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Department of Accounting and Finance

**Determinants of Profitability in Private
Commercial Banks of Ethiopia**

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Declaration

I, Adugna Jibriel Worku, hereby declare that the thesis work entitled “*Determinants of Profitability in Private Commercial Banks of Ethiopia*” submitted by me for the award of the degree of Master of Science in Accounting and Finance of Addis Ababa University at Addis Ababa Ethiopia, is original work and it hasn’t been presented for the award of any other Degree, Diploma, Fellowship or other similar titles of any other university or institution.

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List of Acronyms

AAU	Addis Ababa University
AB	Abay bank
ADIB	Addis International Bank
AGDPGR	Annual Gross Domestic Product Growth Rate
AIB	Awash International Bank
AQ	Asset Quality
BEE	Bank Branch efficiency in terms of Expense
BEI	Bank Branch efficiency in terms of Income
BL	Bank Branch Location
BOA	Bank of Abyssinia
BOD	Board of Directors
BS	Bank Size
BUIB	Bunna International Bank
CA	Capital Adequacy
CAD	Current Account Deposit
CAMEL	Capital Adequacy Asset Quality Management Efficiency Earning Ability and Liquidity
CLRM	Classical Linear Regression Model
DB	Dashen Bank
EB	Enat Bank
EU	European Union

FXI	Income from Foreign Exchange Transactions
GDP	Growth Domestic Product
GERD	Grand Ethiopian Renaissance Dam
H0	Null Hypothesis
H1	Alternative Hypothesis
IJEBO	International Journal of Economic Behavior and Organization
IJECM	International Journal of Economics, Commerce and Management
IJRAR	International Journal of Research and Analytical Reviews
IMF	International Monetary Fund
ININ	Income from investment on subsidiaries
IR	Inflation Rate
IT	Information Technology
LQ	Liquidity
ME	Management Efficiency
MS	Market Share
NBE	National bank of Ethiopia
NIB	Nib International Bank
NIM	Net Interest Margin
NPL	Non-Performing Loan
OIB	Oromia International Bank
OLS	Ordinary Least Square

ROA	Return on Asset
ROE	Return on Equity
UB	United Bank
USD	United States Dollar
VIF	Variance Inflation Factor
WB	Wogagen Bank
ZB	Zemen Bank

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Abstract

This study analyzes the determinants of profitability of private commercial banks in Ethiopia using panel data of twelve sample commercial banks out of total population of sixteen private commercial banks operated in Ethiopia over the period 2013/14-2018/19. The study used quantitative research design. Purposive sampling technique is adopted to select sample private commercial banks. Secondary data are collected and organized from audited financial statements of sample private commercial banks. Macroeconomic data for the data set period is collected from National bank of Ethiopia. Bank specific and macroeconomic explanatory variables are considered in the study. The internal factors used in this study include asset quality, capital adequacy, income from foreign exchange transaction, branch efficiency in income and expense containment, branch location, market share and income from investment in subsidiaries. Moreover, annual gross domestic product growth and annual inflation rate are used in the study. Return on asset and return on equity are used to measure profitability. After the data has been collected and organized, STATA 13 is used for data analysis purpose. Descriptive and correlational relations are used to analyze the data. Different diagnostic tests are applied to ensure CLRM assumptions (Normality, Homoscedasticity and Multicollinearity) for the data set. The regression analysis is made after ensuring CLRM assumptions. As the data set is a balanced panel data type, the appropriate model is selected through hausman test. Based on the result of Hausman specification test, Random effect GLS model is found appropriate and is used to analyze the data. The regression result shows that capital adequacy, income from foreign exchange transactions, branch efficiency in expense, market share and annual inflation rate are found significant determinants of profitability at 5% confidence level. Preset hypotheses are evaluated based on the result generated from the regression analysis. Finally it is recommended that management of private commercial bank should exert extra effort to increase income from foreign exchange, control general and administrative costs, secure better market share in loans and advances and finding the equilibrium level of the proportion between own investment and deposit mobilization in order to maximize profitability.

Key words: Profitability, private commercial banks, explanatory variables, dependent variables

CHAPTER ONE

Introduction

1.1 Background of the study

Profitability is the bottom line that firms generate with their resources (Macharia, 2016). It is one of key dimension of performance of business organization to reward shareholders, employees and make additional investment. Profitability preserves capital and provide basis for survival and future growth (Alexiou and Sofoklis, 2009).

The main objective of any business organization is to generate profit, make sustainable growth, sustain in going concern and compensate investors. To be successful and remain in business, both profitability and growth are important and are necessary for a company to survive and remain attractive to investors and other stakeholders. Profitability is, of course, critical for the existence of any business organization. Profitability, for any business organization, is the primary goal, and particularly with a company that does not initially get confidence of investors or financiers. In such cases, continuity of profitability builds confidences on financiers and other stakeholders. It is a source of financial resource for reinvestment and to reward stakeholders mainly shareholders, investors and employees (Maverick, 2019). Unless profitability of business organization is ensured, it is exposed for eroding capital, lack of confidence by stakeholders and discourages reinvestment.

Commercial banks are not exception to business organization and the objectives of business organization are also the objectives of commercial banks. Apart from those objectives of business organization, the role of commercial banks is extended in stimulating the economy. Banking industry is the main component of financial systems (San and Heng, 2013). Commercial banks play the intermediary role in the economy through transferring funds from savers to fund seekers (Alper and Anbar, 2011). In its intermediary role, commercial banks play significant role in the economy (Kunt and Huizinga, 2009; Fisseha, 2015). Generally soundness and steadiness of the banking system is associated with profitability which strengthens the pillar of the economy (Ali, et al., 2011). To ensure sustainable operation, business organization has to be profitable

after covering operational costs; otherwise insolvency results systemic economic crises (Alper and Anbar, 2011; Ongore and Kusa, 2013).

In addition, there are more stakeholders in commercial banks than other business organizations. To play their significant role in the economy and build confidence on stakeholders, commercial banks have to be in sustainable operation. To ensure sustainable operation, commercial banks have to be profitable. In order to maximize profitability, the key factors that determine profitability have to be analyzed so that management will work on those key determinants to ensure profitability, sustainability of banks and discharge their role in the national economy.

Several studies have been made in analyzing determinants of profitability of banks in the context of developed, developing and emerging countries. Besides, these studies considered external and internal factors independently and jointly as determinant of profitability and used different techniques to measure the dependent and independent variables. Review of existing studies shows three key points.

The first one is the exclusion of such internal factors as ratio of current account deposits to total deposits, income from investments in subsidiaries, income from foreign exchange and branch efficiency.

The second issue is related to how market share is measured and used in previous studies. Previous studies have measured bank size differently. Total asset is used to measure bank size (Alper and Anbar, 2011; Kosmidou, 2008; Sofoklis, 2009; Teshome, 2018). Samad (2015) on the other hand used total deposit as measurement of bank size in his study. Kutsienyo (2011) measured market share as 3 or 5 concentration levels. Staikouras (n.d.) defined market share as the ratio of total banking asset to size of national markets. Market share is the percentage of a market that a particular entity has acquired from the total market of the sector. It is an indicator whether there exists economies of scale, market power or quality of management (Buzzell, et al., 1975).

The third point is that previous studies have used long range data (Ayano 2016, Yirdaw 2018, Dinku 2018, Getachew 2018, and Birhanu 2018). As a result, they excluded recently joined commercial banks in the sample. Exclusion of newly joined banks in the sample ultimately hinders prediction. However, inclusions of both younger and older banks make the study more complete and representative of the industry.

The purpose of this study, thus, is to determine the effect of bank branch efficiency, market share, income from investment on subsidiaries and income from foreign exchange together with capital adequacy, asset quality, annual GDP growth rate and inflation rate on profitability of both younger and older commercial banks.

1.2 Overview of Banking History in Ethiopia

The history of commercial banks in Ethiopia is dated back to the time of Emperor Minilik II where a bank called Abyssinia was established in 1906 in cooperation with The British Owned National bank of Egypt with a capital of 500,000.00 Pound Sterling. In this bank, half of the share was held by Ethiopian government and the remaining was held by the British. One of the interesting advantageous for the British (but a disadvantage for Ethiopia in this deal) is the part of the deal which gave monopolistic nature of the British government. Based on this deal, Emperor Minilik II gave the promise to the British that Ethiopia will not allow opening of other banks in Ethiopia for 50 years period. Later in 1931, this bank was replaced by Bank of Ethiopia by official decree of Emperor Hailselassie I where it took over the duties and responsibilities of bank of Abyssinia (Alemayehu and Teklemedhin, 2009).

In 1935 subsequent to the invasion of Ethiopia by Italy, different banks have been established by Italians. Apart from Italian banks, surprisingly, an internationally recognized bank called Barclays bank was also established in Ethiopia in 1941.

It was in 1963 that the Ethiopian Banking and Monetary policy law was enacted that sets division on functions of Commercial banks and National banks. The history of private banks in Ethiopia indicates that the first privately owned commercial bank, Addis Ababa bank Share Company, was established in 1964. Thus, until the end of 1974 (the downfall of King Hailselassie I and replacement by the military administration), there were state owned, foreign owned and Ethiopian owned banks in the country (Alemayehu and Teklemedhin, 2009).

After the downfall of Haileselassie I and replacement of the king by the military administration called the “Dergue”, policies and laws are replaced with new command based economy oriented laws. The new administration has enacted different new laws and claimed that its ideology to lead the country will be socialism in 1974/75. As a result those different commercial banks in the country were nationalized and became under the control of the government and lately merged to

one bank called Commercial Bank. Even if the government tried to reconsider the private sector through mixed economy in early 1988, the financial sector still was not allowed whether it can be operated by private business people or not. As a result, the status quo of ownership of financial institutions was not changed up until the down fall of the Dergue

After the down fall of the military administration and replacement of the same by the transition government, there was no immediate and significant move on ownership of financial institutions by the private sector. A proclamation number 84/1994 entitled The Licensing and Supervision of Banking Business Proclamation was enacted that allows the operation of banking sector by private ownership. Based on this proclamation, different private commercial banks were established by different business people. Later, Proclamation number 592/2008 entitled Licensing and Supervision of banking proclamation was enacted and replaced the formerly issued proclamation as indicated on its article 60 (1). Like that of the previous proclamation, this proclamation has also allowed the establishment and operation of private financial institutions mainly commercial banks, Insurance and small and micro finance institutions. This proclamation restricts ownership of share of private commercial banks to only Ethiopian citizens. In addition, the 1960 Commercial Code of Ethiopia is the governing law for operating financial institutions in Ethiopia (Fentaw and Gurmu, 2009). Article 59 (2) of proclamation number 592/2008 delegate the power to issue directives for the supervision and control the operation of commercial banks (both private and government owned) to the central bank called the National bank of Ethiopia. Based on such delegated power, the central bank issues different directives in order to monitor and supervise the activities of financial institutions in general and commercial banks in particular that are operating in the country.

Based on such laws and regulation, different private commercial banks have been established and enter in to operation for the last couple of decades. Currently there are 16 private commercial banks operating in Ethiopia with different years of establishment, level of expansion and experiences (2017 annual report of NBE).

1.3 Areas of Focus

The main goal of any business organization is to perform well and provide attractive return for investors. In order to be sure whether a business organization is performing well or not, there must be a yardstick that measures its performance. One of the measurements of financial

performance is profitability. This measurement indicator also helps to compare one business organization with another in terms of performance which in turn may help investors to guide where to give priority to invest in a limited resource environment.

Like any other business organizations, the commercial banking sector also requires measurement indicators that help investors to evaluate the current status of commercial banks on their financial performance for decision making. Currently there are two types of ownership of the commercial banking sector in Ethiopia (NBE annual report, 2018). The first ownership which lasted for long period of time is a public ownership where the government owns and manages such type of commercial banks. The other ownership type is a private ownership where individuals contribute their resource and establish commercial bank. Private commercial banks are structured under share company business ownership where different people are members of shareholders in these private commercial banks (Commercial code of Ethiopia, 1962).

The total profit after tax registered by private commercial banks for the year ending June 30, 2014 amounts to Birr 3.53 billion. Just after six years, the total net income after tax registered by these banks amounts to Birr 10.828 billion. This is an indicator for the fact that profit after tax of private commercial banks is increasing from year to year significantly. Looking into individual private commercial banks, even if the magnitude of profitability varies from bank to bank, all private commercial banks registered profit for the last 6 years. The maximum amount of net profit after tax that is registered by one of private commercial banks amounts to 2.456 billion Birr and the minimum amount of profit earned by the least performing bank is 167.21 million of Birr. In addition there are private commercial banks that earned 6 fold profits after tax in year ending June 30, 2019 when compared with profit after tax of the year ending June 30, 2014. The sector is attracting investors and currently there are more than 10 private commercial banks under establishment.

Even though there is no capital market to transact shares, people are exchanging shares of private commercial banks for different reasons through individual negotiation. One of the advantages of capital market is to provide information of price of share to the public. But the nonexistent of capital market in the country forced share transaction and their prices unknown for the public. In recent tenders conducted for the sale of shares that are owned by foreign nationals, prices of a share varies from 1.5 to 2 folds of its face values of shares. This higher

premium over the face value of the share mainly depends up on profitability of the particular commercial bank. On the contrary, there are still private commercial banks that are staggering to sales shares and increase their capital. Addis International Bank and Debu Global Banks can be used as an example for the latter scenario (current ads posted on each banks). Taking previous experiences, price of shares in the absence of capital market is informally made on individual negotiation which is mainly dependent up on the level of profitability that the corresponding bank is generating.

Indicating the emphasis on importance of profitability above, the main focus of this literature review is mainly on previous studies that were made on determinants of profitability of commercial banks. It is focused on quantitative research conducted in different countries around the globe. The literature review defines profitability and its determinants. Subsequently, measurements are indicated for each variable. The review also indicates the relationship that exists between the dependent with its explanatory variable. After forwarding discussion points on each variable, the hypothesis of this study that is tested through quantitative data of commercial banks are presented.

1.4 Research problem

The survival and expansion of any business organization in general and the commercial banking sector in particular is dependent up on the level of financial performance that they are registering. Profitability is the objective of establishing business and commercial banks are not exception to the principle (Ndlovu, 2015).

Commercial banks play their intermediary role in deposit mobilization from those that are with surplus money and providing loans and advances for those that are seeking resources. The loan extended for business organizations has an impact on the economy of the nation (Alper and Anbar, 2011). In order to play their roles, commercial banks have to operate sustainably by covering cost of operation and generate profit for shareholders and attract additional investment. To ensure profitability, bank executives have to focus on identifying and managing determinants of profitability.

In as far as profitability is a financial performance indicator and key to sustain in operation, those factors that affect profitability have to be identified and critically investigated. Once the

determinants are identified, management of commercial banks will focus on key determinants for assuring sustainable operation, profitability and build confidence on the public and its stakeholders.

Previous researches (Ayele 2012, Ayano 2016, Gebrewold 2016, Abate and Mesfin 2019, Birhanu 2018, Dinku 2018) have not considered branch efficiency, income from investment in subsidiaries, income from foreign exchange and current account deposits as determinants of profitability in commercial banks. Financial statements of commercial banks show deposit in lump sum as a single figure. Current account deposit is not separately presented in the balance sheet of Commercial banks. As a result, current account deposit is not considered in this study due to absence of data in sample banks.

Previous CAMEL and other studies used capital adequacy and asset quality commonly (Teshome, 2018; Ayano, 2016; Zergaw, 2018) and other studies used GDP growth and inflation rate frequently (Haile, 2019; Ayele, 2012). Considering frequent usage of these variables, this study used these variables together with those variables that are not used in previous studies.

This research analyzed the effect of bank branch efficiency related variables, market share, income from investment and foreign exchange as determinants of profitability together with other internal and external variables that were commonly used in previous studies on profitability of commercial banks. In addition, this study also includes newly established private commercial banks in the sector to the sample in order to make the study more representative of the population of the study.

1.5 Research Objective

The objective of this study is categorized in to general and specific objectives as provided below.

1.5.1 General Objective

The general objective of this study is to examine determinants of profitability of private commercial banks in Ethiopia.

1.5.2 Specific Objectives

The specific objectives are to:-

- ❖ Analyze the effect of asset quality on profitability of private commercial banks in Ethiopia
- ❖ Examine the effect of capital adequacy on profitability of private commercial banks in Ethiopia
- ❖ Study the effect of branch efficiency on profitability of private commercial banks in Ethiopia
- ❖ Scrutinize the effect of income from investment in subsidiaries on profitability of private commercial banks in Ethiopia
- ❖ Evaluate the effect of foreign exchange income on profitability of private commercial banks in Ethiopia
- ❖ Explore the effect of market share on profitability of private commercial banks in Ethiopia
- ❖ Analyze the effect of GDP growth on profitability of private commercial banks in Ethiopia
- ❖ Investigate the effect of inflation rate on profitability in the private commercial banks of Ethiopia

1.6 Research Hypothesis

Hypothesis is formulated for the effect of each independent variable on profitability of private commercial banks in Ethiopia as provided below.

Hypothesis 1: Asset quality has negative and significant effect on profitability of private commercial banks of Ethiopia

Hypothesis 2: Capital adequacy has positive and significant effect on profitability of private commercial banks of Ethiopia

Hypothesis 3: Branch efficiency on income has positive and significant effect on profitability of private commercial banks of Ethiopia

Hypothesis 4: Branch efficiency on general and administrative expense has positive and significant effect on profitability of private commercial banks of Ethiopia

Hypothesis 5: Market share has positive and significant effect on profitability of private commercial banks of Ethiopia

Hypothesis 6: Income from investment in subsidiaries has positive and significant effect on profitability of private commercial banks of Ethiopia

Hypothesis 7: Income from foreign exchange has positive and significant effect on profitability of private commercial banks of Ethiopia

Hypothesis 8: Branch location has positive and significant effect on profitability of private commercial banks of Ethiopia

Hypothesis 9: GDP growth rate positive and significant effect on profitability of private commercial banks of Ethiopia

Hypothesis 10: Inflation rate has positive and significant effect on profitability of private commercial banks of Ethiopia

1.7 Significance of the study

Commercial banks are important source of financing business organizations. As a result, the significance of the study of analyzing determinants of profitability is not limited to particular interested groups. The extent of importance may be different from stakeholder to stakeholder.

The study is mainly significant for executives in private commercial banks to focus on major determinants of profitability and maximizing returns to its shareholders. The study is also significant for regulatory bank to ensure whether private commercial banks are adhering to directives or not. It is also significant for the regulatory bank in knowing the financial performances of commercial banks to protect and safeguard the interest of depositors. The study is also significant for future investors in the industry in gauging the performances of private commercial banks and investment decision making. The last but not the least significance of this study is to serve as reference in future studies of the subject.

1.8 Scope of the study

The currently operating private commercial banks are established in 1994 and onwards. Private commercial banks in Ethiopia have different years of experiences. In particular, there are four

commercial banks which account to 25% of the total private commercial banks that are established after 2010. Previous studies consider a dataset of more than 10 years and as a result these newly chartered banks were not part of the sample in previous studies (Shuremo, 2016; Yigermal, 2017; Berhanue, 2018; Haile, 2019). In order to include these newly established commercial banks, this study is intended to limit the dataset for six years. As indicated in the general objective of this study, the scope of this study is limited to analyze determinants of profitability of private commercial banks in Ethiopia for the period ending July 01, 2012/13 to June 30, 2018/19 using quantitative data extracted from audited financial statements of sampled banks.

This study used both bank specific and external independent variables and examines the relationship and the corresponding significance of independent variables with profitability. Profitability is measured through return on total asset, return on total equity and net interest margin (Alper and Anbar, 2011; Ali, et al., 2011; Pasiouros and Kosmidou, 2006) of private commercial banks. This study focuses on return on total asset and return on total equity as measurement of profitability.

Apart from determinants that were not considered in previous studies and identified as knowledge gaps, the commonly used independent variables in previous studies are also considered together.

CAMEL variables consider only internal factors that determine profitability in previous studies (Ongore and Kusa, 2013; Teshome, 2018; Getahun, 2015; Baral, 2005). CAMEL considers the effect of capital adequacy, asset quality, management efficiency, earning ability and liquidity on profitability of commercial banks. CAMEL variables are measured by capital to asset ratio, the ratio of doubtful accounts to total loans and advances or ratio of nonperforming loan to total loan, ratio of expense to income, growth rate of profitability and ratio of liquid asset to total deposits respectively.

