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DETERMINANTS OF FINANCIAL PERFORMANCE OF DEVELOPMENT BANK OF ETHIOPIA: TIME SERIES DATA ANALYSIS

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Statement of Certification

This is to certify that Getu Abate has conducted this research work on the topic entitled "Determinants of Financial Performance of Development Bank of Ethiopia: Time series data analysis" under my supervision. This work is original in nature and it is sufficient for submission for the partial fulfillment for the award of masters of business administration.

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This is to endorse that the thesis prepared by Getu Abate, entitled: Determinants of Financial Performance of Development of Bank of Ethiopia and submitted in partial fulfillment of the requirements for the Degree of Masters of Business Administration (MBA) coincides with the regulations of the University and meets the accepted standards with respect to originality and quality.

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Abstract

Development banks are engines in promoting industrial growth, developing backward areas, encouraging modernization and enhancement of technologies, encouraging export and import substitutions, creating employment opportunities and others. The commercial banks are the most researched sectors whereas development banks are neglected. This study investigated on the potential determinants of firms' financial performance in the case of development bank of Ethiopia. To this effect, the annual time series data was used for nearly the past three decades, clearly from 1991-2019 and ROA used as a proxy measure of financial performance of the bank. The ARDL-ECM regression analysis technique was employed to find out what factors really determined the financial performance of development bank of Ethiopia in the short-run and long-run relationship. The empirical finding of the study showed that the asset quality, corporate social performance, market loan share, growth rate of real GDP and inflation rate were found to be a significant drivers of the financial performance of development bank of Ethiopia both in the short-run and long-run . Aside this, contrary to the expectations of the study; the leverage, operating efficiency and liquidity were found to have negligible impact on the financial performance of DBE. The profitability of DBE is found to be inversely related to poor asset quality and corporate social performance whereas positively and significantly related to the market loan share, growth rate of real GDP and inflation rate both in the short-run and long-run. In addition, the study revealed that the poor asset quality is found to be the most important factor in determining the financial performance of DBE both in the short-run and long-run among the variables incorporated in the model of the study. Moreover, the result of ECM of the study showed that about 56% of departure in the short-run disequilibrium is corrected each year to reach the long run equilibrium. The findings of this study are of value to DBE's management, other policy makers and academicians.

Key words: Autoregressive distributed lag-Error correction model, Development banks, corporate social performance/responsibility, Determinants, Financial performance, Profitability, ROA

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List of acronyms

ADF	Augmented Dickey Fuller Test
AID	Agricultural and Industrial Development Bank
ARDL	Autoregressive Distributed Lag
CFP	Corporate Financial Performance
CPI	Consumer Price Index
CSP	Corporate Social Performance
DBE	Development Bank of Ethiopia
ECM	Error Correction Model
ES	Efficiency Structure
FGAPR	Financing Gap Ratio
GDP	Gross Domestic Product
LLPL	Loan Loss Provisions to loans
LnCSP	Natural Logarithm of Corporate Social Performance
NBE	National Bank of Ethiopia
NIM	Net Interest Margin
NPA	Non-Performing Asset
NPL	Non-Performing Loans
NPLA	Non-Performing Loan & Advances
MP	Marker Power
OLS	Ordinary Least Square
OPEFFIC	Operational Efficiency
PLC	Private Limited Company
RMP	Relative Market Power
ROA	Return on Asset
ROAA	Return on Average Asset
ROE	Return on Equity
ROAE	Return on Average Equity
SCP	Structural Conduct Performance
SME	Small and Medium Enterprise
SNNP	South Nation, Nationalities and Peoples
SSA	Sub Saharan Africa

CHAPTER ONE

1. Introduction

1.1. Background of the Study

The banking sector has been playing very significant role in the economy of a given country especially in the countries where there is no market-based financial system rather bank-based financial system. Banks do affect and integrate the economic activities through mobilizing resources, eliminating poverty, production, and distributing of public finance. (Matthew &Laryea, 2012) explained that financial sector is crucial to the growth of economy of countries, and banks remain a nucleus of the sector, especially in developing countries where the capital market is not tough enough. (Ongore and Kusa, 2013) also contended that countries' economic resource allocation can be achieved via commercial banks since they can channel funds from depositors to investors endlessly. To do so, they are expected to generate adequate income to cover their operational cost they incur so as to undertake the banking services. In other words, banks need to be profitable so as to sustain their banking function.

Beyond mobilization of resources from those who have surplus capital to deficit units (i.e. intermediation function), the financial performance of banks has critical implications for economic growth of countries. Moreover, according to Jha and Hui (2012), investment is promoted by a strong financial system which is able to offer the environment of efficiently allocating resources, mobilizing savings and financing productive business opportunities. They are the most vital financial institutions for intermediation of the most economies that provide a bundle of different products and/or services. Therefore, due to the fact that banks are functioning as financial intermediaries, they are assumed to be playing a crucial role in the operation of most economies. The economic growth can also be influenced by the effectiveness and efficiency of financial intermediation. Besides, the systemic crisis can be resulted from banks insolvencies (Athanasoglou et al., 2005). Hoenig (2010) has also contended that the banking sector is an indispensable financial service sector supporting development plans via channeling flow of funds from those who have surplus capital to deficit units. Thus, banks are supporting financial and economic policies of countries via loans and investments and they also make easy transfer of funds between individuals or businesses. Hence, it is possible to say that banks are a community's economic engine.

By its nature, the banking industry is one of the most sensitive businesses all over the world. A strong and profitable banking sector can withstand negative shocks and contribute to the stability of the financial system and thereby it creates confidence for additional investment and brings about economic growth as well as development. However, poor banking performance can lead to banking failure and crisis which have significant negative effects on the economic growth. Therefore, it is extremely important to frequently examining and understanding the factors that affect the financial performance of banking industry.

Over the last three or more decades, the banking sector has experienced worldwide major transformations in its operating environment. Their structures and performances were influenced both by external and domestic factors. Despite, the increased trend toward bank disintermediation observed in many countries particularly in advanced economies, till now banks have been playing a great role in financing economic activity in general and different segments of the market in particular.

The factors that are affecting the financial performance of banks are classified into banks specific and macroeconomic factors which are stochastic variables that determine the output (Al-Tamimi, 2010; Aburime, 2005 cited in Ongore and Kusa, 2013). Internal factors are basically affected by internal decisions of management and the board. The internal factors are within the range of the bank to control them and that they differ from bank to bank. In other words, the internal factors reflect differences related to policies and decisions of a bank's management with regard to sources and uses of funds, capital, and liquidity and expense management. The external factors are sector-level or country-wide factors which are beyond the control of the management of the individual bank. In other words, external factors are the variables which can be resulted from the environment within which a bank operates and the industry to which it belongs.

1.2. Statement of the Problem

Athanasoglou et al. (2005) contended that the performance of banking industry is an outstanding issue for developing countries. In the countries where financial markets are not yet developed well, the banks are the primary economic savings depository and main source for financing the majority of companies. Development banks fill a missing gap left by undeveloped capital markets and the reluctance of commercial banks to offer long-term financing. The government of Ethiopia has authorized Development Bank of Ethiopia to

bridge the demand of finance where commercial banks operating in the country are fear to take risks. The development bank of Ethiopia has been financing mega projects through project financing modality and SME via lease financing modality by mobilizing financial resource from local and foreign sources. It provides unsecured long term loans (i.e. without holding the sufficient collateral) whereas other commercial banks that have been operating in the country are providing well secured loans. This makes the development bank of Ethiopia more risky than commercial banks. The financial stability of DBE has a paramount importance for the country's investment growth. Therefore, its health is very important to the health of the general economy at large. The survival and growth of a business organization mostly depend on the return which an organization is able to earn. Beyond continuing their banking function, the financial performance of banks has critical implications for economic growth of countries. Good financial performance rewards the shareholders for their investment and thereby it promotes additional investment and brings about economic growth. Conversely, the crisis of banking sector has negative impact on the economic growth. During 2007 and 2009, the existed global financial crisis indicated that as performance of banks is very vital for the national and international economic growth, and it should be monitored well (Olweny& Shipho, 2011).

For the past consecutive years, development bank of Ethiopia has experienced a declining of financial performance and even it has registered a net loss for the fiscal year of 2019. The management of the bank has explained that bad loans (non-performing loans) in portfolio and operational inefficiencies caused the DBE to suffer great losses. In addition, as it is scrutinized from the annual audit reports of the bank, its capital is getting depleted. Hence, the rise of bad loans and depletion of capital implies that the DBE has been operating its loaning activities under poor financial performance. Although these are stated as constraint areas affecting the profitability of DBE, it calls for detailed investigation to generate sufficient conclusions. Therefore, what is more necessary behind for the development bank of Ethiopia to be profitable is that actively examining and controlling the most important factors affecting its financial performance.

As far as the researcher knowledge is concerned, a lot of studies relating to the determinants of financial performance of commercial banks operating in Ethiopia were conducted by giving no attention for the DBE. In addition, the studies that were conducted in Ethiopia so far have been failed to examine the impact of the most important variables like leverage,

market loan share and corporate social performance which is a contemporary and debating issue in the world of competition. Moreover, the study periods of most researches are minimal as compared to the time periods of this study. Furthermore, all previous researches conducted in Ethiopia on this topic were used OLS technique of regression analysis to examine the cause-effect relationships between banks' financial performance and its potential determinants. However, based on the nature of the data collected, this study was used Autoregressive distributed lag and Error Correction Model (ARDL-ECM) to examine the short-run and long-run relationship between financial performance of DBE and its potential determinants. Therefore, this study was identified and examined the determinants of financial performance of development bank of Ethiopia. Thus, the motivation for this study is to ascertain whether the observations made in the previous studies from other commercial banks jurisdictions could be replicated on DBE

1.3.Research Questions

Aligned with the above mentioned problems, the following research questions need to be addressed.

- What is the effect of leverage on financial performance of DBE?
- What is the effect of asset quality on the financial performance of DBE?
- What is the effect of operating efficiency on the financial performance of DBE?
- What is the effect of liquidity on the financial performance of DBE?
- What is the effect of CSP on the financial performance of DBE?
- What is the effect of market loan share on the financial performance of DBE?
- What is the effect of real GDP growth rate on the financial performance of DBE?
- What is the effect of inflation rate on the financial performance of DBE?

1.4.Objective of the Study

1.4.1. Objective of the Study

The main objective of the study was to investigate the major determinants of the financial performance of banks in the context of development bank of Ethiopia and to forward findings based recommendations which might enables DBE to solve its experienced declining of profitability.

1.4.2. Specific objectives of the Study

The specific objectives of this study were;

- To examine the effect of leverage on financial performance of DBE.
- To examine the effect of asset quality on financial performance of DBE.
- To examine the effect of management efficiency on financial performance of DBE.
- To examine the effect of liquidity on financial performance of DBE.
- To examine the effect of Corporate Social Responsibility (CSR) on financial performance of DBE.
- To examine the effect of market share of loan on financial performance of DBE.
- To examine the effect of real GDP growth rate on financial performance of DBE.
- To examine the effect of inflation rate on financial performance of DBE.
- To examine if there is any short-run dynamic and long-run equilibrium relationship exists between measure of financial performance (i.e. ROA) in the context of development Bank of Ethiopia and its potential determinants stated above.

1.5.Significance of the Study

The development bank of Ethiopia is a specialized state owned financial institution having the lion share of the banking industry of our country next to the Commercial Bank of Ethiopia. It is possible to say that DBE is the backbone of investments that have been undertaking in Ethiopia since it is the only bank providing long-term loans for mega projects without holding additional collaterals. This study's contributions are three-folds. First, it provides significant information for the management of DBE so that they would understand the most important determinants of development banks' financial performance and issues operating policies accordingly. Secondly, the concerned government bodies would benefit from the study as they need to make more informed decisions so as to frame national policy for banking industry. Thirdly, it will add value to the existing knowledge of banking industry particularly the study will bridge literature gaps revealed on development banks and it is also expected to be used by upcoming researchers for further study in the banking sector.

1.6.Scope of the Study

The main objective of the study was to identify and examine the major determinants of financial performance of banks in the context of development bank of Ethiopia. Hence, the scope of the study is confined to the context of a single firm due to the fact that there is only one development bank in Ethiopia.

1.7. Limitation of the Study

Like any other researches, this study was not free of limitations. The first limitation was that the time frame of the study is restricted to the period from 1991 to 2019. The development bank of Ethiopia has a long year of service in the country in different project finance schemes so as to promote the national agenda of socio economic development. Due to the fact that the name and mission of DBE has been changed more than seven times, getting the required data from the very beginning of its establishment year is too difficult. The second limitation is lack of direct measurement unit of explanatory variables. The eight most important independent variables were incorporated in the model specification even though some variables have no standardized measurement. For instance, theoretically corporate social responsibility is identified as the most important factor influencing the corporate financial performance of firms whereas there is no standardized measurement for same.

1.8.Organization of the Study

This study is arranged into five major chapters. The first chapter comprises of background of the study, statement of the problem, the research questions, and objective of the study, research hypothesis and significance of the study, scope of the study and limitation of the study. The second and third chapters discuss the related literature review and research methodology respectively. The second chapter focuses on the review of the theoretical and empirical literatures on determinants of financial performance of banks, whereas the third chapter deals with research approach adopted, sample and sampling technique, types of data and tools used, data analysis method and operational definition of variables that were included in the study. The fourth chapter presents the results of regression analysis and discussions. Lastly, the remained chapter shed light on summary of the findings, conclusions and policy implications recommendations to be used by the concerned bodies.

CHAPTER TWO

2. Literature Review

This chapter gives a brief summary of the existing related literature review since the literature is the backbone of research and connected to the research topic and the appropriate research methodology. A literature review can offer the scholarly background needed for the subject matter under study. The main purpose of reviewing literature is to scrutinize what has already been done related to the research problem being studied in a critical way. A detailed knowledge of what has been done assists the researcher to: avoid unnecessary and unintended replication, form the framework within which the research findings are going to be interpreted, and depict researcher's familiarity with the existing body of knowledge (Emory, 1985). This section starts by discussing the concept of firm's financial performance and various ways of its measurement, the theories of banks' financial performance directing this study and it then goes ahead to discuss bank specific, industry level and macroeconomic variables which are affecting the financial performance of financial institutions. The related empirical studies researched on determinants of financial performance of banks at international level and in Ethiopia in particular are also discoursed. Finally, after summarizing the research gap of the existing empirical literature; the conceptual framework of the study was constructed.

2.1.The Concept of Firms' Financial Performance

One way in which investors can be satisfied is a better financial performance (Chakravarthy, 1986) and the financial performance can be signified by profitability, growth and market value (Cho &Pucik, 2005; Venkatraman & Ramanujam, 1986). These three aspects complement each other. (Glick et al., 2005) defined that profitability is a measure of the past capacity of firms to generate returns. On the other hand, growth expresses a firm's past ability to enlarge its size (Whetten, 1987). Enlarging size, even at the same profitability level, can enhance its absolute profit and cash generation. Larger size can also bring economies of scale and market power, leading to enhanced future profitability. Market value expresses the external assessment and expectation of firms' future performance. The market value should have relation with historical firms' financial performance and growth levels. However, it also incorporates future expectations of market changes and competitive moves.

Financial performance shows that how well the management of the company uses the firms' real investment resources to generate reasonable profits. It is one of the most necessary factors having effect on the decision making of business firm as well as the resource providers. Hence, to be certain so as to survive in the ever growing competitive business environment, every organization ought to be more alarmed about the factors which are negatively or positively affecting their financial performance. Terence (1989) also explained performance measurement as a way of ensuring that resources available are used in the most efficient and effective way. Thus, the essence of performance measurement is to offer the organization the maximum return on the capital invested on the business and it is very important due to the fact that managers are demanding very organized information to know how well banks are performing .The firm's financial performance can be measured via using a different financial ratios analysis, benchmarking, and measuring performance against budget or a mix of these methodologies. A variety of financial ratios that are computed from the financial statements of any business firms can give an indication of their financial performances. For instance, financial measures such as profit after tax, return on assets (ROA), return on equity (ROE), net interest margin (NIM), earnings per share and any market value ratio that is generally recognized can be used to measure the financial performance of financial institutions as well as others business organization.

Return on asset (ROA) measures the profit earned per dollar of assets and it indicates how efficiently the resources of the firm are used to generate the income. Moreover, it indicates the competence of the management of a firm in generating net income from all the resources of the institution (Khrawish, 2011). Thus, the higher ROA is indicative of that the company is more economical in using its assets. For any bank, ROA depends on the bank's policy decisions as well as unmanageable factors relating to the economy and government regulations. Many regulators believe return on assets is the best measure of bank efficiency since it indicates how efficiently and effectively the assets of the firm are used to generate the income.

Khrawish (2011) elucidated that ROE is the ratio of Net Income after Taxes divided by Total Equity Capital. It represents how much of return earned on the funds invested by its stockholders so as to conduct the business activities of the intended firm. ROE reflects how efficiently and effectively a bank management is using shareholders' funds or it is a financial ratio that refers to how much profit a firm gained from the total amount of shareholder equity

invested or found on the balance sheet (Ongore & Kusa, 2013). A business that has gained sufficient return on its equity is more probably to be one that is capable of making cash internally. Thus, the higher the ROE is indicative of that the better the firm is in generating reasonable profit. Berger and Bouwman (2009) recognized ROE as a comprehensive financial performance indicator since banks may have substantial off-balance sheet portfolios. Therefore, banks have to allocate capital against every off-balance sheet activity in which they engage. The net income and equity both reflect the bank's on – and off-balance sheet activities (Berger &Bouwman, 2009).

The measure of net interest margin is the difference between the interest income generated by banks and the amount of interest paid out to their lenders and/or depositors, relative to the amount of their (interest earning) assets. It is calculated as the net interest income divided by total assets and it is defined as the percentage by how much the interest gained on a bank's portfolio exceeds the interest paid on deposits or borrowed funds (Gul et al., 2011; cited in Ongore and Kusa, 2013). In the literature, NIM has emerged as a key indicator of asset productivity, since a high NIM is an indicative of the effective use of earning assets and a sensible mix of interest-bearing liabilities (Brissimis, Delis &Papanikolaou, 2008).Hence, the higher NIM signifies that the better the performance of banks.

2.2.Banks' Financial Performance Theory

A theory is a tested statement or a set of statements, which are supported by evidence meant to give clarifications about a given phenomena. It used to provide a generalized explanation about the relationship among phenomenon. Hence, one has to be familiar with those theories related to the area of research topic under study (Kombo and Tromp, 2009). Trochim (2006) explained that a theoretical framework guides the work of research, determining what variables to be measured, and what statistical relationships to be looked and tested for in the context of the problems under review. Thus, the existing theory can supports the researcher to critically observe the variables of the study; offers a general framework for the data analysis; and helps to choice the applicable research design. A well tested theories and models provide causal accounts of the world and bring a conceptual coherence to a domain of science and simplify our understanding of the world. Most researchers in the banking industry acknowledges Berger (1995) as being the one who exerted a lot of efforts in order to distinguish between internal and external determinants and develop a theory of bank profitability. Most of studies of Berger were focused on identifying and examining the determinants of financial performance of banks. However, most of the empirical results vary

due to the differences in the global environments within which the banks are doing their banking activities. Researches on firm's performance were mostly used the market power hypotheses, efficiency structure, portfolio theory and others.

2.2.1 The Market Power Hypothesis

This hypothesis argues that the performance of banks are affected by the market structure of the industry and noted that increased external market forces result in huge profit. In other words, it means that an increase in market concentration and market share leads to monopoly powers. There are two different hypotheses of MP theory which are the Structure-Conduct-Performance (SCP) and the Relative Market Power hypothesis (RMP). The market structure, conduct and performance framework was derived from the neo-classical analysis of markets (Shaik et.al, 2009). The argument concept of SCP is that profits, price and product quality (i.e. market performance) are depends on market conduct (pricing behavior, legal tactics, merger and collusion) that in turn depends on market structure like number of buyers and sellers, and barriers to entry (Ahokpossi, 2013).Thus, favorable banking conditions such as deregulation and higher interest rates yield greater profits for banks. In the 1960s, the SCP theory was gained popularity in banking studies; further expanded in the 1970s and continued into the 1980s. The philosophy of SCP is that the level of concentration in the banking market gives rise to potential market power by banks, which may raise their financial performance. Notwithstanding of their efficiency, banks in more concentrated markets are most probably to make "abnormal profits" by their capability to lower deposits rates and to charge higher loan rates as a results of collusive or monopolistic reasons, than banks operating in less concentrated markets (Tregenna, 2009).

By refuting the argument concept of SCP, the RMP hypothesis emphasizes that as bank become bigger and more monopolizing an industry, it will generate greater revenues and net incomes accordingly. (Berger 1995) argues that huge market shares and a wide range of the source of profits cause higher profits for individual banks. In other words, it mean that the only banks which have huge market share and well differentiated products/services are able to exercise their market power so that they can influence prices and earn non-competitive profit (Ongore& Kusa, 2013).

2.2.2. Efficiency Structure

The efficiency structure (ES) hypothesis is another theory that explains banks performance and same was emerged from criticism of the SCP hypothesis (Athanasoglou et al., 2006). This theory argues that the relationship between market structure and performance of any firm is defined by the efficiency of the firm. The costs can be minimized via enhanced managerial efficiency and advanced production or service providing technologies and then lead to higher profits. There are also two distinct approaches within the ES; the X-efficiency and Scale–efficiency hypothesis (Athanasoglou et al., 2006). The X-efficiency approach argues that the more efficient firms are more profitable because of their lower costs. The more efficient and effective firms tend to gain vast market shares, which may manifest higher levels on market concentration without any causal relationship from concentration to profitability (Athanasoglou et al., 2006). Conversely, the scale approach emphasizes economies of scale rather than differences in management or production technology. Larger firms can incur lower unit cost and thereby they can obtain higher profits through economies of scale. Due to the reason, large firms enable to acquire large market shares, which may manifest in higher concentration and then profitability (Athanasoglou et al., 2006).

2.2.3. Portfolio Theory

This modern portfolio theory was introduced by Harry Markowitz in 1952. It gives a general explanation on how risk-hesitant investors could construct portfolios in order to optimize or maximize expected return based on a given level of market risk, emphasizing that risk is an inherent part of higher reward. Thus, an investor will benefit from diversification through a reduction in the riskiness of the portfolio while maximizing returns thereof. The appropriate holding of each asset in a wealth holder's portfolio is affected by policy decisions that are determined by a number of factors such as the vector of rates of return on all assets, the size of the portfolio and risks associated with the ownership of each financial asset. It entails portfolio diversification and the desired portfolio compositions of banks are results of decisions taken by the bank's key management and the overall policy decisions (Nzongang and Atemnkeng, 2006; cited in Olweny and Shipho, 2011).Thus, the ability to obtain maximum profits depends on the feasible set of assets and liabilities determined by the management and the unit costs incurred by the bank for producing each component of asset.

