ADDIS ABABA UNIVERSITY

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DEPARTMENT OF ECONOMICS

A thesis Submitted to the Addis Ababa University, College of Commerce in Partial Fulfillment of the requirement for the Degree of Masters of Science in Development Economics

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January, 2021

Addis Ababa, Ethiopia

Addis Ababa University

College of Commerce Department Economics

The Contribution of Commercial Banks to Economic Growth of Ethiopia

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Statement of Declaration

I, Hailemariam Geletu, hereby declare that a research entitled *"**The Contribution of Commercial Banks to Economic Growth of Ethiopia"*** submitted by me for award of the degree of Masters of Science in Development Economics of Addis Ababa University, is original work and it hasn't been presented for the award of any Degree, Diploma, Fellowship or other similar titles of any other university or institution.

Hailemariam Geletu

Signature_____

Date_____

Statement of Certification

This is to certify that thesis entitled, “The Contribution of Commercial Banks for Economic Growth”, undertaken by Hailemariam Geletu for Partial fulfillment of Degree of Master of Science in Development Economics at Addis Ababa University, to the best of my knowledge, is an original work and is suitable for submission for the reward of the MSc.

Advisor Dr. Berhanu Denu

Signature_____

Date_____

Addis Ababa University

College of Business and Economics

The Contribution of Commercial Banks to Economic Growth of Ethiopia

By: Hailemariam Geletu

Approved by Board of Examiners

Chairman, Department of graduate committee

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Advisor	Signature	Date

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LISTOFACRONYMS

GDP- Gross Domestic Product

NBE- National Bank of Ethiopia

GNI- Gross National Income

EPRDF- Ethiopian People's Revolutionary Democratic Front

USD- United States Dollar

SSAC - Sub-Saharan African Countries

SACCs- Saving and Credit Cooperatives

OECD- Organization for Economic Co-operation and Development

FSD- Financial Sector Development

OLS- Ordinary Least Square

ROA- Return on Asset

RGDP- Real Gross Domestic Product

ARDL- Autoregressive Differenced Lag

GNP- Gross National Product

VECM - Vector Error Correction Modeling

CSA - Central Statistics Agency of Ethiopia

E = Error term

LOGDEPO- Logarithm of Total Deposit

LOGTLOAN- Logarithm of Total Loan

LOGTASSET- Logarithm of Total Asset

LOGRGDP- Logarithm of Real Gross Domestic Product

ADF- Augmented Dickey-Fuller

STATA- Statistics and Data

RMSE- Root Mean Square Error

LM- Lagrange Multiplier

VIF- Variance Inflection Factor

S.E- Standard Error

S.D- Standard Deviation

ABSTRACT

No country can ever have a healthy economy without a sound and effective banking system. In the system of modern economy, banks play a very sound role in economic development of country. They collect the surplus savings of the large group of population and make them available for those economic agents who have best investment opportunity. They also create new demand deposits in the process of granting loans and purchasing investment securities. They stimulate a country's economy through facilitation of economic activities. This research paper has made its focus to the empirical study of the contribution of commercial banks to the economic growth of Ethiopia by taking financial sector development indicator variables deposit, loan, asset and profit as an explanatory variables and RGDP as a dependent variable. The study empirically analyses the contribution of commercial banks to Economic Growth in Ethiopia using time series data over the period 2001-2020.After the data's are confirmed for normality, causality, serial correlation and collinearity tests a five variable time series Ordinary Least Squares regression analysis is employed to estimate the parameters. The result of this study, therefore, provides that there is positive and significant relation between the independent variables asset, deposit and loan with RGDP and a negative but significant association between profit and RGDP. And this could have a sound and comprehensive benefit to the study country.

Key words: *Economic Growth, Commercial Banks*

Chapter One

Introduction

1.1 Background

Ethiopian economy has recorded 9 percent growth in 2018/19, faster than the 7.7 percent expansion in the previous year of 2017/18. This growth was attributed to 12.6 percent growth in industrial output, 11 percent increase in service sector and 3.3 percent expansion in agriculture. Consequently, the share of industry in GDP has increased to 28.1 percent in 2018/19 from 27 percent in 2017/18 while that of service sector rose slightly to 39.8 percent from 39.2 percent. In contrast, the share of agriculture to GDP dropped to 33.3 percent from about 35 percent during the same period. This gradual but steady shift in the structure of the economy reflects the government's policy direction of developing manufacturing sector and promoting export-led growth while continuing to give due attention to modernizing the agriculture sector which has dominated the country's economic base for years (World Economic Outlook Update, October 2018).