The scope of this study is to analyze the effect and their statistical significance of branch efficiency, income from investment on subsidiaries, income from foreign exchange, market share, capital adequacy, annual GDP growth and inflation rate on profitability of private commercial banks operating in Ethiopia considering quantitative data.

1.9 Limitation of the study

This study considered quantitative data extracted from audited financial statements of sampled private commercial banks for the period 2012/13 to 2018/19. Moreover, the study used those above listed independent variables to analyze the significance and relationship with profitability of private commercial banks in Ethiopia. Even though more internal factors are identified as knowledge gaps, this study considered branch efficiency, market share, income from subsidiaries and foreign exchange as independent variables together with asset quality and capital adequacy. In addition GDP growth and inflation rate from external variables are also considered in this study.

The first limitation of this study is the exclusion the effect of qualitative data like NBE regulation, human capital and technology (Ayele 2012; Shuremo 2016) on profitability of private commercial banks in Ethiopia. The second limitation is the non-exhaustive use of explanatory variables like liquidity, interest rate and exchange rate (Yirdaw, 2015; Ayele, 2012; Shuremo, 2016). These limitations are expected to be addressed in future studies of the subject.

1.10 Organization of the study

This study is organized in five chapters. The first chapter deals with more of the introductory part that includes background of the study, statement of the problem, objectives of the problem, list of hypothesis, scope of the study and limitation of the study. The second chapter is on literature review. In this part different literatures on the subject that has been studied both locally and internationally are reviewed. Summarized commentary on the literature is included under the title literature gaps. The third chapter is about methodologies that are used for this study; it includes the sampling process and quantitative data analysis method. The next chapter dwells up on data analysis, discussion and interpretation. Chapter five deal with summary, conclusion and recommendation of the study.

CHAPTER TWO

Review of Related Literature

2.1 Introduction

The background of this study together with its purpose was discussed in the previous chapter under the title background of the study. In general, the focus of the previous chapter was to discuss about research problem, research objective, hypothesis of the study, significance of the study and scope of the study. Explanatory variables that are not considered in previous works were identified as limitation of those studies. Selectively, some of those variables that are expected to affect profitability mainly are the areas of focus of this study. Limitation of this study and organization of the paper were also the other points raised in the previous chapter.

As indicated on the organization of the study section in the previous chapter, this chapter deals with literature review. This part of the study focuses on theoretical and empirical literature review, measurement of variables that are applied for determinants of profitability of commercial banks in this study. The relationship between dependent and explanatory variables is also explained in brief.

2.2 Theoretical and Conceptual Literature Review

This section focuses on theoretical foundation of the subject. Theories describe the philosophy and is used to link between established theories and real world application. Even though there are significant number of theories related with the subject, selected number of theories that are related with profitability are considered here below.

2.2.1 The Market Power Theory

Performance of banks is influenced by the market structure of the banking industry (Tregena, 2009). Structure conduct performance is one of the approaches in market power theory which states that banking business provides potential market power for banks that increase their profitability. The other approach of the market power theory is relative market power which states that profitability of banks is influenced by the level of market share that the bank secures. This means large banks can provide different products to customers that others are not able to

provide due to different capacity deficiency. Availing differentiated products gives the chance to be a price maker so that more profit can be earned (Gemechu, 2017)

2.2.2 Efficiency Theory

The principle of this theory is economies of scale. Efficiency theory states that given more efficient banks in utilizing its resources, it will get more profit than those that are using resources in less efficient way. X-efficiency and scale efficiency are the two approaches in efficiency theory. The former is related with lower cost ratio and the latter is related with size of firms (Athanasoglou, et al., 2006). The theory relates profitability of firms with their size. The higher the size the better chance that particular firm generates more profit. It is mainly related with market share of a firm that it exploits from the available basket. Firm that has efficiency in utilizing scarce resources are able to maximize their results. The deployment of all available economies of scale brings operational efficiency which in turn brings profitability. More efficient firms will be more profitable in reducing costs per unit. This theory has direct relation with the banking industry that establishes the relationship between branch efficiency and profitability (Getachew, 2018).

2.2.3 Risk-Return trade off theory, the signaling and Bankruptcy Cost hypothesis

This theory basically indicates the level of capital adequacy in different scenarios. Increasing capital adequacy withstands any shock that a business organization may encounter. The theory states that profitability is influenced with balance sheet structure of banks. Accordingly capital adequacy has got more attention. According to risk return trade off theory, low capital adequacy brings higher expected return through increasing leverage (Ommeren, 2011). On the other hand signaling and bankruptcy cost hypothesis states that increase in capital adequacy has positive effect on profitability (Gemechu, 2017). Increase in capital adequacy is the main concern to shoulder the risks that arise from bankruptcy. Bankruptcy came in to surface when business firms are unable to fulfill their financial commitments. To be free from financial distress that need to be fulfilled, businesses are trying to increase their capital than financing through loans. The theory supports positive relationship between capital adequacy and profitability (Aremu, et al., 2013).

2.2.4 Return on Asset (ROA)

ROA is an indicator on how profitable the company is in relative to total asset. It is used to know how efficiently company's asset is used in generating profit (Hargrave, 2019). ROA is measured as the ratio of net income after tax to total asset (Macharia, 2016). It shows the amount of profit earned per currency of asset and reflects how effectively bank's management utilizes resources in generating profit. It is also used to compare one company performance against another or to its previous performance. It is the most widely used profitability measurement of commercial banks (Vejzagic and Zarafat, 2014). Unlike ROE, ROA takes in to Consideration Company's debt in generating profit and thus ROA is a return to stockholders and lenders on total investment made on the business (Schall and Haley, 1986). Bourke (1988) in his study of determinants of profitability of cluster of countries defined ROA as ratio of income before tax to total asset. This study exceptionally uses profit before tax as numerator in order to avoid the impact of tax rate and related regulations of different countries on profitability of banks as the study is conducted for cluster of countries. The numerator of the ratio considers net income of the firm taken from income statement. Whereas the denominator for the ratio of ROA is a balance sheet account indicating the financial position of the bank at a particular date. With this regard, it measures the efficiency of management of the firm in utilizing assets to generate net income. In terms of percentage, ROA shows the percentage of net income from the total asset of the firm (Sufian and Chong 2008). For comparison purpose, a company that has higher ROA is in better position than with lower ROA. Due to nature and characteristics of businesses, comparing companies based on ROA looks feasible only for those companies that are within the same industry. Particularly it is more sensible if there is industry standard for the level of ROA.

2.2.5 Return on Equity (ROE)

ROE is an indicator of how effectively net company's asset (total equity) is used in generating profit. It is a measure of performance on shareholder's equity in generating profit (Furhamann, 2019). As shareholders' equity is company' asset less liabilities, ROE can be taken as a return on net assets. ROE is measured as ratio of net income after tax to total equity (Abugamea, 2018). One of the objectives of management of a firm is to maximize a return for shareholders. To ensure whether management has fulfilled this objective or not, ROE is used to quantify return for shareholders (Schall and Haley, 1986). ROE is used as measurement of efficiency of management in utilizing investors' money for generating profit. In addition, ROE is one of the

best measurements that indicate the level of profit that will go to investors of the firm (Schall and Haley, 1986). It is obvious that investors decide to invest on a particular firm based on some characteristics that attract them to do so. One of the criteria that investors used to allocate their money to different firms is the expected return from the investment. Like that of ROA, ROE is also used to measure the status of the firm in terms of return to its investors against other firms particularly in an industry and generally in the economy. A firm with better ratio means a better firm for its investors and an efficient management of its resources. Thus the higher the ROE, the better the business firm is. Based on this, ROE is used as a point of selection for future investors out of available investment options. ROE is measured as net income after tax divided by equity of the firm. What differentiates ROA from ROE is that the former measures the effective utilization of both investors and lenders resources and the latter measures effective utilization of investors' resource only. Hence ROE is more interesting for investors and determines the amount of dividend that will be pocketed in the purse of shareholders (Ongore and Kusa, 2013).

Staikouras and Wood (2003) and Pasiouras and Kosmidou (2007) considered solely ROA as measure of profitability of banks in cluster of countries. The interest of shareholders in terms of return is mainly explained by ROE than ROA where the former provides rate of return on their investment.

2.2.6 Net Interest Margin (NIM)

The major activity of commercial banks is to intermediate fund seekers and fund suppliers. During such process, commercial banks pay interest for fund suppliers (commonly known as depositors) and charge fund seekers in the form of interest for the loan and services that is extended to fund seekers. NIM is the spread between the interest that a commercial bank earns from loan and advance and the interest it pays to its depositors (Chen, 2019; Ongore and Kusa, 2013). It is calculated as ratio of interest spread to total loans and advances extended to borrowers (Gul, et al., 2011). Sometimes commercial banks extend loans to risky businesses through charging high interest rate in order to compensate the risky nature of the loan and advance or business. In such circumstances, NIM may show a higher figure but this doesn't mean that the bank is performing better than those with lower NIM. Because of the risky nature of the borrower, the bank may be exposed to loan losses. Hence, comparison of commercial banks based on NIM has to be investigated in a critical way like considering the loan and

advance concentration level, i.e. to what sectors (level of risk of borrowers) the loan and advance is extended (Ayano, 2016).

Different researches used NIM differently. Some used NIM as dependent variable and is explained by other independent variables (Tan and Floros, 2012; Kunt and Hizinga, n.d.; Ongore and Kusa, 2013; Abugamea, 2018); whereas Alper and Anbar (2011) used NIM as independent variable to explain profitability.

Whenever NIM is used differently as measure of profitability or explanatory variables, interpretation and the relationship with independent and dependent variables respectively has to be critically interpreted.

Out of these competing measures of profitability, more than 50% of the literature that are going to be reviewed used both ROA and ROE as measure of profitability. Considering these significant considerations and the interest of shareholders in terms of return, this study used both ROA and ROE as measurement of profitability of private commercial banks.

2.2.7 Capital Adequacy (CA)

Capital adequacy is an indicator whether a business organization has sufficient level of capital against its debt or not (Hayes, 2019). It is one of bank specific factors that determine profitability of commercial banks (Ali, et al., 2011; Ongore and Kusa, 2013; Macharia, 2016; Abugamea, 2018; Kutsienyo, 2011; Ayano, 2016; Teshome, 2018; Dinku, 2018). Capital adequacy ensures the capacity of banks to meet withdrawal demands in case of short of deposits. There are different measurements for CA. Zergaw (2018) presents alternative measurements like the ratio of total debt to total equity. Even though different measurements are used for CA, majority of previous studies used ratio of total equity to total asset as measurement of CA. Similarly, in this study, it is measured as ratio of equity to total asset of commercial banks (Alper and Anbar, 2011). Capital is the net worth of business that is calculated as the difference between total asset and total liability. It is the portion of total asset that is owned by shareholders. It is used as a safeguard in case of shocks of the business organization. In this case it is used as a financial muscle to resist any shock arising due to different crises. As it is the proportion of total asset owned by the shareholders, it is an indicator of the banks strength in case where the level of deposit is below expectation and withdrawals are more than expected. It is particularly used for

lending, running business expenses including settlement of payroll particularly at the early time of establishment when there are no sufficient deposits.

2.2.8 Asset Quality (AQ)

Asset quality is the evaluation and assessment of credit risk associated with loans and advances provided to customers. It is an indicator on the level of risk of collectability of loans and advances (Kenton 2019). It is the other bank specific variable that determines profitability of commercial banks (Ongore and Kusa, 2013; Kutsienyo, 2011; Sufian, 2013; Sufian and Chong, 2008; Dietrich and Wanzenried, 2009; Ayele, 2012; Dinku, 2018; Teshome, 2018; Ayano, 2016). Even though the term asset has different components, loans and advances is the main asset and source of interest income for commercial banks and as a result it is the main butter and bread of commercial banks to sustain in the business (Ongore and Kusa, 2013). Asset quality is measured as ratio of allowance for loans and advances to total loans and advances (Ayano, 2016).

Among asset components, advance and loan receivable are the major assets of the bank with associated risk of collectability. Due to defaults of borrowers on different reasons and the risky nature of loans and advances, it may force banks to encounter delinquent loans. Understanding the level of risk associated with such asset leads to know the extent of delinquent loans. In order to ensure asset quality to a certain extent, the supervising authority (NBE) in Ethiopian commercial banks has set a maximum of 5% of nonperforming loan rate. The best proxy measure of asset quality is thus the level of nonperforming loan out of total loans and advances. Because of the secrecy nature of level of nonperforming loan by each bank, allowance for doubtful loans and advances is an alternative measure of asset quality as a numerator. Management efficiency of banks on quality of loan and advances is measured through the level of allowance for loans and advances against total amount of loans and advances. Better management efficiency on loans and advances is prevailed by having a minimum level of nonperforming loan rate or through achieving less amount of reserve for loans and advances. The lower the rate of nonperforming loan is inversely related with profitability of banks. This inverse relationship of asset quality and profitability is supported by different researches (Ongore and Kusa, 2013; Ayano, 2016; Teshome, 2018).

2.2.9 Income from Foreign Exchange (FXI)

Income from foreign exchange is the type of income generated from transactions of foreign exchange. The source of the income is trading of one currency with another (Chen, 2019). Trading foreign exchange includes import and export transactions in addition to buying and selling of foreign exchanges. Import transactions are made through opening letter of credit with commercial banks. Private commercial banks are generating 6% commission income whenever letter of credits are opened. In addition, the income is realized at the time when the letter of credit is opened than settlement of letter of credits. Income from foreign exchange is calculated as ratio of income from foreign exchange transactions to total income of commercial banks.

Review of literature shows that the main source of income for commercial banks is interest earned from loans and advances. In addition, there are diversified sources of other income that contribute to the bottom line and such source of income apart from income from interest is summarized as noninterest income in the financial statements of commercial banks. Noninterest income is considered as one of the independent and bank specific variable that determines profitability (Alper and Anbar, 2011; Kunt and Hizinga, n.d.; Sufian, 2013; Vong and Chan, n.d.; Dietrich and Wanzenried, 2009; Ayano, 2016; Teshome, 2018; Dinku 2018; Gebrewold 2016).

Noninterest income as lump sum figure is used as determinant of profitability wherever the source of the income is. The summation of different income line items is considered as single variable where it is possible to segregate noninterest income in to different major section in order to investigate the significance of each components of noninterest income on profitability of commercial banks. Noninterest income includes but not limited to income from commission and fee, income from subsidiary investment, income from foreign exchange transactions and etc. Observing annual reports of BOD together with financial statements of commercial banks, it looks that income generated from foreign exchange transactions particularly from letter of credit and gains from maintaining good level of foreign exchange are significant. Given the *ceteris paribus* effect of other explanatory variables, years of operation of commercial banks that conducted more foreign exchange transactions show better performance than lower transactions of foreign exchange. The proportion of income from foreign exchange against total income of the bank is not considered as independent variable by earlier studies and thus it is difficult for me to substantiate its impact on profitability through literature review. Out of the components of

noninterest income, the ratio of income from foreign exchange transactions to total income of the bank is considered as independent variable to analyze its significance on profitability in this study.

2.2.10 Branch Efficiency- Expense/ Income (BEE/BEI)

Efficiency is the ability to get output with minimum input. It is the ability in doing things without waste or with minimum cost. Given the same level of output, the one that used lesser level of input to get that output is efficient than the one that used more level of input. On the other hand, given the level of input, the one that generates more output is efficient than generating less output. Branch efficiency can be seen from two perspectives; expense control and income generating. Branch efficiency in terms of expense control is related with controlling the level of administrative expense to run bank branches. It indicates the level of administrative expense per bank branch. Branch efficiency in terms of income generation is an indicator to get more income per bank branch. The relationship between branch efficiency and profitability is positive given that branch efficiency in expense is measured as ratio of number of branches to total administrative expense and branch efficiency in income is measured as ratio of total income to number of branches.

Apart from paid up capital that shareholders are contributed, deposits are the main sources of banks' advances and loan after complying the minimum level of liquidity and reserve requirements set by the regulatory bank. With this regard, banks are striving to mobilize deposits through different channels. One of the major channel that is used to mobilize deposits is opening branches at different locations in the country and be reachable to depositors at a nearby. These days, banks are at cut throat competition in order to expand their branches and be the nearest bank to the depositors. The number of private commercial bank branches opened during 2018/19 is 490 and reached to 3646 branches from 3156 branches of year 2017/18 which shows an increase of 15.50% (National bank of Ethiopia Quarterly Bulletin Second Quarter 2018/19). On the other hand, looking in to financial statements of commercial banks, the major expenses of banks are salaries and benefits for employees and rent expenses for branches and offices. Before newly opened branches are streamed in to operation, the required levels of facilities and manpower have to be arranged and facilitated. Considering bank branch related administrative expenses against the level of income that branches are generating, the contribution of branches

towards profitability of the bank has to be measured in terms of income contribution. Moreover, overhead cost efficiency management on bank branches has to be measured in terms of the level of overhead expense incurred to run these branches (through administrative expense per branch). To the best knowledge of this researcher, these independent variables were not considered in earlier studies of determinants of profitability of commercial banks. Hence these two independent variables that are related to branch efficiency on income and containment of general and administrative expense with respect to branch operations are taken in to account in this study to identify their relationship and their level of significance with profitability of privately owned commercial banks in Ethiopia.

2.2.11 Branch Location (BL)

Branch location is the place where bank branches are situated. Banks expand branches where there is potential for additional business. Banks classify branches in to two major groups based on the location they are presented. The first group is those branches that are operating in the capital. These branches are called city branches. Those branches that are operating outside the capital are called outlying branches or region branches (annual report of NBE 2017/18). It is estimated that 70% of the economic transaction is revolved around the city of the country (Fitch 2019). Branch location is measured as ratio of city branches to total bank branches or the number of outlying branches to total number of branches alternatively. This research answers whether expanding branches in the city is advantageous than expanding outlying branches to get more income which impacts profitability. This study considered the proportion of city bank branches against total branches in the contribution of profitability of commercial banks in Ethiopia.

2.2.12 Market share (MS)

Market share represents the proportion of the market that a particular industry member is getting from the industry it operates over a specified time period (Hayes, 2019). It is calculated as the ratio of a particular business that has secured in different line of products in quantity or volume against the total quantity or volume secured in the industry. Market share is used to identify the size of the company in relation to the business that it acquires and in comparison to its competitors (Hayes, 2019). It indicates the relative competitiveness of the banks' products and services. Investors are more interested in monitoring the increase or decrease of market share of business to know the level of the competitiveness of the business organization. A bank that has

better market share than the previous year (considering the growth of the market in the industry) is an indicator that the particular bank is growing better than its competitors that have recorded lower market share. Market share is measured as ratio of loans and advances of a particular bank to total loans and advances of all private commercial banks. The relationship between market share and profitability is expected to be positive (Buzzell, et al.,1975).

In previous studies, a 3 or 5 concentration level is considered as market share by individual commercial banks (Kutsienyo, 2011). Staikouras (2011) particularly defined market share as the ratio of total banking asset to size of national markets. If we consider market share on deposit mobilization, market share on deposit mobilization of a particular bank is calculated as the proportion of the deposit mobilized by a particular bank against the total deposit mobilized by all banks; the same scenario is applied for market share on loan and advances, capital and any other line item (Alexiou and Sofoklis, 2009). Even if market share was not considered as independent variable in the study, such concept of market share is narrated and used in the study of Alexiou and Sofoklis (2009). The other measurement variations found in previous studies is on bank size. Kosmidou (2008); Ramadan (2011); Ayano (2016); Ayele (2012) and Pasiouras and Kosmidou (2006) considered total asset of the bank as measurement of bank size whereas Macharia (2016); Abugamea (2018); Lipunga (2014) and Gul et al. (2011) are among the researchers who used natural logarithms of total asset of banks as measurement of bank size. Samad (2015) on the other hand used total deposit as measurement of bank size. Pasiouras and Kosmidou (2007) concludes that bank size is related with profitability negatively which implies that there is diseconomies of scale and arrived and concluded that banks in the member countries have to be split in to smaller banks in order to get economies of scale in their operation

Previous studies revealed that bank size was considered as independent variable for determinants of profitability and measured differently as total asset or logarithm of total asset. The term size is used to compare one bank from another in different indicators where this is possible through market share data that used total loans and advances made by private commercial banks as a denominator and the level of loans and advances extended by each bank as numerator. Accordingly, the main indicator of bank size, in the opinion of this researcher has to be market share level that banks acquired from the industry (ratio of loans and advances extended by each

bank to total loans and advances of private commercial banks or any other line item that is supposed to measure competitiveness for instance).