2.3. Determinants of Bank Performance

Based on the above discussed theories, it is possible to say that bank performance is influenced by both internal and external factors. There are two major factors which are classified into internal and external factors that are positively or negatively affecting the financial performance of commercial banks (Al-Tamimi, 2010; Haron, 2004). The internal factors are bank specific characteristics, further divided into financial statement variables and non-financial statement variables. The financial statement variables are those related to the decisions which directly involve items in the balance sheet and income statement, while non-financial statement factors are outside the financial statement. The financial statement indicators include; bank leverage, bank size, capital ratios, liquidity, asset quality, deposits, operational efficiency etc. The non-financial variables such as number of branches, employees, automatic teller machines, customers, age of the bank, ownership are among others. The internal factors are generally believed to be within the control and influence by the key management of individual bank. Via best practice in policies, strategies, and decision objectives; the management and the board can influence the financial performance of banks (Haron, 2004).

2.3.1. Bank Specific and Industry level Determinants

The under discussed variables are the internal factors widely used in banking studies to examine their effects on the financial performance of banks operating in different countries.

2.3.1.1.Leverage and Bank Financial Performance

Theoretically, leverage level is identified as an important factor that determines the performance of a firm. The leverage is the ratio of debt and equity financing. A firm should determine a proper capital structure (i.e. leverage) that generates the maximum profit for it, as too less equity financing increases the control of the owners to a large extent. The effect of leverage on financial performance of firms has gained significant focus point in the literature after Modigliani and Miller started publishing their research about the issue in 1958. It become a popular agenda in that it was researched both in academic level and corporate level since the financing decisions of a firm are of vital importance for its operating and investing activities. There are a lot of theories which discuss it in distinct ways. It refers how a firm mixes debt and equity in order to finance its investments. There is still warm debate pertaining to optimal debt-equity mix and what impact it has on firm's financial performance and vice versa. The optimal mix of debt and equity in the capital structure results in minimum weighted average cost of capital and consequently, it maximizes the firm‘s financial

performance in terms of shareholders' value. The optimal capital structure in the real world can be explained by the trading-off between the gains from debt and different related costs such as bankruptcy, financial distress and agency costs (Copeland & Weston, 1992).Modigliani and Miller (1958) were demonstrated that in a perfect world (no taxes, perfect and credible disclosure of the information and, no transaction and agency costs), the level of debt in a firm's capital structure would have no influence on the firm's value and performance. After this initial work, capital structure mainly depends on theories which include corporate taxes, financial distress, agency costs, trade off and signaling. In their later work, (Modigliani and Miller 1963) were focused initially on the advantages of debt finance through the effect of corporate taxes. Debt is useful through the trading-off between the benefits of tax reduction on interest payments and the costs of financial distress. In 1977 Miller continues to their work and reaches on consensus that the firm has an incentive to use debt and will continue to use it until their additional supply drives up interest rates to the point where tax advantages of interest deduction are completely offset by higher rates.

2.3.1.2.Asset Quality and Bank Financial Performance

The asset quality of bank is a popular issue in banking literatures. Most authors on bankruptcy reached on consensus that before a given bank can be announced bankruptcy; there should be a substantial amount of non-performing loans due to the fact that it is a best indicator for the liquidation of banks (Demirguc-Kunt, 1989 and Whalen, 1991). Mean that, the non-performing loans determine the healthiness of financial institutions against loss of value in the assets. The declining value of assets, being prime source of banking problems, directly pour into other areas, as losses are finally cancelled-off against capital, which ultimately affect the earning capacity of the institution. With this situation, the asset quality is would be deteriorated in relation to the level and severity of non-performing assets, adequacy of provisions, recoveries, distribution of assets and etc. The mostly accepted indicators of asset quality are nonperforming loans to advances, loan default to total advances, and recoveries to loan default ratios. At the time the assets of firms become impaired, their solvency is typically at risk; so it is important to monitor indicators of the quality of their assets in terms of trends in nonperforming loans, overexposure to specific risks and, the health and performance of bank borrowers especially the corporate sector. Cooper et al (2003) explained that alterations in credit risk may reflect changes in the health of the bank's loan portfolio which may influence bank performance. Supportively, Miller and Noulas (1997) has also stated that the more financial institutions are exposed to high-risk loans, the higher the accumulation of unpaid loans will be occurred and the poor their financial

performance. However, sometimes bad loans can produce higher interest incomes due there will be penalty interest. The risk of non-repayment on credit can make banks to apply a risk premium implicitly in the interest rates charged for the operation. Banks are charging high interest rate and get higher interest margins when they assumed that they will be exposed to greater credit. Similarly, Doliente (2005) described that the effect of credit risk may reflect the additional risk premium charged by banks for the financial costs of forgone interest revenues. Moreover, Ombaba (2013) noted that asset quality referred to as loan quality as the overall risk attached to the various assets held by an individual or institution. This term is commonly used by banks to determine how many of their assets are at financial risk and how much allowance for potential losses they must make. Loans& advances are the most common assets of financial institutions that require strict management for maintaining the quality of all assets they hold in their portfolios. Increasing loan quality will advance the return of bank loans and reduce the costs of failure, but at the same time it will be attained at a cost that requires banks' attention to manage. He also noted that the asset quality is a tough determinant of financial institution performance because it impacts the interest incomes while and the same time reduces the cost burden of bad debts management as per the requirements of the law. Banks are required to set aside cash, which is deductible as an expense, to ensure they are able to absorb any losses that it may incur from loan defaults. The high the NPA ratio to the gross/net assets book the low the asset quality and vice versa and therefore it means that the trade-off between assets quality and financial performance is expected to be negative. The most warning to banking sector is occurrences of Non-Performing Assets (NPAs). NPA signifies bad loans, the borrowers of which failed to meet their repayment as per the signed contractual agreements. Michael et al. (2006) emphasized that NPA in loan portfolio impacts operational efficiency and thereby affects profitability, liquidity and solvency position of banks.

Grier (2007) stressed out that a poor asset quality is the major cause of most bank failures. A most important asset category is the loan portfolio; the greatest risk of development banks is the risk of loan losses derived from the delinquent loans. The credit analyst should conduct a well organized asset quality assessment by performing the credit risk management and evaluating the quality of loan portfolio using trend analysis. Measuring the asset quality is difficult due to the fact that it is mostly based on the analyst's subjectivity. Then on-performing loans ratios (NPLs)and the allowance or provision to loan losses reserve are the most common proxy used to measure the asset quality of banking industries. The allowance

for loan loss to total loans and the provision for loan loss to total loans should be taken into account to estimate thoroughly the quality of loan portfolio. According to the definition of Aydogan (1990), loans are divided into performing and non-performing advances (NPAs). NPAs are further divided into sub-standard, doubtful and loss assets. When assets are stops to generate income for the firm it can be said non-performing assets. Loans under follow up - specific provisions to total loans ratio is one of the important measures of asset quality and reflects changes in the health of bank's loan portfolio that can significantly and negatively influence the financial performance of banks. The higher the ratio of non-performing loan to total loan and advances posits that the poor quality of assets of the company.

According to the directive of national bank of Ethiopia right now on working, loans that are classified under pass, special mention, sub-standard, doubtful and loss respectively. And also, the last three are considered as non-performing loans.

2.3.1.3.Operating Efficiency and Bank Financial Performance

The ratio of expense to income, which is the proxy measure of operational efficiency, is used to provide information on variation in operational costs across individual banks. The operating expense of development bank of Ethiopia includes salaries and employee benefits, administrative and general expenses, depreciation, board fees, audit fee and others. A high ratio of expense to income is supposed to adversely affect financial performance of banks because efficient banks are assumed to operate at lower costs (Hassan & Bashir, 2003).Management of financial institution is generally evaluated in terms of asset quality, capital adequacy, earnings and profitability, liquidity and risk sensitivity ratings. In addition, the management is evaluated through complying with set norms, ability to plan and react to different varying circumstances, technical competence, leadership and administrative ability. It is assumed that always there is sound management at the behind of good financial performance of firms. The management acts as a safeguard to operate the bank in a smooth and decent manner and is called excellence management or skilful management, whenever it controls its cost and increases productivity, ultimately achieving higher profits.

2.3.1.4.Liquidity and Bank Financial Performance

According to Uniform Financial Institutions Rating System (1997) definition, liquidity refers to the ability of banks to generate more cash and the possession of assets that could be easily changed to cash to meet their financial requirements and to face any potential fluctuations, and liquidity shocks such as, withdrawals of deposits or any unanticipated demand for cash. A firm needs cash so as to cover its daily operating costs, unforeseen

emergencies, contingencies or accidents. To do so effectively, firms have to therefore hold a certain percentage of their total liquid assets in form of cash. A firm that is able to meet its obligations as and when they fall due creates a good image with its customers more so the creditors. To ensure that a firm remains liquid, financial managers must construct an appropriate asset-liability mix in that the total liabilities must not exceed the total assets of a firm.

Erik Banks (2005) defined the term liquidity broadly as ‘‘the availability of cash or equivalent resources, is the lifeblood of every commercial firms and sovereign entity’’. This shows that, liquidity includes resources such as cash for a well functioning of a commercial firm as well as country. Therefore, the proper handling of these resources through different measures should be undertaken.

The American Academy of Actuaries also defined that liquidity is the ability to meet expected and unexpected demands for cash. It is believed that the company should have the ability to meet the cash demands of its policy and contract holders without suffering a very minimal loss. A given company’s liquidity profile is a function of both its assets and liabilities.

Brigham and Ehrhardt (2005) explained cash gap as it is the length of time between the firm’s actual cash gap expenditures to pay for productive resources like materials and work force, and its own cash receipts from the sale of products. It is the length of time between paying for work force and materials versus collecting on receivables. Working capital management basically cover the planning and controlling activities of the firms regarding their current assets and current liabilities in a way that it assurances their capacity to meet their current obligations as per the agreement made as well as a maximum return on their precious investment on their revolving assets (Eljelly, 2004).

Theoretically, the impact of liquidity on firms’ financial performance is ambiguous. The theory that offers a deeper understanding on the importance of liquidity is the Keynesian Liquidity Preference Theory. Keynes (1936) identified that money is demanded for speculative, precaution and transaction motives. The speculative motive is the need to hold cash in order to take advantage of changes in bargained purchase and suitable interest rates fluctuation .Most firms prefer to the option of holding onto their marketable securities so as to meet these motives. The precautionary motive is holding of cash by institutions so as to

save themselves from unforeseen emergencies, contingencies and accidents. Moreover, money is needed by firms to cover their economic day to day activities is known as the demand for money for transaction motive. Thus, individual firms are expected to hold onto cash hence incurring an opportunity cost of having to let go the earnings they would have gained if they ventured the cash into profitable investments.

Liquidity is a prerequisite to ensure that firms are able to pay its short term debt and its continued flow can be guaranteed from a profitable business enterprise. Liquidity for the ongoing firm is not dependent on the liquidation value of its assets, but also it depends on the operating cash flows generated by those assets of firms (Soenen, 1993). So, a risk of liquidity is nuisance to the image of bank. To support with the evidence, during the recent global financial distress a lot of banks experienced some problems due to they failed to manage liquidity in appropriate manner. Hence, the crisis has highlighted the importance of liquidity to the well functioning of banking sector as well as financial markets. Prior to the financial crisis, financial intermediaries were stable as funding was readily available and at low cost. Therefore, bank should be concerned very well to minimize the liquidity risk; at the same time ensuring good percentage of funds are invested in high return generating securities, so that it is in a position to generate profit with provision liquidity to the depositors/creditors. Importance of managing liquidity risk goes beyond the individual bank as a liquidity shortfall at an individual bank can have systemic ramifications. Holding of high liquidity can result in opportunity cost of some investment, which could generate high returns (Kamau, 2009).

The trade-offs that prevail between return and liquidity risk are demonstrated by observing that a transfer from short term securities to long term securities or loans raises a bank's return but also increases its liquidity risks and the vice versa. Thus, a high liquidity ratio reflects a less risky and less profitable bank, and the management of financial sector has been facing with the dilemma of liquidity and profitability (Hempel et al., 1994). Muganga (2010) explained that the cost of liquidity and illiquidity are involved in determining a particular level of current assets. When banks are highly liquid means excess current assets, the return on assets will be low as funds are tied up in idle cash and stocks earn nothing while high levels of debtors reduce profitability. Therefore, cost of liquidity through low rates of return increases with the level of current assets. Conversely, cost of illiquidity means holding insufficient current assets whereby a firm will be unable to pay back its obligations forcing it to borrow on short term at high interest rates. This can adversely affects a firm's

creditworthiness and may limit future access to funds and possible insolvency. The liquidity can unexpectedly be evaporated via the interaction of funding illiquidity due to maturity mismatches and market illiquidity. When a financial institution's assets pay off whenever its debt is due, it cannot suffer from funding liquidity problems even if it is highly levered. However, non-financial firms typically have an asset-liability maturity mismatch and hence are exposed to funding liquidity risk. A funding shortage arises when it is prohibitively expensive both to borrow more funds (low funding liquidity) and sell off its assets (low market liquidity).

Myers and Rajan (1998) emphasized that the unsympathetic effect of increased liquidity for financial institutions stating that, although more liquid assets increase the ability to raise cash on short-notice, they also reduce management's ability to commit credibly to an investment strategy that protects investors thereby can result in reduction of the firm's capacity to raise external finance in some cases. Thus, this shows that as the profitability is negatively related to liquidity. Moreover, according to (Eljelly, 2004) there is always opportunity cost between liquidity and financial performance. The most important concern for any firm is the relationship between profitability and liquidity, and to sacrifice one goal at the cost of other can create very challenging problems for the firm (Kargar and Bluementhal, 1994).Profitability is an important concern for long term survival of firms which helps to maximize the wealth of shareholders, whereas liquidity is important to cover their short term obligations like payment to supplier and to safe guard themselves from bankruptcy (Howorth and Westhead, 2003; Deloof, 2003).Smith(1980) argues that liquidity management needs a careful attention since it plays a major role in firms' effectiveness, value and risk. Furthermore, appropriate management of liquidity is a deep-seated part of the overall corporate strategy to maximize the wealth of shareholders.

Corporations try their best to keep an optimum level of liquidity that enhances their value (Howorth and Westhead, 2003; Deloof, 2003). Thus, a firm is required to maintain a balance between liquidity and profitability for the sake of its short term obligations. Bourke (1989) found a positive significant effect of liquidity on profitability. During the time of instability banks may need sufficient cash holding to mitigate risk. Unlike Bourke (1989), Molyneux and Thorton (1992) confirmed that there is a negative relationship between liquidity and profitability levels. According to Dang (2011), the sufficient level of liquidity has positive impact on the profitability of banks. The most common financial ratios that reflect the

liquidity position of a bank according to the above author are customer deposit to total asset and total loan to customer deposits.

As a general rule, the huge share of liquid assets in total assets indicates the strong capacity of firms to absorb liquidity shock. However, the high ratio of liquidity may be also interpreted as inefficiency, due to the fact that liquid assets yield lower income in that liquidity bears high opportunity costs for the bank. Thus, it is better for the management to optimize the relationship between liquidity and financial performance of the bank which is measured through profitability. Managing liquidity is a fundamental concern in the safe and sound management of all financial institutions. A sound liquidity management involves strategically managing assets and liabilities, both as to cash flow and concentration, to ensure that cash inflows have a proper relationship to approaching cash outflows. This can achieved via liquidity planning process which assesses potential future liquidity needs, taking into account changes in economic, regulatory or other operating conditions. Such planning involves identifying known, expected and potential cash outflows and considering alternative asset/liability management strategies to ensure that adequate cash inflows will be available to the institution to meet the needs on due time.

2.3.1.5. Corporate Social Responsibility and Bank Financial Performance

Corporate social responsibility has become an important aspect among companies. A recent global survey shows that 76% of managers believe that CSR contributes positively to long-term shareholder value, and 55% of them agree that sustainability helps their companies build a strong reputation (McKinsey, 2010 cited in Weshah et al., 2012). The classical view of CSR, Social contract theory, Agency theory, stakeholder theory and Resource based view of firm are among the major theories that support the practice of corporate social responsibility. The classical view of corporate social responsibility argues that the social responsibility of business is only to increase its profits. In other words, in the free economy, the one and only one social responsibility of business is to use its resources and to engage in activities designed to increase its profit. The social contract theory argues that business must act in responsible manner and aggressively work on how to relate a corporation to society. The central idea of this theory is that a business is regarded as a social institution and should join with other social structures such as the family, educational system and religious institutions, to support enhance life and meet needs of surrounding society. The central idea of Agency theory is nothing but it is only about the relationship between managers and the owners of the firm. Friedman 1970 cited in Weshah et al., 2012, draws on agency theory in his criticism of

CSR, explaining that managers as agents for the owners of the firm, have a responsibility to enhance the corporation's profits; to spend money doing anything else is an abuse of the relationship. On the other hand, Carroll 1979 cited in Weshah et al. (2012), noted that the economic and social interests of the firm are often intertwined; for instance, product safety is of concern both at the economic and societal levels. Hence, practicing corporate social responsibility may be in the best economic interests of the firm. The other theory of corporate social responsibility is stakeholder theory which argues that there are other groups to whom the corporation is responsible in addition to stockholders: those groups who have a stake in the actions of the corporation. The central assumptions of the resource –based view of the firm theory is that firms can capitalize on their strengths and use them as a competitive advantage. For profit maximizing firms, the corporate social responsibility can be used for purposes of creating strategic advantages.

2.3.1.6.Market Loan Share and Bank Financial Performance

Peria and Mody (2004) argue that banks with strong market share can use their shares and their size to eliminate existing or potentials competitors by dropping their margins on interest rates. The strategy of reducing margins on interest rate, in the short-term, can reduce interest incomes and the performance of these banks. Liu et al. (2010) analyzed the behavior of banks having a weak market share, showed a negative relationship between market share and performance (measured by net margin interest). Those banks seek to grow and gain market shares through granting of credits to risky people and so matching higher interests, which will increase their NIM and their performance.

2.4. Macroeconomic Determinants

The external determinants, otherwise known as macroeconomic variables, are country wide factors that reflect economic and legal environment in which the bank operates and they are considered to be beyond the control of company's management (Nassreddine et al., 2013).The macroeconomic factors that are assumed to have influences on bank's financial performance are GDP, foreign exchange rate, real interest rate, money supply and inflation rate. The exact relationship between these factors and the bank profitability and the significance of the relationship remain as questions to be addressed more in the context of development banks specifically development bank of Ethiopia. Among the above mentioned macroeconomic variables, the most important variables gross domestic product and inflation which the most authors used in their studies of performance of banking industry are incorporated for this research project.

2.4.1. Growth Rate of Real GDP and Bank Financial Performance

GDP is a measure of total economic activity within an economy. When the economy gets boom it encourages banks to lend more and permits them to charge higher margins, improving the quality of their assets. A high aggregate growth rate may also strengthen the debt servicing capacity of domestic borrowers, and therefore, contribute to less credit risk(Vong& Chan, 2009).Alternatively, poor macroeconomic environment is adversely affect banks by increasing the amount of bad loans (non-performing loans).Among the multiple consequences of economic growth, the prominent one is enhancement of banking activity. Both the increase of customer deposits and loans granted and of the interest margins has a positive impact on bank profitability. When the economic activity decreases, the demand for loans and deposits decreases and negatively affects the profit margins (Sufian and Chong, 2008; cited in Petria et al., 2013).Most popular authors found that economic growth has a positive effect on bank performance (e.g.,Athanasoglou et al., 2008 &Kosmidou, 2008). Therefore, it is assumed that an improvement in economic growth have a significant and positive influence on banks' performance.

2.4.2. Inflation Rate and Bank Financial Performance

There is a vague relationship between inflation and bank performance. Revel (1979) was the first author who addressed the issue of inflation. He asserts that the influence on performance is dependent on the rate of increment of operating expenses: if the operating expenses are rising faster than inflation, the performance of the bank is affected negatively. Conversely, if, the growth rate is lower, there is a positive impact. Thereafter, Perry (1992) elaborated the model and refined the analysis by introducing the concept of anticipation: An inflation rate fully anticipated by the bank's key management entails that banks are good at adjusting their interest rates to increase their revenues faster than their costs and thus acquire higher economic profits. However, if inflation is not anticipated well and banks are slow-moving in adjusting their interest rates then there is a possibility that banks costs may increase higher than banks revenues that can be generated from interest income that consequently have a negative impact on bank performance. Hence, the direction of the relationship between inflation and financial bank performance depends on the ability of banks to accurately anticipate the rate of inflation. Many authors found a positive and significant relationship between inflation and bank profitability (e.g., Bourke, 1989; Molyneux and Thornton, 1992; Athanasoglou et al., 2006 and Athanasoglou et al., 2008).Conversely, the study conducted by Kosmidou (2008), and Ben Naceur and Kandil (2009) found the opposite result. They

explained that the main activity of banks is lending and the market is therefore based on an offer of credit provided by banks and demand of individuals and companies. They argue that the general price rise can reduces the demand for credit due to the fact that it is assumed that the uncertainty about the future will be increased. This turn down in demand would lead to a decline in lending and therefore a decrease in financial performance of banks. So, their studies concluded that inflation has a negative impact on interest margins.

2.5. Profile of Development Bank of Ethiopia

Under the name of the Societe Nationale d' Ethiopia pour le Development de l'agriculture et de Commerce, the development bank of Ethiopia (now) was established in 1909.After all, the name of bank has been changed at different times while its mission and business purposes have not made significant changes except for occasional adjustments so as to be suitable with the changing government policies. After undergoing a series of amendments, the Bank became a state owned share company by decree No. 55 of August 1971 under the name of Agricultural and Industrial Development Bank (AID bank). However, after its nationalization in 1975 the Bank with the same name was re-organized and re-established as a public finance agency under proclamation No. 158 of March 1979. In 1994 the Bank was further reorganized as a public enterprise with its present name of development bank of Ethiopia supervised by the Board of Directors under the Ministerial Council Decree No. 2000/1994.

