

# Financial Performance Analysis through CAMEL Rating: A Comparative Study of Selected Private Commercial Banks in Ethiopia

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## 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 six senior private Ethiopian commercial banks over the period 2010-2014 by collecting data from their annual reports from year 2010 to 2014 and thereby ranked the overall financial performance of the respective banks based on CAMEL model and this study also aimed to investigate the inter connection 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. The finding of this study indicated that, UNB, NIB, and BOA held from 1st to 3rd of the rank based on CAMEL model overall performance. NIB was on top position with capital adequacy ratio parameter, while DAB got lowest rank. Under the asset quality parameter, UNB held the top rank while AIB held the lowest rank. Under management efficiency parameter the top rank has been taken by AIB& BOA and jointly and the lowest rank has been held by WEB. In terms of earning quality parameter, NIB got the top rank and BOA held the second rank & WEB held the third rank. DAB got the last rank. Under the liquidity parameter NIB stood first and DAB held the lowest.

**Keyword:** CAMEL • Financial performance • Private commercial banks

## Introduction

### Background of the study

Any economy's financial environment is normally composed of five elements: capital, financial instruments, financial institutions, regulations and financial markets. Banks are fundamental component of the different financial institutions. The bank system thus plays a crucial role in the country's economic growth as a critical element of financial systems. The success of the economy depends largely on the deployment and efficient use of capital and above all on the operating efficiency of the various sectors. In addition to promoting monetary policy, the banking sector helps to promote capital growth, innovation and monetization. To maintain a stable financial system and a productive economy, it is important to estimate and examine the performance of banks carefully. A banks good financial health protects its depositors, as do stakeholders, employees and the country's economy as a whole. As a consequence of this fact, from time to time attempts have been made to calculate and efficiently & effectively manage the financial condition of each bank. Therefore, it is important to evaluate the performance of the bank in the country.

CAMEL is a system of rating for on-site examinations of banks. Officially known as the Uniform Financial Institutions Rating System (UFIRS), CAMEL is a supervisory rating system adopted by the Federal Financial Institutions Examination Council (FFIEC) on 1979. CAMEL stipulates the evaluation of financial institutions on the basis of five critical dimensions which are: Capital adequacy, Asset quality, Management, Earnings and Liquidity. Sensitivity to market risk, a sixth dimension was added in 1997 and the acronym was changed to CAMELS. These components are used to reflect financial performance, operating soundness and regulatory compliance of financial institutions. They are defined as follows.

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The Capital adequacy is rated upon different factors inter alia: The level and quality of capital and the overall financial condition of the institution, the ability of management to address emerging needs for additional capital, the nature, trend, and volume of problem assets, and the adequacy of allowances for loan and lease losses and other valuation reserves, balance sheet composition, including the nature and amount of intangible assets, market risk, concentration risk, and risks associated with non-traditional activities, risk exposure represented by off- balance sheet activities, the quality and strength of earnings, and the reasonableness of dividend.

The ratings of a financial institutions' Asset quality is based upon, but not limited to, an assessment of the following evaluation factors: the adequacy of underwriting standards, soundness of credit administration practices and appropriateness of risk identification practices, the level, distribution, severity, and trend of problem, classified, nonaccrual, restructured, delinquent, and nonperforming assets for both on- and off-balance sheet transactions, the adequacy of the allowance for loan and lease losses and other asset valuation reserves, the credit risk arising from or reduced by off-balance sheet transactions, such as unfunded commitments, credit derivatives, commercial and standby letters of credit, and lines of credit, the diversification and quality of the loan and investment portfolios.

The Management is rated upon different factors inter alia: the level and quality of oversight and support of all institution activities by the board of directors and management, the ability of the board of directors and management, in their respective roles, to plan for, and respond to, risks that may arise from changing business conditions or the initiation of new activities or products, the adequacy of, and conformance with, appropriate internal policies and controls addressing the operations and risks of significant activities, the accuracy, timeliness, and effectiveness of management information and risk monitoring systems appropriate for the institution's size, complexity, and risk profile, the adequacy of audits and internal controls to: promote effective operations and reliable financial and regulatory reporting; safeguard assets; and ensure compliance with laws, regulations, and internal policies.

Financial institution's earnings is rated upon different factors inter alia: the level of earnings, including trends and stability, the ability to provide for adequate capital through retained earnings, the quality and sources of earnings, the level of expenses in relation to operations, the adequacy of the budgeting systems, forecasting processes, and management information systems in general.

Liquidity is rated based upon inter alia, these factors: the adequacy of liquidity sources compared to present and future needs and the ability of the institution to meet liquidity needs without adversely affecting its operations or condition, the availability of assets readily convertible to cash without undue loss, access to money markets and other sources of funding, the level of diversification of funding sources, both on- and off-balance sheet, the degree of reliance on short-term, volatile sources of funds, including borrowings and brokered deposits, to fund longer term assets, the trend and stability of deposits. Sensitivity to market risk is rated based upon, but not limited to, an assessment of the following evaluation factors: the sensitivity of the financial institution's earnings or the economic value of its capital to adverse changes in interest rates, foreign exchange rates, commodity prices, or equity prices, the ability of management to identify, measure, monitor, and control exposure to market risk given the institution's size, complexity, and risk profile, the nature and complexity of interest rate risk exposure arising from non-trading positions.