2.2.13 Income from Investment on subsidiaries (ININ)

Income from investment on subsidiaries is the type of income that commercial banks are generating from their investment on different sectors that are outside the banking industry. It is measured as ratio of income from investment commonly called dividend income and rent income to total income generated. The relationship between dividend and rent income and profitability is expected to be positive.

The source of income of commercial banks is not limited to interest income earned from borrowers. As observed from sample private commercial banks income statement, there are other sources of income that banks are generating their revenue. Commercial banks have made different investments, apart from NBE bills for GERD, expecting returns from those investments. Commonly, private commercial banks have some investment in affiliated insurance companies and other business organizations. Previous studies considered noninterest income as independent variable in influencing profitability (Alper and Anbar, 2011; Kunt and Hizinga, n.d.). Noninterest income is a lump sum figure having different components that includes income from different sources apart from interest income. This means the noninterest income component includes all income generated by banks except interest income. The lump sum figure of noninterest income is segregated to its component mainly income from investment and income from foreign exchange. The relationships between income from investment made by banks and profitability have not yet studied in previous researches. It is one of the objectives of this study to include proportion of income derived from investments against total income earned as explanatory variable on profitability.

2.2.14 Annual GDP Growth (AGDPGR)

Annual GDP growth rate is a measurement that indicates how the economy of the nation is growing. It compares the gross domestic product of two consecutive years and calculates the growth rate using the difference of two consecutive years' domestic product as a denominator and previous year gross domestic product as a denominator. Annual GDP growth rate is the most important indicator of economic health (Amadeo, 2019). The real annual GDP growth rate is inflation adjusted growth rate. The measurement used in this study for annual GDP growth rate is

the data sourced from National Bank of Ethiopia. The relationship between GDP growth rate and profitability is positive (Vejzagic and Zarafat, 2014). GDP growth is a measure of economic activity of a country.

GDP growth is one of the external independent factors that determines profitability of banks (Vejzagic and Zarafat, 2014; Alexiou and Sofoklis, 2009; Ongore and kusa, 2013; Abugamea, 2018; Sufian, 2013; Kosmidou, et al., 2008; Samad, 2015; Shuremo, 2016; Birhanu, 2018; Getachew, 2018). GDP growth affects profitability of banks in a direct way by increasing demand and supply of bank deposits and services (Alper and Anbar, 2011; Sufian, 2011; Gul, et al., 2011). The decline in GDP growth gives rise to demand fall in credit requirements of business firms and this in turn inversely affects profitability of banks (Ongore and Kusa, 2013). In line with this, the impact of GDP growth on profitability of the bank in this research is expected to be positive. However, disregarding the significance of the result, previous researches showed the existence of inverse relationship between GDP growth and profitability of banks (Getachew, 2018; Abate and Mesfin, 2019; Dinku, 2018; Ramadan, et al., 2011; Sufian, 2013; Abugamea, 2018).

2.2.15 Inflation rate (IR)

Inflation rate is the rate at which prices are increased that resulted the fall in purchasing power of money. Even though there are inflation data for each of goods and services, it is measured quantitatively at the rate at which the average price level of a group of selected goods and services in the economy over the period. It is the rise in price for group of goods and services and as a result a unit of currency buys less than what it can buy in previous periods. Inflation is expressed as percentage that indicates the decrease in purchasing power of money. Decrease in purchasing power of money means the ability of unit currency that can buy fewer goods and services than it can before (Chen, 2019).

Inflation is the other macroeconomic independent variable that has an effect on profitability of banks. Its effect is on demand and supply of financial resources (Gul, et al., 2011). The effect of inflation on profitability is dependent up on the level of increase in income against costs. If the costs are increased at lesser rate than the increase in income, impact of inflation on profitability will be positive but on the other hand if the level of increase in cost is higher than the increase in

income, the impact of inflation on profitability will be negative (Ayele, 2012). The effect of inflation rate on profitability of banks is negatively related (Abate and Mesfin, 2019).

This study analyzed what relationship exists between annual inflation rate and bank profitability of commercial banks.

2.3 Empirical Literature Review

The empirical literature review focuses on works of different researchers that have been conducted earlier. The review includes summary of the researches in terms of samples collected, source of data, the variables (both dependent and independent) used, the method employed to arrive at conclusion and the results they have arrived is presented below. Different gaps have been identified while reviewing the literature. These gaps are indicated separately under the title literature gaps.

2.3.1 Approaches and sources of selected Literature

Empirical literature review for 35 articles and 15 thesis papers is made so that it includes those works done on developed, developing and emerging countries. Selection of literature is made to cover studies that were made in developed, developing and emerging countries of commercial banks. Unless there is a specific requirement to deal with researches that were made before year 2000, the selection of literature for review is made on quantified related previous researches that were published year 2000 onwards. To summarize, review is made on quantitative researches that were published after year 2000 that are related with determinants of profitability of commercial banks. Even though citation is made for limited and recent studies, review is made on number of literatures that is more than what are cited on each variable.

The sources of the literature that is reviewed in this chapter are Google scholars, AAU websites for thesis, National Bank of Ethiopia annual reports, BOD reports of some commercial banks and different academic books as cited in the discussion part of the chapter. Google scholar is the main source for articles that have been published in international journals. AAU website is used as a source for previous works done domestically. The complete bibliography of resources used in this study is presented at the end of paper for easy reference.

Ayano (2016) has examined determinants of commercial banks financial performance in Ethiopia taking in to account capital adequacy, asset quality, earning ability, liquidity management and bank size as internal factors and exchange rate as external factor that determine profitability of commercial banks in Ethiopia. He measured profitability through ROA, ROE and NIM. From the population of 18 commercial banks in the country, seven banks were considered for the samples that have 15 years financial data (from 2000 to 2014 with 105 observations). A purposive sampling technique was used for selection of the sample for the study. The data used was secondary data extracted from audited financial statements of sampled commercial banks available on their corresponding websites; the macroeconomic data were collected from annual report of national bank of Ethiopia. Descriptive statistics and Econometrics software were adopted for data analysis to run multiple linear regression model. The study concluded that capital adequacy, asset quality, earning ability and bank size have significant effect on ROA while loan management and foreign exchange rate have no significant effect on ROA; except bank size, all independent variables have negative relationship with ROE. Capital adequacy, earning ability and bank size have significant impact on NIM but the rest of the independent variables are found to have insignificant effect on NIM.

Yirdaw (2015) has studied the impact of liquidity on performance on Ethiopian private banks. From 16 private commercial banks operating in Ethiopia, 8 samples were selected using simple random technique for the period covering from 2010 to 2014. Secondary quantitative data was employed and gathered from financial statements of corresponding private commercial banks and descriptive statistics, correlations and multilevel linear regression analysis were applied to do data analysis. ROA, ROE and NIM are considered as proxy measurement for profitability and liquidity measured through loan to deposit ratio, loan to asset ratio and liquid asset to liabilities ratio are considered as independent variables that determine profitability of banks. The study concluded that one cannot draw a conclusion on the relationship between liquidity and profitability of private commercial banks in Ethiopia.

Teshome (2018) has studied financial performance analysis of commercial banks in Ethiopia using A CAMEL Approach. ROE and ROA are considered as performance measurement of banks and capital adequacy, asset quality, management efficiency, earning quality, liquidity

(generally called CAMEL) plus bank size and net interest margins are considered as independent variable that determines performance of banks. 11 commercial banks are sampled from 18 commercial banks operating in Ethiopia using Purposive sampling. Secondary data of 6 years, from 2011 to 2016 considered for the study. Descriptive and econometric model were applied for CAMEL ratio data analysis. The study concluded that asset quality, management efficiency, net interest margin, bank size, capital adequacy and liquidity have significant relationship with ROA at different level of significance; capital adequacy, asset quality, management efficiency, liquidity and net interest margin were found significant on determination of ROE but earning quality and bank size are not significant to ROE at different level of significance and direction.

Dinku (2018) has investigated the determinants of financial performance of commercial banks in Ethiopia using CAMEL approach. Out of different proxy measurements of financial performance of banks, ROA is considered as measurement for financial performance. Capital adequacy, asset quality, management efficiency, earning ability, liquidity, GDP growth and annual inflation growth rate are considered as independent variable. Quantitative secondary data extracted from audited financial statements of sampled banks is used for data analysis. Based on different selection criterion, the researcher applied judgmental sampling. Seven banks that fulfilled the criterion were selected from the population. Both descriptive and econometric model analysis are conducted on data collected from the sampled banks. The conclusion that the researcher has arrived at are there is a significant and positive relationship between inflation, capital adequacy and earning ability with ROA; significant and negative relationship between asset quality and management quality with ROA; no significant relationship between GDP growth rate and liquidity with ROA as proxy measurement of commercial banks in Ethiopia.

Getachew (2018) has analyzed determinants of profitability of selected commercial banks in Ethiopia. ROA is considered as proxy measurement for profitability and bank specific and macroeconomic determinants are considered as independent variable. Operating 11 plus years are considered as a base to select sample banks from the population and based on non-probability purposive sampling 7 banks are considered for the study. Secondary data was used and gathered from annual reports and audited financial statements of the sampled banks for the period 2006 to 2016. Descriptive statistics, correlations and multiple linear regression are applied for data

analysis. The research concludes that except capital adequacy and bank size, bank specific variables have significant effect on profitability; inflation has a positive impact on profitability and GDP has a negative relationship on profitability of banks as measured through ROA.

Birhanu (2018) has researched on determinants of profitability of commercial banks in Ethiopia. Even though specific factors are considered in the study, generally bank specific, industry specific and macroeconomic variables were considered as determinants of profitability of commercial banks in Ethiopia. Return on asset was considered as measurement of profitability and is also considered as dependent variables. Because of the interest of the researcher to consider 12 years data, he founded that only 8 banks (96 observations) were considered as a sample from the population of 17 commercial banks operating in Ethiopia. The study used secondary data and gathered from audited financial statements of sampled commercial banks for the period covering 2005-2016. Macroeconomic data for the considered period was gathered from publications of national bank of Ethiopia and Ministry of finance and economic development. Descriptive statistics, correlation and multiple linear regression analysis are used for data analysis. The study concluded that out of bank and industry specific determinants, size and capital adequacy are positively and significantly related with profitability whereas management efficiency is positively and insignificantly related with profitability; liquidity, operational efficiency and funding cost are negatively and significantly related with profitability while labor efficiency is negatively and insignificantly related with profitability; from macroeconomic determinants of profitability, GDP is positively and significantly related with profitability but inflation and foreign exchange rate are positively and insignificantly related with profitability of commercial banks of Ethiopia.

Gebrewold (2016) has studied determinants of profitability of commercial banks in Ethiopia for the period covering 2010-2014. 14 commercial banks were taken for the study that has a financial statement for 5 years. Quantitative secondary data was used from audited financial statements of sampled banks' website and National Bank of Ethiopia. It considered only bank specific variables that determine profitability. ROA is used as measure of profitability and as dependent variable that is affected by those bank specific variables. Descriptive statistics and regression analysis was used to analyze the data. The research concluded that bank size, non-

interest income, deposit to total asset, capital to asset and loan have positive and significant relationship with profitability of commercial banks as measured by ROA but non-interest expense is inversely related with profitability of commercial banks in Ethiopia within the study period.

Abate and Mesfin (2019) have conducted a research on factors affecting profitability of Commercial Banks in Ethiopia and published in IJRAR. Bank specific, industry specific and macroeconomic factors are considered as determinants of profitability and ROA was considered as measurement of profitability. 9 commercial banks were selected as a sample for the study using purposive sampling techniques out of the population. The source of the data is audited financial statements. Descriptive statistics and regression analysis were adopted to conduct data analysis. The study concluded that leverage, capital adequacy and liquidity have direct and significant effect on profitability of banks in Ethiopia; Operating efficiency, GDP, inflation, interest rate, inflation rate and spread have significance and negative effect on profitability of banks in Ethiopia; bank size and number of branches have insignificant effect on profitability of commercial banks in Ethiopia

Yigermal (2017) has studied The Determinants of Private Commercial Banks Profitability on Selected Ethiopian Private Banks and published on IJEBO. ROA and ROE are considered as independent variable and measurement of profitability. Bank specific and macroeconomic variables were considered as independent variable that determines profitability of private commercial banks in Ethiopia. The researcher decided to include 10 years data (2005-2014) for analysis and as a result 8 private commercial banks that fulfill the requirement of the researcher are considered for the study. Descriptive statistics and econometric model were adopted to analyze the data. The study concluded that bank size (with positive magnitude), loan concentration index (positive magnitude), interest rate spread (with negative magnitude) and GDP growth (with positive magnitude) were significantly related with ROE at different level of significance; bank size (positive magnitude), loan to deposit ratio (negative magnitude), interest rate spread (negative magnitude), GDP growth rate (positive magnitude) and inflation (positive magnitude) have significant effect on ROE at different level of significance.

Shuremo (2016) has studied determinants of banks' profitability based on evidence from banking industry in Ethiopia and published the research on IJECM. Different variables in bank specific, industry specific and macroeconomic related are considered as determinants of profitability and ROA and NIM were considered as independent variable and measure of profitability. The study covers a period from 2002 to 2012. 8 commercial banks were selected as sample for the study. A regression analysis was used to identify the relationship between dependent and independent variables. The study mainly concluded that there is a significant positive relationship between capital and profitability; negative and significant relationship exists between credit risk and profitability; efficiency of management regarding expenses relative to income has negative and significant relationship with both ROA and NIM; employee and productivity have positive and significant relationship with ROA and NIM; loans to total asset is positively and significantly related with ROA and NIM; loans to total asset has positive and significant relationship with profitability; liquidity risk is positively and significantly related with ROA; market concentration is negatively and significantly related with ROA but positively and significantly related with NIM; GDP growth is positively related with profitability and interest rate spread is positively related with profitability.

Onuonga (2014) has analyzed Profitability of Kenya's Top Six Commercial Banks: Internal Factor Analysis. As the title of the study indicates, it is focused only on top six commercial banks operating in Kenya. The purpose of the study was to identify profitability of top six commercial banks that are operating in Kenya. The data covers the period from 2008-2016. The source of the data is central bank of Kenya annual supervision reports, Kenya economic survey and world development indicators. Descriptive analysis together with generalized least square model were used to analyze the data for predicting the impact of bank asset, capital, loans, deposits and asset quality on banks profitability. Size expressed by total asset, capital adequacy expressed by ratio of total capital to total asset, ownership as dummy variable, loans expressed by the ratio of total loans to total assets, expense management expressed by total operating expenses to total assets were considered as independent variables that determines profitability of top 6 banks operating in Kenya for the period covered. ROA was used as a measure of profitability in the study. Out of the 44 banks operating in Kenya, 6 were classified as top commercial banks. 50% of the deposits and 55% of the capital of commercial banks in Kenya

were the share of these top 6 commercial banks in 2013. The study concluded that bank size, capital strength, bank operation expense, ownership and ratio of loans to total asset found to be major determinants of profitability with positive or otherwise effect.

Sufian (2011) has researched on profitability of the Korean banking sector considering panel evidence on bank specific and macroeconomic determinants over the period 1992-2003. The data considered was found in the Bankscope database and the macroeconomic variables were retrieved from IMF financial statistics (IFS database). The number of samples varied from 11 to 19 due to consolidation and exit of banks with a total observation of 251. Total asset, ratio of loans loan provision to total loans, ratio of non-interest income to total assets, ratio of total overhead expense to total asset, total deposits and book value of stockholders equity to total asset were considered as bank specific independent variables. A good number of macroeconomic factors, amongst are GDP, annual inflation rate and asset concentration ratio were also considered as independent variable. Regression analysis was applied for collected data and analyzed. The researcher has concluded that lower liquidity levels is inversely related with performance of banks; higher diversification in income has a positive effect on bank performance; the impact of credit risk and costs is negative; the concentration level affects profitability in a positive and significant way. The general conclusion of the study states that bank management and policy makers will be more inclined to find alternatives for obtaining optimal use of capacities and making the best use of resources in order to avoid wastes during production of banking products and services

Sufian and Habibullah (2009) have examined the determinants of bank profitability in developing economy with empirical evidence from Bangladesh. Data for 37 Bangladesh commercial banks for the period 1997 to 2004 was collected for the study. ROAA, ROAE and NIM were considered as dependent variable for the study. Both internal and external variables were considered as an independent variables that determines profitability of banks. The data for bank specific variables were collected from Bankscope database of Bureau Van Dijk's company that compiles the financial statements of the sample commercial banks operating in Malaysia over the period 1997-2004. The macroeconomic variables were retrieved from IMF financial statistics. Due to differences in the number of banks that operated during the period varies from

year to year and thus 129 bank year observations were used. The bank specific independent variables considered in the study includes ratio of loans to total assets, total assets, ratio of loan loss to total loans, ratio of non-interest income to total asset, ratio of non-interest expense over total asset and ratio of stockholders equity to total asset. The external variables considered in the study were gross domestic products and annual inflation rate. A linear regression model was adopted for estimate based on above stated dependent and independent variables. The study concludes that loans intensity, credit risk and cost have positive and significant relationship on bank profitability whereas non-interest income showed negative relationship with profitability. Size has no uniform relationship across various measures considered, i.e. negative impact on ROEA and positive on ROAA and NIM. Inflation is negatively related with profitability but other macroeconomic variables have no significant impact on profitability of commercial banks operating in Malaysia.

Chirwa (2003) has studied the Determinants of commercial banks' profitability in Malawi: a cointegration approach using time series data for the period 1970 to 1994. Data was collected from different issues of the financial and economic review published by reserve bank of Malawi and the annual financial statements of eight financial institutions. The three dependent variables that were considered as measure of profitability are ROA, ROC and ROE. Capital to asset ratio, loan to asset ratio, total asset, ratio of demand deposit to total deposit, total banking industry deposit, concentration ratio and growth of banking industry deposit are independent variables. The researcher used cointegration and error correlation model for data analysis to show whether there is long run relationship between profitability of Malawi commercial banks and market structure and to show how profitability responds to market structure. The study concluded that the analysis showed that there exist long run relationship between market structure and profitability of commercial banks of Malawi; Concentration has positive relationship with profitability of commercial banks in Malawi loan to asset ratio and demand deposit to deposit ratio have showed have positive and significant influence on profitability of commercial banks in Malawi in the short run.

Ramadan et.al. (2011) have studied determinants of bank profitability: Evidence from Jordan to investigate the relationship between profitability of banks and characteristics of internal and

external factors. The sample considered 10 banks in Jordan which accounts 87 % of the total asset in the banking sector over the period from 2001 to 2010. The sample excludes Islamic banks due to their peculiar characteristics. ROA and ROE as dependent variables were used as indicator of profitability of banks. The bank specific variables data gathered from the income statement and balance sheet of those sampled commercial banks published in the Aman Stock exchange (ASE) and the macroeconomic variables data were derived from the central bank of Jordan (CBJ) and the department of statistics of Jordan database. The bank specific independent variables included in the study were capital adequacy, asset composition, credit risk, cost management and bank size. The study considered industry specific determinants like market concentration and banking sector size as independent variables. The macroeconomic determinants considered in the study are inflation and economic growth. Panel data linear regression model was adopted for the study as profit is a function of bank specific, industry specific and macroeconomic factors. The study concluded that a bank with high capital ratio earn more profit; lending has positive relationship with profitability; credit risk is inversely related with profitability; cost management is positively related with profitability; bank size is found to have negative relation with profitability.