Again, DBE was also re-established under the Council of Ministers' Regulation No. 83/2003 and supervised by the public enterprise proclamation No. 25/1992.Currently, DBE is authorized to work with a business mission of promoting the national economic development through provision of medium and long-term investment loans via mobilizing financial resource from local and foreign financing agencies. Now, it is one of the strategic institutions of Ethiopia for execution of mega projects that support the economic growth and development of the country, like the Ethiopian renaissance dam. Apart from the renaissance dam, DBE has been financing other strategic projects like sugar factory, commercial agricultures, Agro-processing which have backward-forward linkage in the economy and textile industries which requires considerable amount of finance. So as to meet the demands of huge finance, DBE go after different resource mobilization strategies. The renaissance dam saving bond is one of financing scheme which is lately introduced to support the construction of the great renaissance dam. So far DBE has issued different bonds with different par value ranging from Birr 5 to 1 million, and which ranges from one year to five years. Accordingly, two years from its introduction DBE have mobilized more than three billion birr bond from

the public. Moreover, DBE has also different resource mobilization scheme like soft loan from International development agency, World bank, International fund for agricultural development and china development bank as foreign sources, and it covers its short term financial needs from local sources like social security fund, commercial bank of Ethiopia, and other liquid enterprises. In the banking industry DBE's market share stood at second compared to other public and private banks in Ethiopian financial sector (NBE Quarterly Bulletin, 2012).

2.6. Related Empirical Literature Review

Both at the global and local level a lot of studies on determinants of financial performance of banks excluding development banks were conducted focusing on a single country as well as on panel of countries. Previous studies from both panel countries and single countries are summarized here under so as to make this research project more meaningful.

2.6.1. Panel Country Related Studies

Molyneux and Thornton (1992) investigated the profitability of banks in 18 European countries during the period from 1986 to 1989. Their findings revealed that the level of interest rates, bank concentration and government ownership has a positive and significant effect on return on equity.

Athanasoglou et al. (2005) investigated determinants of banks' performance of South Eastern European region over the period from 1998 to 2002, found that concentration is positively correlated with bank profitability and that the real GDP per capita fluctuations has no significant impact on profitability, whereas inflation has a strong effect on banks' profits.

Petria et al. (2013) investigated determinants of banks' profitability of 1098 banks from EU27 countries for the period covering from 2004 to 2011by using panel level fixed effect model. They were divided the factors that influence bank profitability in two large groups which bank-specific (internal) factors and industry specific and macroeconomic (external) factors. They used ROAA and ROAE as proxy measure of profitability. Their empirical findings posited that operating efficiency; credit risk and market concentration had significant and negative impact on bank profitability while GDP growth affects same in positive way. The study also found that the insignificant negative effect of inflation on banks performance, even though; the monetary policy in the EU countries is usually predictable.

Ezra (2013) investigated determinants of commercial banks profitability in sub-Sahara Africa for the period 1999 to 2006 of 216 commercial banks selected from 42 countries. The study

employed an unbalanced random effect panel method to examine the main determinants of banks profitability .He found that the bank specific explanatory variables such as capital adequacy and growth in bank deposits were positively affected the performance of banks. The researcher explained that the positive growth of above mentioned indicators could be results of banking sector liberalization that was implemented in most of SSA countries since 1980s and 1990s.On contrary, the bank liquidity, growth in bank assets and operational efficiency had negatively influenced bank profitability. The negative effect of these indicators could be explained by disproportionate accumulation of assets through merger and acquisitions of foreign based banks at high costs that has occurred in SSA in the last two or more decades. Moreover, the negative effect of bank liquidity can be explained by low bank lending. Concerning to macro-economic variables, the study concluded that both growth in GDP and inflation had a negative effect on bank profitability.

Shen et al. (2018) investigated the determinants of liquidity risk and its impact on bank performance of commercial banks in 12 advanced economies over the period of 1994–2006 through using an unbalanced panel fixed regression model. They used financing gap ratio (FGAPR) which is the difference between loans and core deposits to assess bank liquidity risk noted that using the liquidity ratio is not though enough to measure liquidity. Their study was also grouped the sampled countries in two that are market-based financial system countries and bank-based financial system countries (incorporated same as a dummy variable in the model). The results of their study showed that the ratio of loan loss provision to loans (LLPL), which is a proxy measure of bank credit risk, is negatively and significantly affected bank performance. In addition, the study found that liquidity risk is positively and significantly related to NIM in both financial systems while negatively impacted ROAA and ROAE in bank-based financial system countries. Conversely, liquidity risk had positively affected bank performance in a market-based financial system. Concerning to the macroeconomic variables, the study found that GDP growth rate has positive significant effect on bank performance while inflation rate was not significantly affected bank performance at the 1% significance level.

2.6.2. Single Country Related Empirical Studies

Shen and chang (2009) investigated the financial performance with regarding to corporate social responsibility and non-corporate social responsibility. Their study used a sample of Taiwan's data from 2005-2006, and used matching theory and propensity score matching methodology to emphasize the effect of adapting Corporate Social Responsibility (CSR) on

financial performance. The empirical findings of the study showed that a positive relationship between corporate social responsibility and corporate financial performances of companies.

Soana (2011) investigated the relationship between the CSP which is measured by an ethical rating and CFP which is measured by market and accounting ratios, to overcome the limitations of previous studies. The study was used a sample of banks working in Italy. The study used a correlation methodology and the result was that there is no statistically significant link between corporate social performance and corporate financial performance.

Olweny and Shipo (2011) investigated on effects of banking sector and market structure factors on the profitability of commercial banks in Kenya via panel research design of thirty eight commercial banks over the period of 2002-2008. The independent variables used in the study were capital adequacy, asset quality, liquidity, operational cost efficiency, income diversification, ownership identity, and market concentration. The results showed that except ownership identity and market concentration all factors had a statistically significant impact on profitability of commercial banks in Kenya. Capital adequacy, liquidity and income diversification were found to have a positive impact on financial performance whereas asset quality and operational cost efficiency found to have inverse effect.

Alper and Albar (2011) investigated on bank specific and macroeconomic determinants of profitability of commercial banks of Turkey and found that the size of credit portfolio and loans under follow-up have a negative and significant impact on bank profitability.

Weshah et al .(2012) investigated the impact of adopting corporate social responsibility on corporate financial performance in the context of Jordanian banking companies on sampled thirteen Jordanian commercial banks. The study relied on the financial reports from banking companies listed in Jordanian stock exchange for the year 2011. The explanatory variables that were incorporated in the study are corporate social responsibility, bank size, the level of risk in the bank and advertising intensity. The study found that there was a significant positive relationship between corporate social responsibility, bank size, the level of risk in the bank and advertising intensity on one hand and corporate financial performance on the other hand in the Jordanian banking firms. Moreover, the study had insisted on the importance of adopting corporate social responsibility in the banking industry.

Aremu et al. (2013) investigated determinants of the banking sector of the Nigerian economy using First Bank of Nigeria PLC as a case study. The study used econometric analysis of Co-

integration and Error Correction Technique to see the effect of explanatory variables on profitability in the long run and short run respectively. The empirical results of the study posited that bank size and cost efficiency were not significantly affecting bank profitability in Nigeria. On the contrary, credit risk and capital adequacy were found to be significant drivers of bank profitability both in the long run and short run respectively. Also, while Liquidity affected bank profitability in the short run; Labor efficiency only affected bank profitability in the long run. The study also found that broad money supply growth rate as a significant factor in explaining the profitability of banking sectors both in the long run and in the short run.

Mirza and Javed (2013) investigated the determinants of financial performance of sixty Pakistan corporate firms listed in Karachi stock exchange over the period of 2007 to 2011 by using panel fixed effects regression. The explanatory variables that the study used were corporate governance, ownership structure, capital structure, economic indicators and risk management. The empirical findings found that the debt to equity ratio had a positive impact on performance, while the long-term debt to total assets and short-term debt to total assets have a negative impact on firm performance.

Ongore and Kusa (2013) investigated on determinants of financial performance of commercial banks in Kenya. The explanatory variables used in the study were capital adequacy, asset quality, management efficiency, liquidity management, gross domestic product, and inflation level and ownership identity. The ownership identity (foreign and domestic) was included in the study as moderating variable. Except liquidity ,they found that bank specific factors were significantly impacted the performance of commercial banks in Kenya. However, the study found that inconclusive influence of macroeconomic variables at 5% significance level. Non-performing loans to total loans, which is the proxy measure of asset quality, is negatively affected all the three bank performance indicators. On the other hand, management efficiency was found to have positive effect on all three bank performance indicators. Moreover, the results of the study indicated that capital adequacy had positive impact on ROA and NIM, whereas negative influence on ROE. Furthermore, it depicted that insignificant moderating role of ownership identity on the financial performance of commercial banks of Kenya.

Rahman et al. (2015) investigated the determinants of profitability of commercial banks in Bangladesh over the period of 2006-2013 by using pooled regression estimation method. The

data was collected from 25 commercial banks and the proxies that were used to measure banks' profitability are ROA, ROE and NIM. They found that capital strength and loan intensity had positive and significant effect on banks' financial performance, whereas cost efficiency and off-balance sheet activities were negatively and significantly related to the financial performance of banks. The results also indicated that non-interest income, credit risk and GDP growth were significantly related to NIM. Moreover, the result showed that the size of bank had positive effect on ROA, whereas inflation found to be negatively and significantly affects ROA and ROE.

Dasuki (2016) investigated the impact of capital structure on financial performance of 180 manufacturing companies listed on Borsa Stock Exchange Istanbul Turkey over the period of 2004 to 2013. ROA and ROE were used as dependent variables and concluded that the long-term debt and total debt have significant negative effects on the financial performance measured by ROA, while the ratios has insignificant influence on the financial performance measured by ROE.

Alibanafa (2016) investigated the impact of leverage, liquidity and firm size on financial performance of listed non -financial firms listed at Nairobi Stock Exchange by using panel data over a five year period from 2009 to 2013. Except the insignificant negative impact of leverage, liquidity and firm size were found to have significant and positive impact on financial performance (ROA and ROE) of non-financial firms in Kenya.

Hashem (2016) investigated the factors that are affecting the banking sector profitability in Egypt by using quarterly data over the period of 2004-2014. The co-integration econometric analysis method was used to examine the long-run relationship between ROE and bank specific explanatory variables such as capital adequacy, liquidity and percentage of non-performing loans. In addition, the study was also applied vector error correction model to investigate the short-term dynamics of the model and the speed of adjustment to long run equilibrium. The empirical findings indicated that capital adequacy, percentage of loan provision and the ration of deposits to total assets were inversely related to profitability of banking sector. Conversely, the size of the banking sector was found to have positive impact on financial performance of banks operating in Egypt and all bank-specific factors which are capital adequacy, liquidity and percentage of non-performing loans were found to be correlated with bank profitability in the long run.

2.6.3. Related Empirical Studies in Ethiopia

Mohammed (2014) investigated on determinants of capital structure and its impact on the performance of Ethiopian insurance industry for the period of 2004-2013 by using panel fixed effect regression model. The study was included the all seventeen insurance companies that were operating in Ethiopia during the time. The study was used ROA to proxy the performance of insurance companies. The empirical findings of the study showed that firm size, leverage, business risk and tangibility have a significant influence on performance of Ethiopian insurance companies. The researcher explained that as the results of his study provide strong evidence in support of the pecking order theory of capital structure which asserts that a leverage is significantly and negatively affects firms' performance. On the other hand, the study found that the unclear and insignificant relationship of growth opportunities and liquidity versus the performance of insurance companies operating in Ethiopia.

Samuel (2015) investigated on determinants of profitability of Ethiopian commercial banks for the sampled eight banks over the period of 2002 to 2013 through using panel fixed effect regression model. The main objective of the researcher was to examine the impact of capital adequacy, bank size, liquidity risk, operational efficiency, management efficiency, employee efficiency, funding cost, banking sector development, real GDP, inflation rate and foreign exchange rate on financial performance of banks, which was measured by Return on Asset (ROA). He also used the primary data so as to support the result of documentary (secondary data) analyses. The empirical results of the study depicted that capital adequacy, bank size and real gross domestic product were positively and significantly affected the profitability of commercial banks in Ethiopia. Conversely, the study found that operational efficiency, funding cost, liquidity risk and banking sector development are negatively and significantly correlated with banks' financial performance. However, the researcher has found that management efficiency, employee efficiency, inflation and foreign exchange rate have statistically insignificant impact on banks' profitability.

Dawit (2016) investigated on determinants of commercial banks financial performance in Ethiopia for the sampled seven banks over the period of 2000 to 2014 G.C using balanced panel random effect model. The bank performance indicators ROA, ROE and NIM were used as proxy measure of financial performance; while the explanatory variables incorporated in the study are five bank specific factors include capital adequacy, asset quality, earning ability, liquidity management, bank size and whereas, the foreign exchange rate is incorporated as

macroeconomic factor .His study found that capital adequacy and bank size have a significant positive influence while asset quality and earning ability have inverse influence on ROA for the sampled commercial banks of Ethiopia. The study found that liquidity management and foreign exchange rate have insignificant negative relationship with ROA.

Melaku (2017) investigated the determinants of commercial banks profitability in Ethiopia for the period of 2004 to 2011 of six private banks. The ROA was used to measure profitability. Capital, asset size, loans, liquidity, labor productivity, credit risk and non-interest income are bank specific variables that were included in the study while external variables are gross domestic product growth rate, inflation rate and market share. The findings posited that bank specific determinants were very important in explaining profitability than external variables. The asset size, capitalization, labor productivity, liquidity and non interest income were found to have a significant and positive effect on bank's performance whereas credit risk and overhead efficiency were negatively affects profitability.

Mohanty (2017) investigated on factors affecting bank profitability of commercial bank of Ethiopia by using time series data of CBE over the period of 1983 to 2012.He found that bank specific explanatory variables like credit risk, bank size, managerial efficiency have negative effect on the profitability measure. However, GDP and Inflation rate were found to have significant and positive impact on bank profitability. In addition, the results showed that liquidity of bank, captured by total loan to total assets ratio, have insignificant impact on the bank profitability in the context of commercial bank of Ethiopia. In addition to this, without liquidity all explanatory variables were found to be statistically significant.

Abdu (2018) investigated on bank specific determinants of financial performance of the sampled six private commercial banks in Ethiopia for over the period of 2011-2017 using multiple regressions model. The study was employed ROA, ROE and NIM as dependent variables which are the most widely used to measure the financial performance of firms in the banking industry as well as in the others sector. He found that management efficiency, bank size and capital adequacy of banks were significantly and positively impacted the financial performance (ROA, ROE and NIM) of private commercial banks of Ethiopia. Conversely, liquidity management was found to be negatively and significantly explains movements in ROE of private commercial banks operating in Ethiopia. Moreover, it also found that the insignificant effect of asset quality on financial performance of private commercial banks in Ethiopia.

2.7. Research hypothesis

The following hypotheses were formulated based on the related theories and previous empirical studies to be tested through appropriate econometric regression analysis model.

H1: Leverage level has a positive and significant effect on financial performance of DBE

H2: Asset quality has a negative and significant effect on the financial performance of DBE

H3: Management/operating efficiency has a negative and significant effect on the financial performance of DBE

H4: Liquidity has a negative and significant effect on the financial performance of DBE

H5: Corporate Social Responsibility has a positive and significant effect on the financial performance of DBE

H6: Market loan share has a positive and significant effect on financial performance of DBE

H7: GDP Growth rate has a positive and significant effect on the financial performance of DBE

H8: Inflation rate has a positive/negative and significant effect on the financial performance of DBE

2.8. Summary and Literature Gaps

To the global level as well as in the context of Ethiopia, there are a lot of empirical studies that were conducted to indentify and examine factors that are affecting the financial performance of banking industry. However, all of the researches conducted to identify determinants of financial performance of banks in general and in the context of Ethiopia in particular, were failed to include development banks in their study. According to the view of the researcher, the reason why they failed to incorporate development banks in their study is due to the nature of development banks is different from commercial banks. For instance, most studies conducted in Ethiopia on commercial banks were used the ratio of liquid assets to deposit plus short term borrowing so as to measure liquidity which can't be give a sense in the context of development bank of Ethiopia since depositing money is not the core activity of DBE. In addition, the studies carried on determinants of financial performance of banking industry in Ethiopia were not incorporated some important variables such as leverage, market share and corporate social responsibility even though they were theoretically identified as factors determining financial performance of firms. Moreover, the study periods they were used are also minimal to clearly see the impact of different factors on financial performance of banking industry in the context of Ethiopia. Furthermore, all previous researches

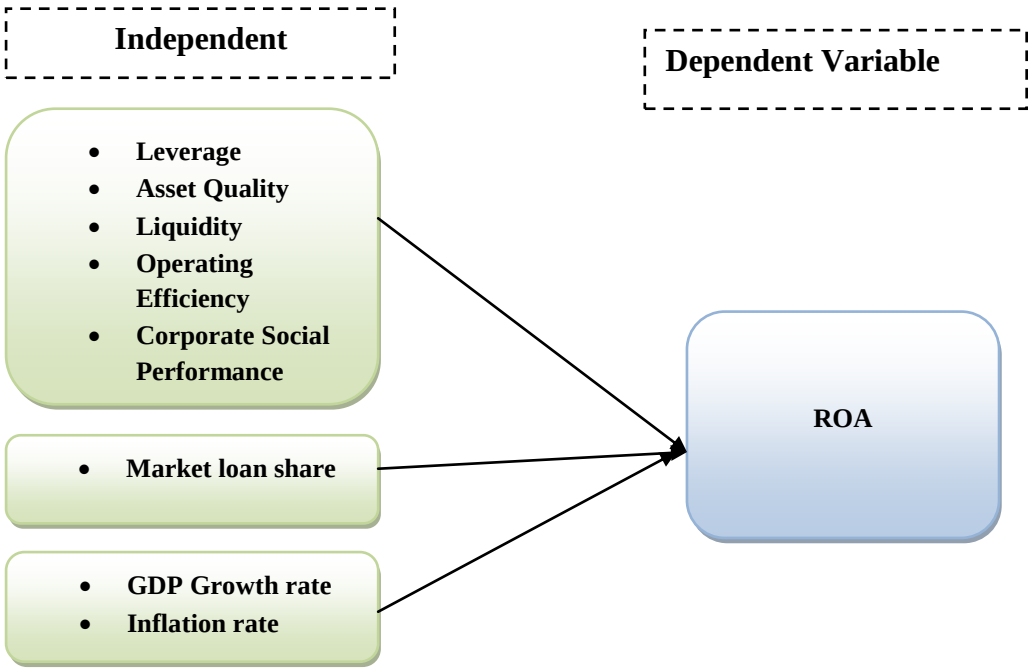
conducted in Ethiopia on this topic were used OLS technique of regression analysis to examine the cause-effect relationships between banks' financial performance and its potential determinants. For instance, Hailu (2013) and mohanty (2107) were analyzed time series data type via using OLS by reasoning that all variables incorporated in the study were free of unit root problem. However, it is my good question how the time series data of all variables included in their study are integrated order of zero (i.e. stationary at data level). Thus, based on the nature of the data collected, this study was used Autoregressive Distributed Lag and Error Correction Model (ARDL-ECM) to examine the short-run and long-run relationship between financial performance of DBE and its potential determinants.

For the above stated and other reasons, this study was investigated factors that influence the financial performance development bank of Ethiopia for over the period of 1991-2019. Therefore, it is believed that this study will fill the existing research gap and add value to the existing knowledge of banking industry.

2.9. Conceptual Framework

It is a model of presentation which can help a researcher to conceptualize the relationships between variables in the study and shows the relationship graphically or diagrammatically. The rationale of a conceptual framework is to help the reader to quickly see the proposed relationships. Figure 2.1 shows the conceptual framework identifying the various variables and their effects on the financial performance of development bank of Ethiopia.

Figure 2.1:- Conceptual Framework of the Study



Source: Researcher's own formulation (2019)

CHAPTER THREE

3. Research Methodology

The preceding chapter focuses on literature review on the determinants of banks financial performance. Both theoretical and empirical reviews were discussed and indicated the absence of empirical study on the determinants of financial performance of development banks particularly in Ethiopia. This chapter presents how the planned study is designed and provides a clear description of the specific steps to address the research problem and test each of the eight hypotheses that are mentioned under the first chapter of this study.

3.1.Research Approach Adopted

There are three basic world views that are considered to be base for the quantitative, qualitative and mixed research approaches that are post-positivist, social constructivist and participative, and pragmatic respectively (Creswell ,2009).Methodology and data are highly interdependent. Therefore, the research approach to be used for a particular research problem must always take into consideration about the nature of the data collected to resolve the research problem. Considering the research problem and objective and the philosophy of the different research approaches, quantitative research approach was found to be appropriate for this study so as to answer research questions and to test hypotheses under it. A deductive research entails the development of a conceptual and theoretical structure prior to its testing through empirical observation (Loose, 1993). Deductive or quantitative research conventionally commences by analyzing the literature to identify a single selected problem/knowledge gap leading to the isolation of the major research question(s) in which the existing knowledge may be inadequate (could be identified gaps between existing theories or evidence, contradictions to be explored, or new contexts for applying previous findings. Therefore, this study has used quantitative approach to see cause-effect relationship of dependent variable (i.e. financial performance) and independent variables in the context of Development Bank of Ethiopia. The main purpose of quantitative approach is to measure and analyze causal relationships between variables within a value-free framework (Denzin and Lincoln, 1994).In this study, this approach enabled to see the relationship between the financial performance of development bank of Ethiopia and the major bank specific and industry level, and macroeconomic factors affecting firm performance by establishing causal relationship. Therefore, in turn, this enabled to test the theory as well as the proposed hypotheses in the context of development bank of Ethiopia.

3.2.Sample and Sampling Technique

Sampling is a technique for choosing representative population in the study for determining the character of the whole population. The population is a collection of elements that conform to specific criteria and it is a target on which the conducted research is intended to generalize the findings obtained from samples (James, 1996). In Ethiopia, there is only one development bank which is state owned bank known as development bank of Ethiopia that mandated to provide long term loans and technical advices for prioritized strategic projects. Hence, the population of the study is the whole life span of DBE from the very beginning of its establishment (1905-2019). Based on the availability of data, the sample of this study is the life span of development bank of Ethiopia covering from 1991-2019. As cross-sectional sample data is used to draw inferences about a population, in time series the realization can be used to draw inferences about the underlying stochastic process (Gujarati, 2004). Therefore, the behavior of variables for the time period under review can be generalized to the whole life span of development bank of Ethiopia.