The paper has used historical formation and/or years of existence in the industry so as to systematically analyse the effects of bank specific factors over profitability. According to the information from the NBE (regulatory organ) Ethiopian commercial banks can be broadly categorize into three major strata's: Large, long stayed commercial banks that have existed long before the financial sector reform measures are introduced (CBE and CBB), Medium: banks that are established immediately after the financial liberalization, banks that have existed from 15 to 20years are found in this category, and banks that have lived in the industry for less than a decade are classified as small. Hence, all the target banks selected for this particular study are classified under the medium category since all of them have stayed 15 or more years in the business. To be specific, Awash International Bank (AIB), Bank of Abyssinia (BOA), Dashen Bank SC (DAB), Nib International Bank SC (NIB), United Bank SC (UNB), and Wegagen Bank SC (WEB) are the banks that were selected for the desired end and/or study.

## Statement of the Problem

Performance of financial institutions is relevant from the policy point of view because as finance- growth literature suggests, if banks become better-functioning entities, it is expected to be reflected in strengthening capital buffer, safety and soundness of the financial systems. Efficiency estimates are leading indicators, as such, efficiency measurement of individual banks is an important research activity carried out by the central bank of the country in order to identify the effects of deregulation, merger, market structure as well as their scale and scope of activity. Segmenting the industry into different strategic groups can help the banks position themselves and take long-term overhauling of their delivery design process [1].

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 Equity are the major ones [1]. On the other hand as noted by Mustafa [2] 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 [3].

The growth of private banks has been much faster than state-owned banks, although more than two-thirds of assets are still held by state-owned banks. It is also an evident that private banks show generally better performance than state-owned banks. In seven out of nine years, private banks had higher ROA than state-owned banks. According to Haque [4] 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 [5]. 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. 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 [4].

Though economic development of a particular country is dependent on a number of factors such as industrial growth and development, modernization of agriculture, expansion of domestic and foreign trade, its dependence to largest extent on the banking sector is undeniable and/or banks play a key role in improving economic efficiency by channelling funds from resource surplus it to those with limited access and/or the needy [6]. According to Zerayehu [7] a sound financial system is indispensable for a healthy and vibrant economy. The financial system in Ethiopia, which is characterized as highly profitable, concentrated, and moderately competitive is dominated by banking industry and it is also amongst the major under banked economy in the world. The development of a vibrant and active private banking system that complements with the existing public sector work is considered important to Ethiopia's economic progress according to the professional advice of group of experts working in well-known financial organization like WB, AFDB, and IMF.

The rationale behind focusing on bank specific variables only is owing to the existing less competitive and highly protected Ethiopian banking environment. Moreover, the exogenous factors are not expected to differ among the target banks that are selected for this particular study since all are operating under the same financial system, same regulatory organ and are within the same geographic area (Ethiopia). Therefore, this paper solely seeks to examine the effect of bank specific variables on profitability using CAMEL model and thereby tries to rank the overall financial performance of selected private commercial banks. Accordingly, the researcher would try to answer the following research questions.

1. What is the essence of CAMEL?
2. What are the pros and cons of CAMEL model bank performance measure approach?
3. Which private commercial banks are performing better under CAMEL model bank performance?
4. Why does the CAMEL rating system play a crucial role in banking supervision?

## Research Objectives

### General objective

The general objective of this study is to analyse the financial performance of selected private commercial banks and to rank the respective private commercial banks based on their performances.

### Specific Objectives

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

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

### Scope of the study

The study is going to use the data's of six senior private commercial banks for the years 2010-2014 (5years); however, results can be generalized to cover all private commercial banks.

## Literature Review

### 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 [8] 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 [9].

Olweny and Shipho [8] 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 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. Athanasoglou 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 external factors are macroeconomic variables such as interest rate, inflation, economic growth and other factors like ownership Vincent Okoth.

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 input 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 [10] and Karan S. Thagunna [11].

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 [12]. The Z score method examines liquidity; profitability; reinvested earnings and leverage which are integrated into a single composite score Roli Pradhan [13]. 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 US to label a banks overall condition. It was become functional to every bank and credit union in the US and outside the US by various banking supervisory regulators. The short form "CAMEL" refers to the five components of a bank's condition namely: Capital adequacy, Asset quality, Management efficiency, Earnings, and Liquidity, before the sixth component, Sensitivity 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 as cited on Gulzoztorul, 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 US 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.

The main focus of this study is to analyse the performances of Ethiopian commercial banks by using CAMEL approach. As argued by Andreas and Gabrielle, 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 [6] "CAMEL rating criteria has become a concise and indispensable tool for examiners and regulators"; and also as noted by Dakito Alemu [14] 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 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.

### 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 [15] 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:

### 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. According to Misra and Aspal [6] 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 losses arising from risk assets. The higher the ratio represents better performance of the bank. According to Yuva P [15] it shall be computed as  $\text{Tier I capital} + \text{Tier II capital} / \text{risk weighted asset}$ . 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 [16]. 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 [6]. 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 total assets and vice versa. Jayanta k [16] government Securities to total investment ratio shows the percentage of risk-free investment in bank's investment portfolio. It will be computed as  $[(\text{Investment in government$

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.

### 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 [16] 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 [17] Asset quality is classified as: Standard assets are those assets that are performing and loan is paying interest and instalment 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 Assets reflects 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 [6]. According to Misra and Aspal [6] and Jayanta K [16] net NPAs to Net Advances is 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.

### Management Efficiency

As per 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. 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 [17].

According to Yuva P [15] and Jayanta K [16] 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 [15] 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.