Chinoda (2014) has researched to identify the determinants of commercial banks profitability in Zimbabwe. 5 commercial banks out of 18 commercial banks that are operating in Zimbabwe were sampled based on random selection technique for the study. The time span that is covered by the study is for the period 2009-2012. The data source is financial annual reports of listed companies. Quantitative research design was applied to analyze the relationship between determinants and profitability of banks using regression analysis. ROA and ROE were used as independent variable as measure of profitability. Size, Liquidity, expense management, inflation and GDP were considered as independent variable for the model adopted. Both descriptive regression analyses were used for concluding the result of the study. The research concluded that liquidity, size, inflation, GDP growth rate have positive relationship with profitability with varying coefficients; expense management is inversely related with profitability as measured through ROA. However, liquidity and expense management are negatively related with profitability as measured by ROE. Size and inflation have strong positive relationship with profitability.

2.4 Literature Gaps

Most of the studies conducted on determinants of profitability on Ethiopian commercial banks tried to accommodate a long range of data (Ayano 2016, Yirdaw 2018, Dinku 2018, Getachew 2018, and Birhanu 2018). These researches took samples that satisfied such long period data for analysis by respective researchers. Because they tried to include long period of data, they excluded those commercial banks that joined the industry as they do not fulfill the data range the researchers demand. With this respect, apart from the differences on the conclusion they have arrived at, it is difficult for a reader to consider that the selected sample commercial banks represent the population of the commercial banking sector in the country. Accordingly, one cannot predict the estimated value of profitability for newly established banks based on the research model formulated in the study. As can be observed from the summarized works of these researchers, the data range they considered is 15 years of period. Thus those banks that are established after 2006 (that are aged above 10 years) are excluded from the study. This looks a significant deficiency to conclude that the studies made by these researchers represent the true picture of the commercial banking sector of the country.

In terms of conclusion of independent variables over profitability, there is significant difference in relationship of independent variables with profitability. Teshome (2018) concluded that capital adequacy has negative relationship with profitability as measured through return on asset, whereas Ayano (2016), Yirdaw (2015), Dinku (2017), Birhanu (2018) and Gebrewold (2016) concluded that capital adequacy has positive relationship with profitability. Getachew (2018) and Birhanu (2018) have reached the same conclusion on the effect of foreign exchange rate on profitability of banks while Ayano (2016) concluded that there is a negative relationship between foreign exchange rate and profitability in his study. In terms of the effect of GDP growth on profitability, Birhanu (2018) and Getachew (2018) have arrived different conclusion where the former concluded that it is positively related with profitability while the latter concluded that the relationship is negative. On the effect of bank size on profitability, almost all of them concluded similarly that it has a positive relationship with profitability (Ayano 2016, Teshome 2018, Getachew 2018, Birhanu 2018 and Gebrewold 2016). Management efficiency is measured as ratio of expenses to income on aggregate level and the result found by the researchers is identical- negative relationship with profitability (Teshome 2018, Dinku 2018).

Gebrewold (2016) considered all the population in his study to identify the effect bank specific variables on profitability. In addition, unlike other studies who considered figures in ratio basis than taking the crude figure as is presented in the financial statements of commercial banks, he considered on the crude figure of asset, deposit, capital, loan, interest income and interest expense. The result of the relationship between independent bank specific variables with profitability is as obvious and expected by anyone. I think the ratio figure provides sense of comparison nature than the crude figure that lacks efficiency measurement.

Ongore and Kassa (2013) and Onuonga (2014) have conducted studies on the determinants of profitability of commercial banks in Kenya even though the sample considered by the latter is only top 6 commercial banks. They used two similar independent variables as determinants of commercial banks- namely capital adequacy and management efficiency. The result they concluded is the same except the level of significance where capital adequacy has a 10% level of significance in the conclusion of Ongore and kusa (2013) but a 1% level of significance in the conclusion of Onuonga (2014). With respect to management efficiency, Onuonga (2014) used the ratio of cost to income and concluded negative relationship with profitability, but Ongore and Kassa (2013) used ratio of total operating revenue to total profit and arrived to the result that management efficiency is positively related with profitability at 1% significant level. Though the sign of relationship looks different, they used different variables as measurement of management efficiency.

The study conducted by Sufian (2011) used 14 bank specific and macroeconomic variables for determinants of profitability. It used a significant number of independent variables for the analysis but both R^2 and adjusted R^2 that measures goodness of fit of drivers of profitability could not move it beyond 66%. This is a good indication that R^2 will not be increased by increasing the number of independent variables unless the incorporated independent variables are having significant impact on determination of profitability. Hence it is an indicator for researchers to include significant variables in their study in order to increase the measure of determinable capacity of independent variables on profitability.

Under normal circumstances of business operation, the relationship between cost and profitability is negative and significant. But Sufian and Habibullah (2009) considered cost

through ratio of total overhead expense (noninterest expenses) to total asset and concluded that cost is directly related with profitability as measure with return on average asset and with return on average equity when ROAE is regressed on bank characteristics only. The same variable has negative relationship when ROAE is regressed on bank characteristics and economic conditions together. The positive relationship of ratio of overhead costs to total assets looks odd but the issue in my opinion is due to the ratio that cost was considered. Cost as independent variable has to be related with income or net income to measure efficiency whereas cost is related with total asset which is very far in order to measure profitability logically.

Chirwa (2003) measures profitability using return on asset, return on capital and return on equity. The last two measurements of profitability look to have a very close correlation between them as one is the subset of the other. The purpose of measuring profitability in terms of return on capital and return on equity is not specifically depicted on the study and as a result measuring profitability with two similar concepts may lead me to conclude that such measurements are redundant. I am not sure about the belief of the researcher whether the inclusion of these almost similar measurements in the study. If it is to make it unique from other studies, the significance and contribution have to be evaluated considering the source of the data analysis.

In the study made by Chinoda (2014), the result of the regression indicates that only expense management and inflation are negatively related with profitability of banks. The rest of independent variables considered in the study are positively related with profitability. But what is indicated in the conclusion part of the study is that liquidity is negatively related with profitability. With this regard, there is a discrepancy between what is indicated in the conclusion part and the result of the conclusion as presented on the model equation.

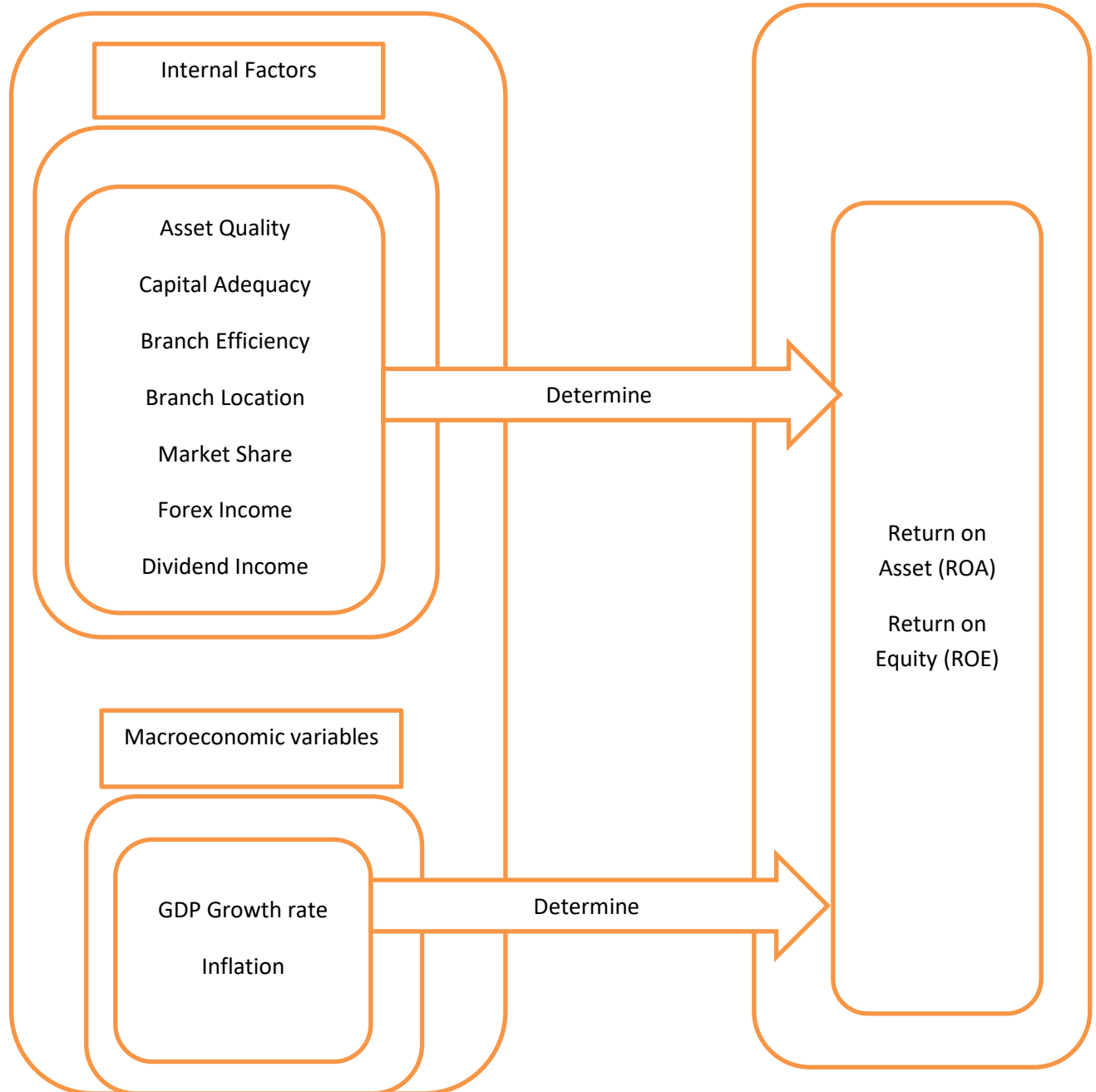
2.5 Conceptual Framework of the Study

From the universe of bank specific variables, the effect of asset quality, capital adequacy, branch efficiency, branch location, foreign exchange income, investment income and market share on profitability are considered in the study. Together with these bank specific variables, selected macroeconomic explanatory variables are considered in the study. These variables are depicted in the following picture to indicate their effect on profitability of private commercial banks in Ethiopia.

Figure 1 Conceptual framework of Variables

Explanatory variables

Explained Variables



Source: Own designed

CHAPTER THREE

Research Design, Data and Methodology

3.1 Introduction

Subsequent to the discussion on background of the study and literature review made in previous chapters, this part of the thesis deals with research methodologies. It is focusing on the type of research and the source of data that is used in order to answer the research objective. It also provides brief points on population of the study and the sampling technique that is applied in the study. This part also deals with method of data analysis, dependent and independent variables considered, the expected relationship between dependent and independent variables, model specification and the related assumptions of the model.

3.2 Research Design

Research design constitutes blueprint for collection, measurement and analysis of data in order to achieve the objective of the study and evaluate preset hypothesis. It also guides for selecting sources and type of information that will be applied and analyzed to answer the research problems (Cooper and Schindler, 2014). The study aims to know the relationship and the corresponding statistical significance of those identified explanatory variables with profitability of private commercial banks in Ethiopia. Even though 90% and 99% confidence level are used in majority of the researches, the most common and conventional confidence level in researches is 95% (Wooldridge, 2009; Hair, et al., 2014). This research studies the relationship between internal and external explanatory variables and profitability. A research that studies the relationship between two or more variables is called correlational study (Cooper and Schindler, 2014).

In order to attain the objectives of the study, this research followed explanatory research design. The study used balanced panel data of sampled private commercial banks for analysis and concluding on the population. The advantage of using panel data is to track trends in the data where simple time-series and cross-sectional data cannot provide similar advantages individually (Tobias & Themba, 2011).

This study used quantitative research approach based on secondary data gathered from the audited financial statements of commercial banks under study. National bank of Ethiopia is the sources of macroeconomic explanatory variables. STATA 13 software is employed to analyze secondary data that is used as a base for discussion, interpretation, conclusion and recommendations.

3.2.1 Population of the study

The population of this study includes all private commercial banks that are operating in Ethiopia for the period 2012/13 to 2018/19. As at end of year 2017/18 (Sene 30, 2010 EC), sixteen private commercial banks are in operation (list of private commercial banks are attached in the annex section). Sample banks are selected from this population so that the selected samples are assumed a representative of the population under the study.

3.2.2 Sampling techniques

Previous studies used long range data set for correlational study and their sample includes only those banks that have long range data (Birhanu 2019; Teshome 2018;Gebrewold 2016; Ayano 2016; Ayele 2012; Abate and Mesfin 2019). As a result the impact of explanatory variables on profitability of newly chartered banks was not considered. The purpose of using sample to study about population is to minimize time and cost. Due to cost and time limitation, this study also used samples to study the effect of explanatory variables on profitability of commercial banks in Ethiopia. To close one of the gaps of previous studies, this study considered newly chartered private commercial banks in the sample. To include these newly established private commercial banks, after clustering the population, a purposive sampling technique is applied to select the sample that represents the population. To make the sample more representative of the population 12 private commercial banks are selected for the study. For the purpose of categorization, experience of banks is used as a base to group them in to three classes so that purposive sampling technique is applied to select sampled commercial banks. The first group includes those banks that are established from 1994 to 1997. Banks established within this group have different years of experience but a maximum of 25 years. The second group includes those banks that were established from 1998 to 2008. Banks categorized in this group have maximum experiences of 21 years given it is established in 1998. The third group includes those banks that are established year 2009 onwards. The last group of commercial banks is the newly established banks that most

of them were not considered in the sample of previous studies. Based on purposive sampling technique, four banks are taken from each category. The total of 12 sample private commercial banks is considered which constitutes 75% of the population.

List of Sample private commercial banks and corresponding year of establishment is presented in the below table

Table 1 List of Sample Private commercial banks

No	Name of Commercial Bank	Year of Establishment
1	Awash Bank SC (AIB)	1994
2	Dashen bank SC (DB)	1995
3	Bank of Abyssinia SC (BOA)	1996
4	Wogagen Bank SC (WB)	1997
5	United Bank SC (UB)	1998
6	Nib International Bank SC (NIB)	1999
7	Oromia International Bank SC (OIB)	2008
8	Zemen bank SC (ZB)	2009
9	Bunna International Bank SC (BUIB)	2009
10	Abay Bank SC (AB)	2010
11	Addis International Bank SC (ADIB)	2011
12	Enat Bank SC (EB)	2012

Source: NBE annual Report of 2017/18

3.2.3 Source and types of data

To analyze data and carry out any study; information should be gathered from proper and reliable sources. Data for this study is gathered from audited financial statements of commercial banks and NBE. Data for capital adequacy, asset quality, income from foreign exchange, investment income in subsidiaries and market share are extracted from audited financial statements of private commercial banks. Macroeconomic data are collected from National Bank of Ethiopia. Branch distribution data is collected from annual reports of National Bank of Ethiopia. Users of financial statements relay more on audited financial statements than otherwise.

Compared to primary data, secondary data gives higher quality and have its own advantages. Secondary data generally provide a source of data that is both permanent and available in a form that have been checked relatively by others. To increases the dependability of the data, the study used secondary data .Generally, the source of the data for the study is thus websites and archives of private commercial banks and National Bank of Ethiopia and the data type used for this study is secondary data.

3.2.4 Method of Data analysis

The data is collected using data collection sheet from different sources. The data is organized, coded and cleaned. Econometric model with STATA 13 software is employed for data analysis. Classification of multivariate techniques can be made through answering three questions. The first issue is whether the variables can be divided in to dependent and independent variables. The second issue is to know the number of dependent variables in a single analysis and the third issue is whether the measurements are metric or nonmetric. Based on this classification, this study classifies the variables in to explained and explanatory variables. Moreover, there is one dependent variable in each analysis. In terms of measurement, variables in this study are metric. Accordingly, the type of multivariate techniques that is used in this study is multiple regression analysis (Hair, et al., 2014). A multiple linear regression model and p values are used to determine the relationship and relative significance of each explanatory variable on profitability of commercial banks.

The collected panel data is analyzed using descriptive statistics, correlations and multiple linear regressions. Mean values, maximum and minimum values are used to analyze the general trends of the data for the period ranging from 2012/13 to 2018/19 based on data gathered from a sample of 12 private commercial banks. Multiple linear regressions model is run using STAT 13 software. The effect of explanatory variables on profitability commercial banks is analyzed. The significance of the relationship between determinants and profitability at 1 and 5% level of significance is analyzed using p values generated from the software so that significant explanatory variables affecting the profitability of Ethiopian commercial banks are identified in order to provide much emphasis on discussion on those determinants.

3.3 Variables Description and Measurements

The purpose of this study is to analyze selected determinants of profitability of private commercial banks. In order to answer problem of the study, explanatory variables that are expected to determine profitability are used. The following dependent and explanatory variables with corresponding measurements are considered in this study

3.3.1 Dependent variables

The ultimate goal of any business organization is to earn profit. Commercial banks are not exception to this goal. The most widely measurements of profitability are return on asset and return on equity. This study considers both return on asset and return on equity as measurement of profitability.

Different indicators are established to measure financial performances/ profitability of commercial banks. These proxy measurements are used not only to evaluate the performance of a particular commercial bank but also to compare its stand against the other for any management or investor decisions.

The Return on asset (ROA), return on equity (ROE) and net interest margin (NIM) are considered as measure of financial performances of commercial banks (Vejzagic and Zarafat, 2014; Sufian, 2011; Dietrich and wanzenried, 2014; Kosmidou, et al., 2012)

Researches have been conducted using the above listed proxy measurements for financial performance of commercial banks in different combinations. Some researchers used all of the above listed performance indicators of profitability together in their study (Abugamea, 2018; Ayano, 2016; Yirdaw, 2015).

On the other hand there are other researches that used two of the proxy measurements in different combinations. One of the combinations is ROA and ROE (Chinoda, 2014; Teshome, 2018; Haile, 2019; Yirgaleml, 2017) and the other combination is ROA and NIM (Tan and Floros, 2012; Kosmidou, 2008; Naceur, 2003; Shuremo, 2016).

There are also significant number of researchers that used only one proxy measurement of profitability, mainly ROA (Vejzagic and Zarafat, 2014; Macharia, 2016; Dinku, 2018; Abate and Mesfin, 2019; Getachew, 2018; Birhanu, 2018).

Return on Asset (ROA)

Return on asset is a proxy measurement for profitability of commercial banks. It measures the capacity/ efficiency of banks on utilizing its total asset in generating profit. It also measures efficiency of management of commercial banks. Return on asset is measured as ratio of income after tax to total asset of the bank. The numerator of this ratio is the result of operation during the year, but the denominator of the ratio is a balance sheet accounts presented in financial statements.

Return on Equity (ROE)

Return on equity shows the return to shareholders on total equity. It is an indicator that answers how the equity of the investors is utilized in generating profit. It measures net profit earned per unit of equity. It is a point of consideration by shareholders whether the business has attractive compensation or not for their investment. Return on equity is measured as ratio of net income after tax to total equity.

Out of competing measures of profitability (return on asset, return on equity and net interest margin), more than 50% of the literature that have been reviewed used both ROA and ROE as measure of profitability. Considering these significant considerations and the interest of shareholders in terms of return, this study used both ROA and ROE as measurement of profitability of private commercial banks.

3.3.2 Explanatory Variables

Independent variables are explanatory variables that determine profitability of commercial banks. Generally, explanatory variables are either internal or external to commercial banks. Even though there are a lot of independent variables that have influence on profitability, this study used selected independent variables (internal and external) as indicated on background of the study section of this thesis.

Asset Quality (AQ)

Asset quality is a measurement that indicates the quality of loans and advances of a commercial bank. Due to the nature of the business, it is mainly focusing on loans and advances provided to customers. Asset quality is measured as a ratio of allowance for doubtful accounts to loans and advances provided (Ayele 2012; Habtamu 2012; Teshome 2018). Even if it showed insignificant relationship with profitability, asset quality is an important explanatory variable in influencing

level of profitability. Asset quality having higher value results lower profitability and vice versa. Hence asset quality has indirect relation with profitability of commercial banks

Capital Adequacy (CA)

Capital adequacy is an indicator whether commercial banks has the required level of financial muscle in case of shocks due to abnormal business environment. Apart from this, capital adequacy is one of the requirements of the supervisory body in operating banking industry. In recent directive, commercial banks are required to have a minimum paid up capital of 500 million Birr to operate banking business. Capital adequacy is measured as ratio of total equity to total asset (Shuremo 2016; Zergaw 2018; Ayano 2016). Given efficient utilization of resources, capital adequacy is expected to have directly related with profitability of commercial banks.