3.3.Types of Data and Data Collection Instruments

The study employed yearly time series data over a twenty nine period covering from 1991 up to 2019, to indentify and examine the major determinants of financial performance of banks as a case of development bank of Ethiopia. The secondary data for all variables of the study were collected both from the national bank of Ethiopia and development bank of Ethiopia. The documents that were used to collect data are annual audited reports of development bank of Ethiopia, books, journals, unpublished manuscripts, thesis and others. The credibility and value of research findings can be enhanced through collecting consistent and reliable data by using appropriate data collection techniques. To do so, the structured document review was carried out in alignment with the main objective of the study. The ratios of dependent and bank specific variables were computed from audited financial statements (balance sheet and income statements) of DBE. The required industry level and macroeconomic data were mainly collected from records of NBE and different publications of the government via structured document review.

3.4. Data Processing and Analyzing

This study was used the quantitative method of data analysis techniques. Hypotheses of the research cannot be answered by simple inspection of numeric information. Thus, the collected data should be processed in a systematic and coherent fashion before running

regression. Accordingly, the gathered raw data were changed into ratios that this study is used to proxy dependent and explanatory variables. The **Eviews-10** econometric software package was used to test different hypotheses and to estimate the coefficients of explanatory variables based on the selected appropriate models (i.e. Autoregressive Distributed Lag and Error Correction Model) so as to examine the cause-effect relationship between the DBE's financial performance and its potential determinants. Statistical analyses cover a wide range of procedures, from simple techniques that we all use on a regular basis like calculating of a mean to complex and sophisticated approaches. Even though some approaches are computationally difficult, the underlying logic of statistical tests is relatively easy to grasp, and computer's software packages have eliminated the need to get bored with detailed mathematical operations . Aligned with the objective of this study, which is to examine the major determinants of financial performance of development bank of Ethiopia, the time series data collected via structured document review was analyzed using descriptive statistics, correlation analysis, and Autoregressive Distributed Lag and Error Correction Model analysis. The descriptive statistics such as minimum values, maximum values, mean values and standard deviations were utilized to scrutinize the overall trends of the data for the period under review. A correlation matrix was also employed to merely analyze the relationship among the dependent and independent variables. Most economic and other time series data are associated, often highly related to their recent histories and it is more difficult to study the behavior of time series data as compared to cross-sectional data. A large number of macroeconomic time series data might have a unit root non-stationary processes (Harris, 2000). A non-stationary time series will have a time varying mean or a time-varying variance or both. A stochastic (non-stationary) process might lead to spurious regression results. Stationary time series is important due to the fact that if a time series is non-stationary, we can study its behavior only for the time period under review. Each set of time series data will therefore be for a particular incident. As a result, it is impossible to generalize it to other time periods (Gujarati, 2004). So, in order to conduct research on time series data, the data is required to be stationary. A stationary process has mean, variance and covariance that do not vary over time. One should assume some sort of stability over time before analyzing the relationship between economic and/or financial time series variables. Therefore, it is must that one should primarily test a time series to see whether it is stationary or not and the results of the regression must be interpreted with caution. Hence, before running regression, the collected data of all variables of the study were tested by using the most popular test which is Augmented Dickey-fuller unit-root test.

Based on the results of the conducted diagnosis tests, the Autoregressive Distributed Lag Error Correction Models were used to estimate the relationship between financial performance and its major determinants since OLS technique is not appropriate due to the fact that its assumption of the data should be non-stochastic is violated. The selected above mentioned models are able to analyze the short term dynamic behaviour and long term equilibrium relationship among economic and/or financial variables.

3.5.Operational Definition of Variables and Measurements

This research work aimed at analyzing the causal relationship between the dependent and independent variables through testing the hypotheses concerning to the relationships between financial performance of development bank of Ethiopia, measured by ROA, versus firm specific and macroeconomic factors affecting it. The selection of variables for the model was influenced by the literature review on determinants of financial performance. Accordingly, firm's leverage, asset quality, operating efficiency, liquidity, corporate social performance, market loan share, real gross domestic product growth rate and inflation are independent variables that were used for the study.

3.5.1. Dependent Variable

ROA depicts the percentage of profit that a company earns in relation to its overall resources. Consequently, it is considered as a measure of efficiency. Higher ROA of a firm reflects that how the firm is good at translating assets into profits. So, it is also called profitability or productivity ratio (Casteuble, 1997).It is accounting financial ratio computed from balance sheets and income statements and it is the most commonly used proxy to measure financial performance of firms. In the literature, a number of studies used this accounting based measurements of financial performance. And also, many regulators believe that the return on assets is the best measure of bank efficiency since it indicates how efficiently and effectively the assets of the firm are used to generate the income.

$$ROA = \frac{\text{Profit after tax}}{\text{Total Assets}}$$

3.5.2. Independent Variables

The explanatory variables that were incorporated in this study are based on the theoretical literature, empirical studies and their perceived significance in the context of development bank of Ethiopia. And, the same are discussed below.

Firm's Leverage: As it is explained in the literature part of this study, firm leverage is referred how a firm mixes debt and equity in order to finance itself or in other words, it concerns about combination of funds, in the form of debt and equity. Miller (1977) argues that the firm has an incentive to use debt and will continue to use it until their additional supply drives up interest rates to the point where tax advantages of interest deduction are completely offset by higher rates.

$$Leverage\ ratio = \frac{\text{Debt}}{\text{Equity}}$$

H1: Firm's Leverage has a positive and significant effect on the financial performance of banks in the context of development bank of Ethiopia.

Asset Quality: The asset quality is measured in relation to the level and severity of non-performing assets, adequacy of provisions, recoveries, distribution of assets etc. The popular indicators include nonperforming loans to advances, loan default to total advances, and recoveries to loan default ratios. Non-performing loans are loans that are outstanding in both principal and interest for a long time contrary to the terms and conditions stated in the loan contractual agreement. Unlike other firms, banks assets are composed of large amount of loans. Particularly, the assets of development bank of Ethiopia are composed of long-term loans. Rise of NPLA portfolios may extensively affect development banks by distressing financial conditions and exposing operational funding insufficiency. Thus, it is expected that there is negative relationship between the amount of non-performing loans and bank financial performance. Due to lack of data on non-performing loans and advances of development bank of Ethiopia, this study was employed proxy percentage of provision to loan losses to total outstanding loans and advances. Provision for loan losses is a good estimator of NPLA because it will calculated based on amount loans and advances expected to be deteriorated. So, this study proxy measured as the ratio of:

$$NPLA = \frac{\text{Provision for bad loans}}{\text{Total outstanding loans and advances}}$$

H2: Asset quality has a significant and negative effect on the financial performance of banks in the context of development bank of Ethiopia.

Operating Efficiency: The expense to income ratio is defined as the operating costs over total generated revenues. The major elements of operating cost are staff salaries and administrative cost. The relationship between the operating cost and profitability is expected to be negative signifying that lower operating cost will leads to higher profit and vice-versa. However, this may not be the case as higher amounts of operating cost could also reflect

higher volume of banking activities. The proxy used for this study to measure operational efficiency is expense to income ratio.

$$Operational\ Efficiency = \frac{\text{Operating Expense}}{\text{Income Ratio}}$$

H3: Operating efficiency has a significant and negative effect on the financial performance of banks as a case of development bank of Ethiopia.

Liquidity: Liquidity is the most important determinant of the firm's financial performance. The existence of a trade-off between liquidity and profitability has been addressed intensively given its significance to companies. Myer (2005) emphasizes that excess liquidity is an expense for the firm. He clarified by explaining that money can be placed in fixed deposits with banks and earns interest income and that the price of working capital is the interest rate. On the other hand, liquidity shortfall can be offset by short term loans or by selling liquid assets which is an expense to the firm. Therefore, an optimal level of liquidity should be determined that would benefit a firm to generate an encouraging revenues from its investments. Moreover, Eljelly (2004) explains that liquidity plays an imperative role in the smooth running of business when preferred liquidity is attained. Firms have different needs of liquidity that based on various circumstances. According to Pandey (2005), the major factors that affect liquidity requirements are the nature and the size of business (trading and financial firms require large investments in working capital, construction firms also have to invest substantially in working capital), manufacturing cycle, business fluctuations, credit policies of the firm, growth and expansion activities (growing industries require more working capital than those that are static), operating efficiency (optimum utilization of resources), production policy and price level changes. Funding gap and liquidity ratios are the two general approaches used to measure the liquidity of banks. The first method funding gap is the difference between inflows and outflows which requires substantial additional data collection, but provides much more useful information on a bank's liquidity profile over time and thus on any future liquidity constraints. Whereas, the second approach uses different balance sheet ratios and it is easy to compute. According to the NBE establishment proclamation (No. 591) liquid assets of banks include cash on hand, deposit in other banks, and short term government securities that are acceptable by the NBE as collateral (for instance, Treasury bills).Therefore, this study proxy measured as the ratio of:

$Liquidity = \frac{\text{Liquid (current) Assets}}{\text{Total Assets}}$, the higher this percentage the more liquid the bank is.

H4: Liquidity has a negative and significant effect on the financial performance of banks in the context of development bank of Ethiopia.

Corporate Social Performance: A review of the different theoretical proposals on the relationship between corporate social performance and corporate financial performance provides arguments for all the possibilities which mean for negative, neutral or positive possibilities. On the negative side, it is justified by the fact that companies that behave responsibly are at a competitive disadvantage as they incur costs that they would otherwise avoid, or could pass on to others agents like customers and governments. The neutral reasoning view denies of the existence of any kind of relationship between social and financial performance stating that there are so many factors that intervene between social and financial performance. Conversely, the positive view proposes that a company that tries to reduce its implicit costs by means of socially irresponsible acts will incur greater explicit costs which can be resulted a competitive advantage. The development bank of Ethiopia has been participating in a continuous support and development of the society through its corporate social responsibility engagements in the form of sponsorship and donations to various programs and issues. Such as: - Mekedonia Elders and Mentally Disabled Center, Oromia Development association, SNNP Development association, Ethiopian Red Cross society, Amhara Chamber of Commerce and Office of National Council For the Coordination of Public Participation on the Construction of the Grand Renaissance Dam. In the year of 2018/19, for the above mentioned social activities DBE have donated a total amount of **Birr 5,549,720** (Fourth quarter and Annual performance report, 2019). How to measure a firm's corporate social performance has been a topic of much debate. Past measurements have been based on various information sources such as government pollution indices, financial reports, reputational surveys, and corporate social responsibility orientation studies. The proxy used for this study to measure corporate social performance is the logarithm of the amount of donation that the DBE was donated for social activities on annual basis for the time period under the study.

$$CSP = Log(annual\ amount\ of\ donation)$$

H5: Corporate social responsibility has a positive and significant effect on the financial performance of banks as a case of development bank of Ethiopia.

Market Loan Share: According to relative market power hypothesis, as banks become bigger and more dominating in an industry, the greater their sales revenue will be. Berger (1995) argues that large market shares and a wide range of the source of profits cause higher

profits for individual banks. Hence, higher ratios may be indicative of better bank performance because of increases in interest income. This study proxy measured as the ratio of:

$$Market\ Loan\ Share = \frac{\text{Total annual loan of DBE}}{\text{Total annual loan of all banks operating in Ethiopia}}$$

H6: Market loan share has a positive and significant effect on the financial performance of banks in the context of development bank of Ethiopia.

Growth rate of real GDP: Adverse macroeconomic conditions hurt banks by increasing the amount of non-performing loans and similarly the demand for loan would be decreased which can make banks to hold unproductive assets. Therefore, it is expected that banks can perform well when the economic growth is getting boom.

$GDP\ Growth\ Rate = \frac{\mathbf{GDPt - GDPt-1}}{\mathbf{GDPt-1}}$**,**where **t** is the time period.

H7: Growth of gross domestic product has a positive and significant effect on the financial performance of banks in the context of development bank of Ethiopia.

Annual inflation rate: Inflation rate measures the overall percentage increase in Consumer Price Index (CPI) for all commodities and services. Inflation affects the real value of costs and revenues. The relationship between the inflation and firm's financial performance may have a positive or negative effect on profitability depending on whether it is anticipated or unanticipated (Perry, 1992). In other words, the effect of inflation on bank profitability depends on how inflation affects both salaries and the other operating costs of the bank.

$Inflation\ rate = \frac{\mathbf{CPIt - CPIt-1}}{\mathbf{CPIt-1}}$**,**where CPI is the consumer price index.

H8: Inflation rate has a positive/negative and significant effect on the financial performance of banks in the context of development bank of Ethiopia.

Table 3.1: Descriptions, notation and anticipated impact of the variables in the model

Variables		Measurement	Notation	Anticipated impact
Dependent variables	Financial performance /Profitability	Net profit after tax/total assets	ROA	
Bank Specific determinants	Leverage	Debt/Equity	LEV	+
	Asset quality	Provision for bad loans/Total outstanding Loans and Advances	ASQUA	-
	Operational Efficiency	Expense/income	OPEREFFIC	-
	Liquidity	Liquid assets/Total assets	LIQ	-
	Corporate Social Performance	Logarithm (donation)	CSP	+
Industry specific determinant	Market Loan Share	Total loan/total loan of all banks	MLS	+
Macroeconomic determinants	GDP Growth rate	GDP_t-GDP_{t-1}/ GDP_{t-1}	GDP	+
	Inflation rate	CPI_t-CPI_{t-1}/CP_{t-1} where CPI is the consumer price index	IR	+/-

3.6.Econometric Model Specification

In economics, a model is a theoretical construct representing economic processes by using a set of variables and a set of logical and/or quantitative relationships between them. An econometric model can be derived from a deterministic economic model that specifies the statistical relationship that is supposed to hold between the various economic quantities pertaining to a particular economic phenomenon. And also, it can allow for uncertainty, or from an economic model which itself is stochastic. Aligned with the broad research objective, the researcher has specified the following econometric model. The model is specified based on the relevant available information to the study undertaking. To measure the financial performance of firms, Return on Asset (ROA), Return on Equity (ROE) and Net Interest Margin (NIM) are mostly used. This study was used Return on Asset since it posits how the management of a firm is efficient and effective in generating net income from all the resources of the company while Return on Equity (ROE) only reflects how much profit a firm earned from the shareholder equity invested. Hence, the hypotheses of the study were tested by using the below regression equation;

$$ROA_t = \alpha + \beta 1\ LEV_t + \beta 2\ ASQUA_t + \beta 3\ OPEFF_t + \beta 4\ LIQ_t + \beta 5\ lnCSP_t + \beta 6 MKSHRE_t + \beta 7 GDP_t + \beta 8 INF_t + \varepsilon_t \quad \text{----------(1)}$$

Where; α is intercept, β1-β7 is coefficients of respective independent variables. from this β1 – β5; posits coefficient of bank specific explanatory variables, β6; posits coefficient of industry specific explanatory variable whereas β7 and β8 posits coefficient of macroeconomic explanatory variables.

ROA= Return on Asset of bank at time t (Target variable of the study)

LEV=Leverage ratio of bank at time t

ASQUA=Asset quality of bank at time t

OPEFF=Operational efficiency of bank at time t

LIQ=Liquidity of bank at time t

lnCSP= Natural logarithm of corporate social performance(donations) of bank at time t

MKSHRE=Market loan share of bank at t

GDP=Gross domestic product growth rate at time t

INF=Inflation rate at time t

ε_t is disturbance term with a mean of zero where t is time identifier

CHAPTER FOUR

4. Presentation of Results and Discussion

This chapter presents details of results of regression analysis. The study was used E-views **10** to analyze the secondary data that was being collected for this study. This chapter has six major sub-sections that are descriptive statistics of data, data and unit root test, selection of appropriate model, results of ARDL-ECM regression analysis, diagnostic tests of the model and summary of results of regression analysis. Under descriptive statistics part; the descriptive characteristics of data, correlation analysis among independent variables, and correlation analysis between the variable of interest and independent variables were discoursed. The next sub-section discussed about the soft nature of data to ensure the stationarity of the data so as to avoid spurious regression results. The selection of appropriate model and post-regression diagnostic tests of the model were also briefly discussed. Finally, the results that obtained from ARDL-ECM regression analysis were summarized at the end of this chapter.

4.1.Descriptive Statistics of the Data

The variables of this study are return on asset (ROA), asset quality (percentage of non-performing loans), growth rate of real gross domestic product, inflation rate, leverage, natural logarithm of donations (that used to measure corporate social performance), liquidity, market loan share and operating efficiency. The return on asset (ROA) is the dependent variable which was used to measure the financial performance of firm (Development bank of Ethiopia). The remaining above stated variables are explanatory variables that are assumed to have positive or negative potential effects on the financial performance of firms particularly financial institutions. The descriptive statistics of these variables such as mean, median, maximum, minimum and standard deviations were summarized in details in the below table in order to show the overall description about the data and their descriptive statistics can be used to detect mistakenly incorporated and/or unreasonable figures in the data.

Table 4.1: Descriptive statistics

	Variables								
	ROA	AS	GDP	INFLA	LEV	LNCSP	LQ	MS	OPEFF
Mean	0.005469	0.171563	0.071347	0.109252	4.663107	12.56385	0.281141	0.185492	0.454891
Median	0.004470	0.179998	0.090000	0.083618	3.422169	12.48499	0.262138	0.181221	0.513930
Maximum	0.016688	0.290437	0.126442	0.552413	14.11550	15.52926	0.474987	0.284869	0.739107
Minimum	-0.009551	0.069224	-0.030142	-0.107734	2.083307	10.01628	0.064152	0.106730	0.151794
Std. Dev.	0.005921	0.063772	0.048640	0.144159	2.895302	1.010560	0.092071	0.044337	0.186197
Observations	29	29	29	29	29	29	29	29	29

Source: E-views 10 results

As is revealed on the above 4.1 table, the total observations for the dependent and all independent variables is 29 that based on the annual data that was being collected over the time period of 1991-2019 which is nearly for the past three decades. The ROA is a ratio of after tax net profit to total assets, which is used to measure the financial performance (profitability) of development bank of Ethiopia. As can be seen from the above table 4.1, the average value of ROA was approximately 0.0055 which depicts that the percentage of ROA is 0.55% with maximum and minimum value of 0.017 and -0.009 respectively. This indicates that, on average, DBE had earned 0.55% after tax profit for each birr invested on its assets within the analyzed period of 1991-2019. This percent of net gain from its invested resources was too small relative to the industry average even though DBE is not a profit oriented bank like other commercial banks operating in the country. The after tax profit that DBE was gained in the most profitable and least profitable year is 0.017 cents and loss of 0.009 cents of net income for one birr invested in the assets of development bank of Ethiopia respectively. The higher ROA indicates that how the management of the company is efficient and effective in using its scarce resources for generating reasonable incomes. The mean value the percentage of non-performing loans (asset quality) showed in the above table is more than enough to know that how much the management of development bank of Ethiopia was inefficient on managing the assets of the bank for the past three decades (1991-2019). Thus, on average, 0.17 cents were found in non-performing loans from one birr loaned to investors in the mentioned period. Therefore, based on the obtained results, it is possible to say that the management of DBE was too inefficient on managing its resources for the past three decades.

The standard deviation of ROA from its mean was 0.0059 which indicating that the presence of less variation of values of ROA from year to year for the past three decades.

Pertaining to the explanatory variables of the model there are some attention-grabbing descriptive statistics that needs to be elaborated. As discussed above, the mean value of asset quality (which indicates the poor quality of asset or high percentage of non-performing loans) was 0.17 which depicts that the percentage of asset quality is 17% with maximum value of 0.29 (29%) and minimum value of 0.069 (6.9)%. The maximum value indicates poor asset quality whereas the minimum value indicates an inverse. On average, from the total outstanding loans and advances, 17% was non-performing loans/assets during the period under review. In other words, the high percentage of non-performing loan implies that the quality of the assets of the bank was significantly deteriorated for the past three decades. The standard deviation of asset quality is (0.064) which relatively high as compared to the standard deviations of ROA implies that slightly there was variations in the asset quality (percentage of non-performing loans) of DBE from year to year in the analyzed period. The result of descriptive statistics also reveals that the average value of the leverage (Debt-equity ratio) is 4.66 which shows the percentage of leverage is 466% which indicating that the DBE was a highly leveraged firm for the past three decades. It means that the debt constitutes nearly the whole assets of development bank of Ethiopia. Even though there is no consensus among authors on the optimal leverage ratio i.e. debt-equity mix of firms, the leverage ratio of the Development Bank of Ethiopia stated above seems abnormal. The highly leveraged firms might be exposed to financial distress in the case of high interest rate even though they have a gain of tax advantages of interest deduction. The possible reason that why DBE is highly leveraged might not be due to the gain of tax deduction of interest rather shortage of finance from its own source to satisfy the demand for finance since it has been providing loans for mega and risky projects those need huge amount of investments. The standard deviation of leverage was (2.895) that is the highest standard deviation in relative to the all other variables of this study including the variable of interest (dependent). Hence, among the variables of this study leverage was the most variable deviated from its mean shows that presence of high variation of values of debt of DBE from year to year for the past three decades. As it is also observed from the raw data of this study that was being collected, the debt amount of DBE was increased at non-constant increasing rate from year to year.

The result of descriptive statistics also shows that the mean value of corporate social performance (measured via log of donation amount that DBE was annually donated for other

social structures) was 12.564 with maximum and minimum values of 15.53 and 10.016 respectively. The standard deviation of CSP that was reported is 1.01 which is the second largest standard deviation next to the standard deviation of leverage. This implies that there was variability of amount of donations that the bank had been donated for participating in social engagements for the past three decades. Moreover, the average value of liquidity was 0.28 which reveals that percentage of liquid assets is 28 % with minimum of 6.4% and maximum of 47%. Thus, on average, DBE had hold 28 % of its total assets in the form of liquid (current) for the last three decades and its standard deviation was moderate implies that the liquid assets holding percentage of DBE was moderately similar from year to year for the stated time period.

The other variable is operating efficiency (expense-income ratio) which its mean value was 0.45 ranging between minimum values of 0.15 to maximum value of 0.74. This indicating that, on average, as DBE had incurred 45% of its income that was generated over the last three decades. The standard deviation of operating efficiency was 0.187 implies that the expense-income ratio was invariable from year to year in the mentioned time period of 1991-2019.

