maximum value of 79.13% and due to lowest position of commercial bank of Ethiopia on 2015 in this regard, it also shows a minimum liquidity values of 9.87%. As liquidity was represented by the ratio of liquid asset to total deposit, it has also mean, median and standard deviation values of 36.94%, 33.91% and 15.93% respectively. As bank size was represented by total asset and as the very highest total asset of the banking industry was owned by the giant government bank, commercial banks of Ethiopia, the size shows the mean, median, maximum and standard deviation values of 30.2 billion, 9.57billion , 385 billion and 70.6 billion birr respectively. Lowest total asset of Abay bank on 2011 obliged size to have a minimum value of 457 million birr.

The last independent variable in this study was net interest margin. It has mean, median and standard deviation values of 59.98%, 61.39% and 9.83% respectively. The maximum and minimum values of 77.47% and 32.28% were the contributions of Abay bank 2011 best performance and Zemen banks 2011 lowest performance respectively.

4.7.2. Tests of multicollinearity

Table 29 correlation matrix of explanatory variables

	CA	AQ	ME	EQ	LIQ	SIZE	NIM
CA	1						
AQ	-0.12286	1					
ME	0.568741	-0.39494	1				
EQ	0.261675	-0.15634	0.006225	1			
LIQ	0.572060	0.079807	0.103209	0.385469	1		
SIZE	-0.59218	0.059578	-0.38593	-0.09163	-0.42467	1	
NIM	0.091319	-0.36659	0.067467	0.009773	-0.22345	0.341681	1

Source: e-view output

In linear regression models we need to check if a relationship exists among the explanatory variables or not. If they correlate too much, then there is a problem of multicollinearity, which means the explanatory variables partly explain each other. According to Cooper & Schindler (2009) and Masher (2007) as cited on mulualem (2015), they suggested that a correlation

coefficient below 0.8 between explanatory variables should not be considered as sign of multicollinearity, but if it is more than 0.8, it should be corrected, because it is a sign of multicollinearity problem. As we see from the correlation matrix table above, the highest correlation exists between SIZE and CA which was 0.59, which does not imply sign of multicollinearity. There was positive relationship between explanatory variables of CA with ME, EQ, LIQ, NIM and, AQ with LIQ, SIZE and, ME with EQ, LIQ & NIM and, EQ with LIQ & NIM and finally SIZE with NIM. There was also negative relationship between CA with AQ & SIZE and, AQ with ME, EQ & NIM and, ME with SIZE and, EQ with size and lastly LIQ with NIM & SIZE.

4.7.3. Tests of auto correlation

Table 30 test of auto correlation

Breusch-Godfrey Serial Correlation LM Test: ROA			
F-statistic	1.185904	Prob. F(2,56)	0.3130
Obs*R-squared	2.681762	Prob. Chi-Square(2)	0.2616
Breusch-Godfrey Serial Correlation LM Test: ROE			
F-statistic	1.338141	Prob. F(2,56)	0.2706
Obs*R-squared	2.955217	Prob. Chi-Square(2)	0.2282

Source: e-view output

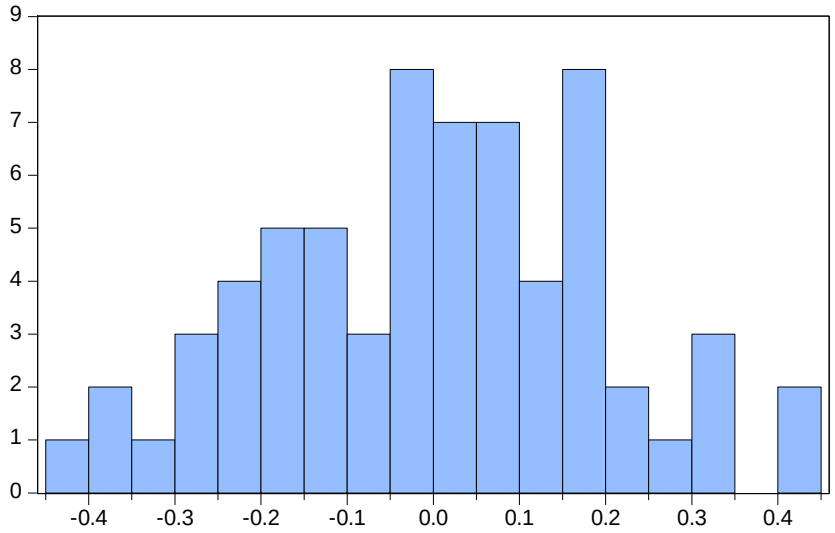
The statistical value of Durbin-Watson stat tells us whether our model suffer serial correlation problem or not. If the results of Durbin-Watson stat is close to 2, it implies no serial correlation in the model, If it is close to 0 ; positive correlation in the model, If it is close to 0 ; positive correlation in the model and If it is close to 4 ; Negative correlation in the model. In this model we found 2.218155 and 1.91849 on their respective regression table 34 and 35 for ROA and ROE respectively, which indicate no serial correlation in the model. The other method for testing auto correlation is Breusch-Godfrey Serial Correlation LM Test. This test also suggests that there is no auto correlation problem in the model, since its Prob. Chi-Square (2) value is greater than 5%, which is 26.16% for ROA and 22.82% for ROE as exhibited on table 30 above.

4.7.4. Tests of normality

According to Chris Brooks (2008 p 162-163), one of the most commonly applied tests for normality is the BeraJarque (BJ) test.If the residuals are normally distributed, the histogramshould be bell-shaped and the Bera-Jarque statistic would not be significant. This means that the p-value given at the bottom of the normality test screen should be bigger than 0.05

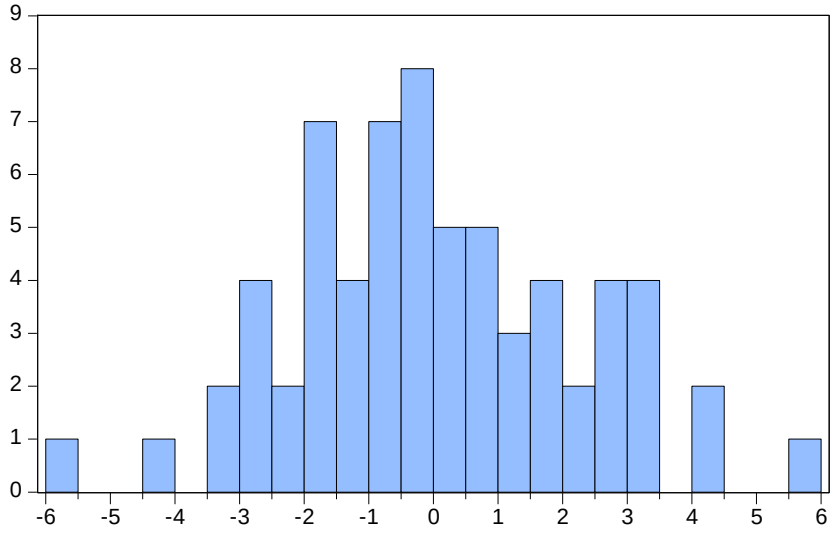
to not to reject the null of normality at the 5% level. We can say that the residuals are normally distributed because;the probability value of Jarque-Berashows a value of 0.76 for ROA and 0.96 for ROE which is much more than 0.05 as displayed below.

Table 31 tests of normality ROA



Series: Standardized Residuals	
Sample 2011 2016	
Observations 66	
Mean	-2.17e-17
Median	0.000313
Maximum	0.421560
Minimum	-0.410300
Std. Dev.	0.192732
Skewness	-0.021363
Kurtosis	2.557792
Jarque-Bera	0.542777
Probability	0.762320

Table 32 tests of normality ROE



Series: Standardized Residuals	
Sample 2011 2016	
Observations 66	
Mean	-1.46e-16
Median	-0.254224
Maximum	5.583681
Minimum	-5.878926
Std. Dev.	2.182786
Skewness	0.076715
Kurtosis	3.024551
Jarque-Bera	0.066395
Probability	0.967348

Source: e-view output

4.7.5. Tests of Heteroscedasticity

Heteroscedasticity occurs when the variance of the residuals from a model is not constant. If residuals have constant variance, we call residuals are homoscedastic. To check these I have used

Breusch-Pagan-Godfrey test and found that variance of residuals are homoscedastic, due to the Prob. Chi-Square (7) is greater than 0.05 which were.0919 and 0.0657 for return on asset and return on equity respectively.