Branch Efficiency- Expense/ Income (BEE, BEI)

It is obvious that there are associated administrative expenses for running bank branches. Administrative expense is one of the line items in affecting profitability. To maximize profitability, administrative expenses have to be controlled or contained. Efficiency is the capacity of a firm in getting output with minimum input. The efficiency of branches has to be measured in terms of expense and deposit mobilization. Branch efficiency in expense is measured as ratio of total branches to total general and administrative expenses. Branch efficiency in expense in relation to branch operation indicates the capacity of the bank in containing cost of operation. The ratio is expected to be positively related with profitability- the higher ratio in branch WRT expense is the higher profitability.

The other measurement of branch efficiency considered in this study is in terms of average income generated from branches. It is measured as ratio of total income generated to total number of branches. The relationship between branch efficiency in income and profitability is expected to be direct.

Branch Location (BL)

Branch location is an indicator whether more branches are located in the capital of the country where most bank transactions are effected. Branch location is measured as the ratio of city branches to total branches of commercial bank. The higher the ratio, the higher the profitability will be and thus the relationship between city branches and profitability is direct.

Market Share (MS)

Market share is an indicator to what extent a particular commercial bank has grabbed from the total available opportunities. It is measured as ratio of loans and advance of a particular bank to total loans and advances of all private commercial banks. The relationship between market share and profitability is expected to be direct, i.e. the higher market share the higher the profitability will be

Income from Subsidiaries (ININ)

Apart from their ordinary business type, commercial banks are investing in different economic sectors. The level of investment towards contribution of the bottom line has to be measured. It is an indicator whether the investment is contributing to profitability or not. It is measured as ratio of income from subsidiaries to total income of the bank. This ratio is expected to have direct relationship with profitability of commercial banks

Foreign Exchange Income (FXI)

There are diverse sources of income for commercial banks. One of the sources of income is income from foreign exchange transactions. It is mainly related with letter of credit and buying and selling of foreign exchange. It is an income source with lucrative margin. It is measured as ratio of income from foreign exchange transactions to total income of the bank. Income from foreign exchange transactions is expected to have a direct impact on profitability.

Annual GDP Growth Rate (AGDPGR)

The year to year growth rate of an economy is measured with GDP growth rate. It is an indicator of to what extent the economy of the country has grown from year to year or declining. Profitability of banks is affected with economic condition of a country where banks are operating. GDP growth rate is found from National bank of Ethiopia. The relationship between GDP growth rate and profitability of commercial banks is expected to be direct.

Inflation Rate (IR)

Inflation rate is one of the external factors in determining profitability of commercial banks. It is the purchasing power of local currency. Its impact on profitability is related with supply and demand of resources. The annual inflation rate data is gathered from National bank of Ethiopia. A direct relationship is expected between inflation rate and profitability of commercial banks.

The list of dependent variables used for measuring profitability, determinants of profitability, the ratio used for each variables and the expected result on the relationship between dependent and independent variables with corresponding level of significance is summarized in the table below

Table 2 list of Dependent and explanatory Variables and their relationship

	Variables	Notation	Measurement	Hypothesis
Dependent Variables	Return on Asset	ROA	Ratio of Net income after tax to total asset	NA
	Return on Equity	ROE	Ratio of Net Income to Total Equity	NA
Independent variables	Internal Factors:			
	Asset Quality	AQ	Ratio of allowance for loans and advances to loan and advances	Negative
	Capital Adequacy	CA	Ratio of Total Equity to total asset	Positive
	Branch efficiency- Expense	BEE	Ratio of number of branches to general & administrative expense	Positive
	Branch efficiency- Income	BEI	Ratio of total income to number of branches	Positive
	Branch location	BL	Ratio of city branch to total branches	Positive
	Market Share	MS	Ratio of loans and advances to total loan and advances of all private commercial banks	Positive
	Income from Subsidiaries	ININ	Ratio of income from subsidiary to total income	Positive
	Foreign exchange Income	FXI	Ratio of income from foreign exchange to total income	Positive
	Macroeconomic Variables:			
	Real GDP Growth	AGDPGR	Annual GDP Growth rate	Positive
	Inflation Rate	IR	Annual Inflation Rate	Positive

Source: Own Compiled.

3.4 Model Specification

Econometric model is formulated in order to answer the specific objectives of this research. The model is expected to be an abstraction of the real world. The specification of a model is based on the available data extracted from audited financial statements and NBE annual reports and other publications. The formulated model answers the relationship between dependent and independent variables. The significance of independent variables on profitability is answered using p values at different levels of confidence level. The model is also used to predict profitability of commercial banks given values of independent variables considered in the model. Previous studies reviewed in the literature review part, used return on asset, return on equity and net interest margin to measure profitability. This study considers return on asset and return on equity to measure profitability. Asset quality, capital adequacy, branch efficiency, market share, income from subsidiary, income from foreign exchange, annual GDP growth and inflation rate are the determinants considered in this study. These independent variables that are expected to affect profitability are the basis to run in the software and construct the model. Independent variables measured in ratios are regressed on each measurement of profitability and the following model equations are expected to be generated from the software.

Equation 1:

$$ROA_{it} = \beta_0 - \beta_1(AQ)_{it} + \beta_2(CA)_{it} + \beta_3 (BEE)_{it} + \beta_4 (BEI)_{it} + \beta_5(BL)_{it} + \beta_6 (MS)_{it} + \beta_7(ININ)_{it} + \beta_8(FXI)_{it} + \beta_9(AGDPGR)_t + \beta_{10}(IR)_t + \epsilon_{it}$$

Equation 2:

$$ROE_{it} = \beta_0 - \beta_1(AQ)_{it} + \beta_2(CA)_{it} + \beta_3 (BEE)_{it} + \beta_4 (BEI)_{it} + \beta_5(BL)_{it} + \beta_6 (MS)_{it} + \beta_7(ININ)_{it} + \beta_8(FXI)_{it} + \beta_9(AGDPGR)_t + \beta_{10}(IR)_t + \epsilon_{it}$$

Where:

ROA_{it} = Return on Average Asset (ratio of net income to average total asset) of bank i at time t

ROE_{it} = Return on Average Equity (ratio of net income to average equity) of bank i at time t

β_0 = Intercept of the equation

$+\beta_1, \beta_2, \beta_3, \dots, \beta_{10}$ = Estimated coefficient of bank i at time t for each variables. These are slope values. It captures the ceteris paribus effect of each independent variable on dependent variable after controlling other independent variables

$(AQ)_{it}$ = Asset quality (ratio of nonperforming loan or allowance for loans and advances to total loans and advances) of bank i at time t

$(CA)_{it}$ = Capital adequacy (ratio of total capital to total asset) of bank i at time t

$(BEE)_{it}$ = Branch efficiency on Expense (ratio of number of branches to administrative expense) of bank i at time t

$(BEI)_{it}$ = Branch efficiency (ratio of total income to number of branches) on Income of bank i at time t

$(BL)_{it}$ = Branch location (ratio of city branches to total number of branches) of bank t at time t

$(MS)_{it}$ = Market share (ratio of total income to total income of all private banks) of bank i at time t

$(ININ)_{it}$ = Income from investment on subsidiaries (ratio of income from investment to total income) of bank i at time t

$(FXI)_{it}$ = Income from foreign exchange (ratio of foreign exchange income to total income) of bank i at time t

$(AGDPGR)_t$ = Annual gross domestic product growth at time t

$(IR)_t$ = Inflation rate at time t

ϵ_{it} = Represents error terms for intentionally/unintentionally omitted or added variables. It has the characteristics of zero mean and constant variance.

3.5 CLRM Assumptions and Model Selection

Classical linear regression model works only if assumptions of CLRM are maintained and hold true. Heteroskedasticity, Multicollinearity and Normality are the major assumptions of CLRM for panel data set. The validity of each assumption is checked based on appropriate and respective diagnostic tests that either the assumption is valid or not, i.e. different diagnostic tests are carried out to ensure that the data suits the basic assumptions of classical linear regression model. If there is violation of assumption, there are remedies to be made on the data to hold CLRM assumptions.

Normality

Under normality assumption, error terms of the population that is represented by error term of the sample called ϵ which is the unobserved error is assumed to be normally distributed in the

population. This means the population error is not dependent up on explanatory variables. Given that the error terms are not normally distributed implies that t and f statistics will not have t and f distribution respectively (Wooldridge, 2009). This is to mean the identification and determination of significant explanatory variables will be difficult. The unobserved term can be expressed as the difference between the actual value of the dependent variable and the predicted value of the same dependent variable. Normality assumption has no role in showing that the OLS estimators are the best unbiased estimators(Wooldridge, 2009).

To check normality, different diagnostic tests can be employed. The first test is visualizations of histogram of residuals and either to ensure that the histogram resembles to normal curve or not. If the residuals are normally distributed, the histogram should resemble near to bell-shaped structure (Wooldridge, 2013).The next test is to check values of skewness and kurtosis. It is well known that for a perfect normal curve distribution, the values of skewness and kurtosis are 0 and 3 respectively. If the values of the test are near to values of normal curve, it can be concluded that the distribution is considered normal. The third diagnostic test is to run skewness/kurtosis test in order to evaluate the preset hypothesis. Given p value generated from skewness/kurtosis test is above significance level, it is concluded that the distribution is normal. The result is generated from STATA 13 software. All these diagnostic tests are made to look consistence of results in tests of normality.

Multicollinearity

The two polar extreme values of correlation are 0 and 1 with positive or negative sign. The ideal multicollinearity result to avoid collinearity problem that exist between independent variables is to get no correlation between them. But explanatory variables are correlated to each other to a certain extent. On the other hand, collinearity between independent variables should not be close to perfect. When independent variables are close to perfectly correlated, it is said to have a multicollinearity problem in the data set. As there is no correlation between independent variable in a simple regression model, multicollinearity problem is mainly found in multiple regression model. The impact of multicollinearity problem is to lead to have too large variances of independent variables for OLS slope estimators (Wooldridge, 2009).

This assumption is applicable only if a particular model uses more than one independent variables Multicollinearity indicates the degree of correlation between independent variables

used in the study. CLRM allows non perfect correlation between independent variables. If there is perfect correlation between independent variables, it is against the assumption of CLRM. This study is a multivariate study so that test of multicollinearity is a requirement. The diagnostic tests that are applied for checking multicollinearity problems are variance inflation factor (VIF) and correlation command. Even though the value of perfect correlation is ± 1 , different values as cut off point are used by different scholars to test whether there is multicollinearity problem between independent variables or not. Even though the actual cut off point for multicollinearity between independent variables is not exactly defined, Wooldridge (2013) on the other hand states that correlation coefficient below 0.9 may not cause serious multicollinearity problem. In this study, a correlation value of more than 0.8 between independent variables is considered as multicollinearity problem. Using the other diagnostic test, if there is no VIF value more than 10 for each explanatory variable, it is concluded that there is no multicollinearity problem.

Homoscedasticity

Homoskedasticity of data set is the other assumption of CLRM. Homoskedasticity or constant variance assumes that error term (e) has the same variance given any value of independent variables. Having different measure of dispersion of error means violation of homoscedasticity and the data is supposed to be suffered with heteroskedasticity problem. If heteroskedasticity exists, the estimators of the ordinary least square method are inefficient and hypothesis testing is no longer reliable or valid as it will underestimate the variances and standard errors. Heteroskedasticity problem means error terms do not have a constant variance (Brooks, 2008). Homoskedasticity assumption helps to get important efficiency properties of OLS. The assumption requires that variance of unobserved error does not depend on the level of independent variables (Wooldridge, 2009).

Breusch-Pagan test and White test are the tests that have to be run to ensure the assumption of homoscedasticity for CLRM. In this study, both tests are applied to detect if there is Heteroskedasticity problem on the dataset. The tests are applied using the following hypothesis and such hypothesis is evaluated based on the value that is generated from STATA 13 software:-

H0: There is no Heteroskedasticity problem in the model.

H1: There is Heteroskedasticity problem in the model.

Decision Rule: Reject H0 if p-value greater than significance level. Otherwise, do not reject H0.

If the results of both diagnostic tests of homoscedasticity are not consistent, it has to be disclosed in the research document so that reader of the paper will have the appropriate understanding.

Tests for Autocorrelation

This assumption is a requirement for time series data. This study uses balanced panel data. Panel or longitudinal data is the type of data about something from different entities over time. Longitudinal data comprises unique feature from both time series and cross sectional data types (Alper and Anbar, 2011). It is pooling of time series data. Since test of autocorrelation is a requirement for time series data in most of the time, this test may not be applied for panel data (Wooldridge, 2009).

Test for Model Specification between Random and Fixed Effect

Given panel data set, there are two most prominent models that are applied for regression analysis. These models are fixed effect and random effect GLS model (Gujarati 2003). In fixed effect model intercepts of each cross section vary but they do not change over time which means it is time invariant (Gujarati 2003). Whereas in random effect model, each cross section is assumed to have common mean value for slope estimators (Hossain 2012).

The diagnostic test that is applied to get the appropriate model for this data set is HAUSMAN test developed in 1978. To identify the appropriate model, STATA stores both (fixed effect and random effect) results of the panel data set and then check the stored result to identify which model is appropriate using p values based on preset hypotheses.

CHAPTER FOUR

Data Analysis, Results, Discussion and Interpretation

4.1 Introduction

The previous chapter focused on the type of research and the source of data that are used in order to answer the research problem in this study. This chapter also provides brief points on population of the study and the sampling technique that is applied in the study. Moreover, the method of data analysis, dependent and independent variables that are considered, the expected relationship between explained and independent variables, model specification and the related assumptions of the model that are applied for data analysis are also discussed in chapter three.

This chapter discusses about data analysis and presentation of the results generated from the data analysis. STATA version 13 is applied for data analysis and model building based on data collected from sampled private commercial banks and selected macroeconomic variables. The necessary assumptions that have to be held for classical linear regression model are discussed and presented before building the model. Discussion and analysis are made on descriptive statistics results and regression results of the model. Interpretation of the results based on the relationships that exist between dependent and explanatory variables are made in this chapter.

4.2 Descriptive Statistics

Out of the competing measurements, return on asset and return on equity are used to measure profitability of commercial banks in this study. Eight bank specific and two macroeconomic explanatory variables are used for analysis. 12 sample private commercial banks have been selected to make data analysis out of the total population of private commercial banks in Ethiopia. As the population of private commercial banks is 16 (NBE, 2019), the sample considers 75% of the population. The data range that is used in the study covers 6 years data for the period ranging from 2012/13 to 2018/19. The total observations considered in the study amounts to 72 (6 years data for 12 banks). In order to maintain confidentiality of the data collected, bank ID numbers are used to show which bank has registered the minimum and maximum level of variables. Table 3 shows the mean, standard deviation, minimum and

maximum values of variables that are used for data analysis. The following discussion is made based on the data extracted from STATA 13.

Table 3 Descriptive statistics of variables

sum roa roe aq ca fxi bl bee bei inin ms agdpgr ir					
Variable	Obs	Mean	Std. Dev.	Min	Max
roa	72	.024926	.0046814	.016652	.03536
roe	72	.172323	.0381602	.097347	.280809
aq	72	.0079494	.0047509	.00313	.032173
ca	72	.1494581	.0365235	.102232	.259515
fxi	72	.2235392	.1016408	.038831	.533224
bl	72	.4782971	.1352651	.213483	1
bee	72	.2587481	.1004607	.042489	.493189
bei	72	14.04232	12.31831	4.198429	71.71
inin	72	.0030552	.0033058	0	.013977
ms	72	.0701775	.0490129	.00959	.185309
agdpgr	72	9.25	1.101216	7.7	10.4
ir	72	11.15	3.621882	7.5	16.8

Source: STATA 13 Results

4.2.1 Explained Variables

Return on Asset (ROA) is measured with net income after tax divided by total asset of the bank. It indicates the return level of the total asset employed by the bank. As shown in table 3 above, the mean value of ROA is 2.49%. This means private commercial banks on the average are earning 2.49% of return from the total asset employed. The maximum and minimum ROA are 3.53% and 1.66% respectively. The difference on ROA is an indicator on the level of efficiency on the utilization of assets employed by banks. The maximum performance of ROA is registered in 2014 by bank # 122 and the minimum ROA value was recorded in 2018 by bank # 112. This indicates that banks are different in utilizing their total asset in generating profit. Particularly those banks that show the minimum ROA are inefficient in utilizing total asset for generating profit and hence there is a room to improve efficiency of utilization of asset in generating profit.

Return on Equity (ROE) is measured with net income after tax divided by total equity of the bank. It indicates the level of return generated from total equity. ROE is the main concern of shareholders that compensate the level of investment in the bank. The mean value of ROE for sampled data and period is 17.23%. This figure indicates that banks are on the average generating a return of 17.23% from the total equity employed. The maximum and minimum

values of ROE are 28.08% and 9.73% respectively. The range between the maximum and minimum ROE looks very significant and this indicates that shareholders are earning different returns with similar amount of investment at different banks. One who invests in maximum performing banks earns better than other investor who employed his/her money in the least performing year and bank. The maximum and minimum ROE are registered in 2018 by bank #118 and 2014 by bank # 123. The range between the maximum and minimum value is significant which indicates that banks that are using their equity in generating profit are more efficient than those banks that are registering minimum ROE value.

4.2.2 Explanatory Variables

Asset quality (AQ) is measured as ratio of allowance for doubtful accounts (numerator) to total loans and advances provided. The ratio indicates the amount of allowance for doubtful made for each currency of loans and advances provided. The interpretation of AQ based on this ratio is that the higher the ratio, the lower the quality of the asset and vice versa. As we can see in table 3 above, the average AQ is 0.79%. This figure is interpreted as on the average 0.79% of reserve for doubtful accounts is provided for each unit currency of loans and advances. This means for 1,000 loans and advance, on average 7.94 unit of currency of allowance for doubtful accounts is reserved. The minimum and maximum AQ are 0.31% and 3.21% respectively. The minimum and maximum AQ are recorded in 2019 by bank # 114 and 2014 by bank # 117 respectively. These two different banks are having significantly different level of reserve for loans and advances provided. For each 1,000 loans and advances, bank # 114 sets a reserve of 3.13 unit of currency whereas bank #117 reserves 32.17 unit of currency in year 2019 and 2014 respectively.

Capital adequacy (CA) is measured as ratio of total equity to total asset of the bank. The ratio indicates the level of own investment out of total asset of the bank. The amount is considered as shock absorber in case of high demands of withdrawal by depositors. Own investment and loan based investment are considered as sources of investment. The cost of loan is accounted as deduction in the results of operation. Cost of loan is deductible before provision for income tax is set aside. Banks are expected to maintain the required level of CA. After maintaining this required level of CA, banks have to find ways to increase total asset through deposit mobilization. If CA is more than the required level and that amount is not used for loan and advance, it may affect ROE of the bank negatively. From table 3 above, the average CA is

14.94%. This means on the average the level of own investment by banks is 14.94% from total asset of the bank. On the other hand the remaining percentage, i.e. 85.06% of the total asset is owned by parties apart from the bank, mainly depositors. The maximum and minimum levels of CA are 10.22% and 25.95% respectively. This means the maximum level of own investment by banks is 25.95% and the minimum level of own investment by banks is 10.22% of the total asset. The maximum and minimum levels of CA are registered in 2017 by bank # 118 and 2015 by bank # 122 respectively.

Income from Foreign Exchange (FXI) is measured as ratio of income from foreign exchange transactions to total income of the bank. It measures the percentage of foreign exchange income against total income of the bank. The ratio indicates the effort of banks in realizing income from foreign exchange transactions. Table 3 shows that the average FXI is 22.35%. This figure indicates that on the average out of the total income of banks, 22.35% of the total income is generated from foreign exchange transactions. The maximum and minimum levels of FXI are 53.32% and 3.88% respectively. These figures indicate that the maximum foreign exchange income that banks generate during the sample period is 53.32% and the minimum percentage of foreign exchange income generated during the same period is 3.88% of the total income. The minimum and maximum percentages of FXI are registered in 2014 by bank # 117 and 2018 by bank # 112 respectively.