The average value of the market loan share which is the only industry level factor included in this study was 0.185 with minimum and maximum value of 0.106 and 0.28 respectively. From this, we can understand that, on average, the market share that DBE had gained in the banking sector of Ethiopia is stood at 18.5 percent with the maximum market share of 28 percentages for the past three decades i.e. means for over the period of 1991-2019. Its standard deviation was 0.044 which is the smallest standard deviation next to the standard deviation of ROA indicating that the market loan share of DBE in banking industry was constant from year to year.

Turning to the descriptive statistics of macroeconomic variables, the average value of growth rate of GDP of Ethiopia was 0.07 (7%) for the last three decades with the maximum growth rate of 12.6 % and minimum negative growth rate of 3% (3% declining of GDP) that was occurred in 1991 at the time of transitional government. The standard deviation of growth rate of GDP was 0.05 implies stable economic growth of our country over the period of 1991-2019. The mean value of the second macroeconomic (inflation rate) variable used in this study was 10.9 percentage. During the time period mentioned above, the minimum and maximum inflation rate was negative 10.8% (deflation) and 55 % (inflation) respectively.

The standard deviation (0.144) of inflation rate seems to be high indicating that the inflation rate in Ethiopia was remains unstable during the analyzed period.

4.2.Correlation Analysis among Explanatory Variables

The correlation coefficients of explanatory variables had been estimated to ensure that there were no highly correlated variables so that the problem of multi-collinearity in the model can be avoided. We can say that the model has a multi- collinearity problem when there is a perfect or an exact linear combination among some or all independent variables of a regression model (Gujarati, 2004). The model might suffer from multi-collinearity problem, where there is high, but not perfect, correlation between two or more explanatory variables. According to Gujarati (2004), the multi-collinearity problem may be resulted from the data collection method employed, constraints on the model or in the population being sampled, model specification and an over determined model. In case where there is multi-collinearity situation exists, the estimators of the model will have large variances and covariance, making precise estimation difficult and the t-ratio of one or more coefficients tends to be statistically insignificant (Gujarati,2004). To put it differently, it is difficult to know the individual effect of explanatory variables on the dependent variable due to the fact that the movement of one or more explanatory variables can be affected by other explanatory variables in the model if one or more explanatory variables are highly correlated. There is no consensus among econometricians on the level of correlation that causes multi-collinearity problem in the model. The below table show the correlation results from analysis. Some econometricians argue that the correlation coefficient among explanatory variables is tolerable up to 0.9 and it may not cause serious multicollinearity problem. But, some others limit to maximum of 0.8 whereas Kennedy (2008) argues that any correlation coefficient above 0.7 could cause a serious multicollinearity problem leading to inefficient estimation and less reliable results.

Table 4.2.Correlation Matrix of Independent Variables

	AS	GDP	IR	LEV	LNCSP	LQ	MS	OP
AS	1	-0.362727	0.073693	-0.354759	0.028919	-0.303636	0.680157	0.510434
GDP	-0.362727	1	0.036802	0.361984	0.164649	0.005011	-0.595913	-0.45889
IR	0.073693	0.036802	1	0.115379	0.174229	-0.13805	-0.135093	-0.28487
LEV	-0.354759	0.361984	0.115379	1	0.508419	0.751367	-0.263494	-0.6554
LNCSP	0.028919	0.164649	0.174229	0.508419	1	0.375055	0.176282	-0.37868
LQ	-0.303636	0.005011	-0.13805	0.751367	0.375055	1	-0.095827	-0.17791
MS	0.680157	-0.595913	-0.135093	-0.263494	0.176282	-0.095827	1	0.397085
OP	0.510434	-0.45889	-0.28487	-0.655399	-0.378678	-0.177911	0.397085	1

Source: Results from E-views 10

As can be seen from the above table, the high and positive correlation coefficients exists among explanatory variables of the model are 0.75, 0.68, 0.65 and 0.59 that were found between leverage and liquidity, asset quality and market loan share, leverage and operating efficiency, the growth rate of real gross domestic product and market loan share respectively. Hence, the results of correlation coefficients among independent variables are within the tolerable range.

4.3.Correlation Analysis among Dependent and Independents

Correlation is simply the degree to which two or more variables are associated with each others. In the same way, Brooks (2008) has defined that the correlation is the degree of linear association between two variables. If two variables are correlated it does mean that they are being treated in a completely symmetrical way. Thus, it is not implied the cause-effect relationship between two variables rather it is simply stated that there is evidence for a linear relationship between the two variables, and that movements in the two are on average related to an extent given by the correlation coefficient. To put differently, correlation does not necessarily imply causality. If one finds a positive correlation between two variables, it does not necessarily mean that one variable causes the other one. On the other hand, in the case of the regression, the variable of interest (Dependent) and the explanatory variables are treated very differently. The dependent (variable of interest) is assumed to be random in some way, i.e. to have a probability distribution whereas independent variables are assumed to be fixed (non-stochastic) values in repeated samples. Moreover, brooks (2008) elaborated that regression is the more flexible and powerful than correlation. The correlation coefficient between two variables ranges from positive one implies perfect positive relationship on one hand and to negative one implies perfect negative relationship on the other hand. The

correlation coefficient among the variable of interest and explanatory variables of this study are as showed in the below table.

Table 4.3.Correlation between Dependent and Independent Variables

	ROA	AS	GDP	IR	LEV	LNCSP	LQ	MS	OP
ROA	1	-0.84229	0.41745	0.189262	0.212925	-0.20639	0.095729	0.6351	-0.4076
AS	-0.84229	1	-0.36273	0.073693	-0.35476	0.028919	-0.30364	0.680157	0.510434
GDP	0.41745	-0.36273	1	0.036802	0.361984	0.164649	0.005011	-0.59591	-0.45889
IR	0.189262	0.073693	0.036802	1	0.115379	0.174229	-0.13805	-0.13509	-0.28487
LEV	0.212925	-0.35476	0.361984	0.115379	1	0.508419	0.751367	-0.26349	-0.6554
LNCSP	-0.20639	0.028919	0.164649	0.174229	0.508419	1	0.375055	0.176282	-0.37868
LQ	0.095729	-0.30364	0.005011	-0.13805	0.751367	0.375055	1	-0.09583	-0.17791
MS	0.635101	0.680157	-0.59591	-0.13509	-0.26349	0.176282	-0.09583	1	0.397085
OP	-0.407599	0.510434	-0.45889	-0.28487	-0.6554	-0.37868	-0.17791	0.397085	1

Source: Results from E-views 10

As could be observed from the above table 4.4, the asset quality (percentage of non-performing loan) was the most negatively correlated to return on asset (ROA) indicating that as the quality of assets getting deteriorated more and more, the profitability moves to opposite direction. The correlation coefficients of logarithm of corporate social responsibility and operating efficiency were also negative (-0.2) and (-0.4) respectively implies that the two variables were found to be negatively related to ROA. That mean, the increase in deterioration of quality of assets, logarithm of amount of donations, and expense-income ratio (i.e. cost inefficiency) will make profitability of DBE to be declined. On the other hand, market loan share is the most variable that was positively correlated to the profitability of the Bank which mean the market loan share and ROA move to the same direction. The remaining others variable such as growth rate of real GDP, inflation rate, leverage and liquidity were also found to be positively related to the profitability of banks. To sum up, the growth rate of real GDP, inflation rate, leverage, liquidity and market loan share are among the variables incorporated in this study that can contribute to the enhancement of return on assets of development bank of Ethiopia.

4.4.Data and Unit Root Test

The type of data structure that was used for this study is a time series data which is gathered for a single firm (DBE) over the time. Most economic and other time series are associated, often highly related to their recent histories and that makes them more difficult to analyze than cross-sectional data. A large number of macroeconomic time series data might have a

unit root non-stationary processes (Harris, 2000). A non-stationary time series will have a time varying mean or a time-varying variance or both. A stochastic process might lead a finding to end-up with a spurious regression superficially looking good fit even though there might not be the true relationship between the variables. Put differently, stationary time series is important due to the fact that if a time series is non-stationary, we can study its behaviour only for the time period under review. Each set of time series data will therefore be for a specific incident. As a result, it is impossible to generalize it to other time periods (Gujarati, 2004). So, in order to conduct research on time series data, the data is required to be stationary. To this end, unit root test on the annual series of all variables including the dependent variable of the model at level and their transformed first difference with intercept and both intercept and trend was diagnosed by using the most popular Dickey Fuller method so as to ensure that the all variables of the model have unit root problem or not. The results of the test is depicted in the below table.

Table 4.4.ADF test results

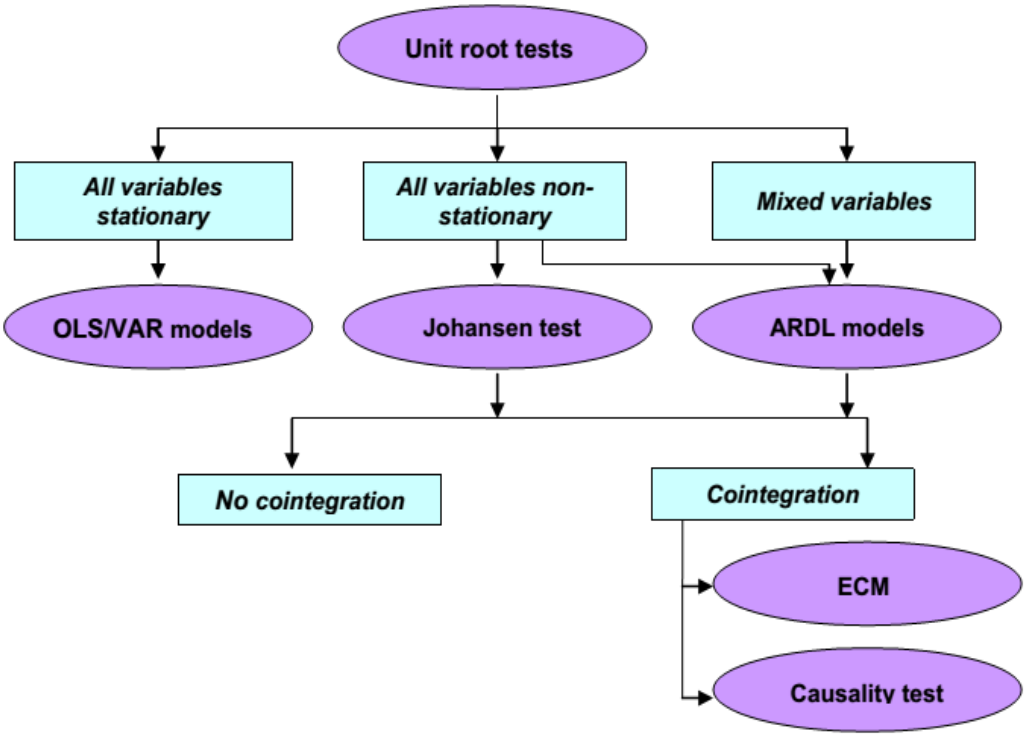
Variables	Intercept				Trend and intercept			
	Level		First difference		Level		First Difference	
	t-stat	P-value	t-stat	P-value	t-stat	P-value	t-stat	P-value
ROA	-1.3710	0.5710	-37.1260	0.0001	-1.1840	0.8940	-6.2950	0.0001
ASSET QUA	-1.8960	0.3290	-13.5930	0.0000	-0.7530	0.9580	-3.8390	0.0290
GDP	-7.6100	0.0000	-7.6860	0.0000	-4.6290	0.0049	-7.3300	0.0000
INFLATION	-5.2960	0.0020	-7.4370	0.0000	-5.8250	0.0003	-7.2960	0.0000
LEVERAGE	3.1410	1.0000	-5.1160	0.0040	0.4310	0.9980	-6.5980	0.0001
Log (CSP)	-2.6800	0.0900	-8.4090	0.0000	-3.4570	0.0640	-8.6330	0.0000
LIQUIDITY	-1.4030	0.5660	-5.4100	0.0001	-1.8820	0.6370	-5.5140	0.0007
MRKETSHARE	-2.1250	0.2370	-4.9630	0.0004	-1.6280	0.7560	-5.2200	0.0013
OPEREFFCNY	1.7350	0.4030	-4.0350	0.0011	-3.1620	0.1120	-4.5160	0.0007

The results of ADF test shows that all the variables of the model are non-stationary at the data level except the two macroeconomic variables which mean the growth rate of real GDP and inflation rate with intercept as well as with intercept and trend at 5% significance level. As it can be understood from the above table, none of the variables is trend stationary due to the fact that all of them were still not changed to stationary data after the inclusion of time trend in the ADF test. However, all the non-stationary data were changed to stationary at first difference with intercept even at 1%significance level. Thus, the growth rate of real GDP and inflation rate are a time series of zero integrated order (0) whereas the remaining others are first integrated order (1).

4.5.The Selection of Appropriate Model

According to Shrestha and Bhatta (2018), the most critical part of analyzing time series data is applying appropriate methodology due to the fact that the wrongly specified model will provides biased and unreliable estimates. Primarily, the unit root test results which determine the stationarity of the variable can be used as a tool for selection of appropriate model for time series analysis. For instance, the OLS technique cannot be used to analyze the non-stationary time series as it violates its assumption of the data should be non-stochastic. Thus, the test results of OLS regression may show that a significant relationship exists between two variables, which in fact they are unrelated. The other thing is that two or more variables may form a long term equilibrium association though they may deviate from the equilibrium in the short run. If the variables in the model are of mixed order of integration, Johansen co-integration test cannot be used as the method requires all the variables to be integrated of order one (1).

Figure 4.1.Method of model selection for time series data.



Source: Shrestha and Bhatta (2018)

As mentioned earlier, the variables of this study model are found mixed order of integration. The dependent, bank specific and industry level variables which mean return on asset, leverage, asset quality, liquidity, natural logarithm of donations that used to measure the corporate social performance of the bank, operating efficiency and market loan share of the

model are found first integrated order whereas macroeconomic variables (growth rate of Real GDP and inflation rate) are found integrated order of zero which mean stationary at data level. Hence, the first model that was used to analyze the data of this study is Autoregressive Distributed Lag (ARDL). The model can also be used as a base for building of dynamic error correction model (ECM) through a simple linear transformation. The ECM integrates the long-run equilibrium with the short-run dynamics without missing long-run information and it also used to avoid different problems such as non-sense relationship resulting from stochastic time series data. After the regression analysis of the model was carried out via ARDL, the variables of the model found be co-integrated which signifies the existence of long-run relationship among the variable of interest and explanatory variables of the model incorporated in this study. Therefore, the Autoregressive Distributed Lag (ARDL) and Error Correction Model were used to analyze the short-run dynamic behaviour of variables and long-run relationship among same. The error correction term can also be used to analyze the speed of adjustment of deviations (shocks) from the equilibrium.

4.6.VAR Lag Order Selection Criterion

The co-integration testing involves many specification decisions so as to minimize the unreliability of results. The selection of optimal lag length is a significant practical question during carrying of any econometric analysis. Similar to the case of unit root test when the specified lag length is too short, the serial correlation problem remains in errors and the biased results will be resulted. Conversely, the power of the test will be decreased in the case that the lag length is too large. Thus, the selection of lag length can affect the co-integration tests results. The wrongly specified lag length may importantly affect the co-integration results. In case of under and over specification, it could undermine the co-integration results and it may diminish the power of test respectively. Currently, thanks to statistical software package, the optimal lag length can be specified through lag length selection criteria such as Akaike Information criterion (AIC), Schwartz Bayesian Criterion (SBC) and Hannan Quinn Criterion (HQC). Based on the above mentioned optimal lag length criteria, the optimal lag length of this study model is one (1).

Table 4.5. VAR Lag Order Selection Criteria

Endogenous variables: ROA AS GDP IR LEV LNCSP LQ MS OP
Exogenous variables: C
Date: 05/08/20 Time: 18:39
Sample: 1991 2019
Included observations: 28

Lag	LogL	LR	FPE	AIC	SC	HQ
0	280.4032	NA	3.08e-20	-19.38594	-18.95773*	-19.25504
1	388.0820	138.4442*	6.16e-21*	-21.29157*	-17.00949	-19.98250*

Source: Computed from E-views 10 result

* indicates lag order selected by the criterion
LR: sequential modified LR test statistic (each test at 5% level)
FPE: Final prediction error
AIC: Akaike information criterion
SC: Schwarz information criterion
HQ: Hannan-Quinn information criterion

4.7.Result of ARDL-ECM Regression Analysis

As explained earlier, the Autoregressive is the best regression analysis technique in case the variables of the model are integrated of different orders which mean integrated order of zero and first integrated order. The below equation is the general empirical model of Autoregressive distributed lag (ARDL).

$$\mathbf{Y_t = \alpha + \pi t + \phi_1 Y_{t-1} + ... + \phi_p Y_{t-p} + \beta_0 X_t + \beta_1 X_{t-1} + ... + \beta_q X_{t-q} + \varepsilon_t} \quad \textbf{..... (2)}$$

Where, Y_t is the current value of dependent variable

α, constant

π, coefficient of time trend

t, time trend in case the data is trend time series data

$Y_{t-1,}$ one year lagged value of dependent variable

$Y_{t-p,}$ several years lagged values of dependent variable

ϕ, coefficient of lagged values of dependent variable

$X_{t,}$ current value of explanatory variable

$X_{t-q,}$ several years lagged values of explanatory variables

β, coefficients of explanatory variables

$\boldsymbol{\varepsilon_t}$, white noise error term

p is lags of dependent variable whereas **q** is lags of explanatory variable.

The estimation and interpretation of the ARDL (p,q) model depends on whether the dependent variable and explanatory variables are stationary or non-stationary (i.e. unit root problem) so that before estimating an ARDL model one should test unit root test so as to ensure the stationarity assumption of time series data. All variables of this study had a unit-root problem except for growth rate of real GDP and Inflation rate which are stationary at data level or integrated order of zero. The non-stationary variables were also transformed to stationary data after first differencing. According to Shrestha and Bhatta (2018), taking difference of non-stationary time series and using OLS method after making all the variables stationary may seem to be an easy way to analyze the relationship. However, the difference represents only the short-run change in the time series but totally misses out the long-run information. Hence, this method is not appropriate for the analysis of non-stationary variables. That mean, two or more variables may form a long term equilibrium association though they may deviate from the equilibrium in the short run. Based on the result obtained from coefficient diagnostic (Long run form and bounds test) the model was found to be co-integrated. Thus, as the appendix three (III) of this study shows that the value of F-statistic was found be more than the upper bounce even at 1% significance level. Hence, the null hypothesis of no levels relationship (i.e. no co-integration) was rejected so that we can say the independent variables of this study model are co-integrated to target variable in the long-run. Then, the Error Correction Model was established based on the Autoregressive Distributed Lag. The co-integration model emphasizes the long-run equilibrium relationship between the dependent variable and independent variables whereas the error correction model characterizes the short-run adjustment processes towards the equilibrium relationship. The general error correction version of the ARDL model is specified by the below equation.

$$\Delta \mathbf{Yt} = \boldsymbol{\alpha 0} + \sum_{i=1}^{p} \beta \mathrm{i} \Delta \mathrm{Yt} - \mathrm{i} + \sum_{i=1}^{p} \boldsymbol{\delta i} \Delta \mathbf{Xt} - \mathbf{i} + \sum_{i=1}^{p} \phi \mathbf{i} \Delta \mathbf{Zt} - \mathbf{i} + \boldsymbol{\lambda 1} \mathbf{Yt} - \mathbf{1} + \boldsymbol{\lambda 2} \mathbf{Xt} - \mathbf{1} + \boldsymbol{\lambda 3} \mathbf{Zt} - \mathbf{1} + \mu \ldots\ldots\ldots\

Table 4.6.Autoregressive Long Run Form and Bounds Test Regression Results

ARDL Long Run Form and Bounds Test
Dependent Variable: D(ROA)
Selected Model: ARDL(1, 1, 0, 0, 0, 1, 0, 0, 0)
Case 3: Unrestricted Constant and No Trend
Date: 05/08/20 Time: 22:02
Sample: 1991 2019
Included observations: 28

Conditional Error Correction Regression

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.016910	0.011063	1.528568	0.1459
ROA(-1)	-0.560789	0.149521	-3.750575	0.0017***
AS(-1)	-0.050783	0.014852	-3.419243	0.0035***
D(GDP)	0.045586	0.011743	3.881879	0.0013***
D(IR)	0.009572	0.003697	2.588989	0.0198**
D(LEV)	9.10E-05	0.000393	0.231921	0.8195
LNCSP(-1)	-0.001656	0.000731	-2.265330	0.0377**
D(LQ)	0.003363	0.009792	0.343458	0.7357
D(MS)	0.050876	0.015336	3.317427	0.0044***
D(OP)	0.000574	0.004337	0.132447	0.8963
D(AS)	-0.107799	0.014374	-7.499431	0.0000***
D(LNCSP)	-0.000992	0.000505	-1.964251	0.0671*

Levels Equation
Case 3: Unrestricted Constant and No Trend

Variable	Coefficient	Std. Error	t-Statistic	Prob.
AS	-0.090557	0.021312	-4.249066	0.0006***
GDP	0.081289	0.033908	2.397348	0.0291**
IR	0.017070	0.008149	2.094664	0.0525*
LEV	0.000162	0.000689	0.235451	0.8168
LNCSP	-0.002954	0.001287	-2.295445	0.0356**
LQ	0.005997	0.017892	0.335179	0.7418
MS	0.090722	0.041583	2.181721	0.0444**
OP	0.001024	0.007729	0.132523	0.8962

EC = ROA - (-0.0906*AS + 0.0813*GDP + 0.0171*IR + 0.0002*LEV -0.0030 *LNCSP + 0.0060*LQ + 0.0907*MS + 0.0010*OP)

***, **, and * denote significance at 1%, 5%, and 10% levels respectively.

Source: Computed from E-views 10 results

Table 4.7. Autoregressive Error Correction Regression Results

ARDL Error Correction Regression
Dependent Variable: D(ROA)
Selected Model: ARDL(1, 1, 0, 0, 0, 1, 0, 0, 0)
Case 3: Unrestricted Constant and No Trend
Date: 05/08/20 Time: 22:13
Sample: 1991 2019
Included observations: 28

ECM Regression
Case 3: Unrestricted Constant and No Trend

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.016910	0.002047	8.259248	0.0000
D(AS)	-0.107799	0.006716	-16.05164	0.0000
D(LNCSP)	-0.000992	0.000345	-2.876060	0.0110
CointEq(-1)*	-0.560789	0.065308	-8.586902	0.0000

R-squared	0.924063	Mean dependent var	-0.000426
Adjusted R-squared	0.914571	S.D. dependent var	0.005047
S.E. of regression	0.001475	Akaike info criterion	-10.06867
Sum squared resid	5.22E-05	Schwarz criterion	-9.878353
Log likelihood	144.9614	Hannan-Quinn criter.	-10.01049
F-statistic	97.35035	Durbin-Watson stat	2.476133
Prob(F-statistic)	0.000000		

Source: Results from E-views 10

4.8. Diagnostic Tests of the Model

Diagnostic tests inform us how the estimated coefficients of the model are robust. Shrestha and Bhatta (2018) explained that as the type of the diagnostic test is different based upon the econometric model being utilized. But, there are the most common types of diagnostics tests such are lag structure, coefficient diagnostics and residual diagnostics. From the above mentioned diagnostic tests, the residual diagnostics is the most fundamental part of diagnostic tests in economic modeling since the regression models try to minimize errors. There are four main assumptions about the error terms in the time series data such as zero mean, constant variance, the residuals should not be correlated with explanatory variables and also with each other. The other is that the error term must be normally distributed (independent and identical distribution of error terms). From the above mentioned assumptions, the two most important methods of residual diagnostic tests are autocorrelation test and heteroskedasticity test.