Table 33 tests of Heteroscedasticity

Heteroskedasticity Test: Breusch-Pagan-Godfrey ROA

F-statistic	1.893070	Prob. F(7,58)	0.0872
Obs*R-squared	12.27481	Prob. Chi-Square(7)	0.0919
Scaled explained SS	14.56461	Prob. Chi-Square(7)	0.0420

Source: e-view output

Heteroskedasticity Test: Breusch-Pagan-Godfrey ROE

F-statistic	2.110671	Prob. F(7,52)	0.0586
Obs*R-squared	13.27572	Prob. Chi-Square(7)	0.0657
Scaled explained SS	17.36735	Prob. Chi-Square(7)	0.0152

Source: e-view output

4.7.6. Fixed effect Regression analysis of ROA

Table 34 regression analysis of ROA

Dependent Variable: ROA
Method: Panel Least Squares
Date: 11/16/17 Time: 12:29
Sample: 2011 2016
Periods included: 6
Cross-sections included: 11
Total panel (balanced) observations: 66

Variable	Coefficient	StdError	t-Statistic	Prob.
C	5.325693	0.459350	11.59396	0.0000
CA	-0.025168	0.014720	-1.70977	0.0939
AQ	-0.215175	0.028881	-7.450384	0.0000*
ME	-6.937113	0.478626	-14.49379	0.0000*
EQ	-0.000182	0.000279	-0.654684	0.5159
LIQ	0.007211	0.002822	2.555127	0.0139**
SIZE	3.82E-12	1.11E-12	3.442886	0.0012*
NIM	0.033186	0.007232	4.588549	0.0000*
ZB16DUM	-0.9874	0.254419	-3.880995	0.0003

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.930458	Mean dependent var	2.767727
Adjusted R-squared	0.903825	S.D. dependent var	0.730852
S.E. of regression	0.226653	Akaike info criterion	0.105455
Sum squared resid	2.414458	Schwarz criterion	0.73581
Log likelihood	15.51999	Hannan-Quinn criter.	0.354538
F-statistic	34.93607	Durbin-Watson stat	2.218155
Prob(F-statistic)	0.000000		

*,&**, denote significance level at 1% and 5%,respectively

The regression table of ROA, table 34 demonstrates the relationship between dependent variable (ROA) and independent variables. As it is seen from the table r-square and the adjusted r-square values were 0.930 and 0.904 respectively,which means 90.4% variation on ROA were explained by the under listed independent variables CA, AQ, ME,EQ, LIQ, NIM and size collectively. The values of adjusted r-square were used because, adjusted r-square ensures that the addition of more independent variables doesn't produce misleading high values of r-square and it is also a modified version of r-square that has been adjusted for the number of predictors in the model.

The independent variables AQ, ME, NIM and SIZE are significant at 1% significant level because their probability value were less than 0.01 and LIQ was also another significant variable to measure ROA at 5% significance level due to its probability value of 0.0139, but EQ is not significant variable to explain ROA. We can easily check overall significance of all independent variables using f-statistic. Accordingly, the probability values of f-statistic was 0.0000 which was smaller than 0.01, therefore, we can say that all the independent variables jointly in the model significantly affect dependent variable(ROA) at 1% significance level.

The coefficient of independent variables tells us their relationship with ROA. Accordingly, AQ and ME seems to have an inverse relationship with ROA due to its – sign, but they have direct relationship with ROA, because their reduction of values are a good signal for increasing return on asset and hence, they are represented by the ratio of allowance for doubtful account to net loan and the ratio of expense to income correspondingly. LIQ, NIM and SIZE also have a direct relationship with dependent variable. If asset quality and management efficiency decreased(best performance) by 1%, then ROA would increase by 0.21% and 6.93% respectively and vice versa. If Liquidity, net interest margin and size of bank (total asset) increased by the respective units, ROA would also increase by 0.007%, 3.82E-12% and 0.033% respectively and vice versa.Capital adequacy andearning quality donot have strong relationship with return on asset despite their inverse relationship.

4.7.7. Fixed effect Regression analysis of ROE

ROE regression table demonstrates the relationship between dependent variable (ROE) and seven independent variables. As it is observed from the table 35, r-square and the adjusted r-square shows a values 0.976 and 0.967 respectively, which means 96.7% variation on ROE were explained by independent variables capital adequacy, asset quality management efficiency, earning quality, liquidity net interest margin and size of the bank collectively. The independent variables capital adequacy, asset quality, management efficiency, liquidity and net interest margin probability values were less than 0.01, which indicates their significance at 1% significance level. Earning quality and bank size (total asset) were not significant independent variables to explain ROE, because of their probability value 0.2113 and 0.4913 correspondingly.

From the regression model the probability values of f-statistic tells us the overall significance of all independent variables altogether. Accordingly, the probability values of f-statistic was 0.0000 which was smaller than 0.01, therefore, we can say that all the independent variables jointly in

the model significantly affect dependent variable, ROE, at 1% significance level. The coefficient of independent variables is the sign for their relationship with dependent variable ROE. Accordingly, as discussed on regression output of ROA, asset quality and management efficiency looks to have inverse relationship with ROE due to its – sign, but they have direct relationship with ROE as their reduction are a sign of good performance. Capital adequacy has an inverse relationship with return on equity. Ifcapital adequacy, asset quality and management efficiency increases, ROE would decrease and vice versa. Liquidity and net interest margin have a direct relationship with dependent variable ROE. If Liquidity and net interest margin increases by 1%, then ROE will also increase by the respective coefficients of liquidity and net interest margin and vice versa.

Table 35 regression analysis of ROE

Dependent Variable: ROE
Method: Panel Least Squares
Date: 11/16/17 Time: 11:43
Sample: 2011 2016
Periods included: 6
Cross-sections included: 11
Total panel (balanced) observations: 66

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	34.67905	5.160225	6.720453	0.0000
CA	-0.959163	0.166220	-5.770434	0.0000*
AQ	-1.396148	0.325864	-4.284454	0.0001*
ME	-28.98811	5.497736	-5.272735	0.0000*
EQ	-0.003997	0.003154	-1.267304	0.2113
LIQ	0.143306	0.031871	4.496399	0.0000*
SIZE	-1.07E-11	1.55E-11	-0.693665	0.4913
NIM	0.303651	0.080976	3.749876	0.0005*
CBE11DUM	-23.96256	3.517774	-6.811852	0.0000

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.976191	Mean dependent var	23.4583
Adjusted R-squared	0.967073	S.D. dependent var	14.1462
S.E. of regression	2.566959	Akaike info criterion	4.95957
Sum squared resid	309.6962	Schwarz criterion	5.58993
Log likelihood	-144.666	Hannan-Quinn criter.	5.20866
F-statistic	107.0582	Durbin-Watson stat	1.91849
Prob(F-statistic)	0.00000		

* denote significance level at 1%,
Source: e-view output

CHAPTER FIVE

SUMMERY, CONCLUSIONS AND RECOMMENDATIONS

In this section major findings of this study was summarized; conclusions are drawn based on the findings and recommendations are forwarded for the concerned parties.

5.1. Summery

This study was focused on the area of financial performance analysis of commercial banks by using CAMEL approach in Ethiopian banking industry. The study was conducted on 11 commercial banks, which is 61% of the target population by collecting data from their annual reports from year 2011 to 2016. The overall objective of this study was to analyze the effects of CAMEL variables, bank size and net interest margin on profitability measurements of return on asset and return on equity and to rank banks included under this study based on their financial performances. This research was also tried to answer research questions of does the CAMEL variables, NIM 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 were used ROA

and ROE as dependent variable and bank size and net interest margin as independent variable in addition to CAMEL variables, to test the hypothesis weather bank size; net interest margin and CAMEL variables have significant effect on profitability measurements or not and also to know whether strong relationship between profit, early and late establishment of banks and CAMEL variables exist or not. In this research it has been used panel data for econometric analysis and descriptive statics for CAMEL ratios. Both the econometrics part and descriptive part were analyzed by descriptive analysis. Fixed effect regression analysis was also used to test the hypothesis and to determine the relative importance of each independent variable included in the CAMEL framework to explain dependent variables. Tests of multicollinearity, tests of auto correlation, tests of normality and tests of hetroscadeastcity were performed by correlation matrix, Breusch-Godfrey Serial Correlation LM Test, Bera Jarque (BJ) test and Breusch-Pagan-Godfrey test respectively. The major findings of this thesis would be summarized in two parts, namely CAMEL findings and econometric findings.

The first alphabet C represents capital adequacy. The proportion of capital from total asset on average was 14.27% and the rest 85.73 % their total asset were loans and advances to customers, liquid asset and other fixed asset. On average all banks debt position were 7.36 times to their capital., due to CBE's highest value of 20.85 times. From total assets of banks on average 44.09% were loan and advances granted to customers. We can say that, all banks investment were secured because on average 98.62% of their investment were government securities. During the study period, composite capital adequacy of commercial banks placed ABAY, BUNA and WB from 1st to 3rd position, due to their better performance on capital adequacy ratio, debt to equity ratio and advance to asset ratio. The giant government bank CBE was ranked on the last position, due to its poor performance on capital adequacy, debt to equity ratio and advance to asset ratio.

As the second alphabet A represents asset quality, three ratios were used to know their asset quality. On average all banks passed 0.96% of their total asset as allowance for doubtful account from year 2011-2016. The average allowances for doubtful account from their net advance were 2.3% despite the highest contribution of Zemen Bank, which was 5.52%. And also all banks investment account took the proportion of 17% from their total asset. Best performance in allowance for doubtful account to total asset ratio and allowance for doubtful account to net advance ratio leads ABAY and UB to be rated in 1st and 2nd place on composite asset quality ratio. The lowest composite asset quality ratio was handed by AIB.