Branch location (BL) indicates the proportion of branches operating in the city (Addis Ababa) to total number of branches that each bank has. This ratio indicates to what extent bank's branch are located in the capital city of the country. As we can see from table 3 above, on the average, 47.82% of the banks' networks are located in the capital of the country. This ratio is an indicator that banks are heavily striving to expand their network in the capital of the country against the rest of the total networks. The maximum and minimum percentages of city branches against total number of branches are 100% and 21.34% respectively. The maximum figure indicates that there is a bank that has no branches outside the capital of the country at a particular year. The maximum and the minimum percentage of city branches are recorded in 2014 by bank # 123 and in 2015 by bank # 121 respectively.

Bank Branch Efficiency in Expense (BEE) is measured as ratio of total number of branches to total general and administrative expenses of the bank. The raw data for general and

administrative expense is expressed in millions of unit of currency. The interpretation of the BEE ratio thus is related to the number of branches that can be administered with 1 million currency unit. Hence to know the total general and administrative expense used to run a branch, one has to divide one million with this ratio. The mean value of BEE, as shown from table 3 above, is 0.26. This means on the average one million unit of currency is required to administer and run 0.26 branches, i.e. on the average, one branch costs 3,864,762.67 unit of currency for general and administrative expense. The minimum and maximum BEE are 0.04 and 0.49 respectively. This means the minimum general and administrative expense required to run a single bank branch is 2,027,620.24 currency units and the maximum general and administrative expense required to run a single branch amounts to 23,535,503.30 currency units. This means the higher the ratio, the more efficient the bank is in managing its general and administrative expense to run bank branches. The minimum and maximum BBE are registered in 2014 by bank # 119 and in 2015 by bank # 117 respectively.

Branch Efficiency in Income (BEI) is measured as ratio of total income of the bank to total number of bank branches. The numerator of the ratio is expressed in terms of millions of currency unit. It indicates the average amount of income generated in millions of currency unit by each bank branch. This ratio indicates that what matter is not simply extending the network of banks rather to what extent these bank branches are contributing in generating income. Table 3 above shows that the mean value of BEI is 14.04. This means on the average each bank branch generates an income of 14.04 million of currency unit (14,042,320 currency unit of income is generated by each bank). The maximum and minimum values of BEI are 71.71 and 4.19 respectively. From these figures one can infer that the maximum amount of income generated by a particular branch amounts to 71.71 million of currency unit and the minimum income level generated by a particular bank branch at a particular year amounts to 4.19 million of currency unit. The maximum and minimum values of BEI are registered in 2015 by bank # 117 and in 2014 by bank # 121 respectively.

Income from subsidiary investment (ININ) is measured as ratio of income generated from rent and dividend to total income of the bank. The ratio indicates the extent of dividend and rent income or return from subsidiary investment generated by the bank. Unfortunately, some of the banks are not involved in such business opportunities and thus it will not be surprising if one

finds value of zero at particular year and bank. From the sampled banks, almost three of them have recorded zero investment income during the data set period. Table 3 shows that the mean value of ININ is 0.31%. This means on the average the level of income from investment against total income of the bank is nearly 0.31%. The maximum and minimum values of ININ during the data set period are 1.39% and 0% respectively. These figures indicate that there are banks that have no dividend and rent during the period. On the other hand the maximum level of return from investment amounts to 1.39% of the total income. The maximum ININ is registered in 2018 by bank # 110. The minimum ININ is registered more than once during 2014-2019 by bank # 117 and 119. In addition it was also recorded during 2014-2017 by bank # 123. This means the latter bank has no return in the form of dividend or rent for the last couple of years. Having 0 value of investment income for different banks at different years, may make the data analysis less meaningful with respect to the effect of income from investment on profitability.

Market Share (MS) is measured as ratio of loans and advance of a bank to total loans and advance of all private commercial banks. It indicates the proportion of loans and advance that a particular bank has provided out of the total loans and advances provided by all private commercial banks. It is well understood that Loans and advances is the main source of income for commercial banks. Due to this the importance of market share in terms of loan and advance has critical impact on bottom line of commercial banks. Table 3 shows that the average MS is 7.02%. This means each bank on the average has a market share of 7.02% during the data set period. The maximum and minimum MS values are 18.53% and 0.95% respectively. The meaning of these figures is that the maximum market share that a particular bank exploits in a particular period reached to 18.53% while the minimum market share in loans and advances that a particular bank has secured is 0.95% during the data set period. The maximum and minimum MS are registered in 2019 by bank # 111 and in 2014 by bank # 122 respectively.

Annual Domestic Product Growth Rate (AGDPGR) measures the growth rate of domestic product of the country considering previous year as a base. The authoritative source of AGDPGR data is National Bank of Ethiopia and hence no data compilation sheet is required like that of bank specific explanatory variables. From table3 above, we can see that the mean AGDPGR value is 9.25% which means the domestic product is growing at the rate of 9.25% annually. The

maximum and minimum GDP growth rates are 7.70% and 10.40% respectively. These minimum and maximum values are registered in 2018 and 2015 respectively.

Annual Inflation Rate (IR) is the level of increase in price index. It measures the reduction in purchasing power of currency unit. The authoritative source of inflation data is National Bank of Ethiopia. The mean IR value during the period is 11.15%. This means during the data set period, the average inflation rate is 11.15%. The maximum and minimum IR values are 16.80% and 7.50% respectively. These maximum and minimum IR values are registered in 2018 and 2016 respectively. These figures indicate that the lowest and highest inflationary years are 2016 and 2018 respectively.

4.3 Diagnostic Test for CLRM Assumptions

Data analysis of any data set provides appropriate results if the data set used for data analysis holds true the assumptions applicable for the method adopted. This study uses CLRM method for data analysis. Thus before performing data analysis and making conclusions based on the result derived from the data analysis, it is the responsibility of the data analyst to ensure that the assumptions that are applicable for CLRM hold true. This section of the chapter is about major diagnostic tests of CLRM that includes tests for Multicollinearity, Heteroskedasticity and Normality. More than one different diagnostic test may be applied for a particular assumption to indicate consistent results of the test. If there are differences in results of diagnostic test for a particular assumption, that difference is disclosed for the reader.

4.3.1 Multicollinearity Test

The diagnostic test for multicollinearity problem is to check whether there exists close to perfect correlation or not between independent variables using variance inflation factor (VIF) or correlation command among independent variables. These two tests are applied in this data set to ensure that there is no multicollinearity problem between predictor variables. Even if this study uses two models (ROA and ROE as explained variables), the same independent variables are used to explain those dependent variables. Hence as the explanatory variables are the same, a single diagnostic test for multicollinearity is sufficient.

The result of VIF and correlation commands between independent variables is depicted in the following two tables respectively:-

Table 4 variance inflation factor of explanatory variables

vif

Variable	VIF	1/VIF
bei	8.75	0.114337
bee	6.24	0.160361
aq	4.26	0.234757
ca	2.79	0.358474
ms	2.63	0.380841
fxi	2.45	0.408420
bl	2.31	0.432481
inin	1.55	0.645530
ir	1.51	0.661808
agdpgr	1.41	0.709878
Mean VIF	3.39	

Source: STATA 13 Results

The threshold value for VIF is 10. As one can see from the table 4 above, there is no independent variable that has VIF value more than 10. VIF result less than 10 indicates that there is no multicollinearity problem between independent variables (Wooldridge, 2009).

Table 5 Correlation between Independent variables

```
. corr aq ca fxi bl bee bei inin ms agdpgr ir
(obs=72)
```

	aq	ca	fxi	bl	bee	bei	inin	ms	agdpgr	ir
aq	1.0000									
ca	-0.0812	1.0000								
fxi	0.6623	0.0645	1.0000							
bl	-0.0888	0.5129	-0.1053	1.0000						
bee	-0.4631	0.1044	-0.1863	-0.3562	1.0000					
bei	0.7924	-0.0005	0.5206	0.1098	-0.7685	1.0000				
inin	-0.2660	-0.3746	-0.0221	-0.2819	0.1938	-0.2945	1.0000			
ms	-0.1049	-0.6061	-0.0885	-0.0934	-0.2138	-0.1326	0.3803	1.0000		
agdpgr	0.0915	0.0918	0.2930	0.0644	0.1357	-0.0057	-0.0579	0.0196	1.0000	
ir	-0.1609	-0.1163	-0.3016	-0.0428	-0.1729	0.0237	0.1095	-0.0232	-0.4752	1.0000

Source: STATA 13 Results

The multicollinearity between independent variables can also be tested using correlation command between independent variables is shown in table 5. The result shows that there is no close to perfect correlation between independent variables. Hence both diagnostic tests show consistent result. To conclude, as can be seen from both tables 4 and 5 above, there is no multicollinearity problem in the data set in both diagnostic tests.

4.3.2 Heteroskedasticity Test

Two diagnostic tests are applied in order to identify whether homoskedasticity assumption holds true or not. These tests are Breusch- Pagan/ Cook-Weisberg test and white's test for hetroscedasticity. Both the tests are expected to generate similar results on the same data set. Given there is inconsistency between the results of these tests, the difference has to be disclosed for the reader. The results of these tests are evaluated based on preset hypothesis.

Null= Data set is homoskedastictic (Homoskedasticity assumption holds true)

Alt= Data set has hetroskedasticity problem

The p value of the diagnostic test is the basis to evaluate the preset hypotheses stated above. If the p value is more than the critical value, it indicates that there is no sufficient evidence to reject the null hypotheses.

This study uses two models for ROA and ROE as measure of profitability. As a result two independent diagnostic tests of heteroskedasticity are made for each model.

1. Test of Homoskedasticity for Return on Asset (ROA)

Table 6 Breusch- Pagan test for ROA

```
. hettest

Breusch-Pagan / Cook-Weisberg test for heteroskedasticity
Ho: Constant variance
Variables: fitted values of roa

chi2(1)      =      0.31
Prob > chi2   =      0.5798
```

Source: STATA 13 Results

The Breusch-pagan / Cook-weisberg test for heteroskedasticity test in table 6 above shows p value of 57.98%. Since this value is above 5%, there is no sufficient evidence to reject the null hypothesis and hence the data is homoscedastic.

Table 7 White tests for ROA

```
. imtest,white

White's test for Ho: homoskedasticity
    against Ha: unrestricted heteroskedasticity

      chi2(65)    =    66.94
    Prob > chi2   =    0.4104

Cameron & Trivedi's decomposition of IM-test
```

Source	chi2	df	p
Heteroskedasticity	66.94	65	0.4104
Skewness	14.96	10	0.1335
Kurtosis	0.00	1	0.9609
Total	81.90	76	0.3014

Source: STATA 13 Results

The White's test for homoscedasticity shows p value of 41.04% which means that there is no sufficient evidence to reject H_0 and thus data set has no heteroscedasticity problem. Both diagnostic tests indicated in table 6 and 7 show that the p value of the test is far above from the significant level of 5%. Moreover the results are consistent in both diagnostic tests.

In general, looking p value in both diagnostic tests, there is no sufficient evidence to reject the null hypotheses. This means the data set holds true for homoskedasticity assumption and conversely the data set has no heteroskedasticity problem in ROA model specification.

2. Test of Homoskedasticity for Return on Total equity (ROE)

Table 8 Breusch-Pagan test for ROE

```
. hettest

Breusch-Pagan / Cook-Weisberg test for heteroskedasticity
Ho: Constant variance
Variables: fitted values of roe

      chi2(1)      =       3.01
      Prob > chi2   =    0.0825
```

Source: STATA 13 Results

Table 9 White tests for ROE

```
. imtest,white

White's test for Ho: homoskedasticity
      against Ha: unrestricted heteroskedasticity

      chi2(65)      =    68.58
      Prob > chi2    =    0.3568

Cameron & Trivedi's decomposition of IM-test
```

Source	chi2	df	p
Heteroskedasticity	68.58	65	0.3568
Skewness	13.32	10	0.2065
Kurtosis	0.45	1	0.5038
Total	82.35	76	0.2895

Source: STATA 13 Results

Looking into p values in both diagnostic tests as indicated in table 8 and 9 above, both tests provide consistent result when compared with significant level of 5%. From this it is possible to conclude that there is no sufficient evidence to reject the null hypotheses. This means homoskedasticity assumption holds true in the data set for ROE model specification, i.e. there is no heteroskedasticity problem in the data set.

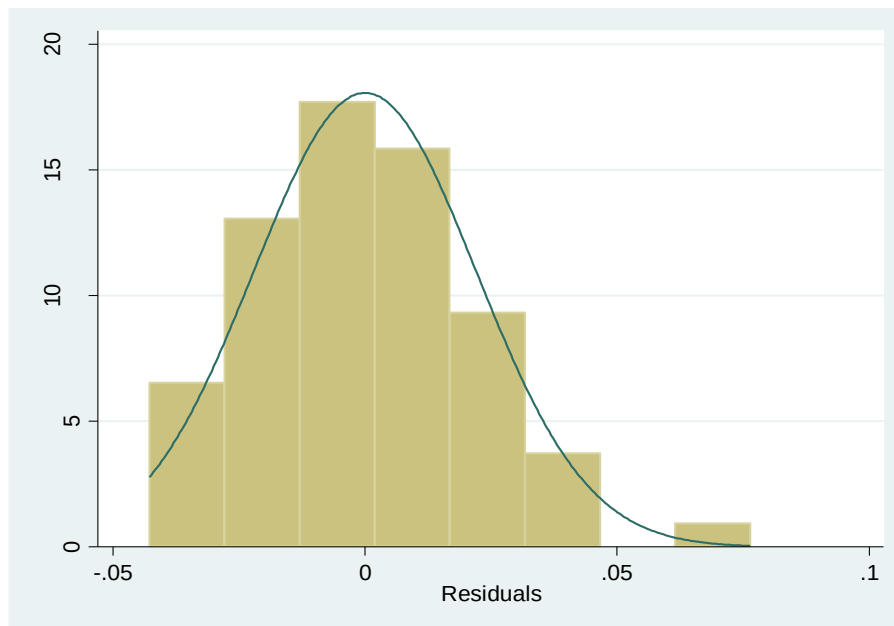
4.3.3 Normality Test

Three diagnostic tests applied in this study to ensure that error terms of the population are normally distributed. The first test is to predict the error term of the explained variable and draw the histogram and visualize normality of the distribution. The second test is to know values for skewness and kurtosis so that it is possible to judge whether the predicted value is near to normal distribution or not. The third test is to apply sktest and check p value. If the p value is above the significant level, then there is no sufficient information to reject the null hypotheses that states normal distribution of the error term.

The study uses two measurements of profitability in terms of return on total asset and return on total equity. Hence two normality diagnosis tests are to be made to ensure normal distribution of the error terms.

1. Normality test for ROE

Figure 2 Histogram Error term of ROE



Source: STATA 13 Results

The above figure shows the distribution of error terms or residuals for ROE. Using visual inspection, it looks that it is normally distributed and thus test of normality of CLRM holds true.

Table 10 Value of Skewness and Kurtosis for error term of ROE

```
. sum uhatroa,detail
```

Residuals				
	Percentiles	Smallest		
1%	-.0427198	-.0427198		
5%	-.0357766	-.0380955		
10%	-.0267764	-.0370983	Obs	72
25%	-.0163363	-.0357766	Sum of Wgt.	72
50%	.00018		Mean	2.65e-11
		Largest	Std. Dev.	.0220812
75%	.0136868	.0377202		
90%	.0286486	.0416966	Variance	.0004876
95%	.0377202	.0424793	Skewness	.5087561
99%	.0764038	.0764038	Kurtosis	3.759499

Source: STATA 13 Result

Perfect normal distribution has skewness and kurtosis values of 0 and 3 respectively. Table 10 above indicates skewness and kurtosis values of 0.50 and 3.75 respectively. These values are not far from perfect normal distribution and hence it can be said that test of normality for ROE holds true.

Table 11 Skewness/ Kurtosis tests of Normality for error term of ROE

```
. sktest uhatroa
```

Skewness/Kurtosis tests for Normality					
Variable	Obs	Pr(Skewness)	Pr(Kurtosis)	adj chi2(2)	joint Prob>chi2
uhatroa	72	0.0672	0.1338	5.41	0.0669

```
.
```

Source: STATA 13 Results

The p value indicated on table 11 is used to test normal distribution hypotheses.

Null= Error terms are normally distributed

Alt= Error terms are not normally distributed

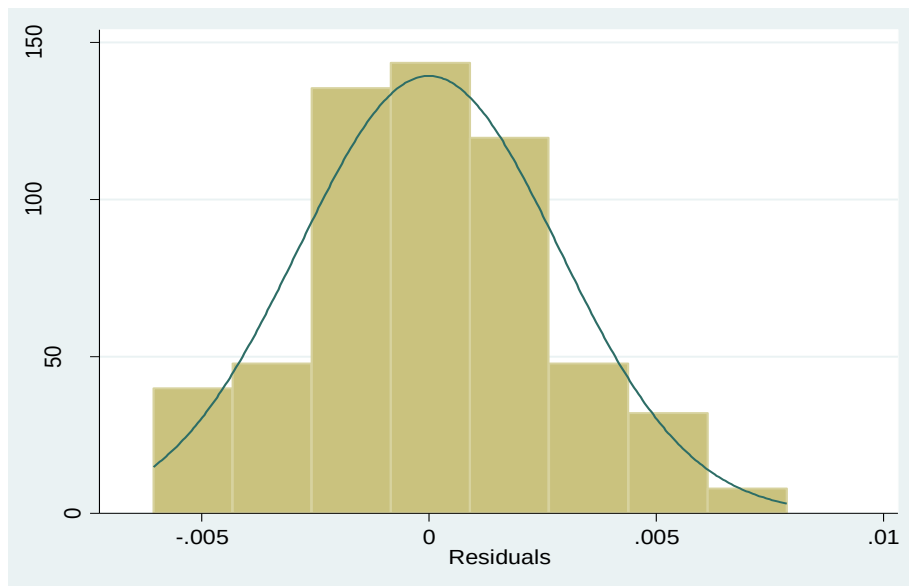
Looking into the p value from table 11, which is 6.69%, there is no sufficient evidence to reject null hypotheses which indirectly means that the error terms of ROE are normally distributed.

To conclude, normality test in different ways indicate consistent result that ensures the distribution of residuals of ROE is normally distributed and test of normality of CLRM holds true.

2. Normality test for ROA

Similarly diagnostic tests for error term of ROA, is presented below in similar fashion as used to test normality of ROE.

Figure 3 Histogram for Error term of ROA



Source: STATA 13 Result

The error term distribution is presented in figure 3 above. Using visual inspection, the error terms for ROA looks normally distributed.

Table 12 Value of Skewness and Kurtosis for error term of ROA

```
. sum uhatroa,detail
```

Residuals				
	Percentiles	Smallest		
1%	-.0060601	-.0060601		
5%	-.0049065	-.0055485		
10%	-.0035535	-.004947	Obs	72
25%	-.0017398	-.0049065	Sum of Wgt.	72
50%	-.0003597		Mean	4.04e-13
		Largest	Std. Dev.	.0028623
75%	.0019791	.0056116		
90%	.0041854	.0056897	Variance	8.19e-06
95%	.0056116	.0057648	Skewness	.3075964
99%	.0078737	.0078737	Kurtosis	2.97944

...

Source: STATA 13 Result

Table 12 above shows values of skewness and kurtosis for error term distribution of ROA. The values of skewness and kurtosis as shown in table 12 are 0.30 and 2.97 respectively. Considering these values with perfect normal distribution values of skewness and kurtosis, it can be concluded that the figure is normally distributed and hence test of normality holds true.

Table 13 Skewness/ Kurtosis tests of Normality for error term of ROA

```
. sktest uhatroa
```

Skewness/Kurtosis tests for Normality					
Variable	Obs	Pr(Skewness)	Pr(Kurtosis)	adj chi2 (2)	joint Prob>chi2
uhatroa	72	0.2556	0.7442	1.44	0.4857

.