4.8.1. Normality Assumption Test for Residuals

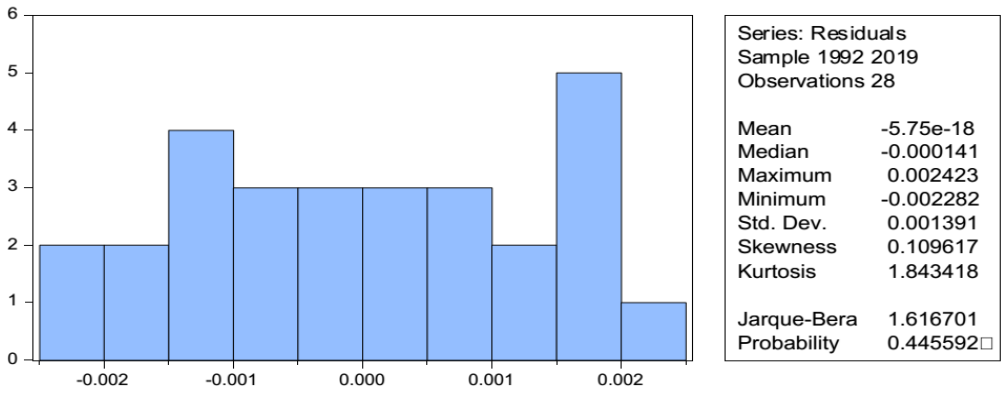
The most necessary residual diagnostics test that was tested for the model of this study is the normality distribution assumption of error terms. Brooks (2008) noted that the normality

assumption ut~N (0, σ^2)) is required so as to perform a single or joint hypothesis tests about the estimated parameters of the model. Bera-Jarque test is the most commonly used for normality tests and it uses the property of a normally distributed random variable that the whole distribution is characterized by the first two moments - the mean and the variance (Brooks, 2008).Appropriate normal distribution is non-skewed and has kurtosis coefficient of three (3).The Skewness measures the extent to which a distribution is not symmetric about its mean value whereas kurtosis measures how fat distribution tails are. As could be seen from the below figure 4.2 of normality assumption test of residuals, the coefficients of skewness and kurtosis were (0.1) and (1.8) respectively which are near to their standard values of zero for skewness and three for kurtosis. The other thing is that the null hypothesis of the residuals are normally distributed was tested via using Bera-Jarque test.

H0: The residuals are normally distributed

H1: The residuals are not normally distributed

Figure 4.2 Normality Test for Residuals



The figure 4.2 clearly shows that the histogram is bell-shaped and the P-Value of Bera-Jarque test is found insignificant at 5% of significance level. Thus, unable to reject the null hypothesis of the residual errors are normally distributed. Therefore, it can be possible to say that there was no a problem of normality distribution for the model of this study since the null hypothesis of normal distribution is not rejected.

4.8.2. Autocorrelation Test

The most important residual diagnostics test that needs due consideration in the time series data is testing of whether residual errors are serially correlated to one another or not. According to Brooks (2008), the existence of autocorrelation condition can make the coefficient estimates of the model to be inefficient. Hence, there might be the possibility that

the wrong conclusion could be made about whether a given explanatory variable is or is not an important determinant of variations in dependent variable. In the case of positive serial correlation in the residuals, the model's standard error estimates will be biased downwards relative to the true standard errors. Thus, the model will understate their true variability and thereby it would lead to an increase in the probability of type I error -- that is, a tendency to reject the null hypothesis sometimes when it is true in fact. According to Gujarat (2004), likewise as heteroscedasticity is generally associated with cross-sectional data, autocorrelation is usually associated with time series data. Therefore, to detect the problem of autocorrelation this study was used the popular Breusch–Godfrey test to examine a joint test for autocorrelation that will allow examination of the relationship between residual errors and several of its lagged values at the same time.

H0: No Autocorrelation

H1: Autocorrelation

Table 4.8.Breusch-Godfrey Serial Correlation LM Test:

F-statistic	2.367779	Prob. F(1,15)	0.1447
Obs*R-squared	3.817287	Prob. Chi-Square(1)	0.0507

Source: Computed from E-views 10 result

As it is vividly shown in the table 4.1, both the F-statistic and Observations R-squared were found insignificant at 5% significance level so that the null hypothesis of there is no autocorrelations is not rejected. Therefore, it can be concluded that there is no evidence of existence of serial correlations in the residual errors of the model of this paper.

4.8.3. Heteroscedasticity Test

The third most important assumption of the econometric analysis models or time series data is that the constant variance of residual errors. If the errors do have a constant variance, they are said to be homoscedastic, otherwise they are heteroscedastic. The existence of heteroscedasticity in the model can be resulted to wrong standard errors so that any inferences made could be misleading. This study was used White's General Test of Heteroscedasticity so as to detect whether the model is suffers from heteroscedasticity problem or not.

H0: Homoscedastic variance

H1: Heteroscedastic variance

Table 4.9.Heteroskedasticity Test: White

F-statistic	2.152197	Prob. F(11,16)	0.0795
Obs*R-squared	16.70802	Prob. Chi-Square(11)	0.1168
Scaled explained SS	2.300710	Prob. Chi-Square(11)	0.9971

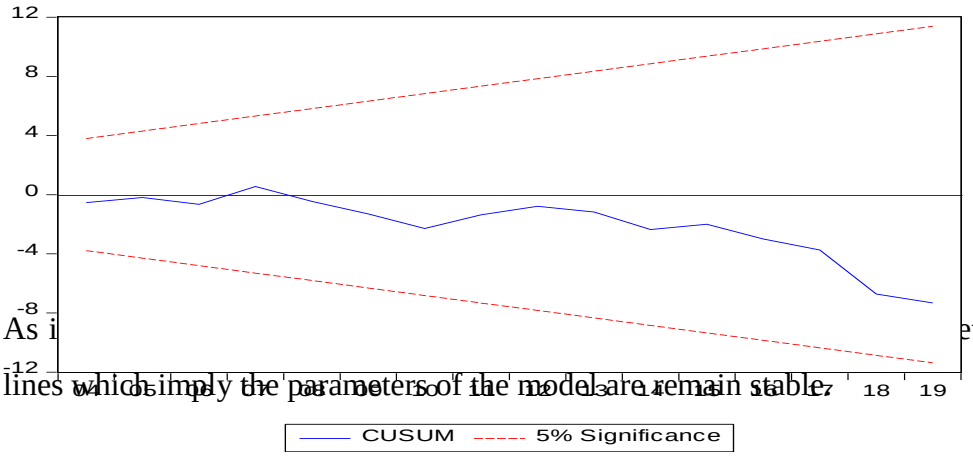
Source: Computed from E-views 10 result

On the basis of results of white test (with no cross product terms) showed in the above table, there is no evidence for the presence of heteroscedasticity since the P-values of F-statistic, Observations R-squared and "Scaled explained SS" were in excess of 0.05 so that unable to reject the null hypothesis of homoscedastic variance.

4.8.4. Parameter Stability Test

According to brooks (2008), the two important stability tests are CUSUM and CUSUMSQ tests which derived from the residuals of the recursive estimation known as the recursive residuals. The CUSUM statistic is based on a normalized version of the cumulative sums of the residuals. Under the null hypothesis of perfect parameter stability, the CUSUM statistic is zero however many residuals are included in the sum (because the expected value of a disturbance is always zero). A set of ±2standard error bands is usually plotted around zero and any statistic lying outside the bands is taken as evidence of parameter instability.

Figure 4.3. Parameter Stability Test.



As i…etween the two red lines which imply the parameters of the model are remain stable.

4.8.5. Model Linearity Test

A further assumption of the classical linear regression model and/or others is that the appropriate functional form is linear. This means that the appropriate model is assumed to be linear in the parameters and that in the bivariate case, the relationship between dependent and independent variables can be represented by a straight line. According to brooks (2008), Ramsey's RESET test is a general test for misspecification of functional form.

Table 4.10 Model Linearity Test

Specification: ROA ROA(-1) AS AS(-1) GDP IR LEV LNCSP LNCSP(-1) LQ MS OP C

Omitted Variables: Squares of fitted values

	Value	df	Probability
t-statistic	0.991578	15	0.3371
F-statistic	0.983227	(1, 15)	0.3371

F-test summary:

	Sum of Sq.	df	Mean Squares
Test SSR	3.21E-06	1	3.21E-06
Restricted SSR	5.22E-05	16	3.26E-06
Unrestricted SSR	4.90E-05	15	3.27E-06

Source: computed from E-views 10 result

On the basis of results of Ramsey's RESET test showed in the above table, there is no evidence for misspecification of functional form since the P-values of F-statistic and T-statistic were in excess of 5% significance level in that unable to reject the null hypothesis of the functional form of the model is linear.

4.8.6. Granger Causality Test

Regression analysis deals with the dependence of one variable on other variables; it does not necessarily imply causation. Causality occurs in the case when a given variable is the only cause of the other variable. As depicted in the appendix 8 attached at the end of this paper, the result of Pair-wise granger causality test shows that from the independent variables included in the study only log of CSP (amount of donations) does granger cause ROA at 1% significance level with one lag length. The log of CSP was also found to be granger cause of asset quality at1% significance level. Moreover, the market loan share was also found to be a granger cause of operating efficiency at 5% significance level with one lag length.

To summarize, the diagnostic tests for the ARDL-ECM estimates show that the error terms were normally distributed with Homoskedasticity. The null hypothesis of Lagrange multiplier

test of residual serial correlation was not rejected and the functional form of the model was fine and stable. Therefore, it is possible to conclude that the estimated coefficients of the model was efficient and wouldn't lead to misleading inferences.

4.9.Summary of Results of ARDL-ECM Regression Analysis

Table 4.6 and 4.7 shows empirical regression results from the ARDL-ECM regression model. Under the above regression results of Autoregressive Long Run Bounds Test and Autoregressive Error Correction Regression Models, the beta coefficients were found negative or positive that indicates the influence of each incorporated explanatory variable on the variable of interest (dependent). The significance of each variable estimates is known by using their individual P-values. In other words, the P-values of individual estimates can indicate at what percentage level the explanatory variables are significant. On the other hand, the F-statistic is used to measure the overall joint statistical significance of the variables of the model. The coefficient of determination ($\mathbf{R^2}$) value indicates the explanatory power of the model or good fitness of the Model and the adjusted $\mathbf{R^2}$considers the loss of degrees of freedom associated with adding extra variables.

The Specified Empirical Model: As presented in the third chapter of this study, the empirical model used so as to identify and examine the most important factors that can impact the financial performance of banks in the context of development bank of Ethiopia had been specified as follows:

$$ROA_t = \alpha + \beta 1\ LEV_t + \beta 2\ ASQUA_t + \beta 3\ OPEFF_t + \beta 4\ LIQ_t + \beta 5\ LNCSP_t + \beta 6\ MKSHRE_t + \beta 7\ GDP_t + \beta 8\ INF_t + \varepsilon_t$$

As could be observed from the table 4.6, the explanatory power of this study model is considerably high given by the R^2 and Adjusted R-square of 0.92 and 0.91 respectively. This implies that the changes in the explanatory variables explain 92% of the changes in the variable of interest. To make it brief; leverage, asset quality measured via percentage of non-performing loan, operating efficiency, liquidity level, corporate social performance, market loan share, growth rate of real GDP and inflation rate were collectively explain 92% of the changes in financial performance of development bank of Ethiopia (which was measured via ROA). The remaining eight percentage change of ROA was explained by other factors which are not incorporated in the model of the study. Therefore, it is possible to say that the explanatory variables incorporated in the model are jointly explained the financial performance of development bank of Ethiopia in good manner. Moreover, the null hypothesis

of F-statistic that the R^2 is not significantly different from zero was rejected at 1% significance level since the correspondent p-value was zero (0.000000). This indicates that the estimated coefficients of the variables in the model are jointly statistically significant. The F-statistic of 0.000 also tells us strong statistical significance, which enhanced the reliability and validity of the model used for regression analysis. The result of Durbin Watson Statistic was also 2.47 approximately near two (2). Thus, it signifies that the model is free of autocorrelation problem.

The main finding of the study is vividly depicted in the table 4.6 of ARDL Long Run Form and Bounds Test. The results of the model showed that from the five bank specific independent variables included in the study only asset quality and corporate social performance were found have statistically significant impact on financial performance of development bank of Ethiopia both in the short-run and long-run relationship. The incorporated industry level explanatory variable market loan share was also found has statistically significant influence on ROA. Moreover, the two macroeconomic variables which mean growth rate of real GDP and inflation rate had statistically significant impact on financial performance of banks in the context of development bank of Ethiopia. In general, from the total eight explanatory variables of the study, five variables were found significantly impacting the return on asset (ROA) whereas three bank specific variables such as leverage, liquidity and operating efficiency were found insignificant since their p-values were 0.82, 0.74 and 0.89 respectively. From the aforementioned significant variables, the asset quality, market loan share and growth rate of GDP were found significant at 1% significance level. The inflation rate and natural logarithm of amount of donation (corporate social responsibility) were found significant at 5% and 10% of significance level respectively. Furthermore, the other thing that was observed from the results of the regression analysis is that the difference between the P-values of the variables in the short-run and long-run is insignificant. This, tell us that those explanatory variables that were found have significant impact on ROA in the short-run were also found have long-run relationship with ROA in the same way.

ARDL Long Run Form and Bounds Test regression results also posits that the coefficients of leverage, , liquidity, operating efficiency, market loan share, GDP growth rate and inflation rate were found positive against ROA since their coefficients are positive numbers of

(0.000091,0.003363,0.000574,0.050876, 0.045586 and 0.009572) respectively. This demonstrates that there was a positive association between the above listed explanatory variables and ROA. Put differently, the unit increase of those variables will cause an increase in financial performance of DBE.

On the contrary, the coefficients of the two remaining bank specific variables of this study i.e. asset quality and natural logarithm of corporate social performance were negative numbers of (-0.107799) and (-0.000992) respectively. This indicates that there was inverse/opposite relationship between asset quality and corporate social performance on the one hand, and the financial performance of development bank of Ethiopia (ROA) on the other hand.

With regard to the long-run relationship between explanatory variables and dependent variable, the regression analysis results show that the estimated coefficients of bank specific variables like leverage, asset quality, liquidity, corporate social performance and operating efficiency were (0.0002, -0.0906, 0.0060, -0.0030 and 0.0010) respectively. Hence, only asset quality and corporate social performance had negative long-run relationships with ROA likewise in the short run. The coefficient of industry specific variable market loan share was (0.0907) whereas the coefficients of macro variables mean that growth rate of real GDP and inflation rate were positive numbers of (0.0813) and (0.0171) respectively.

4.10. Analysis and Discussions

The preceding section was presented the outputs of regression analysis. Under this section, the results of the regression analysis that was being presented in the previous section have been analyzed and discussed against the theories and previous empirical studies. The proposed hypotheses of this study were also thoroughly addressed in this section as to see the relationship between the financial performance of firm (DBE) and its potential determinants.

4.10.1. Leverage and its effect on Financial Performance

In general, there are three main methods used to measure the leverage of the firm which are debt to equity ratio, debt to total assets and long term debt to total capitalization. In this study, the debt-equity ratio was used to proxy the leverage of development bank of Ethiopia. Based on the reviewed theories of the relationship between leverage and firms' financial performance as well as previous empirical findings, this study was postulated that leverage has a positive and significant impact on the financial performance of development bank of Ethiopia. The results of the study show that the leverage was found to have positive and

insignificant effect on the DBE's return on assets (ROA) both in the short-run and long-run relationship even at 10% significance level. The insignificant effect of leverage on ROA is in favor of the theory of the capital structure of Modigliani and Miller (1958) that argues the level of debt have no influence on the firms' performance and value in the case of a perfect world which mean no taxes, perfect and credible disclosure of the information, no transaction and agency costs and in opposite to the pecking order theory of capital structure which asserts that a leverage has a significant and negative impact on firms' performance. The result is also inconsistent with the trading-off theory that argues the usefulness of debt through the trading-off between the benefits of tax reduction on interest payments and the costs of financial distress. Moreover, the result of this study is fully inconsistent with the empirical findings of Mirza and Javed (2013) conducted on determinants of financial performance of sixty Pakistan corporate firms listed in Karachi stock exchange. Their study was found that the debt to equity ratio had a positive impact on performance while the long-term debt to total assets and short-term debt to total assets had an inverse relationship with firms' performance. Furthermore, the result is also contrary to the study of Mohammed (2014) on the determinants of capital structure and its impact on the performance of Ethiopian insurance industry found that the significant influence of leverage on ROA of Ethiopian insurance companies. In the same way, the result is also contrary to the study of Dasuki (2016) that concluded the long-term debt and total debt have significant negative effects on the financial performance measured by ROA. On the other hand, the finding is correspondent to the previous study of Alibanafa (2016) that found the insignificant negative influence of leverage on financial performance of non-financial firms in Kenya. Thus, the hypothesis of this study **(H1)** that stated leverage has positive and statistically significant effect on financial performance of banks in the context of development bank of Ethiopia is rejected. The possible reason for the insignificant impact of leverage on financial performance of development bank of Ethiopia could be its sources of borrowing with too low interest rate. The main borrowing sources of DBE were/are international development association, international fund for agricultural development, international funds, rural financial intermediation programs, agricultural market improvement program, African development fund, European Union, European investment bank, China development bank, national bank of Ethiopia, commercial bank of Ethiopia and others. Thus, under loan and grants agreements, the Ethiopian government receives funds from the above mentioned international organizations to be on-lent to governmental organizations like DBE and others. To elaborate more, as it is obtained from the audited financial statements of DBE, its average

borrowing interest rate is 1.5% which is too small as compared to market interest rates. Hence, on one hand, it can be believed that the DBE couldn't face difficulty in meeting its debt-obligation since the funds are loans on-lent by the Ethiopian government pursuant to credits granted by international development organizations. So, it can be concluded that DBE had not faced financial distress in repaying back its owed resources that might influence its bank performance. On the other side, the annual interest expense of the bank was too small so that it couldn't utilize the tax benefits related to the debt financing.

4.10.2. Asset Quality and its effect on Financial Performance

The percentage of non-performing loans (NPL) to total outstanding and advances ratio, and the allowance or provision to loan losses reserve are the most common proxy used to measure the asset quality of banks. Due to the non-availability of data of NPL, this study was used the ratio of provision for bad debts to total outstanding and advances as a proxy measure of the asset quality of development bank of Ethiopia. The higher the ratio of percentage of non-performing loan to total loan and advances implies that the poor quality of assets of the bank. In the same way, the high ratio of the asset quality variable of this study doesn't mean the high quality of assets rather it indicates the inverse. This study was postulated that the poor quality of assets which mean high percentage of non-performing loans has a significant and negative influence on the financial performance of development bank of Ethiopia. The estimated coefficient of asset quality which is measured by the provisions for bad debts to total outstanding loans and advances was negative and statistically significant at 1% significance level both in the short-run and long-run with P-values of (P-value=0.00000) and (P-value=0.0006) respectively. As expected, the high percentage of non-performing loans was found to be an inverse significant driver of the financial performance DBE both in the short-run and long-run. In addition, the estimated coefficient of this variable was relatively higher than the coefficient of other explanatory variables that implies the asset quality is the most important factor in determining the financial performance of development bank of Ethiopia. This means that the more and more non-performing loan leads to a declined profitability by deteriorating the asset quality of banks. This result is in agreement with the theory that increased exposure to credit risk is highly correlated with declined bank's performance implying that banks would enhance performance by screening and monitoring of credit risk.The finding is also consistent with the previous study of Alper and Albar (20111), Olweny and Shipo (2011), Aremu et al. (2013), Ongore and Kusa (2013), Petria et al. (2013), Rahman et al. (2015), Hashem (2016) and other researchers. In the case of

Ethiopia, the result is also correspondent to the empirical findings of Dawit (2016), Melaku (2017) and Mohanty (2017) while contrary to the study of Abdu (2018) that found insignificant impact of asset quality on financial performance of private commercial banks operating in Ethiopia. None of the above mentioned researcher was conducted their studies on development banks rather on commercial banks. Therefore, this result allows us to conclude that the effect of poor asset quality on banks' profitability is the same regardless of the nature of banks which means either the bank is development bank or commercial bank.

Surprisingly, the result is fully consistent with the existing reality of the problem of non-performing loans that the DBE has been encountered right now. The reason that the DBE has justified for the registered loss of profit for the fiscal year of 2019 is that it has held huge amount of provision for non-performing assets which signifies the presence of a significant deterioration of the quality of assets of the bank. The negative sign of asset quality with coefficient value of (-0.1078) with P-value 0.000 in the short-run is interpreted of the poor asset quality was significantly and inversely explains movements in ROA of DBE. Thus, on average, one percentage change in non-performing loans pushes toward 0.1078 cents decline in ROA while keeping constant for other variables in the model. In the same way, the estimated negative sign of coefficient of asset quality with value of (-0.0906) with P-value 0.0006 that vividly depicted in the table 4.6 of ARDL long run form and bounds test regression results indicates as poor quality of asset was found to be negatively correlated with profitability (ROA) of development bank of Ethiopia in the long run. Thus, according to this test results, one percentage change in non-performing loans brings a decline change of about 9.06 percent in return on asset (ROA) of development bank of Ethiopia in the long-run. Therefore, the proposed hypothesis of this study **(H2)** that postulated poor quality of assets has a negative and statistically significant effect on financial performance of banks in the context of development bank of Ethiopia is not rejected.