The 3rd alphabet M denotes management efficiency. All banks converted 58.65% of their deposit to loans and the contribution of BUNA was remarkable, which was 68.3%. The average performance percentage of converting deposit to loans rose from 54% in year 2011 to 62% in year 2016. On average 7.06 million birr deposit and loan business were performed by every employee of banks per year. Every employee of banks contributes birr 167,699 net profit every year to its corresponding banks. On average all banks incurred 0.58 cents to get a one birr income, despite costly contribution of ABAY, which incurred 0.76 cents per birr income. The better composite management efficiency of ZB, CBE and BUNA banks management helped to take the position from 1st to 3rd place, while BOA's low performance obliged to be ranked on the last position.

As the forth alphabet E represented earning quality of the bank, six ratios were used to analyze the matter. The average earning capacity of NIM from total asset showed 3.22% which much higher than Zemen Banks return of 1.89%. The return on asset of Zemen bank (3.48%), much

contributed to have all banks average return of 2.03% from their total asset. All banks profit was grown by 51.72% from year to year. The contribution of the late established ABAY, BIB and BUNA banks contribution were remarkable, which was 189%, 134% and 98% respectively. The average operating profit to total asset ratio decreased from 3.97% in 2011 to 3.52% in 2016, and have an average return of 3.83%. The average interest incomes of all banks were 43% from their total income, while their non-interest income accounts to be 41%. The composite earning quality of CBE, WB and ZB were positioned on 2nd place. Lowest achievement on net profit to total asset ratio and non-interest income to total income leads BOA to take the last position.

The fifth and last alphabet L represented the liquidity position of commercial banks. All commercial banks on average were to satisfy 124.41% the withdrawal demand of their demand depositors and 37% of their total depositors. The proportion of liquid assets of commercial banks to demand deposit, total deposit and total asset were decreased from 205.11 % in 2011 to 88.67% in 2016, from 62% in 2011 to 25% in 2016 and from 44.55% in 2011 to 19.31% in 2016 respectively. On average 9.95% of deposits of commercial banks were term deposits during the study period. The composite liquidity position of commercial banks showed BIB and ZB were the most liquid banks as compared to the last positioned bank CBE, due to its lowest position of liquid asset to demand deposit, liquid asset to total asset and liquid asset to total deposit.

Finally, the computation of composite CAMEL helped us to rank the overall performances of commercial banks in Ethiopian banking industry which were included under this study. Accordingly, Composite CAMEL places BUNA in 1st place, ZB next to BUNA and ABAY next to ZB. The last positioned bank in this study was AIB due to its lowest performance especially on composite capital adequacy and composite asset quality.

As the deceptive statistics table displayed, the mean values of both dependent variables return on asset and return on equity shows a value of 2.77% and 23.46% respectively. ROA and ROE have maximum values of 5.25% and 71.02%, minimum values of -0.83% and -2.41%, and also have standard deviation values of 0.73% and 14.15% for 66 observations respectively. The mean values of capital of all banks under this study 14.27%. The best capital adequacy ratio of Abay bank on 2011 leads capital adequacy to have maximum values of 34.69% and the lowest capital adequacy of CBE on 2016 obliged capital adequacy to have minimum values of 4.19%. Poor asset management of Zemen bank on 2014 forces asset quality to bear maximum values of 9.69% and best performance of Abay bank on 2011 on this regard leads it to have a minimum value of 1.01%. Best cost sensitiveness of commercial banks of Ethiopia on 2012 contribute management

efficacy to have minimum values of 0.31cents and due to loss incurred by Abay banks on 2011, it was obliged to have a maximum values of 1.18 birr. Due to highest Profit growth of Abay bank from loss of 3.7million birr on 2011 to profit of 31.4 million birr on 2012, earning quality have registered maximum, mean, median and standard deviation values 926%, 51.73%, 20.31% and 128.67% respectively. And it has also minimum values of -6.94% because of profit decline of Dashen bank on 2013 from 2012.

Liquidity has a maximum value of 79.13% and due to lowest position of commercial bank of Ethiopia on 2015 in this regard, it also shows a minimum liquidity value of 9.87%. Liquidity has also mean, median and standard deviation values of 36.94%, 33.91% and 15.93% respectively. As bank size was represented by total asset and as the very highest total asset of the banking industry was owned by the giant government bank, commercial banks of Ethiopia, the size shows the mean, median, maximum and standard deviation values of 30.2 billion, 9.57billion , 385 billion and 70.6 billion birr respectively. Lowest total asset of Abay bank on 2011 obliged size to have a minimum value of 457 million birr. The last independent variable in this study was net interest margin. It has mean, median and standard deviation values of 59.98%, 61.39% and 9.83% respectively. The maximum and minimum values of 77.47% and 32.28% were the contributions of Abay bank 2011 best performance and Zemen banks 2011 lowest performance respectively.

There was positive relationship between explanatory variables of CA with ME, EQ, LIQ, NIM, and AQ with LIQ, SIZE, and ME with EQ, LIQ & NIM, and EQ with LIQ & NIM and finally SIZE with NIM. There was also negative relationship between CA with AQ & SIZE and AQ with ME, EQ & NIM and, ME with SIZE and, EQ with size and lastly LIQ with NIM & SIZE. As we see from the correlation matrix, the highest correlation exists between SIZE and CA which was 0.59, which does not imply sign of multicollinearity. The researcher used Breusch-Godfrey Serial Correlation LM Test to test the auto correlation problem, and found that there is no auto correlation problem in the model, since its Prob. Chi-Square (2) value is greater than 5%, which is 26.16% for ROA and 22.82% for ROE. We can say that the residuals are normally distributed because; the probability value of Jarque-Bera shows a value of 0.76 for ROA and 0.96 for ROE which is much more than 0.05. In order to check the problem of heteroscedasticity exist in the model, the researcher used Breusch-Pagan-Godfrey test and found that variance of residuals are homoscedastic, due to the Prob. Chi-Square (7) is greater than 0.05 which were 0.0919 and 0.0657 for return on asset and return on equity respectively.

The fixed effect regression analysis of ROA shows adjusted r-square value of 90.4%,which means 90.4% variation on ROA were explained by all the independent variables collectively. Asset quality, management efficiency, net interest margin and size of the bank were significant at 1% significant level ,and liquidity was also another significant variable to measure ROA at 5% significance level and finally Capital adequacy was also a significant independent variable to explain ROA at 10% significant level, but capital adequacy and earning quality were not significant variable to explain ROA despite their inverse relationship. we can say that all the independent variables jointly in the model significantly affect dependent variable (ROA) at 1% significance level because of the probability values of f-statistic was 0.0000.Asset quality and management efficiency seems to have an inverse relationship with ROA due to its negative sign, but they have direct relationship, because their reduction and increment have positive and negative impact on ROA respectively, and liquidity, net interest margin and size of the bank have a direct relationship with dependent variable ROA.

As exhibited from ROE regression table, the adjusted r-square shows a value of 0.967, which means 96.7% variation on ROE, were explained by independent variables collectively. The independent variables capital adequacy, asset quality, management efficiency, liquidity and net interest margin probability values were less than 0.01, which indicates their significance at 1% significance level. Earning quality and bank size were not significant independent variables to explain ROE. The probability value of f-statistic for ROE was 0.0000 which signifies that all the independent variables jointly in the model significantly affect dependent variable ROE at 1% significance level. Capital adequacy, asset quality and management efficiency and have inverse relationship with ROE due to its – sign Liquidity and net interest margin have a direct relationship with dependent variable ROE.

5.2. Conclusion

Banks play very significant role in the economies of the nation. The well-being of the economy is highly related to the soundness of its banking system. CAMELS rating are one of the rating systems applied for regulatory policy and to rank the overall performances of commercial banks. CAMEL rating applied in this study was, to rank banks based on their performance and to know the relationship between CAMEL variables and profitability measurements of banks.

As it is observed from composite capital adequacy of commercial banks, ABAY and BUNA took the position of 1st and 2nd which were established later, and their late establishment do not have negative effect on composite capital adequacy ratio. We can also say that, the profit and early

establishment of commercial banks does not have strong relationship with composite capital adequacy of commercial banks, because from top five profitable and early established banks only wegagen bank included in the 3rd place by composite capital adequacy measure. The composite asset quality of commercial banks shows that, it does not have negative relationship with late establishment of commercial banks; do not have strong relationship with early establishment and profit of banks, because from five banks included under profitability and early establishment selection criterion, only United bank was took the 2nd position, and the 1st and 3rd ranks were taken by late established banks.