### 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. 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. 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 and Aspal [6] percentage growth in net profit is 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 ratio indicates 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 income ratio of non-interest income to total income measures the income from various operations other than lending as a percentage of total income.

### 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 [16].

Liquid assets to total deposits ratio 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 assets measure 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 favourable one [5].

## Empirical review

Siva and Natarajan [18] 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 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 [15] 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 [20] 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 with ROE 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 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 addition 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 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 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 analysed 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 [4] 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 [17].

Srinivas and Saroja [21] compared and analysed 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 [22] analysed 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 examined financial performance of 14 Ethiopian Commercial Banks using CAMEL approach from year 2010 to 2014. The study used quantitative research approach, and analysed 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.

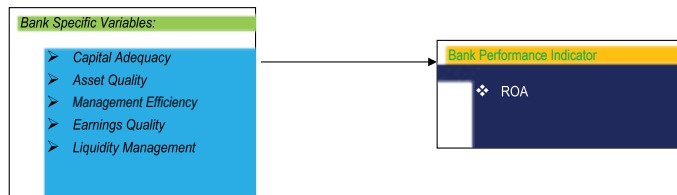
Dakito Alemu [14] studied banks performance with the title "Assessment of Banking Performance using Capital Adequacy in Ethiopia" to evaluate the financial performance of banking sector in Ethiopia and also to see the relation between capital adequacy and bank's performance of 8 banks for the period 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.

## Conceptual Framework

The conceptual schema of the relationship between the bank performance indicator (ROA) and bank specific variables is depicted in figure 1.

## Research Methods

For the purpose of the present study, the research instrument used is the CAMEL model which is the recent innovation in the area of financial performance evaluation of banks.



Source: Self-extracted

Figure 1. Conceptual framework.

## Research Design

This particular study has employed quantitative research approach and secondary data was used.

## Sample Design

### Population

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

### Sample Frame

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

### Sample Units, Sample Technique, and Sample size/Sampling

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

### Data Source/Types of Data

Since it is all about the measure of private commercial banks performance in Ethiopia, the type of data for the study will be more of a quantitative so that it could be measured and ranked. In other words, though mixed research method is believed to be more efficient to address the shortcomings being observed in each method, the quantitative method will be much helpful when we speak about performance measures. The data from the sample banks were gathered from published financial statements of the respective private commercial banks & respective websites of the banks to be investigated, and different bullet in sand publications of the NBE. The coverage of data for this particular study is from 2010-2014. In line with the afore-stated fact, various documents mainly from secondary sources like Books, Journals, Magazines, Reports and Internet were reviewed to demonstrate familiarity gaps.

### Data Collection Methods

For this study purpose only secondary data was used and the data was collected from NBE, websites of private commercial banks, annual reports, financial statements and other published and unpublished sources.

### Data Analysis

The ranking process of the targeted banks was accomplished using multi-dimensional parameters in order to incorporate different aspects of each bank specific variable. The results and/or ranks obtained in each bank specific proxy were once again summarized into a grand group composite rank-CAMEL so as to get the overall picture.

## Data analysis and presentation

### The ranking process

#### Capital Adequacy

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

#### Capital adequacy ratio

As per the National Bank of Ethiopia (NBE) directive, Ethiopian banks are required to maintain a minimum capital adequacy ratio of 8 percent of their risk weighed assets. As stated earlier, though there are a lot of ways to compute CAR, however, capital to total assets ratio has been considered for the sake of this particular study (Table 1).

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

#### Debt to equity ratio

This ratio indicates the degree of leverage of a bank. It indicates how much of the bank business is financed through debt and how much through equity. Higher ratio indicates less protection for the creditors and depositors and vice versa in the banking system (Table 2).

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

#### Advances to assets ratio

This ratio indicates the bank's aggressiveness in lending. Though aggressive lending (increasing the level of credit) might have its own limitations, better (high) profitability is anticipated by doing so in general. It must be also noted that the total advances include receivables and higher ratio is preferred to a lower one (Table 3).

In the above table, NIB is seen to be relatively at the top with highest average of 54.94 followed by BOA with an average score of 46.874. On the other hand, WEB is the least performer in this regard with an average score of 41.598.

#### Composite capital adequacy

On the basis of group averages of the three parameters selected to rank the capital adequacy status of the six banks: NIB, UNB, and BOA held from first to third of the ranks respectively and AIB stood last in this composite capital adequacy parameter (Table 4).

#### Assets quality

The prime objective of measuring the assets quality is to ascertain the component of Non-performing Assets (NPAs) as percentage of the total assets. In the Ethiopian case, it is worthy to mention Directive No. SBB/43/2008 under the title "Asset Classification & Provisioning" that dictates the bank's non-performing loan not to exceed 5%. Based on this directive, loans or advances with pre-established repayment programs or overdrafts and loans or advances that do not have a pre-established repayment program is termed non-performing when principal and/or interest is due and uncollected for ninety consecutive days or more beyond the scheduled

**Table 1.** Capital adequacy ratio.

Serial no.	Year	Capital Adequacy Ratio (%)						Avg.
		AIB	BOA	DAB	NIB	UNB	WEB	
1	2010	11.83	9.32	7.54	15.36	10.82	18.32	12.20
2	2011	12.93	9.08	9.53	16.47	11.66	16.59	12.71
3	2012	13.49	11.01	10.43	18.46	12.54	19.22	14.19
4	2013	11.47	10.94	10.36	18.22	12.04	17.61	13.44
5	2014	11.81	13.56	11.83	18.27	14.05	19.07	14.77
6	Average	12.30	10.78	9.93	17.35	12.22	18.16	13.46
7	Rank	3	5	6	2	4	1	