Source: STATA 13 Results

Table 13 above indicates test of skewness/ kurtosis for ROA error term distribution. This test shows p value of 48.57% which is used to evaluate the hypothesis for test of normality.

Null= Error terms of ROA are normally distributed

Alt= Error terms of ROA are not normally distributed

The p value in table 13 above is far above the critical value of 5%. This value indicates that there is no sufficient evidence to reject the null hypothesis. This is directly to mean that error terms of ROE are normally distributed.

4.3.4 Test for Model Specification- between Random and Fixed Effect

This test is made to identify the appropriate model of panel data set. The two significant models for panel data are fixed and random effect model. The test is implemented using hausman test based on the result of p values that helps to evaluate either to accept null or alternative hypothesis.

Null= Random effect model is appropriate

Alt= Fixed effect model is appropriate for the data set

Because profitability is measured with ROA and ROE in this study, two different Huasman tests are conducted to identify the appropriate model for each regression.

1. Hausman test for return on total asset

Table 14 Test of appropriateness (Between Fixed and Random model) for ROA

```
. hausman fixedroa randomroa
```

	Coefficients		(b-B) Difference	sqrt(diag(V_b-V_B)) S.E.
	(b) fixedroa	(B) randomroa		
aq	-.0814889	-.0168929	-.064596	.082788
ca	.1203679	.0912341	.0291338	.0248695
fxi	.0234789	.0254092	-.0019303	.0081584
bl	-.0020034	-.0000748	-.0019287	.004485
bee	.0093283	.0221916	-.0128632	.0076914
bei	.0000591	.0001279	-.0000688	.0000782
inin	-.3091755	-.1644406	-.144735	.1778858
ms	.1525176	.0527096	.099808	.0498806
agdpg	-.000095	-.0001372	.0000421	.0001047
ir	.0003927	.0003959	-3.18e-06	.0000671

```

b = consistent under Ho and Ha; obtained from xtreg
B = inconsistent under Ha, efficient under Ho; obtained from xtreg

Test: Ho: difference in coefficients not systematic

      chi2(10) = (b-B)'[(V_b-V_B)^(-1)](b-B)
            =      15.06
Prob>chi2 =      0.1299
(V_b-V_B is not positive definite)

```

Source: STATA 13 Results

The p value of the test is 12.99% which is above the significance level of 5%. From this figure, it is possible to conclude that there is no sufficient evidence to reject the null hypotheses which means random effect GLS model is appropriate for the data set that regress ROA on above explanatory variables.

2. Hausman test for return on total equity

Table 15 Test of appropriateness (Between Fixed and Random model) for ROE

```
. hausman fixedroe randomroe
```

	Coefficients		(b-B) Difference	sqrt(diag(V_b-V_B)) S.E.
	(b) fixedroe	(B) randomroe		
aq	-1.294496	-1.427417	.1329203	.4523222
ca	-.2792835	-.4473768	.1680933	.1764396
fxi	.164272	.1978155	-.0335436	.0577933
bl	.0028202	.0196174	-.0167972	.0310316
bee	.0802225	.1645295	-.0843069	.0512176
bei	.0007243	.0012132	-.000489	.0005257
inin	-2.906342	-.6114638	-2.294878	1.250297
ms	1.227271	.3774193	.8498518	.362547
agdpgr	-.0011095	-.0016532	.0005437	.
ir	.0024588	.0023349	.0001239	.0003771

b = consistent under Ho and Ha; obtained from xtreg
B = inconsistent under Ha, efficient under Ho; obtained from xtreg

Test: Ho: difference in coefficients not systematic

chi2(10) = (b-B)'[(V_b-V_B)^(-1)](b-B)
= 15.42
Prob>chi2 = 0.1175
(V_b-V_B is not positive definite)

Source: STATA 13 Results

The p value of table 15 is 11.75% which is above the significance level of 5%. From this figure, one can conclude that there is no sufficient evidence to reject the null hypotheses which means random effect model is appropriate for the data set that regress ROE on above explanatory variables.

4.4 Regression Analysis

In this section of the paper, the results of the regression analysis is presented and discussed. There are two different regression analyses for each proxy measurements of profitability of private commercial banks. More emphasis is given for those significant independent variables and their relationship with explained variable.

AQ, CA, FXI, BL, BEE, BEI, ININ, MS, AGDPGR and IR are the explanatory variables that are considered to determine profitability. These independent variables are applied for both measurements of profitability- ROA and ROE.

4.4.1 ROA and its Explanatory variables

The following table is the result of the relationship between profitability measured in ROA with above explanatory variables.

Table 16 Random Effect GLS regression model for ROA

```
. xtreg roa aq ca fxi bl bee bei inin ms agdpgr ir, re
```

Random-effects GLS regression	Number of obs	=	72
Group variable: id	Number of groups	=	12
R-sq: within = 0.4132	Obs per group: min =		6
between = 0.9182	avg =		6.0
overall = 0.6262	max =		6
	Wald chi2(10)	=	102.17
corr(u_i, X) = 0 (assumed)	Prob > chi2	=	0.0000

roa	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
aq	-.0168929	.1592066	-0.11	0.915	-.328932	.2951463
ca	.0912341	.0167589	5.44	0.000	.0583872	.1240809
fxi	.0254092	.0056419	4.50	0.000	.0143513	.0364671
bl	-.0000748	.0041198	-0.02	0.986	-.0081494	.0079999
bee	.0221916	.0091096	2.44	0.015	.004337	.0400461
bei	.0001279	.000088	1.45	0.146	-.0000446	.0003003
inin	-.1644406	.1379802	-1.19	0.233	-.4348768	.1059957
ms	.0527096	.0121161	4.35	0.000	.0289624	.0764568
agdpgr	-.0001372	.000395	-0.35	0.728	-.0009113	.000637
ir	.0003959	.0001244	3.18	0.001	.0001521	.0006397
_cons	-.0080994	.0063449	-1.28	0.202	-.0205352	.0043364
sigma_u	0					
sigma_e	.00297581					
rho	0	(fraction of variance due to u_i)				

Source: STATA 13 Results

Based on the results of random effect regression as shown in table 16, the model equation for ROA is:-

$$\text{ROA} = -0.0080994 - 0.0168929\text{AQ} + 0.0912341\text{CA} + 0.0254092\text{FXI} - 0.0000748\text{BL} + 0.0221919\text{BEE} + 0.0001279\text{BEI} - 0.1644406\text{ININ} + 0.0527096\text{MS} - 0.0001372\text{AGDPGR} + 0.0003959\text{IR} + e$$

As shown from upper right section of table 16, the overall p value of 0.0000 indicates that all coefficients of explanatory variables are nonzero. Moreover, in general it is also to mean that the explanatory variables are significant to determine ROA. The overall R-sq value is 62.62% and the within and between values are 41.32% and 91.82% respectively. R-sq overall indicates that 62.62% of change in ROA is explained by those explanatory variables used in the model. This means the remaining 37.38% (100%-62.62%) of changes in ROA is explained by other independent variables that are apart from those variables considered in the model. The intercept or coefficient of the constant of the model indicates that given all independent variables are set to zero, the value of ROA is -0.0080 (0.81%).

From table 16, we understood that CA, FXI, BEE, MS and IR are significant at 5% significance level. The rest of the explanatory variables are not significant at 5% significance level and hence in the following section, discussion is made on the relationship between those significant explanatory variables with ROA. Possible reasons are raised for insignificant explanatory variables even if it is expected to be substantiated in further studies. The basis of discussion is the data in table 16 which is extracted from STATA 13.

4.4.1.1 CA and ROA

The above random effect GLS model indicates that the coefficient for CA is 0.09 and its corresponding p value is 0.000. The sign of the constant term is positive. In the first place, a positive coefficient value indicates that there is a positive relationship between CA and ROA. The corresponding p value of 0.000 indicates that the level of significance of CA with ROA is significant even at less than 1% significance level. The coefficient value of CA indicates given all other independent variables constant, a 1% change in capital adequacy on the average can bring 9.12% change on ROA. Initially the preset hypothesis and the expected results were there is a positive and significant relationship between CA and ROA. The same can be concluded from the above table and thus there is no sufficient evidence to reject the preset hypotheses. The

existence of positive and significant relationship between CA and ROA implies that banks with higher ROA is partly due to high CA. Banks with high level of CA can extend more loans and get more interest. In addition, banks with high CA can resist any shock arising from unexpected business environment. The positive and significant relationship between CA and ROA are also substantiated with previous studies (Zergaw, 2018; Abate and Mesfin, 2019; Birhanu, 2018; Kosmidou, 2008).

4.4.1.2 FXI and ROA

FXI is measured as ratio of income from foreign exchange transactions to total income of the bank. The coefficient value for FXI as indicated in table 16 is 0.025 and its corresponding p value is 0.000. The sign of the coefficient is positive at 1% significance level. The positive coefficient indicates that there is a significant positive relationship between FXI and ROA. The coefficient of FXI tells us that a one percent change on FXI, on the average can bring 2.54% changes in ROA given other independent variables are remaining constant. The expected relationship between FXI and ROA at the initial stage of the study was positive. Based on the expected relationship, the preset hypothesis was that there is a positive relationship between foreign exchange income and return on asset. According to the data extracted from the regression model tabulated above (table 16), there is no sufficient evidence to reject the preset hypothesis and thus one cannot accept the negative relationship between FXI and ROA. Positive coefficient with significant level of less than 1% implies that banks that are working more on foreign exchange transaction can improve their ROA.

4.4.1.3 BEE and ROA

BEE is measured as ratio of number of branches to total general and administrative expense of the bank. The result of random effect GLS regression model table 16 shows that there is a positive relationship between BEE and ROA with a significance level of 1.5%. The coefficient of BEE is positive 0.022. This coefficient implies that a unit change in BEE on the average will change ROA by 2.21% given that other explanatory variables are remaining constant. The expected result for their relationship was positive. According to this expectation, the preset hypothesis was there is a positive relationship between BEE and ROA. Based on the corresponding p value of BEE, there is no sufficient evidence to reject the preset hypothesis.

Positive coefficient with significant level of 1.5% of BEE implies that banks have to work hard to increase the ratio in order to increase their ROA.

4.4.1.4 MS and ROA

MS is measured as proportion of loan and advance of a particular bank to total loans and advances of all private commercial banks in a particular year. The above random effect regression table 16 shows that the coefficient of MS is positive. In addition the magnitude of the coefficient is 0.052 with corresponding p value of 0.000. The positive coefficient implies that MS and ROA are positively related to each other. That means they are related in a direct relationship. Direct relationship implies that the change in the independent variable will affect the dependent variable in a similar direction and the reverse is also true. The coefficient value implies that 1% change in market share will bring on the average 5.27% of change in ROA given that all other explanatory variables are remaining constant. Initially the expected relationship between MS and ROA was positive. Based on this expectation, the hypothesis that was initially framed was there is a positive relationship between market share and return on asset. Accordingly, from the above random effect regression model, there is no sufficient evidence to reject the preset hypothesis. In this case, commercial banks have to strive to increase their market share on loans and advances in order to increase their return on asset. If banks on the other way are losing their market share, their ROA may go downwards given other factors affecting ROA remaining constant.

4.4.1.5 IR and ROA

IR is one of macroeconomic explanatory variables considered in this study. Though macroeconomic variables are beyond the control of individual banks, banks have to carefully scrutinized IR moves in order to reduce their negative impact on business organizations through effective management of these external variables. Inflation rate is measured as the decrease or increase in purchasing power of unit of currency. The above random effect regression model of ROA indicates a positive intercept of IR with corresponding p value of 0.001. The coefficient of IR is 0.0003959 with positive sign. Even though the constant term looks very small, the data shows that there is a positive relationship between IR and ROA at a significance level less than 1%. The interpretation of the intercept is that a unit percentage change in inflation will bring on the average a 0.04% change in ROA maintaining other factors constant. The expected result was

to have a positive and significant relationship between these variables. Accordingly the preset hypothesis was there is a positive relationship between IR and ROA. Based on the results of random effect model shown above, there is no sufficient evidence to reject the preset hypothesis and this ensure that banks' profitability measured in ROA increased to some extent during inflationary years. The direct relationship between IR and ROA may be associated with the need or increase in additional funds demand to fulfill requirements of both individuals and business organization. Additional fund seekers consider commercial banks as source of covering additional requirements arising from inflation. For business organization, cost of purchase or manufacturing is increased in inflationary periods. In such a case business organizations seek more funds to cover the variance from their budget where one of the source of financing considered by business organizations is commercial banks apart from own finances. The result of this study on the relationship between IR and ROA is also substantiated by previous studies (Zergaw, 2018; Getachew, 2018; Alper and Anber, 2011)

4.4.1.6 Insignificant Explanatory Variables on ROA with possible reason

After running random effect GLS model for profitability measured in return on asset, the model provides that some explanatory variables are as insignificant for determining profitability at 5% confidence level. These variables include both bank specific and macroeconomic variables considered as potential determinants of profitability. AQ, BL, BEI and ININ are the identified insignificant explanatory bank specific variables. In addition, AGDPGR is the other macroeconomic explanatory variable that is found insignificant at 5% significance level.

The coefficient value for asset quality is negative and the preset hypothesis for the relationship between asset quality and profitability is the negative effect of asset quality and profitability. This indicates that the effect of asset quality on profitability is in line with the preset hypothesis but with insignificant p value. Previous studies also showed the negative relationship between asset quality and profitability but with insignificance p values (Ayele 2012; Alper and Anbar 2011; Kutsienyo 2011). The possible reason for insignificance of asset quality may be the application of short range data set as indicated in the limitation of the study.

Even if the coefficient value of branch efficiency in income is small in magnitude, the sign is positive which indicates that its effect on profitability is positive but the p value is insignificant. Interms of relationship between this explanatory value and profitability is positive and inline

with the preset hypothesis but with insignificant p value. As said above in asset quality, the possible reason for insignificance may be the use of short range data set in data analysis.

As indicated in the descriptive statistics part of this study, there are extreme values for branch location and investment income from subsidiaries. The maximum value for branch location is 100% which indicates there are banks that have no branches outside the city. In addition, there are also banks that have a descriptive value of zero in investment income. This indicates that these banks have no investment at all in some years. The possible reason for insignificance of these values may be the existence of more polar extreme values in the analysis of the data.

The insignificant effect of annual GDP growth with profitability is also showed in previous studies (Shuremo 2016; Birhanu 2018; Zergaw 2018)

Future studies on the subject are expected to either substantiate or otherwise of the possible reasons, as stated above, of insignificance of those independent explanatory values.

4.4.2 ROE and its Explanatory variables

In the subsequent section, the discussion is made on the relationship between significant explanatory variables and profitability as measured with ROE. Interpretation on coefficient signs and magnitudes are also made. Based on p value of the corresponding independent variable, the preset hypothesis is tested and a remark is made whether to accept the preset hypothesis or not. The basis of the discussion is the table extracted from STATA software.

Even if emphasis is given for the relationship between those significant independent variable and profitability at significance level of 5%, some words will be said on a particular variable that is significant at 10% significance level. The possible reasons for insignificance of explanatory variables are also noted.

Table 17 Random effect GLS regression of ROE

```
. xtreg roe aq ca fxi bl bee bei inin ms agdpgr ir, re
```

Random-effects GLS regression	Number of obs	=	72
Group variable: id	Number of groups	=	12
R-sq: within = 0.2481	Obs per group: min	=	6
between = 0.9262	avg	=	6.0
overall = 0.6652	max	=	6
	Wald chi2(10)	=	121.18
corr(u_i, X) = 0 (assumed)	Prob > chi2	=	0.0000

roe	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
aq	-1.427417	1.228209	-1.16	0.245	-3.834662	.9798289
ca	-.4473768	.1292875	-3.46	0.001	-.7007757	-.1939779
fxi	.1978155	.0435247	4.54	0.000	.1125087	.2831224
bl	.0196174	.0317825	0.62	0.537	-.0426752	.08191
bee	.1645295	.0702767	2.34	0.019	.0267897	.3022692
bei	.0012132	.0006788	1.79	0.074	-.0001171	.0025436
inin	-.6114638	1.064457	-0.57	0.566	-2.697761	1.474834
ms	.3774193	.0934707	4.04	0.000	.1942201	.5606185
agdpgr	-.0016532	.0030471	-0.54	0.587	-.0076255	.0043191
ir	.0023349	.0009595	2.43	0.015	.0004543	.0042155
_cons	.101963	.0489483	2.08	0.037	.006026	.1979
sigma_u	0					
sigma_e	.02170522					
rho	0	(fraction of variance due to u_i)				

Source: STATA 13 Results

Based on the results of above random effect GLS regression table, the model equation for ROE is:-

$$\text{ROE} = 0.101963 - 1.427417\text{AQ} - 0.4473768\text{CA} + 0.1978155\text{FXI} + 0.0196174\text{BL} + 0.1645295\text{BEE} + 0.0012132\text{BEI} - 0.6114638\text{ININ} + 0.3774193\text{MS} - 0.0016532\text{AGDPGR} + 0.0023349\text{IR} + e$$

The following discussion is made based on the results extracted from STATA software indicated in table 17. As shown in the upper right section of table 17 above, the random effect GLS

regression model for ROE as measurement of profitability of overall R-sq value is 0.6652. This means 66.52% of the variation on ROE of privately owned commercial banks is explained by those independent variables used in the model. This indirectly means the model is a good fit. The remaining variation 33.48% (100-66.52%) on ROE is explained by other explanatory variables that are not considered in this particular model for the given data set. The overall p value is 0.0000. The implication of such p value indicates the significance level of all variables together on ROE. What it means is all explanatory variable used to run the random effect GLS model indicated above are significant. In terms of significance of joint explanatory variables, there is no sufficient evidence to reject the insignificance of those independent variables considered to measure profitability by ROE. The above table shows a constant intercept of 0.10 which means given all values for explanatory variables are set to 0, the level of ROE is 10.19% with corresponding p values of 0.037.

From table 17, it is clearly indicated that there are significant and insignificant explanatory variables for the model. The significant variables include both from bank specific and external macroeconomic independent variables. From bank specific variables, CA, FXI, BEE and MS are more significant variables for the model. From macroeconomic explanatory variable, IR is found to be significant in the model. On the other hand the insignificant variables for the model are AQ, BL and ININ from bank specific independent variables and AGDPGR from macroeconomic independent variables. Exception from both categories, significant and insignificant groups, BEI looks insignificant slightly at 5% significance level. Rather it is significant at 10% significance level. Based on this general remark, discussion on the relation between ROE and significant explanatory variables is followed. But as the p value for BEI is 0.074, I believe that it deserves some words that is not as detailed as other significant explanatory variables at 5% or less.

4.4.2.1 CA and ROE

CA is measured as the ratio of total equity to total asset of commercial banks. CA has coefficient value of -0.45 with significant level of 0.001. The negative coefficient indicates that there is a negative relationship between CA and ROE. The corresponding p value indicates the level of significance of CA on ROE. CA is significantly related with ROE even at a significance level less than 1%. The sign of coefficient of CA is different when profitability is measured with ROA and ROE. It is positive when profitability is measured with ROA and otherwise when

profitability is measured with ROE. The coefficient of the variable indicates that a 1% increase in CA will bring down ROE of the bank by 44.73%, what it means is increasing capital adequacy does not guarantee to increase ROE. The proposed reason for negative coefficient of CA is an overcapitalization of banks. Looking in to CA ratio in the descriptive statistics the range between the maximum and the minimum value is very big and hence banks that registered high value of CA should be able to lower it through balancing own and loan financing. What matter here is, banks need to efficiently use any fund for generating profit. But if capital is increased and that increase is not utilized for income generation, it will reduce ROE. Leverage on increasing CA has to be supported with efficient utilization of funds to generate income. Similarly, the negative coefficient indicates that on the average banks are not utilizing equity efficiently to generate income for shareholders. The expected relationship between CA and ROE was positive and accordingly the preset hypothesis was there is a significant direct relationship between CA and ROE. Table 17 indicates that there is no sufficient evidence to reject the alternative hypothesis that states CA and ROE are negatively related. The overall indication of negative coefficient of CA is that banks should not strive to increase CA in order to increase ROE unless it is used to generate profit. But banks have to fulfill the level of CA required by the regulatory bank. Beyond what is required by the regulatory body needs critical examination not to affect ROE to the negative. The other option may be banks have to mobilize deposit funds in order to match with the increase in equity. The negative coefficient also indicates banks are financing more of own investment than financing with customers deposit. The significant negative relationship between CA and ROA is also substantiated by previous studies as well (Ayno, 2016; Teshome, 2018; Ongore and Kusa, 2013)

4.4.2.2 FXI and ROE

FXI is measured as ratio of income from foreign exchange transaction to total income of banks. The regression table shows a positive coefficient for FXI with corresponding p value of 0.000. The p value indicates that the independent variable is very significant even at 1% confidence level. This indicates that FXI and ROE are directly related to each other. The increase in the explanatory variable will bring an increase in ROE. The coefficient value of FXI is 0.19 which means a one percent increase in FXI ratio will bring 19.78% increase in ROE on the average given that all other explanatory variables are remaining constant. Even though it is very difficult to increase FXI in a much regulated foreign exchange transaction environment, the effect that it

will bring as a result of increasing one percent in FXI looks very huge. In this case banks have to work hard to improve their foreign currency transactions in order to bring significant changes for shareholder and make them happy. On the other hand if banks are not giving attention to foreign exchange transactions, the impact of FXI to ROE will be to the negative side that will bring significant reduction on ROE. The expectation of the relationship between FXI and ROE was positive and based on this expectation the preset hypothesis was FXI and ROE are positively related to each other. From the table above the coefficient sign and the corresponding individual p value for FXI indicate that there is no sufficient evidence to reject the null hypothesis.