Composite management ratios do not have strong relationship with profit and early establishment of commercial banks, because none of banks selected by this criteria were included from 1st to 3rd place rather late established banks management are efficient by this measure. As observed from composite earning quality table, it has moderate relationship with profit, early and late establishment of banks, because by this ratio, Zemen bank and Wegagen bank are equally ranked on 2nd place which were selected by top profitability, early and late formation criterion for selection banks. Banks included by late formation criterion are most liquid than early established ones because of the score of BIB and ZB, and also highest profitable banks had moderate liquidity position. And finally late establishment has strong positive relationship with composite CAMEL ratios of commercial banks rather than early formation and profit of the respective selected banks, because from four banks included by late formation criterion, three banks took the position from 1st to 3rd place by composite CAMEL ratios.

Asset quality, management efficiency, size of the bank and net interest margin were the major significant variables to affect performance of commercial banks by return on asset measure at 1% significant level. Liquidity also has significant effect on return on asset at 5% significant level, whereas earning quality does not have significant impact on profitability measurement of return on asset and return on equity. Asset quality and management efficiency looks to have an inverse relationship with return on asset and return on equity in connection with their negative sign, but they have direct relationship with them. Size of the bank, liquidity and net interest margin also have direct relationship with ROA. Capital adequacy, asset quality, management efficiency, liquidity and net interest margin were the most significant variables to affect return on equity at 1% significant level as compared to insignificant variable size of the bank and earning quality despite their inverse relationship. Capital adequacy, asset quality, management efficiency have an inverse relationship with return on equity, while liquidity and net interest margin have direct relationship with it.

5.3. Recommendations

CAMEL is commonly used method for the evaluation of performance and ranking of banks. Based on the findings discussed above, I will forward the following recommendation for the concerned banks management.

- ✓ As asset quality, management efficiency, liquidity and net interest margin are determinant factors to increase return on asset and return on equity, banks shall give special attention.
- ✓ Since total asset or size of the bank is a determinant factor to increase return on asset, banks shall concentrate on increasing their total asset by mobilizing deposit and converting the deposit to loan.

References

Abdulazeez Y.Hazzaasaif (2014) ”financial performances of banks in the kingdom of Saudi Arabia”, an empirical insight, master thesis, Universiti Utara Malaysia.

Ahmed A. A., (2011), “Financial Performance Evaluation of Some Selected Jordanian Commercial Banks”, International Research Journal of Finance and Economics. Issue 68

Alexandru, C. G., & Romanescu, M. L. (2008). The Assessment of Banking Performances-Indicators of Performance in Bank Area. University Library of Munich, Germany.

Ansarul Haque (2014), Comparison of Financial Performance of Commercial Banks: A case Study in the Context of India, Journal of Finance and Bank Management June 2014, Vol. 2, No. 2, pp. 01-14 ISSN: 2333-6064.

Ashish Gupta (2015), Comparative study of public and private sector banks in India: An empirical analysis, International Journal of Applied Research 2015; 1(12): 895-901

Chen, J. (2003). Capital adequacy of Chinese banks: Evaluation and enhancement. journal of international banking regulation, 4 (4), 320-327.

Creswell, JW (2003), Research design: qualitative, quantitative and mixed methods approaches, 2nd edition, Sage Publications, California.

D. M. Nachane and SaibalGhosh (2002), ‘Determinants of Off-Balance Sheet Activities: An Empirical Analysis of Public Sector’, Economic and Political Weekly, Vol. 37, No. 5, Money, Banking and Finance (Feb. 2-8,2002)

Dakito Alemu (2015), Assessment of Banking Performance Using Capital Adequacy in Ethiopia, Published online October 31, 2015 (http://www.sciencepublishinggroup.com/j/eco)

Gilbert, R. Alton and David C.Wheelock (2007) Measuring Commercial Bank Profitability: Proceed with Caution. Federal Reserve Bank of St. Louis Review, Vol. 89(6) pp: 515-532

Gulgzo ztorul (2011) “performance evaluation of banks and banking groups: Turkey case, thesis, Middle East technical university, 2011, turkey.

Haseeb z. babar (2011), camels rating system for banking industry in Pakistan, Umea School of Business, master thesis, 2011

Jayanta Kumar Nandi (2012), performance evaluation of selected banking companies in India, The University of Burdwan West Bengal. India 2012.

Karan S. Thagunna, (2013), Measuring Bank Performance of Nepali Banks:A Data Envelopment Analysis (DEA) Perspective, Kathmandu University, School of Management (KUSOM), Nepal, International Journal of Economics and Financial Issues Vol. 3, No. 1, 2013, pp.54-65 ISSN: 2146-4138

Khizer, A. Muhammad A. & Hafiz A., (2011), "Bank-Specific and Macroeconomic Indicators of Profitability - Empirical Evidence from the Commercial Banks of Pakistan", International Journal of Business and Social Science, Vol. 2 No, 2011.

Mekonnen, Y. and Kedir, H. (2015). Soundness of Ethiopian Banks, International Journal of Finance & Banking Studies, page 29-37

Mulualem Getahun (2015), Analyzing Financial Performance of Commercial Banks in Ethiopia: CAMEL Approach, Addis Ababa University, Addis Ababa, Ethiopia

Murthy, Y., Sree, R. (2003) A Study on Financial Ratios of major Commercial Banks. Research Studies, College of Banking & Financial Studies, Sultanate of Oman.

Mustafa Hassan Mohammad Adam, (2014), evaluating the financial performances of banks using financial ratios - A case study of Ebril Bank for investment and finance, European Journal of Accounting Auditing and Finance Research Vol.2, No.2, pp. 156-170.

Nishi Sharma & Mayanka (2013), altman model and financial soundness of Indian banks, University Institute of Applied Management Sciences, Panjab University, Chandigarh, India International Journal of Accounting and Financial Management Research (IJAFMR) ISSN 2249-6882 Vol. 3, Issue 2, June 2013, 55-60

Nurazi, Ridwan& Evans, Michael (2005), 'An Indonesian Study of the Use of CAMEL(S) Ratios as Predictors of Bank Failure', Journal of Economic and Social Policy, vol. 10, no. 1, pp. 1-23

Olweny, T &Shipho, TM (2011), 'Effects of Banking Sectoral Factors on the Profitability of Commercial Banks in Kenya', Economics and Finance Review, vol. 1, no. 5, pp. 1-30.

Ongore, Vincent Okoth & Kusa, Gemechu Berhanu (2013), 'Determinants of Financial Performance of Commercial Banks in Kenya', International Journal of Economics and Financial Issues, vol. 3, no. 1, pp.237-252.

Prasad K.V.N.G. and Ravinder, A CAMEL Model Analysis of Public and Private Sector Banks in India, Journal of Banking Financial Services and Insurance Research, volume 1 no 5,2012.

Prasuna, D.G. (2004), Performance Snapshot 2003-04, Chartered Financial Analyst, 10(11), pp. 6-13.

R. hoque, 2012, data envelopment analysis of banking sector in Bangladesh, Institute of Statistical Research and Training, University of Dhaka, Dhaka-1000, Bangladesh

Reddy, K.S. (2012), Relative Performance of Commercial Banks in India using CAMEL Approach, Research Journal of Economic and Business Studies, 1(4),p.1 -10.

Rizwan Jan 2014, Analysis of Financial Performance of Private Banks in Pakistan 2nd World Conference On Business, Economics And Management - WCBEM2013

Roli Pradhan 2014, Z Score Estimation for Indian Banking Sector, International Journal of Trade, Economics and Finance, Vol. 5, No. 6, December 2014

Sangmi, M &Nazir, T 2010, 'Analyzing financial performance of commercial banks in India: Application of CAMEL model', Pakistan Journal of Commerce and Social Sciences, vol. 4, no. 1, pp. 40-55.

Serhat Yuksel 2015" CAMELS-based Determinants for the Credit Rating of Turkish Deposit Banks" International Journal of Finance & Banking Studies Vol 4, No 4, 2015 ISSN: 2147-4486

Siva, S &Natarajan, P 2011, 'CAMEL Rating Scanning (CRS) of SBI Groups', Journal of Banking Financial Services and Insurance Research, vol. 1, no. 7, pp. 1-17.

Srinivas, K. and Saroja, L. (2013), Comparative Financial Performance of HDFC Bank and ICICI Bank, Scholars World-International Refereed Multidisciplinary Journal of Contemporary Research, 1(2), pp.107-112.

Sushendra Kumar Misra and Parvesh Kumar Aspal 2013, A Camel Model Analysis of State Bank Group, World Journal of Social Sciences Vol. 3. No.4. July 2013 Issue. Pp. 36 – 55

Tamirat kasa, 2013, 'determinants commercial banks of off balance sheet activities an empirical on Ethiopian banking industry ', research paper, Addis Ababa university, Ethiopia

Tarawneh, M, (2006) , "a comparison of financial performance in the banking sector: some evidence from Omani commercial banks",International Research Journal of Finance and Economics, vol. 3, pp. 101-112

Vivid V. Tuna, 2013, Comparison Analysis Of Camel Ratio Between Bank Mandiri And Bank Negara Indonesia Period 2008-2012, Home Vol 1, No 4 (2013).

Yuva P. Saminathan 2016 "A Camel Model Analysis of Public, Private and Foreign Sector Banks in India" Pacific Business Review International Volume 8, Issue 9, page 45-57.