**Table 2.** Debt-equity ratio.

Serial no.	Year	Debt-Equity Ratio (Times)						Avg.
		AIB	BOA	DAB	NIB	UNB	WEB	
1	2010	7.45	9.74	12.25	5.51	8.24	4.46	7.94
2	2011	6.73	10.01	9.50	5.07	7.57	5.03	7.32
3	2012	6.41	8.08	8.58	4.42	6.97	4.20	6.45
4	2013	7.72	8.14	8.65	4.49	7.31	4.68	6.83
5	2014	7.47	6.37	7.45	4.47	6.12	4.24	6.02
6	Average	7.156	8.468	9.286	4.792	7.242	4.522	6.912
7	Rank	3	5	6	2	4	1	

**Table 3.** Advances to assets ratio.

Serial no.	Year	Advances to Assets (%)						Avg.
		AIB	BOA	DAB	NIB	UNB	WEB	
1	2010	39.60	50.21	40.87	42.64	44.34	43.09	43.46
2	2011	39.41	45.56	42.42	38.91	42.42	36.10	40.80
3	2012	46.11	47.30	46.37	44.82	46.49	42.72	45.63
4	2013	51.89	46.42	44.88	49.68	47.21	45.12	47.53
5	2014	52.13	44.88	42.94	50.32	42.47	40.96	45.62
6	Average	45.828	46.874	43.496	54.94	45.274	41.598	44.608
7	Rank	3	2	5	1	4	6	

**Table 4.** Composite capital adequacy.

Bank	CAR		Debt-Equity		Advances to Assets		Group Rank	
	%	Rank	Times	Rank	%	Rank	Avg.	Rank
AIB	12.30	3	7.156	3	45.828	3	3	3
BOA	10.78	5	8.468	5	46.874	2	4	4
DAB	9.93	6	9.286	6	43.496	5	5.67	5
NIB	17.35	2	4.792	2	54.94	1	1.67	1
UNB	12.22	4	7.242	4	45.274	4	4	4
WEB	18.16	1	4.522	1	41.598	6	2.67	2

payment or maturity. Therefore, Non-performing assets to gross loans, total investments to total assets ratio, and Allowance for Doubtful Loans to Loans outstanding ratio, and Allowance for Doubtful Loans to Total Assets ratio is considered to assess the asset quality of the respective banks.

### Total non-performing loans to gross loans

This ratio reflects /measures the loss incurred due to poor loan quality. In this ratio, NPLs are measured as percentage of Total Loans. The lower the ratio reflects, the better is the quality of advances (Table 5).

When the average NPAs ratio of each bank over the study period is observed UNB has least average score which makes it better performer than its competitors. Similarly, DAB & WEB stood 2nd and 3rd respectively. On the contrary, the NPL status for NIB was on average around 4% during the study period.

### Total investments to total assets

Total investments to total assets indicate the extent of deployment of assets in investment as against advances. This ratio is used as a tool to measure the percentage of total assets locked up in investments. A higher ratio means conservative policy of a bank to provide safeguard to the investments against NPAs (Table 6).

### Allowance for doubtful loans to loans outstanding

According to literatures, it is the most standard measure of asset quality measuring. In this case, highest average score means higher probability of un-collectability or default and minimum allowance for un-collectability means minimum level of default. Hence, the bank with higher AFDL will get the lowest rank and the rank with lowest AFDL will get the higher rank (Table 7).

**Table 5.** NPLs to gross loans ratio.

Serial no.	Year	Non-Performing Loan Ratios (%)						Avg.
		AIB	BOA	DAB	NIB	UNB	WEB	
1	2010	5.47	6.98	3.00	7.37	3.76	3.47	5.01
2	2011	3.81	3.97	3.38	5.04	3.35	3.51	3.84
3	2012	1.91	3.76	2.44	2.47	1.53	2.98	2.52
4	2013	2.29	2.75	2.97	3.76	2.53	2.70	2.83
5	2014	3.19	3.37	3.29	3.08	1.73	2.63	2.88
6	Average	3.334	4.166	3.016	4.344	2.58	3.058	
7	Rank	4	5	2	6	1	3	

**Table 6.** Total Investment to total assets ratio.

Serial no.	Year	Total Investment to Total Assets Ratio (%)						Avg.
		AIB	BOA	DAB	NIB	UNB	WEB	
1	2010	24.67	10.16	30.00	19.11	11.28	22.76	19.66
2	2011	27.55	19.29	26.66	22.98	21.36	24.21	23.68
3	2012	34.02	27.61	29.10	28.99	26.93	32.41	29.84
4	2013	29.39	27.91	31.76	27.13	32.41	32.91	30.25
5	2014	11.42	29.96	29.26	26.37	32.00	6.50	22.58
6	Average	25.41	22.986	29.356	24.916	24.796	23.758	25.202
7	Rank	2	6	1	3	4	5	

**Table 7.** Allowance for doubtful loans to loans outstanding ratio.

Serial no.	Year	Allowance for Doubtful Loans to Loans Outstanding ratio (%)						Avg.
		AIB	BOA	DAB	NIB	UNB	WEB	
1	2010	4.70	7.42	2.18	3.89	3.63	3.96	4.30
2	2011	3.64	3.33	1.99	4.12	2.78	4.54	3.40
3	2012	2.70	2.57	2.15	2.72	2.33	2.43	2.48
4	2013	2.31	1.99	2.14	2.51	1.87	2.24	2.18
5	2014	2.27	0.00	0.00	0.00	1.46	1.67	0.90
6	Average	3.124	3.062	1.692	2.648	2.414	2.968	2.652
7	Rank	6	5	1	3	2	4	

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

### Allowance for doubtful loans to total assets

This ratio discloses the efficiency of bank in assessing the credit risk and to an extent, recovering the debts. The lower the ratio reflects, the better is quality of advances (Table 8).