4.4.4.3 BEE and ROE

BEE is measured as the ratio of total number of branches to total general and administrative expense of the bank. The random effect GLS regression table number 17 shows that the coefficient of BBE is positive with a significant level of 0.019. The magnitude of the coefficient of BEE is 0.16. The implication of positive coefficient is the existence of direct relationship between the dependent and explanatory variable. Accordingly, BEE is directly related with ROE. This is to mean an increase in BEE will bring an increase in ROE and the reverse is also true. The magnitude of the coefficient indicates that the level of increase on dependent variable due to a unit change on the explanatory variable. Hence one unit change in BEE will bring on the average 16.45% change on ROE assuming that all other independent variables are remaining constant. The result indicated on the table looks significant where banks are supposed to either increase the number of branches or reducing the level of general and administrative expense of the bank to get better ROE. Alternatively this ratio can be improved by increasing both the denominator and numerator but the increase in the denominator has to be more than the increase in the denominator. Initially it was expected that there will be a positive relationship between BEE and ROE. The preset hypothesis was there is a positive relationship between BEE and ROE and the reverse was the alternative hypothesis. Based on the result of the regression, it is found that the relationship between these variables is positive with significant p value of 0.000. This indicates that there is no sufficient evidence to reject the null hypothesis.

4.4.4.5 MS and ROE

MS is measured as the ratio of loan and advances of a particular bank to total loans and advances of all private commercial banks. Table 17 indicates that the relationship between MS and ROE is

positive with a significant p value of 0.000. The positive sign of the coefficient indicates that there is a positive relationship between the explanatory variable MS and explained variable ROE. The coefficient of MS is also positive with a magnitude of 0.38. The magnitude of the coefficient indicates that a unit ratio change on the explanatory variable will bring change on the explained variable with the magnitude of the coefficient. Accordingly, from the magnitude of the coefficient we can say that a unit percentage change on MS will on the average bring 37.42% change on ROE given that all other independent variables are remaining constant. As the change on explained variable is very huge, banks have to exert extra effort in order to increase MS ratio so that they will directly affect ROE which interests shareholders very much for the investment they made. Unlike other ratios where banks have options on both the numerator and denominator, MS does not allow banks to play on both these figures. The only option to increase this ratio is to increase the numerator of MS. The numerator of MS can be increased only through extending more loans and advances with acceptable level of interest and risk. At the initial stage of the study it was expected that MS and ROE will have a positive relationship. In line with this the preset hypothesis was there is a positive relationship between MS and ROE. Now as per the result of the regression table indicated above (table 17), there is no sufficient evidence to reject the null hypothesis.

4.4.4.6 IR and ROE

Inflation rate is one of the macroeconomic variables that are considered as explanatory variable in this study. Macroeconomic explanatory variables unlike other bank specific variables are outside the control of banks. Even if macroeconomic variables are out their control, they have to be critically watched in order to reduce their negative impact and exploit the opportunities that will be arising from these external explanatory variables. IR is measured as the negative change of purchasing power of unit of currency in comparison with the previous year. This data is collected directly from the authoritative body- National bank of Ethiopia. Table 17 of random effect GLS model indicates that the coefficient of IR is positive with significant p value of 0.015. The positive sign of the coefficient indicates that there is a positive relationship between IR and ROE. The magnitude of IR from the above same table is 0.0023349. The implication of this number with positive sign is that a unit positive change in IR will bring on the average 0.23% positive change on ROE given that all other independent variables are remaining constant. Based on the data found from the above regression table, it is possible to argue that banks profitability

will increase in inflationary years compared with deflationary periods. At the beginning of the study, it was expected that there is positive relationship between IR and profitability. Accordingly the preset hypothesis was there is a positive and significant relationship between IR and ROE. Per the result of the regression table shown above, there is no sufficient evidence to reject the null hypothesis and accept the alternative. The result of this study is also substantiated with other previous studies (Abugamea, 2018; Yigermal, 2017; Alper and Anbar, 2011; Zergaw, 2018)

4.4.4.7 BEI and ROE

Looking in to the random effect GLS regression model of profitability measured in ROE, there are significant and insignificant explanatory variables. But exceptionally there is a variable that is not significant at 5% but significant at 10% significant level. This particular independent variable is branch efficiency in terms of income generation (BEI). The p vale of this variable is 0.074 with a positive insignificant coefficient of 0.0012132. This means branch efficiency in terms of income is significant at 10% significance level. Even if it does not fulfill the 5% significance level, it is the beliefs of this researcher to give relatively less emphasis in comparison to other independent variables that are significant at 5% significance level. BEI is measured as the ratio of total income to total number of branches of the bank. The implication of the coefficient is that a one unit change on BEI will bring on the average 0.12% changes on ROE given that all other independent variables are constant. The preset hypothesis was there is a positive relationship between BEI and ROE. Even if there is no sufficient evidence not to reject the null hypothesis, the significance level is higher than 5%.

4.4.4.8 Insignificant Explanatory Variables on ROE with possible reason

After running random effect GLS model for profitability measured in return on equity, the model provides that some explanatory variables are insignificant for determining profitability at 5% confidence level. These variables include both bank specific and macroeconomic variables considered as potential determinants of profitability. AQ, BL, BEI and ININ are the identified insignificant explanatory bank specific variables. In addition, AGDPGR is the other macroeconomic explanatory variable that is found insignificant at 5% significance level.

The coefficient value for asset quality is negative and the preset hypothesis for the relationship between asset quality and profitability is the negative effect of asset quality and profitability.

This indicates that the effect of asset quality on profitability is in line with the preset hypothesis but with insignificant p value. Previous studies also showed the negative relationship between asset quality and profitability but with insignificance p values (Ayele 2012; Alper and Anbar 2011; Kutsienyo 2011). The possible reason for insignificance of asset quality may be the application of short range data set as indicated in the limitation of the study.

Even if the coefficient value of branch efficiency in income is small in magnitude, the sign is positive which indicates that its effect on profitability is positive but the p value is insignificant. Interms of relationship between this explanatory value and profitability is positive and in line with the preset hypothesis but with insignificant p value. As said above in asset quality, the possible reason for insignificance may be the use of short range data set in data analysis.

As indicated in the descriptive statistics part of this study, there are extreme values for branch location and investment income from subsidiaries. The maximum value for branch location is 100% which indicates there are banks that have no branches outside the city. In addition, there are alos banks that have descriptive value of zero in investment income. This indicates that these banks have no investment at all in some years. The possible reason for insignificance of these values may be the existence of more polar extreme values in the analysis of the data.

The insignificant effect of annual GDP growth with profitability is also showed in previous studies (Shuremo 2016; Birhanu 2018; Zergaw 2018)

Future studies on the subject are expected to either substantiate or otherwise of the possible reasons, as stated above, of insignificance of those independent explanatory values.

4.5 Result summary

The following two tables summarize the result of random effect GLS model for both ROA and ROE against the preset hypothesis for quick understanding and reference. The table also includes the decision either not to reject the preset hypothesis or otherwise of the relationship and corresponding significance level of each independent variable with profitability.

Table 18 Comparison of regression result with Hypothesis- ROA

Explanatory Variables	Hypothesis		Regression Result		Decision on Hypothesis
	Relationship	Significance Level	Relationship	Significance Level	
AQ	Negative	Significant	Negative	Insignificant	Failed to accept
CA	Positive	Significant	Positive	Significant	Failed to Reject
FXI	Positive	Significant	Positive	Significant	Failed to Reject
BL	Positive	Significant	Negative	Insignificant	Failed to accept
BEE	Positive	Significant	Positive	Significant	Failed to Reject
BEI	Positive	Significant	Positive	Insignificant	Failed to accept
ININ	Positive	Significant	Negative	Insignificant	Failed to accept
MS	Positive	Significant	Positive	Significant	Failed to Reject
AGDPGR	Positive	Significant	Negative	Insignificant	Failed to accept
IR	Positive	Significant	Positive	Significant	Failed to Reject

Source: Own Compiled

From the above table, it is concluded that out of the total explanatory variables considered in the model, five of them are in line with the preset hypothesis. As a result there is no sufficient evidence to reject the preset hypothesis for the relationship between these explanatory variables and ROA. The decision column of the above table indicates which hypothesis are failed to reject the null or the alternative hypothesis that were initially set and subject to test. For the rest of independent variables that are not in line with the preset hypothesis, it is proposed to use future data set and re run the regression result and check the outcome whether it will be in line with this preset hypothesis or in support of the result of this regression

Table 19 Comparison of regression result with Hypothesis- ROE

Explanatory Variables	Hypothesis		Regression Result		Decision on Hypothesis
	Relationship	Significance Level	Relationship	Significance Level at 5%	
AQ	Negative	Significant	Negative	Insignificant	Failed to accept
CA	Positive	Significant	Negative	Significant	Failed to accept
FXI	Positive	Significant	Positive	Significant	Failed to Reject
BL	Positive	Significant	Negative	Insignificant	Failed to accept
BEE	Positive	Significant	Positive	Significant	Failed to Reject
BEI	Positive	Significant	Positive	Insignificant	Failed to accept
ININ	Positive	Significant	Negative	Insignificant	Failed to accept
MS	Positive	Significant	Positive	Significant	Failed to Reject
AGDPGR	Positive	Significant	Negative	Insignificant	Failed to accept
IR	Positive	Significant	Positive	Significant	Failed to Reject

Like that of the previous table, five of the explanatory variables in this table are the same as the preset hypothesis at 5% significance level. Accordingly, there is no sufficient evidence to reject the preset hypothesis as indicated in the decision column of the above table. Even though BEI is not significant at 5% significance level, it is significant at 10% significant level and hence it is likely to conclude that it is in line with the preset hypothesis. In terms of relationship, AQ is still in line with the preset hypothesis but the p value is much higher than 5% confidence level. From the significant explanatory variables, CA has different sign of coefficient at ROA and ROE- positive and negative respectively. The negative coefficient in ROE may be the result of more own investment through equity in private commercial banks.

CHAPTER FIVE

Summary, Conclusion and Recommendation

5.1 Summary

The purpose of this study is to identify and analyze determinants of profitability of private commercial banks in Ethiopia. Previous studies on the subject show that there are internal bank specific and external macroeconomic variables that determine profitability of commercial banks. Related literature reviews have been made and knowledge gaps identified for application of some of the identified bank specific variables in this study. This study considers asset quality, capital adequacy, foreign exchange transactions income, income from investment in subsidiaries, branch location, branch efficiency in income, branch efficiency in administrative expense and market share variables as bank specific explanatory variables. Gross domestic product growth and inflation rate are external explanatory variables considered in this study. Out of the competing measurements of bank profitability, the commonly used return on asset and return on equity are considered in this study. Hence the explanatory variables are regressed twice- one with return on asset and the other return on equity.

From the total population of 16 private commercial banks, 12 banks are selected and the required data has been collected for data analysis purpose. Different ratios are used to measure both bank specific explanatory variables and explained variable from the audited financial statements of the sampled banks for a data set period from 2013/14 to 2018/19. In addition, macroeconomic data is collected from National Bank of Ethiopia. A total of 72 observations are used for data analysis. STATA version 13 is used as a tool for data analysis of the panel data set. Descriptive data analysis and classical linear regression model for panel data are used to discuss on the results of the finding. Different diagnostic tests have been made to insure that the data has fulfilled the required assumption of CLRM. Accordingly test for homoscedasticity, multicollinearity and normality have been made and all tests are holding true. Apart from these tests, the appropriate model for panel data set is selected using Hausman test of appropriateness for either random or fixed effect model. Once the data has passed these tests, a regression of independent variables on

profitability is made and the required regression model extracted from the system to make the discussion.

The regression table of ROA shows that asset quality, branch efficiency in income, income from foreign exchange transactions, market share and inflation rate are found significant in determining profitability of private commercial banks. The rest of the explanatory variables are insignificant even if asset quality and branch efficiency in income show the same relationship with the preset hypothesis. The model shows an overall R-sq value of 0.6262. This means 62.62% of the overall change in ROA is explained by these independent variables.

The regression table that measures profitability with ROE indicates that asset quality, income from foreign exchange transactions, branch efficiency in administrative expense, market share and inflation rate are significantly affecting profitability at 5% significance level. In addition, branch efficiency on income is also a significant determinant of ROE at 10% significance level. The rest of explanatory variables are found insignificant in determining profitability at 5% significance level.

In regression results (profitability measured in ROA and ROE), income from foreign exchange transactions, branch efficiency in administrative expense, market share and inflation rate show the same result both in terms of sign of coefficient and level of significance. The exceptional explanatory variable is capital adequacy which shows positive sign of coefficient for ROA and negative coefficient sign for ROE. In addition, branch efficiency in income is significant with ROE at 10% significance level but the p value for the same variable in ROA is 0.146 which is above 10% significance level.

5.2 Conclusion

From the findings of this study, it can be concluded that capital adequacy, income from foreign exchange transactions, branch efficiency in expense, market share and inflation rate are significantly determining profitability even at less than 5% significance level. The relationships that exist between these explanatory variables and ROA are positive. The positive relationship between these independent variables and ROA enable both to moves to the same direction. Moreover, asset quality, investment income from subsidiaries, growth in domestic gross product

and the proportion of city branches to total number of branches are insignificant in determining profitability as measured with ROA.

As per the results of the data analysis, it can also be concluded that capital adequacy, income from foreign exchange transactions, branch efficiency in expense, market share and inflation rate are the significant determinants of profitability measured with ROE. The relationship between these variables except capital adequacy with ROE is positive. The relationship between capital adequacy and ROE is negative which may arise from more on own investment by commercial banks. The positive relationship indicates a direct relationship where the dependent variables move in the direction that the explanatory variables are moving. The negative relationship between capital adequacy and ROE shows indirect relationship where capital adequacy and ROE are moving in different direction. The increase in capital adequacy will result to the decrease in ROE and vice versa. Exceptionally, branch efficiency in income is significant determinant for ROE but at 10% significance level. The remaining independent variables, (asset quality, investment in subsidiary income, proportion of city branches to total branches and growth in gross domestic product) are insignificant in determining profitability measured with ROE of private commercial banks in Ethiopia at 5% confidence level.

Except capital adequacy, all significant independent variables show similar relationship with both ROA and ROE as measure of profitability. Moreover, the rest of the independent variables show insignificant relationship with ROA and ROE.

5.3 Recommendation

Based on the analysis of these particular bank specific and macroeconomic explanatory variables the finding of the study show that profitability is determined by both internal and external explanatory variables. Particularly, bank specific independent variables such as capital adequacy, income from foreign exchange transactions, branch efficiency in terms of expense and market share are significantly affecting profitability of commercial banks measured through ROA and ROE. Inflation rate from macroeconomic explanatory variables also affects commercial banks profitability significantly.

Because banks have the ability to control most of bank specific independent variables, it is in the hand of bank executives to increase profitability through improving the aforementioned

significant explanatory variables. Moreover, bank executives have to also work hard to increase their profitability in inflationary periods.

Therefore private commercial banks have to exert extra effort in improving those significant bank specific explanatory variables to get better financial performances whether it is measured with ROA or ROE. Exceptionally, private commercial banks have to:-

- ❖ Improve the level of income from foreign exchange transactions. The current trend to increase foreign exchange transaction is to use prize system for those that are channeling foreign exchange transactions/ transfers through their banks. On the other hand, there are banks that are not utilizing attractive prizes for customers that transact/channel foreign exchange with their banks. The option of prize system has to be critically evaluated as to its benefit and costs. In one way or another, banks have to work hard to mobilize foreign exchange in different mechanisms. Even if it is not currently implemented by all private commercial banks, prizes system for customers that are transacting and channeling foreign exchange via their banks, including exchanges of foreign currency with local currency is one of the options to attract foreign currency. This recommendation may help those banks that have not yet started prize system to attract foreign transaction through their banks. The other alternative to improve income from foreign exchange is to increase customers that are in export business and generating foreign exchange through providing incentives like reducing interest rate and providing loans with minimum or without collateral (of course after ensuring the acceptable level of risk) for those that are seeking funds to run their export business. Share selling through foreign currency for Ethiopian nationals that are living abroad could also be considered as another recommendation to increase foreign exchange sources.
- ❖ Control their general and administrative expense in order to improve branch efficiency in expenses. Obviously, expenses are directly affecting bottom line of banks' business and when it comes with branch efficiency, the effect will also improve employee efficiency. Manpower and other administrative costs are the major components to run bank branches. The increase in branches will also increase administrative costs as well. Thus banks should critically review feasibility study before opening branches at any location particularly in locations where employee cost and other administrative costs like office

rent are significant. In addition, banks have to close those branches that are not contributing in generating profitability both in fund mobilization and income generation. It is also possible to improve branch efficiency in expense through acquiring limited space branch and efficient manpower. The other recommendation is to make bank transactions through IT based infrastructure so that cost of manpower and other administrative expenses to run branches will be reduced significantly

- ❖ Work hard in securing better market share from loans and advances extended. Market share in this study considers the share of loans and advances of the bank. Based on this the only option to improve market share is to increase loans and advances considering the risk and return that will be materialized. To increase loans and advances, commercial banks have to broaden their customer base and maintain their existing customers who are taking loan and advance. Moreover, the stringent loan and advance policy and bureaucratic process of loan granting have to be flexible in a way that will attract loan seekers without scarifying acceptable level of risk.
- ❖ Finding equilibrium level for capital adequacy to get better financial performances (ROE). In this case, the level of capital adequacy should be managed and set to the equilibrium level that it will not affect ROE negatively. In this case care has to be exercised not to sacrifice the positive impact of capital adequacy on ROA. Finding the equilibrium level of capital adequacy has to balance its negative effect on ROE and positive effect on ROA. The expected solutions to curve the negative effect of capital adequacy on ROE is to increase total asset of the bank apart from own investment. Based on this mechanism, own financing and deposit mobilization will be balanced and the impact of over capitalization on ROE will be curved.

Last but not least is this study has used very limited explanatory variable that affect profitability of private commercial banks. This means that all explanatory variables are not considered exhaustively in this study. Subsequent studies are proposed to be conducted in order to substantiate the findings of this study or otherwise.

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Appendices

Table 21 List of Private Commercial banks in Ethiopia

List of Private Commercial banks in Ethiopia with
respective Year of Establishment

Bank Name	Year of Establishment
Awash International Bank	1994
Dashen Bank	1995
Bank of Abyssinia	1996
Wegagen Bank	1997
United Bank	1998
Nib International Bank	1999
Cooperative Bank of Oromia	2004
Lion International Bank	2006
Oromia International Bank	2008
Zemen Bank	2008
Bunna International Bank	2009
Birhan International Bank	2009
Abay Bank	2010
Addis International Bank	2011
Debub Global Bank	2012
Enat Bank	2012