Table 1 Capital adequacy ratio

NO	BANK	YEAR							
		2011	2012	2013	2014	2015	2016	Average	Rank
1	CBE	5.49	4.82	4.64	4.41	4.23	4.19	**4.63**	**11**
2	AIB	12.05	12.58	11.62	11.75	8.67	12.63	**11.55**	**9**
3	DB	9.55	10.43	10.36	11.83	11.81	11.75	**10.96**	**10**
4	BOA	9.08	11.00	10.90	13.56	13.25	12.62	**11.74**	**8**
5	WB	16.59	19.22	17.61	18.60	17.61	17.33	**17.83**	**3**
6	UB	11.67	12.54	12.03	13.26	11.74	12.00	**12.21**	**7**
7	NIB	16.46	18.46	18.22	18.28	16.42	15.91	**17.29**	**5**
8	ZB	14.91	11.72	15.19	16.74	15.69	13.59	**14.64**	**6**
9	BUNA	29.76	21.03	17.50	17.16	15.06	14.08	**19.10**	**2**
10	BIB	16.41	18.38	17.36	19.70	17.42	14.73	**17.33**	**4**
11	ABAY	34.49	21.35	17.32	14.15	15.63	15.53	**19.74**	**1**
	AVERAGE	**16.04**	**14.68**	**13.89**	**14.49**	**13.41**	**13.12**	**14.27**	

Table 2 Debt to equity ratio

NO	BANK	YEAR							
		2011	2012	2013	2014	2015	2016	Average	Rank
1	CBE	17.21	19.75	20.96	21.68	22.62	22.89	**20.85**	**11**
2	AIB	7.30	6.95	7.61	7.51	10.08	6.92	**7.73**	**9**
3	DB	9.47	8.58	8.65	7.45	7.47	7.51	**8.19**	**10**
4	BOA	10.01	8.09	8.17	6.38	6.55	6.92	**7.69**	**8**
5	WB	5.03	4.20	4.68	4.38	4.68	4.77	**4.62**	**3**
6	UB	7.57	6.98	7.31	6.54	7.52	7.33	**7.21**	**7**
7	NIB	5.07	4.42	4.49	4.47	5.09	5.29	**4.80**	**4**
8	ZB	5.70	7.53	5.58	4.97	5.37	6.36	**5.92**	**6**
9	BUNA	2.36	3.76	4.71	4.83	5.64	6.10	**4.57**	**2**
10	BIB	5.09	4.44	4.76	4.08	4.74	5.79	**4.82**	**5**
11	ABAY	1.90	3.68	4.77	6.07	5.40	5.44	**4.54**	**1**
	AVERAGE	**6.97**	**7.13**	**7.43**	**7.12**	**7.74**	**7.76**	**7.36**	

Table 3 Advance to Asset ratio

NO	BANK	YEAR							
		2,011	2,012	2,013	2,014	2,015	2,016	Average	Rank
1	CBE	29.85	35.86	36.11	36.94	38.38	38.22	**35.89**	**11**
2	AIB	35.95	41.94	43.35	41.51	49.51	49.60	**43.64**	**7**
3	DB	42.56	46.37	44.88	43.75	46.55	44.43	**44.76**	**5**
4	BOA	45.56	47.30	46.28	45.70	43.87	47.61	**46.05**	**3**
5	WB	36.10	42.72	45.12	39.94	45.00	47.13	**42.67**	**9**
6	UB	42.42	46.49	47.17	42.69	47.77	49.42	**45.99**	**4**
7	NIB	38.90	44.82	49.68	51.39	52.80	48.31	**47.65**	**2**
8	ZB	39.98	42.30	42.16	36.43	46.84	46.16	**42.31**	**10**
9	BUNA	46.90	47.76	44.61	45.14	54.36	54.17	**48.82**	**1**
10	BIB	36.32	38.87	44.55	42.10	45.59	52.21	**43.27**	**8**
11	ABAY	34.96	36.95	43.50	46.71	51.08	50.41	**43.93**	**6**
	AVERAGE	**39.04**	**42.85**	**44.31**	**42.94**	**47.43**	**47.97**	**44.09**	

Table 4 Government securities to total investment ratio.

NO	BANK	YEAR							
		2,011	2,012	2,013	2,014	2,015	2,016	Average	Rank
1	CBE	99.99	99.94	99.70	99.69	99.97	99.97	**99.88**	**1**
2	AIB	99.12	98.14	98.06	98.49	98.74	98.43	**98.50**	**7**
3	DB	98.33	98.83	99.10	99.27	99.20	99.09	**98.97**	**5**
4	BOA	100.00	100.00	99.83	99.68	99.56	99.16	**99.70**	**2**
5	WB	100.00	100.00	99.03	99.05	98.65	98.52	**99.21**	**4**
6	UB	99.63	99.72	97.68	97.63	98.06	97.94	**98.44**	**8**
7	NIB	99.09	97.32	97.06	97.61	97.81	97.07	**97.66**	**9**
8	ZB	100.00	99.73	99.53	99.47	99.17	99.28	**99.53**	**3**
9	BUNA	100.00	100.00	86.71	99.08	98.42	98.06	**97.05**	**10**
10	BIB	93.25	98.05	96.27	97.71	97.70	98.77	**96.96**	**11**
11	ABAY	100.00	99.23	98.34	98.61	98.56	98.95	**98.95**	**6**
	AVERAGE	**99.04**	**99.18**	**97.39**	**98.75**	**98.71**	**98.66**	**98.62**	

Table 5 Composite Capital Adequacy

Composite Capital Adequacy										
Bank	**Capital adequacy**		**debt to equity**		**Advance to Asset**		**Gov. sec/Total sec**		**Rate**	**comp rank**
	%	**Rank**	**Times**	**Rank**	**%**	**Rank**	**%**	**rank**		
CBE	4.63	11	20.85	11	35.89	11	99.88	1	8.5	**11**
AIB	11.55	9	7.73	9	43.64	7	98.50	7	8.0	**10**
DB	10.96	10	8.19	10	44.76	5	98.97	5	7.5	**9**
BOA	11.74	8	7.69	8	46.05	3	99.70	2	5.3	**5**
WB	17.83	3	4.62	3	42.67	9	99.21	4	4.8	**3**
UB	12.21	7	7.21	7	45.99	4	98.44	8	6.5	**7**
NIB	17.29	5	4.80	4	47.65	2	97.66	9	5.0	**4**
ZB	14.64	6	5.92	6	42.31	10	99.53	3	6.3	**6**
BUNA	19.10	2	4.57	2	48.82	1	97.05	10	3.8	**2**
BIB	17.33	4	4.82	5	43.27	8	96.96	11	7.0	**8**
ABAY	19.74	1	4.54	1	43.93	6	98.95	6	3.5	**1**

Table 6 Allowance for doubtful account to Total Assets ratio

		YEAR							
NO	**BANK**	**2,011**	**2,012**	**2,013**	**2,014**	**2,015**	**2,016**	**Average**	**Rank**
1	**CBE**	0.77	0.87	0.96	0.99	0.97	0.98	**0.92**	**6**
2	**AIB**	1.31	1.13	1.00	0.94	0.86	0.76	**1.00**	**9**
3	**DB**	0.85	0.96	0.94	0.76	0.73	0.74	**0.83**	**5**
4	**BOA**	1.52	1.21	0.92	0.82	0.66	0.65	**0.96**	**7**
5	**WB**	1.64	1.04	1.01	0.67	0.71	0.77	**0.97**	**8**
6	**UB**	1.17	1.03	0.88	0.62	0.58	0.64	**0.82**	**4**
7	**NIB**	1.60	1.22	1.24	1.08	0.79	0.85	**1.13**	**10**
8	**ZB**	0.71	0.76	3.59	3.22	2.59	2.03	**2.15**	**11**
9	**BUNA**	0.53	0.53	0.52	0.54	0.62	0.92	**0.612**	**3**
10	**BIB**	0.41	0.46	0.68	0.69	0.63	0.77	**0.606**	**2**
11	**ABAY**	0.35	0.42	0.55	0.57	0.64	0.73	**0.54**	**1**
	AVERAGE	**0.99**	**0.88**	**1.12**	**0.99**	**0.89**	**0.89**	**0.96**	

Table 7 Allowance for doubtful account to net Advance ratio

NO	BANK	YEAR							
		2,011	2,012	2,013	2,014	2,015	2,016	Average	Rank
1	CBE	2.51	2.25	2.68	2.83	2.72	2.80	**2.63**	**10**
2	AIB	3.77	2.78	2.36	2.33	1.77	1.55	**2.43**	**8**
3	DB	2.03	2.11	2.14	1.78	1.60	1.68	**1.89**	**5**
4	BOA	3.45	2.64	2.03	1.83	1.53	1.37	**2.14**	**6**
5	WB	4.76	2.49	2.28	1.70	1.61	1.65	**2.41**	**7**
6	UB	2.85	2.27	1.89	1.46	1.24	1.32	**1.84**	**4**
7	NIB	4.30	2.79	2.57	2.14	1.53	1.80	**2.52**	**9**
8	ZB	1.81	1.82	9.32	9.69	5.86	4.61	**5.52**	**11**
9	BUNA	1.15	1.13	1.17	1.22	1.16	1.73	**1.26**	**2**
10	BIB	1.13	1.19	1.55	1.66	1.40	1.51	**1.41**	**3**
11	ABAY	1.01	1.15	1.28	1.24	1.27	1.46	**1.24**	**1**
	AVERAGE	**2.62**	**2.06**	**2.66**	**2.53**	**1.97**	**1.95**	**2.30**	