In line with the Allowance for Doubtful Loans to Total Assets Ratio, DAB, UNB & NIB are amongst the banks with better quality of advances respectively in contrast.

### Composite asset quality

Based on the availed data, average group ratios of the above four asset quality assessment ratios have been considered. Hence, UNB is in better position with an average rank of 2.00 in NPLs to Gross Advance, Total Investments to Total Assets, AFDL to Advances, and AFDL to Total Assets ratio. Here, AIB is ranked sixth on the average of the four parameters selected to assess assets quality. In other words, the composite ratio tells that AIB need to improve its asset quality in order to cope up with an/or excel from its peers (Table 9).

### Management efficiency

Management efficiency is another vital component of the CAMEL model that ensures the survival and growth of a bank. This parameter is used to evaluate management efficiency by assigning premium to better performing

banks and by discounting poorly managed ones. So as to see better picture in this regard, Non-interest Expense to Gross Expense ratio, Total Advances to Total Deposits ratio, Return on Equity, and Interest Income over Total Assets ratios are considered.

### Non-interest expense to gross expense

This parameter is used to gauge management's control over expenses. The more the ratio the less efficient the management is to control its expenses. Hence, better rank will be fetched if the ratio is minimal in contrast and worse will be there stultify the ratio is higher in contrast (Table 10).

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

### Total advances to total deposits

The ratio measures the efficiency of management in converting the deposits available with the bank into high earning advances. Total deposits include demand deposits, savings deposits, term deposits and deposits of other banks. According to literatures, total advances also include the receivables.

As per the average score displayed in table 11, NIB has the highest Advances to Total Deposits ratio 63.078% and it is followed AIB with 60.44% and the least performer in this regard is DAB with an average ratio of 53.854%.

### Return on equity

ROE is a measure of the profitability of a bank (Table 12).



**Table 8.** Allowance for doubtful loans to total assets ratio.

Serial no.	Year	Allowance for Doubtful Loans to Total Assets Ratio (%)						Avg.
		AIB	BOA	DAB	NIB	UNB	WEB	
1	2010	1.86	3.73	0.89	1.66	1.61	1.71	1.91
2	2011	1.43	1.52	0.84	1.60	1.18	1.64	1.37
3	2012	1.25	1.21	1.00	1.22	1.08	1.04	1.13
4	2013	1.20	0.92	0.96	1.25	0.88	1.01	1.04
5	2014	1.19	0.00	0.00	0.00	0.62	0.68	0.42
6	Average	1.386	1.476	0.738	1.146	1.074	1.216	1.174
7	Rank	5	6	1	3	2	4	

**Table 9.** Composite asset quality.

Bank	NPAS to Gross Advances		Total Invest.to Total Assets		A.F.D.L to Total Loans		A.F.D.L to Total Assets		Group Rank	
	%	Rank	%	Rank	%	Rank	%	Rank	Avg.	Rank
AIB	3.334	4	25.41	2	3.124	6	1.386	5	4.25	5
BOA	4.166	5	22.986	6	3.062	5	1.476	6	5.5	6
DAB	3.016	2	29.356	1	1.692	1	0.738	1	1.25	1
NIB	4.344	6	24.916	3	2.648	3	1.146	3	3.75	3
UNB	2.58	1	24.796	4	2.414	2	1.074	2	2.25	2
WEB	3.058	3	23.758	5	2.968	4	1.216	4	4	4

**Table 10.** Non-interest expense to gross expense.

Serial no.	Year	Non-Interest Expense to Gross Expense						Avg.
		AIB	BOA	DAB	NIB	UNB	WEB	
1	2010	53.87	53.31	50.99	66.91	60.46	69.35	59.15
2	2011	50.42	54.49	50.13	61.86	52.92	71.95	56.96
3	2012	50.87	52.02	50.71	58.92	53.18	64.31	55.00
4	2013	55.31	52.07	51.20	59.78	58.83	65.46	57.11
5	2014	56.46	52.18	51.73	59.87	64.71	65.52	58.41
6	Average	53.386	52.814	50.952	61.468	58.02	67.318	57.326
7	Rank	3	2	1	5	4	6	

**Table 11.** Total advances to total deposits ratio.

Serial no.	Year	Total Advances to Total Deposits Ratio (%)						Avg.
		AIB	BOA	DAB	NIB	UNB	WEB	
1	2010	51.52	61.35	49.77	61.69	55.32	63.06	57.12
2	2011	51.48	54.58	52.51	53.66	54.02	48.85	52.52
3	2012	59.81	57.56	57.75	63.53	60.45	61.93	60.17
4	2013	61.45	55.34	55.91	68.26	58.43	62.11	60.25
5	2014	77.94	55.64	53.33	68.25	56.08	54.92	61.03
6	Average	60.44	56.894	53.854	63.078	56.86	58.174	58.218
7	Rank	2	4	6	1	5	3	