4.10.3. Operational Efficiency and its effect on Financial Performance

The proxy used for this study to measure operational efficiency is expense to income ratio. A high ratio of expense to income is supposed to be inversely related to financial performance of banks due to the fact that efficient banks are assumed to operate at lower costs. More surprisingly, efficiency doesn't seem to enhance the performance of DBE since the estimated coefficient of the parameter is positive 0.000574 with probability value (P-value=0.8963) for short run dynamic whereas also positive 0.001024 with probability value (P-value =0.8962)

for long run relationship. Thus, contrary to the expectation of this study, the results showed a positive insignificant influence of operating efficiency on bank financial performance. The expense and profits appears straightforward entailing that higher expenses mean lower bank's performance. On the other hand, this may not always be the case. The reason is that sometimes higher amounts of operating cost could also reflect higher volume of banking activities and this in turn result in higher revenues. For instance, aggressive control of costs sometimes even affects the affordable benefits of the workers. This will in turn increase unproductive and disengaged employees in the company. Therefore, only the cost cut-down principle doesn't resulted in high profits but also sometimes reasonable increment of costs might be generated huge sales revenue. In the case of DBE, the demands of employees for salary increment and benefits package remain unsolved and currently, most of workers are looking for office of other organizations in the banking industry. Hence, the existed dissatisfaction of employees might be negatively affected the profitability of DBE due to the fact that the bank is aggressively efficient in minimizing of operational cost. Referring to previous empirical findings, the result is not aligned with the study of Olweny and Shipo (2011), Aremu et al. (2013), Ezra (2013), Petria et al. (2013), Rahman et al. (2015) and Samuel (2015) who found significant and negative impact of operating efficiency on profitability banks. Therefore, the hypothesis of this study **(H3)** that postulated the operating efficiency has negative and statistically significant influence on financial performance of banks in the context of development bank of Ethiopia is rejected.

4.10.4. Liquidity and its effect on Financial Performance

There are two general methods in which liquidity of banks can be measured which are funding gap and liquidity ratios The first method funding gap is the difference between inflows and outflows which requires substantial additional data collection, but provides much more useful information on a bank's liquidity profile over time and thus on any future liquidity constraints. The second method is based on different ratios that can be computed from balance sheet and it is easy to do so. For instance, the second methods are the ratio of current assets to current liabilities, acid test ratio and liquid assets to total assets. For this study, the variable is represented by ratio of current assets to total assets. There is dilemma on the relationship between liquidity and banks profitability. In this study, it was supposed to be significantly and negatively correlated to the financial performance (ROA) of development bank of Ethiopia. Different from the expectation, the effect of liquidity proved to be statistically insignificant in explaining return on asset (ROA) of DBE. The estimated

coefficient of the parameter is positive 0.0034 with probability value (P-value=0.7357) for short run dynamic whereas also positive 0.0060 with probability value (P-value =0.7418) for long run relationship between liquidity and profitability (ROA) of development bank of Ethiopia. The positive coefficient of liquidity is inconsistent with the argument of standard financial theory that emphasizes the negative relationship between liquidity and bank performance. This result of positive coefficient seems fact in case of DBE in that the presence of sufficient liquid assets is positively affecting the operational activities of the bank. Most of the time the customers' request for machineries procurement are waiting for elongated time due to shortage of hard currency (which implies shortage of liquidity in general) and thereby resulted in delay of project implementation time. This in turn, force the bank to reschedule the repayments otherwise the loan be turned to non-performing loan. The rescheduling of repayment period for further elongated period has its own impact on the collection of interest income which can leads to decline of profitability of the bank. The other possible reason is that holding of assets in liquid like government securities may better generate income than loaned loans to customers since the major portion of DBE's loans are found in non-performing assets. The finding of the study is inconsistent with the previous study of olweny and Shipo (2011), Ezra (2013), Samuel (2015), Alibanafa (2016), Hashem (2016) and Shen et al. (2017) who found significant impact of liquidity on financial performance of banks. On the other hand , the result supports the empirical findings of Ongore and Kusa (2013), mohammed (2014) and Dawit (2016) those found statistically insignificant influence of liquidity on profitability (ROA) of banks. Since the results of the regression showed positive insignificant coefficient of the parameter, the hypothesis of this study **(H4)** that stated the liquidity has a negative and statistically significant influence on financial performance of banks in the context of development bank of Ethiopia is rejected.

4.10.5. CSR and its effect on Financial Performance

The development bank of Ethiopia has been participating in a continuous support and development of the society through its corporate social responsibility engagements in the form of sponsorship and donations to various programs and issues. For this study, the natural logarithm of donations was used as a proxy measure of corporate social performance of development bank of Ethiopia. The logarithm was used so as to minimize the size of the figures of donations amount since the others variable included in the model of this study are ratios and percentages. Although it was expected that the bank which has a good participation in social issues should be registered high financial performance, the results of the regression

showed the inverse impact of the corporate social performance on ROA development bank of Ethiopia. The estimated coefficient of corporate social performance which is measured by donations amount was negative (-0.000992) with P-value 0.0671 and negative value (-0.0030) with P-value of 0.0356 for short-run and long-run respectively. Thus, corporate social performance of DBE was found to have negative and statistically significant effect on its ROA both in the short-run and long-run. As it can be seen from its P-values, the influence of CSP on return on asset (ROA) of development bank of Ethiopia was found significant at 10% significance level in the short-run whereas significant at 5% (conventional) significance level in the case of long-run relationship between them. Therefore, log of one birr increase in donations, leads to a decline of ROA by 0.000992 cents on average in the short run by holding other remaining variables constant.

The significant and negative impact of corporate social performance on ROA is in support of classical view of corporate social responsibility that argues the business should use its resources and to engage only in activities designed to increase its profit. Conversely, the result is in opposite to the social contract theory and stakeholder theory that argue corporations should join with other social structures so that meet needs of surrounding society, and there are other groups to whom the corporation is responsible in additions to stockholders respectively. Moreover, the finding is contrary to the resource based view of the firm theory that argues participating in social engagements can be used for purposes of creating strategic advantages. The result is also inconsistent with the previous study of Shen and Chang (2009) and Weshah et al. (2012) who found positive relationship between corporate social performance and corporate financial performance. Similarly, the result is not correspondent to the study of Soana (2011) that found insignificant link between corporate social performance and corporate financial performance. The possible reason why corporate social performance was found to have a significant negative impact on ROA of development bank of Ethiopia seems to due to the unique financial services that DBE has been providing for mega and risky projects in which other commercial banks fear to do so. To put differently, it is assumed that there is no stringent competition from other banks on the loaning activities of DBE since the bank is the only one providing long-term loans for risky and complex projects that made the financial service package of DBE more differentiated. Contemporarily, the main reason of participating in corporate social responsibility is to achieve competitive advantages and by doing so, different business organizations were able to attract loyal customers. However, in the case of DBE, participating on other social structures seems

incurring of extra costs because as mentioned earlier, there is no stringent competition from other financial institutions operating in Ethiopia. Due to the estimated coefficient of CSP was found negative both in the short-run and long-run, the hypothesis of this study **(H5)** that postulated the corporate social performance has a positive and statistically significant effect on financial performance of banks in the context of development bank of Ethiopia is rejected.

4.10.6. Market Loan Share and its effect on Financial Performance

The two methods in which the size of a given firm can be measured are its total assets and market share. For this study, the market loan share was used to examine the relationship between market share and financial performance of development bank of Ethiopia. One would expect that the market loan share has positive and significant effect on the banks profitability since having too huge market share seems the business is profitable. As it was anticipated, the result of regressions in the table 4.6 showed that positive coefficients of market loan share both for short-run and long-run relationship. The parameter was also found significant in both cases of the relationship. The result is in agreement with the argument of Relative Market Power (RMP) hypothesis that argues huge market shares and a wide range of the source of profits can lead to higher profits for individual banks. As it can be seen from the table 4.6, the estimated coefficient of the parameter is (0.0509) and (0.0907) with P-values (P-value = 0.0044& P-value = 0.0444) for short-run and long-run respectively implying that the market loan share had positive and statistically significant impact on ROA of development bank of Ethiopia at 1% significance level in the short-run whereas significant at 5% of significance level for the long-run relationship. That mean, holding constant other variables in the model, on average, one percentage change in market loan share will cause a change of about 0.0509 in return on asset (ROA) of development bank of Ethiopia in the short-run. Therefore, the hypothesis of this study **(H6)** that stated the market loan share has a positive and significant influence on financial performance of banks in the context of development bank of Ethiopia is not rejected.

4.10.7. Growth Rate of Real GDP and its effect on Financial Performance

The growth rate of real GDP was used as proxy measure of economy to examine its impact on the financial performance of development bank of Ethiopia. Based on the standard economic theory, in this study it was proposed that the growth of real GDP has a significant positive impact on the ROA of banks in the context of development bank of Ethiopia. And

also, one would anticipate that a significant and positive influence of economic growth on banks' financial performance. The regression results of the model depicted in table 4.6 shows that the positive coefficients of (0.045) and (0.081) with P-values (P-value = 0.0013) & (P-value=0.0291) for short-run and long-run respectively indicating that the economic growth had positive and statistically significant impact on ROA of development bank of Ethiopia at 1% significance level in the short-run whereas significant at 5% of significance level for the long-run relationship. Thus, both in the short-run and long-run the growth of GDP had significantly and positively explained movements in ROA of development bank of Ethiopia. Hence, on average, one percentage change in growth of GDP will cause a change of about 4.5 percent in return on asset (ROA) of development bank of Ethiopia in the short-run. In other words, one birr increase of real GDP, on average, will leads to the increment of 0.045 cents in ROA of DBE in the short-run holding constant of others variable incorporated in the model. The result is also consistent with the previous study of Athanasoglou et al. (2008) and Kosmidou (2008) who have found significant and existence of strong relationship between growth of economy and performance of banks. Turning to the reality, the result is also coincides with the existing reality that the loaning activities of DBE is strongly correlated to the large investments that could be undertaking in the country. In turn, the activities of investment are highly related to the economic conditions. So, it is possible to support the argument of when the economic activity increases, the demand for loans and deposits increases, strengthen the debt-servicing capacity of domestic borrowers contribute to less credit risk (small amount of non-performing loans) which all are positively correlated to the profit margins of financial industries. Therefore, the hypothesis of this study **(H7)** that postulated the growth rate of real GDP has a positive and statistically significant influence on financial performance of banks in the context of development bank of Ethiopia is not rejected.

4.10.8. Inflation Rate and its effect on Financial Performance

Still now, there is ambiguity on the relationship between inflation rate and profitability of banks. Accordingly, this study was postulated that the inflation rate has positive/negative and significant effect on financial performance of banks in the context of development bank of Ethiopia. As it was expected, the estimated coefficient of inflation rate related to ROA is positive and significant both in the short-run and long-run. Table 4.6 vividly shows that the positive coefficient value of 0.0096 with the probability value of (P-value=0.0198) for short-run while positive coefficient of 0.017 with probability value of (P-value=0.0525) for the

existed long-run relationship. The popular author Revel (1979) explained that the impact of inflation on the performance of banks is based on the rate of increment of operating expenses. That mean, if the operating expenses are rising faster than inflation, the performance of the bank is affected negatively and vice versa. Perry (1992) elaborated same issue by introducing the concept of anticipation. If banks are good at anticipating inflation rate and make proactive adjustments to their interest rates, the inflation rate would positively influences their performances and if they are not proactive in doing so the result would be an inverse. This result is in support of empirical findings of Bourke(1989), Molyneux and Thornton (1992), Athanasoglou et al. (2006), and Athanasoglou et al. (2008) who found positive and significant relationship between inflation rate and financial performance of banks whereas contrary to the findings of Kosmidou (2008), and Ben Naceur and Kandil (2009. In the context of the empirical studies conducted in Ethiopia, the result of this study is consistent with the study of Mohanty (2017) while in opposite to the Study of Samuel (2015).Therefore, the hypothesis of this study **(H8)** that stated the inflation rate has a positive/negative and statistically significant influence on financial performance of banks in the context of development bank of Ethiopia is not rejected. Therefore, based on the results of the model, one can conclude that DBE was proactive in adjusting its interest rate compared to inflation rate for the past three decades.

Table 4.11. Summary of Hypothesis Testing for Short- Run

Dependent variable		Financial Performance(ROA)		
Independent variables	Anticipated relationship	Actual Relationship	Statistical significance test	Hypothesis result
Leverage	Positive & significant	Positive	Insignificant at 10%	Rejected
Asset Quality	Negative & significant	Negative	significant at 1%	Accepted
Operating Efficiency	Negative& significant	positive	Insignificant at 10%	Rejected
Liquidity	Negative& significant	Positive	Insignificant at 10%	Rejected
CSP	Positive & significant	Negative	significant at 10%	Rejected
Market loan share	Positive & significant	Positive	significant at 1%	Accepted
Growth rate GDP	Positive & significant	Positive	significant at 1%	Accepted
Inflation Rate	Positive or negative & significant	Positive	significant at 5%	Accepted

Source: Summarized from regression results of the study

As vividly showed on the above table 5.1, the results of operating efficiency and liquidity were not coincided with the postulated hypothesis. They were anticipated to have a negative and significant effect on the profitability of DBE whereas the finding of this study found positive insignificant results. The corporate social responsibility was deviated in the direction of influence whereas the anticipated coefficient for leverage is similar to the actual even though it is found insignificant. The insignificant impact of leverage might be due to the fact that DBE was not exposed to financial distress in repaying back its owed resources on one hand and the annual interest expense of the bank was too small so that it doesn't utilized the tax benefits related to the debt financing on the other hand. The negative impact of CSP on ROA could be attributed to participating in social activities is extra costs for DBE because there is no stringent competition from other financial institutions operating in Ethiopia. The reason for positive relationship between operating efficiency (high expense) and ROA might be attributed to the argument that sometimes higher amounts of operating cost could also reflect higher volume of banking activities and then the high revenues would be generated.

CHAPTER FIVE

5. Summary, Conclusion and Recommendations

This chapter has presented the summary of findings, conclusion and the forwarded policy implication recommendations.

5.1.Summary of Findings

This study was sought to identify and examine the potential determinants of financial performance of development bank of Ethiopia. The annual time series data was used for nearly past three decades, clearly from 1991-2019. The Return on Asset (ROA) used as proxy measure of financial performance of the bank. Based on financial theories and previous empirical studies, the bank specific variables that are assumed to have potential impacts on banks performance such as leverage, asset quality, operating efficiency, liquidity and corporate social performance were incorporated in the model of this study. Besides, the industry specific market loan share and the macroeconomic variables like growth rate of real GDP and inflation were also included in the specified model of this study.

The quantitative secondary data were gathered from national bank of Ethiopia and development bank of Ethiopia itself. Particularly, the data for bank-specific variables were collected from the annual audit reports of DBE. The most important assumption of time series data type is that data should be stationary so as to avoid spurious regression results. To do so, the unit root test was conducted and found out that the seven variables of the model had a unit root problem at data level except the growth rate of real GDP and inflation rate. However, after first differencing all of them were found to be stationary. The ordinary least square (OLS) was the widely used regression technique in the previous studies on this topic of investigating the relationship between banks financial performance and their potential determinants in general and in Ethiopia in particular. Differently, after passed through required steps this study was used ARDL-ECM to examine the short-run and long-run relationship between financial performance of DBE and its potential determinants. Thus, at first the unit root test was done and then based on the results of the test ARDL was found the appropriate model because the variables are found mixed of integrated orders. The optimal lag length was also selected based on lag length selection criterion. Thereafter, the regression was run through ARDL and coefficient diagnostics test was tested via ARDL long run form and bounds test. The test results revealed that F-statistic value is above the upper bounces that implying the presence of long-run relationship between dependent and independent variables (i.e. existence of co-integration). On next, the steps proceeded to the model specification of

ECM since the results showed that the variables are co-integrated. Finally, after the regression of ARDL-ECM was conducted the different residual and stability diagnostic tests were performed.

Turning to the main findings of the study, the regression results showed that asset quality, CSP (measured by natural logarithm of amount of donations), market loan share, growth rate of real GDP and inflation rate were found to be a significant drivers of the financial performance of development bank of Ethiopia both in the short-run and long-run . Aside this, contrary to the expectations of the study; the leverage, operating efficiency and liquidity were found to have negligible impact on the profitability of DBE. From the five variables that were found to have significant influence on ROA of development bank of Ethiopia, the two bank specific variables which are asset quality and corporate social performance are found to be adversely contributed to the financial performance of DBE both in the short-run and long-run relationship. As industry level factor, the market loan share was found to have a significant positive effect on the financial performance of development bank of Ethiopia both in the short-run and long-run. Likewise the market loan share, the macroeconomic variables like growth rate of real GDP and inflation rate were found to be positively and statistically significantly related to profitability of development bank of Ethiopia.

The surprising thing that observed in this study is that those variables found the significant drivers of ROA in the short-run are also found highly related to ROA in the long-run relationship. In the short-run the significance level in that asset quality, corporate social performance, and market loan share, growth rate of real GDP and inflation rate found to be significant is 1%, 10%,1%,1% and 5% respectively. With slight change the asset quality, corporate social performance, and market loan share, growth rate of real GDP and inflation rate were found significant at significance level of 1%, 5%, 5%, 5% and 10% in the long-run relationship respectively. From this, we can understood that the impact of growth rate of real GDP, market loan share and inflation rate is become less in the long-run as compared to their respective impacts in the short-run. Conversely, the impact of corporate social performance would be increased in the long-run whereas the impact of asset quality remains unchanged. Not surprisingly, this result implies that the asset quality is found to be the first and most important factor in determining the financial performance of development bank of Ethiopia both in short-run and long-run among the variables incorporated in the model of the study.

5.2.Conclusion

This paper has identified and examined the potential determinants of banks financial performance as the case of development bank of Ethiopia employing annual time series data over the period of 1991-2019. The data was analyzed via Autoregressive Distributed Lag-Error Correction Model so as to examine the short-run and long-run equilibrium relationship between the target variable (ROA) and explanatory variables. According to the revealed results of the study, it can be concluded that the some bank specific variables were negatively affected the profitability of DBE for the past three decades. On the other hand, industry specific and macroeconomic variables were positively contributed to the financial performance of DBE during the above mentioned time period.

First, as anticipated, the finding revealed a negative and strong relationship between poor asset quality and financial performance of DBE both in the short-run and long-run, implying that an increase in deterioration of asset quality result in declined financial performance. The result is lining with many previous empirical findings while contradicts to the high risk-high return argument. For instance, it is consistent with the prior empirical findings of Aremu et al. (2013), Ongore and Kusa (2013), Petria et al. (2013), Rahman et al. (2015), Hashem (2016) and other researchers. In the case of Ethiopia, the result is also correspondent to the empirical findings of Dawit (2016), Melaku (2017) and Mohanty (2017) while contrary to the study of Abdu (2018) that found insignificant impact of asset quality on financial performance of private commercial banks operating in Ethiopia. And also, it seems to be true in the case of DBE since managing of the loans turned to non-performing assets is too cost and the declining of the interest and installments income to be paid to the bank. Therefore, it is possible to conclude that the poor asset quality has a negative and strong relationship with the financial performance of development bank of Ethiopia.

Second, contrary to the expectation, the findings showed a negative and significant impact of corporate social responsibility on the financial performance of DBE both in the short-run and long-run, implying that an increase in participating in other social issues and providing donations leads to a declined financial performance. The result is also inconsistent with the previous study of Shen and Chang (2009), Soana (2011), and Weshah et al. (2012) who found positive relationship between corporate social performance and corporate financial performance. The possible reason for an inverse relationship between CSP and financial performance of DBE might be that providing of donations wouldn’t help DBE in achieving

competitive advantage since its financing service package is already differentiated from other commercial banks operating in the country.

Third, as anticipated, the finding showed a positive and strong relationship between market loan share and financial performance of DBE both in the short-run and long-run, implying that an increase in percentage of market loan share in the banking industry leads to enhanced profits. The result is fully in agreement with the philosophy of Relative Market Power (RMP) hypothesis that argues huge market shares can lead to higher profits for individual banks. In addition the result of this study is similar with the findings of Peria and Mody (2004) that banks with strong market share can use their shares and their size to eliminate existing or potentials competitors by dropping their margins on interest rates. So that one can conclude the huge market loan share has a positive and significant effect on the financial performance of development bank of Ethiopia.

Fourth, as anticipated, the finding showed a positive and strong relationship between growth rate of real GDP and financial performance of DBE, implying that the growth of economy leads to good financial performance of banks. The result is also consistent with the previous study of Athanasoglou et al. (2008) and Kosmidou (2008) who have found significant and existence of strong relationship between growth of economy and performance of banks. In the context of Ethiopia, the result is also consistent with the prior empirical finding of Samuel (2015) and Mohanty (2017) who found positive and strong relationship between growth rate of real GDP and banks' financial performance. Thus, when the economy is getting boom the economic activity could be increased. This in turn, make the demand for loans to be increased and strengthen the debt-servicing capacity of domestic borrowers contribute to less credit risk. Hence, it is possible to conclude that growth rate of real GDP has a positive and significant effect on the financial performance of development bank of Ethiopia.

Fifth, as partially anticipated (i.e. either positive or negative), the finding showed a positive and significant relationship between inflation rate and financial performance of DBE, implying that an increase in general price level could lead to improved profits for DBE for the last three decades. Based on the general explanation (theory), the possible reason for the positive effect of inflation rate on the ROA of DBE might be that the management of the bank was proactive in adjusting the lending interest rate compared to inflation rate during the period of under review. The finding is also in support of empirical findings of Bourke (1989), Molyneux and Thornton (1992), Athanasoglou et al. (2006), and Athanasoglou et al. (2008)

who found positive and significant relationship between inflation rate and financial performance of banks. In the case of Ethiopia, Mohanty (2017) also found that inflation had positive and significant effect on the profitability of commercial bank of Ethiopia. Therefore, it is possible to conclude that the inflation rate has a positive and significant effect on the financial performance of development bank of Ethiopia.

Lastly, the Error Correction Model of this study revealed that about 56% of deviations in the short-run disequilibrium is corrected each year to reach the long run equilibrium.