Table 8 Investments to total asset ratio

NO	BANK	YEAR							
		2,011	2,012	2,013	2,014	2,015	2,016	Average	Rank
1	CBE	38	41	43	46	51	49	**45**	**1**
2	AIB	14	19	18	19	22	17	**18.2**	**9**
3	DB	12	16	19	19	24	23	**18.7**	**8**
4	BOA	11	18	29	24	25	22	**21**	**6**
5	WB	11	21	25	27	31	27	**24**	**2**
6	UB	10	18	29	25	29	26	**22.8**	**4**
7	NIB	11	18	23	26	29	27	**22**	**5**
8	ZB	13	19	33	24	28	22	**23.4**	**3**
9	BUNA	1	18	22	20	23	24	**18.1**	**10**
10	BIB	3	17	16	20	20	22	**16**	**11**
11	ABAY	10	14	20	20	23	25	**18.8**	**7**
	AVERAGE	**12**	**20**	**25**	**24**	**28**	**26**	**17**	

Table 9 Composite Asset Quality

Composite Asset Quality								
Bank	**allow/TA**		**allow/net advance**		**Inv./TA**		**Value**	**Comp Rank**
	%	**Rank**	**%**	**rank**	**%**	**rank**		
CBE	0.92	**6**	2.63	**10**	45	**1**	5.7	**5.5**
AIB	1.00	**9**	2.43	**8**	18.2	**9**	8.7	**11**
DB	0.83	**5**	1.89	**5**	18.7	**8**	6.0	**7**
BOA	0.96	**7**	2.14	**6**	21	**6**	6.3	**8**
WB	0.97	**8**	2.41	**7**	24	**2**	5.7	**5.5**
UB	0.82	**4**	1.84	**4**	22.8	**4**	4.0	**2**
NIB	1.13	**10**	2.52	**9**	22	**5**	8.0	**9**
ZB	2.15	**11**	5.52	**11**	23.4	**3**	8.3	**10**
BUNA	0.612	**3**	1.26	**2**	18.1	**10**	5.0	**3**
BIB	0.606	**2**	1.41	**3**	16	**11**	5.3	**4**
ABAY	0.54	**1**	1.24	**1**	18.8	**7**	3.0	**1**

Table 10Total Advances to Total Deposits

		YEAR							
NO	**BANK**	**2,011**	**2,012**	**2,013**	**2,014**	**2,015**	**2,016**	**Average**	**Rank**
1	**CBE**	38	52	46	46	46	48	**46.0**	**11**
2	**AIB**	51	60	61	61	67	68	**61.5**	**3**
3	**DB**	53	58	56	54	58	56	**55.7**	**10**
4	**BOA**	55	58	55	57	54	60	**56.3**	**8**
5	**WB**	49	62	62	55	60	64	**58.7**	**6**
6	**UB**	54	60	58	54	58	63	**57.9**	**7**
7	**NIB**	54	64	68	70	72	62	**64.7**	**2**
8	**ZB**	56	56	55	47	60	62	**55.9**	**6**
9	**BUNA**	75	72	61	63	70	69	**68.3**	**1**
10	**BIB**	48	54	61	59	62	71	**59.1**	**5**
11	**ABAY**	61	59	57	59	65	65	**60.9**	**4**
	AVERAGE	**54**	**59**	**58**	**57**	**61**	**62**	**58.65**	

Table 11 business per employee

NO	BANK	YEAR							
		2,011	2,012	2,013	2,014	2,015	2,016	Average	Rank
1	CBE	11,978,497	14,272,406	14,918,838	15,270,244	15,992,069	15,578,554	14,668,435	1
2	AIB	4,306,258	4,569,422	5,049,914	5,058,716	5,302,285	6,377,279	5,110,646	9
3	DB	6,391,316	7,294,350	6,697,447	6,370,021	6,817,730	6,297,269	6,644,689	4
4	BOA	4,891,117	5,068,344	5,510,740	5,089,263	5,201,740	5,250,081	5,168,547	8
5	WB	4,427,126	4,181,101	5,100,412	4,677,539	5,558,765	5,759,578	4,950,753	11
6	UB	5,470,015	5,490,072	6,082,970	5,970,331	6,389,745	6,889,541	6,048,779	5
7	NIB	4,325,286	4,675,331	4,915,806	5,719,606	6,397,143	6,552,452	5,430,937	7
8	ZB	9,464,849	11,267,363	12,222,654	11,270,428	14,069,648	15,739,965	12,339,151	2
9	BUNA	4,122,966	6,147,213	6,485,815	6,384,146	7,961,191	9,679,552	6,796,814	3
10	BIB	5,457,848	4,952,516	6,288,584	4,612,553	4,208,070	4,988,381	5,084,659	10
11	ABAY	4,029,461	4,495,486	4,863,133	5,413,356	6,808,772	7,515,328	5,520,923	6
	AVERAGE	5,896,794	6,583,055	7,103,301	6,894,200	7,700,651	8,238,907	7,069,485	

Table 12 profit per employee

NO	BANK	YEAR							
		2,011	2,012	2,013	2,014	2,015	2,016	Average	Rank
1	CBE	278,741	425,055	406,943	360,829	397,863	340,741	368,362	1
2	AIB	132,390	122,530	109,351	129,155	110,371	123,899	121,283	8
3	DB	159,468	214,337	164,433	166,313	158,611	129,139	165,383	3
4	BOA	94,271	102,613	110,547	96,683	87,479	90,439	97,005	10
5	WB	161,397	150,508	141,691	114,671	119,554	110,965	133,131	5
6	UB	135,732	150,815	134,266	114,757	96,309	105,514	122,899	7
7	NIB	134,516	140,174	125,666	133,462	128,556	116,448	129,803	6
8	ZB	443,504	346,876	295,678	323,120	354,118	358,877	353,696	2
9	BUNA	93,606	110,040	153,732	145,370	180,058	199,410	147,036	4
10	BIB	112,963	118,042	127,847	128,851	88,526	143,358	119,931	9
11	ABAY	(36,165)	114,123	79,570	77,728	143,209	138,474	86,156	11
	AVERAGE	155,493	181,374	168,157	162,813	169,514	168842	167699	

Table 13 expenditure to Income ratio

NO	BANK	YEAR							
		2,011	2,012	2,013	2,014	2,015	2,016	Average	Rank
1	CBE	0.39	0.31	0.37	0.44	0.45	0.50	**0.41**	**1**
2	AIB	0.46	0.52	0.59	0.57	0.63	0.65	**0.569**	**5**
3	DB	0.51	0.48	0.54	0.55	0.61	0.64	**0.56**	**4**
4	BOA	0.58	0.60	0.59	0.65	0.69	0.61	**0.621**	**8**
5	WB	0.39	0.49	0.51	0.62	0.64	0.66	**0.55**	**3**
6	UB	0.60	0.50	0.59	0.65	0.72	0.73	**0.63**	**10**
7	NIB	0.48	0.49	0.56	0.60	0.64	0.68	**0.572**	**6**
8	ZB	0.43	0.67	0.45	0.52	0.60	0.58	**0.54**	**2**
9	BUNA	0.64	0.64	0.56	0.62	0.62	0.66	**0.625**	**9**
10	BIB	0.61	0.57	0.58	0.59	0.63	0.56	**0.59**	**7**
11	ABAY	1.18	0.62	0.69	0.74	0.64	0.67	**0.76**	**11**
	AVERAGE	**0.57**	**0.54**	**0.55**	**0.60**	**0.62**	**0.63**	**0.58**	

Table 14 Composite Management Efficiency

Composite Management Efficiency										
Bank	total ad/total Dep.		Exp./Inc.		Business/Emp.		Profit/Emp.		Value	Comp Rank
	%	rank	value	rank	Value	rank	Value	rank		
CBE	46.0	**11**	0.41	**1**	14,668,435	1	368,362	1	**3.5**	2
AIB	61.5	**3**	0.569	**5**	5,110,646	9	121,283	8	**6.3**	6.5
DB	55.7	**10**	0.56	**4**	6,644,689	4	165,383	3	**5.3**	4.5
BOA	56.3	**8**	0.621	**8**	5,168,547	8	97,005	10	**8.5**	11
WB	58.7	**6**	0.55	**3**	4,950,753	11	133,131	5	**6.3**	6.5
UB	57.9	**7**	0.63	**10**	6,048,779	5	122,899	7	**7.3**	8
NIB	64.7	**2**	0.572	**6**	5,430,937	7	129,803	6	**5.3**	4.5
ZB	55.9	**6**	0.54	**2**	12,339,151	2	353,696	2	**3.0**	1
BUNA	68.3	**1**	0.625	**9**	6,796,814	3	147,036	4	**4.3**	3
BIB	59.1	**5**	0.59	**7**	5,084,659	10	119,931	9	**7.8**	9
ABAY	60.9	**4**	0.76	**11**	5,520,923	6	86,156	11	**8.0**	11

Table 15 NIM to total Asset ratio.