**Table 12.** Return on equity ratio.

Serial no.	Year	Return on Equity Ratio (%)						Avg.
		AIB	BOA	DAB	NIB	UNB	WEB	
1	2010	29.35	25.35	37.68	24.42	30.14	23.66	28.43
2	2011	32.08	28.98	38.71	23.61	30.13	27.06	30.10
3	2012	27.03	27.66	40.44	21.21	29.74	22.86	28.16
4	2013	28.06	21.52	31.33	18.75	18.56	19.99	23.04
5	2014	27.26	33.97	45.82	16.38	53.48	15.34	32.04
6	Average	28.756	27.496	38.796	20.874	32.41	21.782	28.354
7	Rank	3	4	1	6	2	5	

Profit after tax is expressed as a percentage of equity and average score of 38.786%, 32.41%, and 28.756% were registered for DAB, UNB and AIB and it has given them the chance to hold 1st to 3rd of the available ranks respectively. On the other hand, NIB is the one who held the (6th) rank with an average rate of return of 20.874% to its shareholders.

### Interest income over total assets

It is a measure of the interest income earned as percentage of total assets during the study period.

As exhibited above in table 13, BOA and UNB has scored above the average score during the study period whereas the interest income score of the remaining four banks during the study period is seen to be below the average score of the peer banks. In this regard BOA, UNB, and AIB are ranked from first to third respectively whereas DAB has stood 6th with an average interest income ratio of 4.702% during the period of analysis.

### Composite management efficiency

On the basis of group averages of the four ratios AIB and BOA has held the first rank (2 in this case) based on average of the two similar ranks with an average score of (2.75), followed by UNB with average score of 3.25. On the other hand, WEB has held the last position and it is seen to be less efficient in controlling its general expenses in contrast (Table 14).

### Earning quality

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

### Net Profit to total assets

The ratio reflects the return on assets employed or the efficiency in utilization of assets. It by dividing the net profit with total assets of the bank. The higher the ratio the better the earning potential of the bank will be (Table 15).

As exhibited above, WEB is at the top with an average ratio of 3.586 followed by DAB and AIB with 3.464 and 3.384 respectively. On the other hand, BOA is on the floor when compared with other peers.

### Interest income to total income

Interest income is considered as prime source of revenue for banks.

The interest income to total income ratio reflects the banks capability in generating income from its lending activities. Interest income includes income on advances, interest on deposits including interest for the balances maintained with the regulatory organ (NBE) (Table 16).

As exhibited above, BOA is on top position with highest average score of 63.102 followed by UNB and UNB with average scores of 60.072 and 57.934 respectively. DAB is seen to stand last with average score of 50.102.

### Net interest margin (NIM) to total assets

NIM (Spread) is the difference between the interest income and the interest expended. It is expressed as percentage of total assets. A higher spread indicates the better earnings given the total assets (Table 17).

In this parameter, NIB, WEB, and UNB have held the rank from 1st to 3rd with average net interest margin ratio of 3.434, 3.416, and 3.182 respectively. DAB scored the last position with average net interest margin of 2.368. Thus, DAB's NIM is very narrow when compared with its peers.

### Composite earning quality

Based up on the group averages of three indicators of quality of earning NIB, BOA, and WEB held the ranks from 1st to 3rd respectively. The last position in the composite earning quality parameter is held by DAB (Table 18).

### Liquidity

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

### Liquid assets to total assets

This ratio measures the liquidity available to the depositors of a bank. Liquid assets include cash in hand, balance with NBE, balance with other banks (both in Ethiopia and abroad), and money at call and short notice. Total deposits include demand deposits, term deposits and deposits of other financial institutions (Table 19). As exhibited above, UNB, NIB, and AIB held from 1st to 3rd with an average ratio of 36.726, 36.226 and 36.06 respectively in this particular parameter. To the contrary, BOA is seen to be at the bottom of the rank with an average ratio of 32.278.

**Table 13.** Interest income over total assets ratio.

Serial no.	Year	Interest Income over Total Assets (%)						Avg.
		AIB	BOA	DAB	NIB	UNB	WEB	
1	2010	3.81	4.17	3.91	4.45	4.26	4.30	4.15
2	2011	3.90	5.11	4.12	4.68	4.39	3.91	4.35
3	2012	5.60	6.04	5.12	5.24	5.91	5.29	5.53
4	2013	5.99	4.91	5.17	6.24	6.03	5.63	5.66
5	2014	6.92	6.51	5.19	5.31	6.09	5.87	5.98
6	Average	5.244	5.348	4.702	5.184	5.336	5	5.134
7	Rank	3	1	6	4	2	5	

**Table 14.** Composite management efficiency.

Bank	Total Advances to Total Deposits		ROE		Interest Income Over Total Assets		Non-Interest Expense to Gross Expense		Group Rank	
	%	Rank	%	Rank	%	Rank	%	Rank	Avg.	Rank
AIB	60.44	2	28.756	3	5.244	3	53.386	3	2.75	1
BOA	56.894	4	27.496	4	5.348	1	52.814	2	2.75	1
DAB	53.854	6	38.796	1	4.702	6	50.952	1	3.5	3
NIB	63.078	1	20.874	6	5.184	4	61.468	5	4	4
UNB	56.86	5	32.41	2	5.336	2	58.02	4	3.25	2
WEB	58.174	3	21.782	5	5	5	67.318	6	4.75	5