5.3. Recommendations

Based on the findings of the study, the following policy implications and future research direction recommendations are forwarded so as to be implemented by the concerned bodies:-

First, DBE should take necessary remedial measures so as to enhance its profits and to survive in the banking industry of the country. In other words, due attention should be given in managing the quality of bank's loan portfolios since the largest interest margins are reflected in the nonperforming loan problem. To this effect, the management of the bank must have to implement a sound and effective credit risk management practices in forcing customers to repay back their debt according to terms and conditions stipulated on the loan contractual agreements. And also, DBE needs to establish a well organized customer relationship management department that supported with experienced credit experts to evaluate the credit risks associated with its loans at the entrance since the most important factor that negatively affected the profitability of DBE is the presence of huge non-performing loans in its loan portfolios. The bad judgments, non-compliance with the credit policy of the bank, incomplete knowledge of customers' activities and inadequate project monitoring needs to be solved. Moreover, the bank should be certain on the feasibility of every loan proposed and the management need to be careful in setting up a credit policy particularly the bank needs to review the issue of holding collaterals to reduce further incidence of bad debts. Furthermore, it is better for DBE to establish task force comprises of experts from different units of the bank to formulate the way-out from the existing non-performing loans.

Second, the management of the bank must take into their consideration the impact of corporate social performance on DBE's financial performance and they should have to align participation in other social activities to the annual profit of the bank.

Third, as far as the finding of this study showed a positive and significant impact of market loan share on DBE's profitability; in consulting with the government, the management of the bank should aggressively work on enhancing the market loan share of DBE in Ethiopian banking industry via increasing its financing areas rather than being limited to some risky sectors that are prioritized by the government of Ethiopia to be eligible for financial services of development bank of Ethiopia. Thus, diversifying of loan portfolios to different sectors by itself have a great role in reducing the credit risk that can be resulted from risky sectors like commercial agricultures.

Fourth, the loan pricing behaviour of the bank should be aligned with the inflation rate without experiencing a decline of demand for loans of development bank of Ethiopia.

5.4.Future Research

- Due to the shortage of the time, this study's investigation on the determinants of financial performance of development banks delimited to a single firm DBE. Therefore, the future research could extend to other development banks like African development bank, china development bank and others so as to provide robust results of the nexus between financial performance of development banks and their potential determinants so that the more generalized findings would be revealed.
- In addition, the methodological approach combining quantitative and qualitative approaches could be utilized for future studies.
- Moreover, as of the asset quality is found to be the most important factor in determining the financial performance of DBE, it is better to study the factors that affect NPL of development bank of Ethiopia in more depth and investigating the procedures that the DBE should undertake to handle the problem of NPL can be an area of future research.
- Furthermore, the relationship between banks' performance and corporate social responsibility would be investigated more using different measurements of corporate social responsibilities since this study has only used the amount of donations as a measurement for same.

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Appendices

Appendix-I: Raw data

OBS	ROA	Leverage	Asset Quality	Operating Efficiency	Liquidity	CSP	Market loan share	GDP Growth rate	Inflation Rate
1991	0.0024	2.5352	0.2791	0.7391	0.2859	282,500.00	0.2463	-0.0301	0.4500
1992	-0.0036	2.0833	0.2904	0.7094	0.2822	171,000.00	0.2513	-0.0229	0.0205
1993	0.0038	2.7326	0.2218	0.6587	0.2862	350,000.00	0.1919	0.1117	0.0471
1994	-0.0043	2.9499	0.2522	0.6779	0.2960	76,000.00	0.1760	0.0005	0.0629
1995	0.0033	2.5592	0.1952	0.6350	0.2423	256,000.00	0.1812	0.0572	0.1484
1996	0.0049	2.3264	0.1810	0.6009	0.2677	87,000.00	0.1788	0.1012	-0.0900
1997	0.0036	2.1982	0.1758	0.5757	0.2611	210,000.00	0.2161	0.0423	-0.0265
1998	0.0045	2.4983	0.1604	0.4451	0.2621	119,000.00	0.2124	-0.0079	0.0010
1999	0.0037	3.0641	0.1793	0.5042	0.2449	467,000.00	0.2143	0.0631	0.1039
2000	0.0042	2.5282	0.1515	0.5139	0.2637	235,000.00	0.2110	0.0340	0.0189
2001	0.0060	3.8829	0.1514	0.5386	0.2506	389,000.00	0.2024	0.0742	-0.1077
2002	0.0039	2.9119	0.1984	0.5347	0.2361	322,000.00	0.2849	0.0163	-0.0122
2003	0.0041	3.4222	0.1652	0.5560	0.2351	164,000.00	0.2260	-0.0210	0.1777
2004	0.0049	3.5681	0.1811	0.5551	0.2477	431,000.00	0.2230	0.1173	0.0238
2005	0.0039	3.1568	0.2312	0.5828	0.2407	156,000.00	0.1926	0.1264	0.1075
2006	0.0050	5.2127	0.2005	0.6210	0.2386	163,000.00	0.1705	0.1154	0.1082
2007	0.0059	4.5038	0.2070	0.5672	0.2556	242,825.00	0.1601	0.1179	0.1510
2008	0.0085	2.6492	0.1902	0.1603	0.0701	272,000.00	0.1579	0.1119	0.5524
2009	0.0038	3.1302	0.1850	0.1609	0.0642	253,030.00	0.1643	0.1004	0.0271
2010	0.0030	3.5488	0.1800	0.3596	0.2232	232,060.00	0.1523	0.1057	0.0732
2011	0.0149	5.2070	0.1156	0.2125	0.2234	333,050.00	0.1498	0.1140	0.3804
2012	0.0154	8.2202	0.0890	0.3221	0.3886	523,000.00	0.1240	0.0870	0.2081
2013	0.0167	8.7124	0.0692	0.1948	0.3932	264,340.00	0.1313	0.0990	0.0739
2014	0.0149	8.9896	0.0693	0.2587	0.4006	22,388.00	0.1313	0.1035	0.0846
2015	0.0163	8.7950	0.0726	0.2913	0.3812	518,924.00	0.1519	0.1040	0.1045
2016	0.0075	5.2814	0.0821	0.4798	0.3458	552,038.00	0.1185	0.0800	0.0750
2017	0.0061	5.7279	0.0952	0.4196	0.3323	474,000.00	0.1067	0.1010	0.0836
2018	0.0047	8.7191	0.1193	0.1649	0.4750	3,234,000.00	0.2017	0.0770	0.1677
2019	-0.0096	14.1155	0.2862	0.1518	0.4590	5,549,720.00	0.2507	0.0900	0.1530

Appendix-II: ARDL regression results

Dependent Variable: ROA
Method: ARDL
Date: 05/08/20 Time: 22:42
Sample (adjusted): 1992 2019
Included observations: 28 after adjustments
Maximum dependent lags: 1 (Automatic selection)
Model selection method: Akaike info criterion (AIC)
Dynamic repressors (1 lag, automatic): AS GDP IR LEV LNCSP LQ MS OP
Fixed repressors: C
Number of models evaluated: 256
Selected Model: ARDL(1, 1, 0, 0, 0, 1, 0, 0, 0)

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
ROA(-1)	0.439211	0.149521	2.937452	0.0097
AS	-0.107799	0.014374	-7.499431	0.0000
AS(-1)	0.057016	0.017338	3.288419	0.0046
GDP	0.045586	0.011743	3.881879	0.0013
IR	0.009572	0.003697	2.588989	0.0198
LEV	9.10E-05	0.000393	0.231921	0.8195
LNCSP	-0.000992	0.000505	-1.964251	0.0671
LNCSP(-1)	-0.000665	0.000539	-1.232348	0.2356
LQ	0.003363	0.009792	0.343458	0.7357
MS	0.050876	0.015336	3.317427	0.0044
OP	0.000574	0.004337	0.132447	0.8963
C	0.016910	0.011063	1.528568	0.1459

R-squared	0.946255	Mean dependent var	0.005580
Adjusted R-squared	0.909305	S.D. dependent var	0.005999
S.E. of regression	0.001807	Akaike info criterion	-9.497240
Sum squared resid	5.22E-05	Schwarz criterion	-8.926295
Log likelihood	144.9614	Hannan-Quinn criter.	-9.322696
F-statistic	25.60930	Durbin-Watson stat	2.476133
Prob(F-statistic)	0.000000		

*Note: p-values and any subsequent tests do not account for model selection.

Appendix-III: ARDL Long Run Form and Bounds Test

Dependent Variable: D(ROA)
Selected Model: ARDL(1, 1, 0, 0, 0, 1, 0, 0, 0)
Case 3: Unrestricted Constant and No Trend
Date: 05/08/20 Time: 22:44
Sample: 1991 2019
Included observations: 28

Conditional Error Correction Regression

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.016910	0.011063	1.528568	0.1459
ROA(-1)*	-0.560789	0.149521	-3.750575	0.0017
AS(-1)	-0.050783	0.014852	-3.419243	0.0035
D(GDP)	0.045586	0.011743	3.881879	0.0013
D(IR)	0.009572	0.003697	2.588989	0.0198
D(LEV)	9.10E-05	0.000393	0.231921	0.8195
LNCSP(-1)	-0.001656	0.000731	-2.265330	0.0377
D(LQ)	0.003363	0.009792	0.343458	0.7357
D(MS)	0.050876	0.015336	3.317427	0.0044
D (OP)	0.000574	0.004337	0.132447	0.8963
D(AS)	-0.107799	0.014374	-7.499431	0.0000
D(LNCSP)	-0.000992	0.000505	-1.964251	0.0671

* P-value incompatible with t-Bounds distribution.

Levels Equation
Case 3: Unrestricted Constant and No Trend

Variable	Coefficient	Std. Error	t-Statistic	Prob.
AS	-0.090557	0.021312	-4.249066	0.0006
GDP	0.081289	0.033908	2.397348	0.0291
IR	0.017070	0.008149	2.094664	0.0525
LEV	0.000162	0.000689	0.235451	0.8168
LNCSP	-0.002954	0.001287	-2.295445	0.0356
LQ	0.005997	0.017892	0.335179	0.7418
MS	0.090722	0.041583	2.181721	0.0444
OP	0.001024	0.007729	0.132523	0.8962

EC = ROA - (-0.0906*AS + 0.0813*GDP + 0.0171*IR + 0.0002*LEV -0.0030
*LNCSP + 0.0060*LQ + 0.0907*MS + 0.0010*OP)

F-Bounds Test — Null Hypothesis: No levels relationship

Test Statistic	Value	Signif.	I(0)	I(1)
			Asymptotic: n=1000	
F-statistic	5.461843	10%	1.95	3.06
k	8	5%	2.22	3.39
		2.5%	2.48	3.7
		1%	2.79	4.1
Actual Sample Size	28		Finite Sample: n=35	
		10%	-1	-1
		5%	-1	-1
		1%	-1	-1
			Finite Sample: n=30	
		10%	-1	-1
		5%	-1	-1
		1%	-1	-1

Appendix –IV: ARDL Error Correction Regression

Dependent Variable: D(ROA)
Selected Model: ARDL(1, 1, 0, 0, 0, 1, 0, 0, 0)
Case 3: Unrestricted Constant and No Trend
Date: 05/08/20 Time: 22:45
Sample: 1991 2019
Included observations: 28

ECM Regression
Case 3: Unrestricted Constant and No Trend

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.016910	0.002047	8.259248	0.0000
D(AS)	-0.107799	0.006716	-16.05164	0.0000
D(LNCSP)	-0.000992	0.000345	-2.876060	0.0110
CointEq(-1)*	-0.560789	0.065308	-8.586902	0.0000

R-squared	0.924063	Mean dependent var	-0.000426
Adjusted R-squared	0.914571	S.D. dependent var	0.005047
S.E. of regression	0.001475	Akaike info criterion	-10.06867
Sum squared resid	5.22E-05	Schwarz criterion	-9.878353

Log likelihood	144.9614	Hannan-Quinn criter.	-10.01049
F-statistic	97.35035	Durbin-Watson stat	2.476133
Prob(F-statistic)	0.000000		

* P-value incompatible with t-Bounds distribution.

F-Bounds Test — Null Hypothesis: No levels relationship

Test Statistic	Value	Signif.	I(0)	I(1)
F-statistic	5.461843	10%	1.95	3.06
k	8	5%	2.22	3.39
		2.5%	2.48	3.7
		1%	2.79	4.1

Appendix-V: Autocorrelation Test

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	2.367779	Prob. F(1,15)	0.1447
Obs*R-squared	3.817287	Prob. Chi-Square(1)	0.0507

Test Equation:
Dependent Variable: RESID
Method: ARDL
Date: 05/08/20 Time: 22:52
Sample: 1992 2019
Included observations: 28
Presample missing value lagged residuals set to zero.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
ROA(-1)	0.134607	0.168072	0.800888	0.4357
AS	-0.014455	0.016691	-0.866027	0.4001
AS(-1)	0.018132	0.020391	0.889207	0.3879
GDP	0.002635	0.011401	0.231094	0.8204
IR	0.002039	0.003788	0.538196	0.5983
LEV	2.30E-05	0.000377	0.061127	0.9521
LNCSP	-0.000163	0.000496	-0.328946	0.7467
LNCSP(-1)	0.000365	0.000570	0.641385	0.5310
LQ	0.001555	0.009452	0.164549	0.8715
MS	0.014471	0.017467	0.828458	0.4204
OP	0.000789	0.004194	0.188157	0.8533
C	-0.007859	0.011783	-0.667012	0.5149
RESID(-1)	-0.559212	0.363418	-1.538759	0.1447

R-squared	0.136332	Mean dependent var	-5.75E-18
Adjusted R-squared	-0.554603	S.D. dependent var	0.001391
S.E. of regression	0.001734	Akaike info criterion	-9.572377
Sum squared resid	4.51E-05	Schwarz criterion	-8.953854
Log likelihood	147.0133	Hannan-Quinn criter.	-9.383289
F-statistic	0.197315	Durbin-Watson stat	2.169705
Prob(F-statistic)	0.996341		

Appendix-VI: HeteroskedasticityTest

Heteroskedasticity Test: White

F-statistic	2.152197	Prob. F(11,16)	0.0795
Obs*R-squared	16.70802	Prob. Chi-Square(11)	0.1168
Scaled explained SS	2.300710	Prob. Chi-Square(11)	0.9971

Test Equation:
Dependent Variable: RESID^2

Method: Least Squares
Date: 05/08/20 Time: 22:55
Sample: 1992 2019
Included observations: 28

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-6.46E-06	4.14E-06	-1.559537	0.1384
ROA(-1)^2	0.011369	0.005575	2.039356	0.0583
AS^2	-5.93E-05	3.21E-05	-1.847611	0.0832
AS(-1)^2	1.00E-05	2.84E-05	0.351779	0.7296
GDP^2	0.000132	7.38E-05	1.792917	0.0919
IR^2	2.49E-06	6.05E-06	0.411955	0.6858
LEV^2	-5.98E-09	2.00E-08	-0.298729	0.7690
LNCSP^2	-7.26E-09	1.59E-08	-0.457749	0.6533
LNCSP(-1)^2	4.20E-08	1.79E-08	2.348789	0.0320
LQ^2	2.78E-06	1.29E-05	0.215725	0.8319
MS^2	5.33E-05	2.88E-05	1.848613	0.0831
OP^2	3.31E-06	4.19E-06	0.790222	0.4410

R-squared	0.596715	Mean dependent var	1.86E-06
Adjusted R-squared	0.319456	S.D. dependent var	1.74E-06
S.E. of regression	1.44E-06	Akaike info criterion	-23.76790
Sum squared resid	3.31E-11	Schwarz criterion	-23.19696
Log likelihood	344.7506	Hannan-Quinn criter.	-23.59336
F-statistic	2.152197	Durbin-Watson stat	2.226176
Prob(F-statistic)	0.079488		

Appendix-VII: Model Linearity

Ramsey RESET Test
Equation:
Specification: ROA ROA(-1) AS AS(-1) GDP IR LEV LNCSP LNCSP(-1) LQ MS OP C
Omitted Variables: Squares of fitted values

	Value	df	Probability
t-statistic	0.991578	15	0.3371
F-statistic	0.983227	(1, 15)	0.3371

F-test summary:

	Sum of Sq.	df	Mean Squares
Test SSR	3.21E-06	1	3.21E-06
Restricted SSR	5.22E-05	16	3.26E-06
Unrestricted SSR	4.90E-05	15	3.27E-06

Unrestricted Test Equation:
Dependent Variable: ROA
Method: ARDL
Date: 05/08/20 Time: 22:56
Sample: 1992 2019
Included observations: 28
Maximum dependent lags: 1 (Automatic selection)
Model selection method: Akaike info criterion (AIC)
Dynamic repressors (1 lag, automatic):
Fixed repressors: C

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
ROA(-1)	0.333767	0.183543	1.818470	0.0890
AS	-0.098697	0.017062	-5.784776	0.0000

AS(-1)	0.047546	0.019803	2.400960	0.0298
GDP	0.042568	0.012137	3.507230	0.0032
IR	0.007490	0.004254	1.760721	0.0987
LEV	-0.000175	0.000475	-0.367418	0.7184
LNCSP	-0.000518	0.000695	-0.745261	0.4676
LNCSP(-1)	-0.000410	0.000598	-0.685744	0.5033
LQ	0.001151	0.010048	0.114549	0.9103
MS	0.043930	0.016867	2.604423	0.0199
OP	0.001411	0.004420	0.319167	0.7540
C	0.010671	0.012732	0.838157	0.4151
FITTED^2	15.89294	16.02793	0.991578	0.3371

R-squared	0.949561	Mean dependent var	0.005580
Adjusted R-squared	0.909210	S.D. dependent var	0.005999
S.E. of regression	0.001808	Akaike info criterion	-9.489301
Sum squared resid	4.90E-05	Schwarz criterion	-8.870777
Log likelihood	145.8502	Hannan-Quinn criter.	-9.300212
F-statistic	23.53252	Durbin-Watson stat	2.480127
Prob(F-statistic)	0.000000		

*Note: p-values and any subsequent tests do not account for model Selection.

Appendix-VIII: Pair-wise Granger Causality Tests

Date: 05/08/20 Time: 22:37

Sample: 1991 2019

Lags: 1

Null Hypothesis:	Obs	F-Statistic	Prob.
AS does not Granger Cause ROA	28	0.03152	0.8605
ROA does not Granger Cause AS		1.48820	0.2339
GDP does not Granger Cause ROA	28	0.00059	0.9809
ROA does not Granger Cause GDP		0.01857	0.8927
IR does not Granger Cause ROA	28	0.70110	0.4103
ROA does not Granger Cause IR		0.02360	0.8791
LEV does not Granger Cause ROA	28	0.68207	0.4167
ROA does not Granger Cause LEV		1.56253	0.2229
LNCSP does not Granger Cause ROA	28	11.2108	0.0026
ROA does not Granger Cause LNCSP		0.06388	0.8025
LQ does not Granger Cause ROA	28	1.07466	0.3098
ROA does not Granger Cause LQ		1.49998	0.2321
MS does not Granger Cause ROA	28	2.07975	0.1617
ROA does not Granger Cause MS		1.00085	0.3267
OP does not Granger Cause ROA	28	0.25781	0.6161
ROA does not Granger Cause OP		0.00247	0.9607
GDP does not Granger Cause AS	28	0.00022	0.9883
AS does not Granger Cause GDP		0.32582	0.5732
IR does not Granger Cause AS	28	0.02093	0.8861
AS does not Granger Cause IR		4.6E-07	0.9995
LEV does not Granger Cause AS	28	0.96304	0.3358
AS does not Granger Cause LEV		0.18877	0.6677

LNCSP does not Granger Cause AS	28	9.63870	0.0047
AS does not Granger Cause LNCSP		1.59631	0.2181
LQ does not Granger Cause AS	28	2.07579	0.1621
AS does not Granger Cause LQ		4.16415	0.0520
MS does not Granger Cause AS	28	2.95861	0.0978
AS does not Granger Cause MS		0.34100	0.5645
OP does not Granger Cause AS	28	0.03984	0.8434
AS does not Granger Cause OP		0.42148	0.5221
IR does not Granger Cause GDP	28	0.46528	0.5014
GDP does not Granger Cause IR		2.81182	0.1060
LEV does not Granger Cause GDP	28	1.28816	0.2672
GDP does not Granger Cause LEV		0.00357	0.9528
LNCSP does not Granger Cause GDP	28	0.38991	0.5380
GDP does not Granger Cause LNCSP		0.12100	0.7309
LQ does not Granger Cause GDP	28	0.00012	0.9913
GDP does not Granger Cause LQ		0.31925	0.5771
MS does not Granger Cause GDP	28	3.12600	0.0893
GDP does not Granger Cause MS		0.34114	0.5644
OP does not Granger Cause GDP	28	1.41239	0.2458
GDP does not Granger Cause OP		1.26288	0.2718
LEV does not Granger Cause IR	28	1.10728	0.3027
IR does not Granger Cause LEV		0.49228	0.4894
LNCSP does not Granger Cause IR	28	0.02447	0.8769
IR does not Granger Cause LNCSP		0.02471	0.8763
LQ does not Granger Cause IR	28	0.06810	0.7963
IR does not Granger Cause LQ		0.11675	0.7354
MS does not Granger Cause IR	28	1.52969	0.2277
IR does not Granger Cause MS		0.50371	0.4844
OP does not Granger Cause IR	28	0.42288	0.5214
IR does not Granger Cause OP		0.29965	0.5890
LNCSP does not Granger Cause LEV	28	3.32483	0.0802
LEV does not Granger Cause LNCSP		1.62154	0.2146
LQ does not Granger Cause LEV	28	0.36100	0.5534
LEV does not Granger Cause LQ		1.73602	0.1996
MS does not Granger Cause LEV	28	3.9E-05	0.9951
LEV does not Granger Cause MS		3.3E-05	0.9954
OP does not Granger Cause LEV	28	3.53336	0.0718
LEV does not Granger Cause OP		0.85051	0.3652
LQ does not Granger Cause LNCSP	28	1.52274	0.2287
LNCSP does not Granger Cause LQ		1.00261	0.3263
MS does not Granger Cause LNCSP	28	0.83800	0.3687
LNCSP does not Granger Cause MS		0.48123	0.4943

OP does not Granger Cause LNCSP	28	1.34980	0.2563
LNCSP does not Granger Cause OP		0.42167	0.5220
MS does not Granger Cause LQ	28	1.62695	0.2139
LQ does not Granger Cause MS		0.72191	0.4036
OP does not Granger Cause LQ	28	3.89627	0.0595
LQ does not Granger Cause OP		0.68382	0.4161
OP does not Granger Cause MS	28	0.06728	0.7975
MS does not Granger Cause OP		5.68667	0.0250