NO	BANK	YEAR							
		2,011	**2,012**	**2,013**	**2,014**	**2,015**	**2,016**	**Average**	**Rank**
1	**CBE**	2.59	3.17	3.68	3.53	3.91	3.91	3.46	**5**
2	**AIB**	1.67	2.92	2.97	3.36	3.42	3.17	2.92	**8**
3	**DB**	1.90	2.78	2.69	2.58	2.96	2.63	2.59	**10**
4	**BOA**	2.86	3.51	3.20	3.71	3.53	3.83	3.44	**6**
5	**WB**	2.66	3.62	3.97	3.73	4.10	4.21	3.72	**3**
6	**UB**	2.51	3.64	3.55	3.69	3.92	4.05	3.56	**4**
7	**NIB**	3.00	3.40	4.22	4.32	4.43	4.73	4.02	**1**
8	**ZB**	1.21	1.53	1.53	2.32	2.58	2.17	1.89	**11**
9	**BUNA**	2.69	2.93	3.82	4.16	4.37	5.08	3.84	**2**
10	**BIB**	1.80	2.30	2.18	3.94	3.16	4.87	3.04	**7**
11	**ABAY**	0.83	2.18	3.06	3.12	3.87	4.37	2.90	**9**
	AVERAGE	**2.16**	**2.91**	**3.17**	**3.50**	**3.66**	**3.91**	**3.22**	

Table 16 net profit to total asset ratio

NO	BANK	YEAR							
		2,011	**2,012**	**2,013**	**2,014**	**2,015**	**2,016**	**Average**	**Rank**
1	**CBE**	2.50	3.42	3.14	2.75	2.89	2.43	**2.85**	**5**
2	**AIB**	3.25	3.01	2.47	2.80	2.56	2.39	**2.74**	**7**
3	**DB**	3.08	3.72	3.07	3.24	2.94	2.54	**3.10**	**3**
4	**BOA**	2.49	2.62	2.61	2.40	2.11	2.23	**2.41**	**10**
5	**WB**	4.01	4.02	3.27	2.76	2.57	2.32	**3.16**	**2**
6	**UB**	3.00	3.39	2.82	2.34	1.96	1.96	**2.58**	**9**
7	**NIB**	3.47	3.46	3.13	2.92	2.54	2.25	**2.96**	**4**
8	**ZB**	5.25	3.61	2.89	3.26	3.15	2.75	**3.48**	**1**
9	**BUNA**	2.49	2.04	2.78	2.65	2.99	2.74	**2.62**	**8**
10	**BIB**	2.32	2.65	2.38	3.17	2.51	3.62	**2.78**	**6**
11	**ABAY**	(0.83)	2.54	1.95	1.80	2.74	2.37	**1.76**	**11**
	AVERAGE	**2.07**	**2.30**	**2.03**	**2.01**	**1.93**	**1.84**	**2.03**	

Table 17 percentage growth in net profit

NO	BANK	YEAR							
		2,011	2,012	2,013	2,014	2,015	2,016	Average	Rank
1	CBE	45.45	89.77	12.40	9.45	31.21	6.49	32	4
2	AIB	45.42	9.37	11.20	40.96	4.38	15.25	21	6
3	DB	39.08	44.68	(6.94)	17.43	2.34	(0.29)	16	8
4	BOA	28.37	19.34	22.57	2.25	6.31	30.22	18	7
5	WB	44.75	3.82	1.32	(6.36)	10.68	6.57	10.1	11
6	UB	33.24	28.48	(5.34)	(1.34)	1.13	20.51	13	9
7	NIB	22.67	16.15	0.01	9.61	7.43	5.82	10.3	10
8	ZB	66.10	1.96	8.52	36.51	20.11	31.93	28	5
9	BUNA	289.40	42.99	112.60	35.09	68.23	39.07	98	3
10	BIB	451	60.64	53.28	70.77	17.09	148.87	134	2
11	ABAY	100	826	21	51	118	17	189	1
	AVERAGE	97	113	21	24	26	29	51.72	

Table 18 operating profit to total asset ratio

NO	BANK	YEAR							
		2,011	2,012	2,013	2,014	2,015	2,016	average	rank
1	CBE	3.70	4.99	4.53	3.99	4.18	3.57	4.16	4
2	AIB	4.55	4.04	3.28	3.75	3.42	3.17	3.70	6
3	DB	4.31	5.10	4.21	4.36	3.95	3.43	4.22	3
4	BOA	3.54	3.50	3.46	3.12	2.74	3.83	3.36	9
5	WB	6.18	4.95	4.54	3.53	3.50	3.23	4.32	2
6	UB	3.28	4.69	3.75	3.05	2.57	2.64	3.33	10
7	NIB	4.84	4.71	4.14	3.86	3.33	2.90	3.96	5
8	ZB	7.51	3.62	6.85	5.62	4.12	3.98	5.28	1
9	BUNA	3.39	2.86	3.95	3.75	4.04	3.67	3.61	8
10	BIB	2.84	3.64	3.19	4.32	3.32	4.86	3.70	7
11	ABAY	(0.48)	2.96	2.61	2.37	3.91	3.40	2.46	11
	Average	3.97	4.10	4.04	3.79	3.55	3.52	3.83	

Table 19 interest income to total income ratio

NO	BANK	YEAR							
		2,011	2,012	2,013	2,014	2,015	2,016	Average	Rank
1	CBE	58	58	68	70	72	77	67	2
2	AIB	43	60	63	63	64	68	60.1	5
3	DB	47	52	56	53	56	56	53.4	9
4	BOA	60	69	67	72	71	67	68	1
5	WB	39	55	60	62	64	67	58	7
6	UB	54	62	66	69	71	73	65.9	3
7	NIB	51	57	67	67	73	80	65.8	4
8	ZB	29	40	37	45	52	52	42	11
9	BUNA	46	57	63	61	64	67	59.7	6
10	BIB	51	53	52	56	57	59	54	8
11	ABAY	40	44	54	57	57	66	53.0	10
	AVERAGE	47	55	59	61	64	67	59	

Table 20 non- interest income to total income ratio

NO	BANK	YEAR							
		2,011	2,012	2,013	2,014	2,015	2,016	Average	Rank
1	CBE	42	42	32	30	28	23	33	10
2	AIB	57	40	37	37	36	32	39.9	7
3	DB	53	48	44	47	44	44	46.6	3
4	BOA	40	31	33	28	29	33	32	11
5	WB	61	45	40	38	36	33	42	5
6	UB	46	38	34	31	29	27	34.1	9
7	NIB	49	43	33	33	27	20	34.2	8
8	ZB	71	60	63	55	48	48	58	1
9	BUNA	54	43	37	39	36	33	40.3	6
10	BIB	49	47	48	44	43	41	46	4
11	ABAY	60	56	46	43	43	34	47.0	2
	AVERAGE	53	45	41	39	36	33	41	

Table 21 composite Earning Quality ratio

Bank	NIM/TA		net profit/TA		%ge. growth in profit		operating prof/TA		Int. Inc./Total Inc.		Non-int-inc./Total Inc.			
	%	Rank	%	Rank	%	rank	%	rank	%	rank	%	rank	value	Comp Rank
CBE	3.46	**5**	2.85	**5**	32	**4**	4.16	**4**	67	**2**	33	**10**	**5.0**	**2**
AIB	2.92	**8**	2.74	**7**	21	**6**	3.70	**6**	60.1	**5**	39.9	**7**	**6.5**	**8**
DB	2.59	**10**	3.10	**3**	16	**8**	4.22	**3**	53.4	**9**	46.6	**3**	**6.0**	**7**
BOA	3.44	**6**	2.41	**10**	18	**7**	3.36	**9**	68	**1**	32	**11**	**7.3**	**10**
WB	3.72	**3**	3.16	**2**	10.1	**11**	4.32	**2**	58	**7**	42	**5**	**5.0**	**2**
UB	3.56	**4**	2.58	**9**	13	**9**	3.33	**10**	65.9	**3**	34.1	**9**	**7.3**	**10**
NIB	4.02	**1**	2.96	**4**	10.3	**10**	3.96	**5**	65.8	**4**	34.2	**8**	**5.3**	**4**
ZB	1.89	**11**	3.48	**1**	28	**5**	5.28	**1**	42	**11**	58	**1**	**5.0**	**2**
BUNA	3.84	**2**	2.62	**8**	98	**3**	3.61	**8**	59.7	**6**	40.3	**6**	**5.5**	**5**
BIB	3.04	**7**	2.78	**6**	134	**2**	3.70	**7**	54	**8**	46	**4**	**5.7**	**6**
ABAY	2.90	**9**	1.76	**11**	189	**1**	2.46	**11**	53.0	**10**	47.0	**2**	**7.3**	**10**