**Table 15.** Net Profit to total assets ratio.

Serial no.	Year	Net Profit to Total Assets Ratio (%)						Avg.
		AIB	BOA	DAB	NIB	UNB	WEB	
1	2010	3.12	2.23	2.62	3.37	2.95	3.88	3.03
2	2011	3.57	2.49	3.07	3.46	3.00	4.01	3.27
3	2012	3.30	2.63	3.72	3.46	3.39	4.03	3.42
4	2013	3.42	2.14	3.07	3.27	2.14	3.30	2.89
5	2014	3.51	3.97	4.84	2.76	2.15	2.71	4.05
6	Average	3.384	2.692	3.464	3.264	2.726	3.586	3.332
7	Rank	3	6	2	4	5	1	

**Table 16.** Interest income to total income.

Serial no.	Year	Interest Income to Total Income						Avg.
		AIB	BOA	DAB	NIB	UNB	WEB	
1	2010	44.17	55.86	50.05	47.84	49.12	43.72	48.46
2	2011	42.55	60.20	47.06	50.68	53.72	38.64	48.81
3	2012	60.20	68.76	52.02	57.11	62.38	51.98	58.74
4	2013	59.81	68.74	56.19	67.02	66.37	61.51	63.27
5	2014	63.41	61.95	45.70	67.02	68.77	61.74	61.43
6	Average	54.028	63.102	50.204	57.934	60.072	51.518	56.142
7	Rank	4	1	6	3	2	5	

**Table 17.** Net interest margin to total assets ratio.

Serial no.	Year	Net Interest Margin (NIM) to Total Assets (%)						Avg.
		AIB	BOA	DAB	NIB	UNB	WEB	
1	2010	1.86	2.15	1.89	2.96	2.49	3.00	2.39
2	2011	1.83	2.86	1.90	2.99	2.51	2.67	2.46
3	2012	3.22	3.51	2.78	3.41	3.64	3.62	3.36
4	2013	3.55	2.85	2.69	4.22	3.55	3.97	3.47
5	2014	4.22	3.71	2.58	3.59	3.72	3.82	3.61
6	Average	2.936	3.016	2.368	3.434	3.182	3.416	3.058
7	Rank	5	4	6	1	3	2	

**Table 18.** Composite earning quality.

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

**Table 19.** Liquid assets to total assets ratio.

Serial no.	Year	Liquid Assets over Total Assets (%)						Avg.
		AIB	BOA	DAB	NIB	UNB	WEB	
1	2010	50.89	47.17	42.54	51.38	55.55	52.87	50.07
2	2011	40.02	39.79	42.48	51.24	46.07	51.37	45.16
3	2012	26.48	30.62	32.96	36.02	32.58	33.44	32.02
4	2013	24.04	19.46	30.69	24.66	20.67	26.70	24.37
5	2014	38.07	24.35	29.79	17.83	28.76	15.92	25.79
6	Average	35.09	32.278	35.692	36.226	36.726	36.06	35.482
7	Rank	4	6	5	2	1	3	

### Liquid assets to total deposits

This ratio measures the liquidity available to the depositors of a bank. It is calculated by dividing the liquid assets with total deposits (Table 20).

In this particular parameter, NIB, WEB, and AIB are seen to have better liquidity to depositors and they have held from 1st to 3rd of the rank in this regard with an average liquidity ratio of 50.824 , 50.692 and 47.64. On the other hand, BOA is seen to be in the lowest position with an average liquid asset (LA) to total deposit (TD) ratio of 39.192.

### Liquid assets to demand deposits

This ratio measures the ability of a bank to meet the demand from demand deposits in a particular year. In order to provide higher liquidity for depositors, bank has to invest these funds in highly liquid form. It is calculated by dividing the liquid assets with total demand deposits (Table 21).

As exhibited above, AIB (179.072), BOA (164.752), and UNB (158.384) held the ranks from 1st to 3rd respectively based on the higher average liquidity score of the target banks. In contrast, WEB is seen to lag behind when compared with its peers.

### Composite liquidity

Based on the group average ratios of the above three parameters, UNB (1.33), AIB (2.67), WEB (3.33) has held from first to third unlike BOA who ranked 6<sup>th</sup> (Table 22).

### Grand composite ranking (overall performance)

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

Table 23 depicts the group and/or grand ranking of the medium banks of

**Table 20.** Liquid assets to total deposits ratio.

Serial no.	Year	Liquid Assets to Total Deposits (%)						Avg.
		AIB	BOA	DAB	NIB	UNB	WEB	
1	2010	66.21	57.64	51.80	74.34	69.31	77.39	66.12
2	2011	52.27	47.67	52.58	70.66	58.67	69.51	58.56
3	2012	34.34	37.26	41.05	51.06	42.36	48.47	42.43
4	2013	28.47	23.20	38.24	33.88	25.57	36.75	31.02
5	2014	56.91	30.19	37.00	24.18	37.99	21.34	34.60
6	Average	47.64	39.192	44.134	50.824	46.78	50.692	46.546
7	Rank	3	6	5	1	4	2	

**Table 21.** Liquid assets to demand deposits ratio.

Serial no.	Year	Liquid Assets to Demand Deposits (%)						Avg.
		AIB	BOA	DAB	NIB	UNB	WEB	
1	2010	292.34	242.99	193.55	234.38	218.04	171.53	225.47
2	2011	201.00	181.98	182.68	202.22	174.12	132.85	179.14
3	2012	146.45	154.74	131.46	147.65	158.70	119.81	143.13
4	2013	108.57	95.78	142.08	106.17	91.20	92.38	106.03
5	2014	147.00	148.27	142.15	76.29	127.72	57.99	399.90
6	Average	179.072	164.752	158.384	153.342	153.956	114.912	210.734
7	Rank	1	2	3	5	4	6	