Table 22 liquid assets to demand deposit

NO	BANK	YEAR							
		2,011	2,012	2,013	2,014	2,015	2,016	Average	Rank
1	**CBE**	58.12	36.23	38.67	30.74	20.28	24.12	34.69	**11**
2	**AIB**	200.98	136.01	104.01	139.45	91.46	100.94	128.81	**7**
3	**DB**	182.68	131.46	142.08	142.15	116.13	115.68	138.36	**5**
4	**BOA**	181.98	154.74	95.77	148.32	112.25	91.14	130.70	**6**
5	**WB**	143.20	113.26	74.18	99.21	58.81	68.26	92.82	**10**
6	**UB**	177.06	163.91	93.00	127.72	94.64	89.40	124.29	**8**
7	**NIB**	191.17	135.28	99.11	76.29	59.99	71.95	105.63	**9**
8	**ZB**	275.49	208.83	126.13	158.91	113.03	142.60	170.83	**1**
9	**BUNA**	318.42	147.43	102.61	134.64	72.23	87.01	143.72	**4**
10	**BIB**	285.46	160.81	129.95	152.30	112.66	87.24	154.74	**2**
11	**ABAY**	241.66	162.55	131.38	134.43	96.53	97.01	143.93	**3**
	AVERAGE	205.11	140.95	103.35	122.20	86.18	88.67	124.41	

Table 23 liquid asset to total deposit

NO	BANK	YEAR							
		2,011	2,012	2,013	2,014	2,015	2,016	Average	Rank
1	CBE	34	21	23	16	10	11	19	11
2	AIB	52	32	27	34	21	25	32	9
3	DB	53	41	38	37	28	30	38	6
4	BOA	48	37	23	30	26	23	31	10
5	WB	74	45	30	36	23	26	39	5
6	UB	59	42	26	36	23	21	34.5	8
7	NIB	67	47	32	24	18	24	35.3	7
8	ZB	61	46	31	49	30	40	43.0	3
9	BUNA	76	45	38	42	23	23	41	4
10	BIB	76	58	46	49	41	29	50	1
11	ABAY	79	60	39	34	25	23	43.3	2
	AVERAGE	62	43	32	35	24	25	37	

Table 24 liquid assets to total assets

NO	BANK	YEAR							
		2,011	2,012	2,013	2,014	2,015	2,016	Average	Rank
1	CBE	26	15	18	13	8	8	15	11
2	AIB	37	22	19	23	15	19	22	10
3	DB	43	33	31	30	22	24	30.4	3
4	BOA	40	31	19	24	21	18	25.6	9
5	WB	55	31	21	26	17	19	28	6
6	UB	46	33	21	28	19	17	27	7
7	NIB	48	33	23	18	14	19	25.8	8
8	ZB	44	34	24	38	24	30	32	2
9	BUNA	48	30	27	30	18	18	29	5
10	BIB	58	42	34	35	30	22	37	1
11	ABAY	46	38	29	27	19	18	29.5	4
	AVERAGE	44.55	31.06	24.28	26.53	18.89	19.31	27.44	

Table 25 term deposits to total deposit

NO	BANK	YEAR							
		2,011	2,012	2,013	2,014	2,015	2,016	Average	Rank
1	CBE	5.88	6.36	5.77	5.03	5.60	4.21	5.47	2
2	AIB	1.06	5.23	5.98	7.72	10.41	9.42	6.64	5
3	DB	5.37	5.57	6.36	6.63	7.36	6.99	6.38	4
4	BOA	1.00	3.21	6.37	9.27	8.04	6.43	5.72	3
5	WB	2.14	4.62	2.27	4.32	4.20	4.96	3.75	1
6	UB	3.37	7.32	4.58	6.31	11.00	11.75	7.39	6
7	NIB	4.23	5.87	8.28	10.91	13.52	14.03	9.48	7
8	ZB	14.98	14.49	4.23	4.21	13.11	22.29	12.22	8
9	BUNA	28.49	20.44	14.61	16.66	15.50	22.11	19.64	11
10	BIB	42.45	20.81	16.34	14.40	8.50	9.34	18.64	10
11	ABAY	24.52	13.62	9.95	12.91	12.47	11.50	14.16	9
	AVERAGE	12.14	9.78	7.70	8.94	9.97	11.19	9.95	

Table 26 composite liquidity

Composite liquidity										
Bank	LIQ ass/Demand		liq ass/TD		liq ass/TA		term dep/TD		Value	comp rank
	%	rank	%	rank	%	rank	%	rank		
CBE	34.69	11	19.26	11	15	11	5.47	2	8.8	11
AIB	128.81	7	31.90	9	22	10	6.64	5	7.8	9.5
DB	138.36	5	37.83	6	30.4	3	6.38	4	4.5	3.5
BOA	130.70	6	31.17	10	25.6	9	5.72	3	7.0	7
WB	92.82	10	39.06	5	28	6	3.75	1	5.5	5
UB	124.29	8	34.52	8	27	7	7.39	6	7.3	8
NIB	105.63	9	35.29	7	25.8	8	9.48	7	7.8	9.5
ZB	170.83	1	42.97	3	32	2	12.22	8	3.5	1.5
BUNA	143.72	4	41.13	4	29	5	19.64	11	6.0	6
BIB	154.74	2	49.85	1	37	1	18.64	10	3.5	1.5
ABAY	143.93	3	43.31	2	29.5	4	14.16	9	4.5	3.5

Table 27 composite CAMEL

Composite CAMEL							
Bank	**CA**	**AQ**	**ME**	**EQ**	**LIQ**	**Rate**	**Rank**
CBE	**8.5**	**5.7**	3.5	**5.0**	**8.8**	**6.3**	**7.5**
AIB	**8.0**	**8.7**	6.3	**6.5**	**7.8**	**7.4**	**11**
DB	**7.5**	**6.0**	5.3	**6.0**	**4.5**	**5.9**	**5.5**
BOA	**5.3**	**6.3**	8.5	**7.3**	**7.0**	**6.9**	**10**
WB	**4.8**	**5.7**	6.3	**5.0**	**5.5**	**5.4**	**4**
UB	**6.5**	**4.0**	7.3	**7.3**	**7.3**	**6.5**	**9**
NIB	**5.0**	**8.0**	5.3	**5.3**	**7.8**	**6.3**	**7.5**
ZB	**6.3**	**8.3**	3.0	**5.0**	**3.5**	**5.2**	**2**
BUNA	**3.8**	**5.0**	4.3	**5.5**	**6.0**	**4.9**	**1**
BIB	**7.0**	**5.3**	7.8	**5.7**	**3.5**	**5.9**	**5.5**
ABAY	**3.5**	**3.0**	8.0	**7.3**	**4.5**	**5.3**	**3**

Source: - from table 1-27 researchers own computation

Annex 1 List of Commercial Bank Operating In Ethiopia

No	Bank Name	year of establishment
1	Development Bank of Ethiopia	1909
2	Commercial Bank Of Ethiopia	1963
3	Awash International Bank	1994
4	Dashen Bank	1995
5	Bank of Abyssinia	1996
6	Wegagen Bank	1997
7	United Bank	1998
8	Nib International Bank	1999
9	Cooperative Bank of Oromia	2004
10	Lion International Bank	2006
11	Oromia International Bank	2008
12	Zemen Bank	2008
13	Bunna International Bank	2009
14	Birhan International Bank	2009
15	Abay Bank	2010
16	Addis International Bank	2011
17	Debub Global Bank	2012
18	Enat Bank	2012

Annex 2 lists of top profitable banks from 2011-2016

Year	Rank	Bank Name	profit
2011	1	Dashen Bank	450,655,361
	2	Awas International Bank	360,629,582
	3	Wegagen Bank	323,277,726
	4	Nib international Bank	246,432,996
	5	United Bank	231,829,464
2012	1	Dashen Bank	652,012,122
	2	Awas International Bank	394,423,070
	3	Wegagen Bank	335,633,305
	4	United Bank	297,858,764
	5	Nib international Bank	286,234,320
2013	1	Dashen Bank	606,756,384
	2	Awas International Bank	438,608,637
	3	Wegagen Bank	340,057,631
	4	Nib international Bank	286,267,552
	5	United Bank	281,959,149
2014	1	Dashen Bank	712,484,276
	2	Awas International Bank	618,267,019
	3	Wegagen Bank	318,440,795
	4	Nib international Bank	313,768,037
	5	United Bank	278,170,018
2015	1	Dashen Bank	729,133,970
	2	Awas International Bank	645,337,629
	3	Wegagen Bank	352,445,215
	4	Nib international Bank	337,072,879
	5	United Bank	281,319,314
2016	1	Awas International Bank	743,765,868
	2	Dashen Bank	727,049,906
	3	Wegagen Bank	375,617,514
	4	Nib international Bank	356,678,952
	5	United Bank	339,015,308