**Table 22.** Composite liquidity.

Bank	Liquid Assets to Total Assets		Liquid Assets to Total Deposits		Liquid Assets to Demand Deposits		Group Rank	
	%	Rank	%	Rank	%	Rank	Avg.	Rank
AIB	35.09	5	47.64	3	179.072	1	3	2
BOA	32.278	6	39.192	6	164.752	2	3.5	6
DAB	35.692	4	44.134	5	158.384	3	4	5
NIB	36.226	2	50.824	1	153.342	5	2.667	4
UNB	36.726	1	46.78	4	153.956	4	3	1
WEB	36.06	3	50.692	2	114.912	6	3.667	3

**Table 23.** Grand composite ranking (overall performance).

Bank	C	A	M	E	L	Average	Rank
AIB	3	5.25	2.75	4.00	3	4.03	6
BOA	4	4.50	2.75	2.67	3.5	3.68	3
DAB	5.67	2.75	3.5	4.67	4	4.00	5
NIB	1.67	2.75	4	2.00	2.667	2.88	2
UNB	4	2.00	3.25	4.00	3	2.70	1
WEB	2.67	3.75	4.75	3.67	3.667	3.70	4

Ethiopian Private commercial banks for the period 2010-2014. Hence, UNB, NIB, and BOA held from 1st to 3rd of the rank based on CAMEL model overall performance. As discussed earlier, NIB was on top position with capital adequacy ratio parameter, while DAB got lowest rank. Under the asset quality parameter, UNB held the top rank while AIB held the lowest rank. Under management efficiency parameter the top rank has been taken by AIB & BOA and jointly and the lowest rank has been held by WEB. In terms of earning quality parameter, NIB got the top rank and BOA held the second rank & WEB held the third rank. DAB got the last rank. Under the liquidity parameter NIB stood first and DAB held the lowest.

## Conclusion

CAMEL rating model plays a crucial role in the supervisory process and in identifying Problematic Banks. The finding of the CAMEL model rating reveals that the banks under the study had different ranking on the CAMEL model. This is because mainly due to bank specific related factors and different business experience in the Banking industry. The study tried to investigate the effects of internal determinants of profitability on senior Ethiopian private commercial banks over the period 2010-2014 and thereby ranked the overall performance of each bank based on CAMEL model.

The study used secondary panel data obtained from different sources such as National Bank of Ethiopia (NBE), the websites & financial statements of the respective senior domestic commercial banks. The level of understanding about CAMEL model in the targeted private Ethiopian commercial banks is very limited and the supervisory organ is not also practicing the model in its fullest (well-articulated) form as per the fact gathered during the study. Hence, neither the management members at the respective banks nor the practice in the supervisory organ are properly internalizing the benefits anticipated from the CAMEL model owing to lack of comprehensive knowledge about CAMEL rating and/or absence of clear and objective performance measurement practice.

The findings revealed that capital adequacy, asset quality, management efficiency, earning quality are the major significant determinants of the profitability of the senior private commercial banks. The results also confirmed that improvement in capital strength, asset quality, management efficiency, and earning quality leads to higher profits.

Moreover, despite the loose ends to subjective interpretation and the possibility of criticism of any type of ranking of commercial banks; the method of analysis (multi-dimensional ranking method using CAMEL model) still provides simplistic and user friendly version of complex data. Hence, evaluation of financial performance of the banking sector is an effective measure and indicator to check the soundness of economic activities of an economy. As a result, the overall financial performance of the respective banks using CAMEL model over the study period shows UNB, NIB, and BOA from first to third ranks respectively.

## Recommendation

Based on the findings of the study the following recommendations were forwarded.

### To researchers

The study revealed that, asset quality ratio, Management efficiency, Earning ability and liquidity are the key driver of return on asset of commercial banks in Ethiopia similarly the study also identified capital strength, management efficiency, earning ability and Liquidity as the key drivers of return on equity of Ethiopian Commercial banks. Therefore, Bank managers are advised to give due attention to those variables to improve profitability.

The current study uses only some representative financial ratios from factors of the CAMEL model, the financial ratios included in the research may not exhaustive and enough to evaluate the bank's Capital adequacy,

asset quality, earning ability and liquidity. Therefore future researcher is recommended to consider additional financial ratios.

The CAMEL model is useful rating tools for banking sectors, however, the tool can be equally be applicable to other related financial institution Like Micro Finance Institution and Insurance Companies. Thus, future research is recommended to use the CAMEL model for such kind of institution. Furthermore bank performance is now a day's seen from the perspective of economic value added (EVA) in addition to the usual ROA and ROE measures.

### To the financial institutions

The Ethiopian banking system need to give due emphasis to efficiency objectives so as to stay competitive and more resilient to economic shocks

Banks are advised to equip their staffs with comprehensive knowledge about essence of CAMEL and CAMEL rating. Moreover, strong bond between banks and bank supervisors should be in place all the time.

Ethiopian commercial banks in general and private commercial banks in particular need to develop their credit risk management capacity in order to avoid poor performance of assets that mainly emanate from loans and advances so as to boost their profitability

The Ethiopian commercial banks in general and Ethiopian private commercial banks in particular need to venture into on-traditional areas and generating income through diversified activities other than the core banking activities in order to enhance profitability and sustain growth.

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