With the same trackthe country's economy continued to register a notable growth even when the world faces challenging macroeconomic and social conditions owing to the outbreak of COVID-19 pandemic. In 2019/20 fiscal year, real GDP grew by 6.1 percent compared to 3.5 percent average growth estimated for Sub - Saharan Africa (World Economic Outlook Update, June 2019).

This growth in real GDP was attributed to 9.6 percent growth in industry, 5.3 percent in service and 4.3 percent in agriculture sectors. Thus, nominal GDP per capita rose to USD 1,080, showing a 9.6 percent year-on-year growth. Generally, the Ethiopian economy recorded8.2 percent average growth rate per annumduring the GTP II period (2015/16-2019/20)which was 2.8 percentage point lower thanthe average growth target set for the planperiod. The Ethiopian economy is projectedto grow by 8.4 percent in 2020/21 in contrast to 5.4 and 3.4 percent growthforecast for the world and Sub SaharanAfrica respectively (World Economic Outlook Update, June 2020).

The robust and sustained economic growth recorded over the last 15 years has led to improvements in income inequality and poverty reduction. Accordingly, per capita income has

continuously increased and reached USD 985 in 2018/19. Poverty has declined to 22 percent in 2018/19 from 38.7 percent in 2004/05. Investment to GDP ratio has increased to 35.2 percent while that of domestic savings stood at 22.3 percent (World Economic Outlook Update, October 2018).

The function of commercial banks is the main establishing purpose of the commercial banks. It isfor doing the banking business activities for which banks are established. The functions of commercial banks of Ethiopia are clearly stated intheArt 2 sub Article 2 of theBanking Business Proclamation No 592/2000 ofNBE.And the functions of the commercial banks areaccepting deposits,giving loans,money transfer services,buying and selling of gold and silver bullion,buying and selling of foreign-exchange**,** discounting of bill of exchange,over-draft, agency services and miscellaneous services.

Total resources mobilized by the banking system in the form of deposit, borrowing and loan collection slightly went up by 0.1 percent and reached Birr333.4billion by end of 2019/20 over last year.Aided by remarkable branch expansion, deposit liabilities of the banking system topped Birr 1.0trillion, reflecting 15.8 percent annual growth wherebysaving deposits increasedby 20.9 percent, and demand deposit by 13.0 percent whiletime deposit declined by 1.1 percent. Of the total deposits, saving deposits accounted for 56.6 percent, demand deposits 34.2 percent and time deposit 9.2 percent.The share of private banks in total deposit mobilization increased to 42.6 percent from 39.6 percent last year due to the opening of714 new branches. Commercial Bank of Ethiopia (CBE)alone mobilized 57.3 percent of the total deposits due to its extensive branch network.Raising funds through borrowing by the banking system remained an insignificant source as most of the banks were sufficiently liquid due to increased deposit mobilization and collection of loans. Their total outstanding borrowing stood at Birr80.4billion up from Birr 72.2 billion a year earlier due to borrowing by Development Bank of Ethiopia(DBE). Of the total borrowing, domestic sources accounted for 85 percent and foreign sources 15 percent. The net borrowing in 2019/20 was Birr 8.3 billion of which (68.2 percent was from local and 31.8 percent from foreign sources. Moreover, banks collected Birr 183.3 billion in 2019/20, showing 17.2 percent annual increment. Private Banks collected 50.7 percent of the loans disbursed
Commercial banks and Development Bank of Ethiopia (DBE) disbursed Birr 271.2billion in fresh loans which was 14.8 percent higher than thefiscal year 2018/19. Ofthe total new loans,

about 44.7 percent was provided by private banks and 55.3 percent by the two state ownedbanks (i.e. CBE and DBE). About 17.9percent of the loans went to 'mines power and water' resources followed by industry 15.9 percent, international trade 14.1 percent, domestic trade 13.4 percent, housing and construction9.4 percent, agriculture 9.2 percent and transport & communications9.2 percent. The remaining balance went to other economicsectors.Outstanding credit of the banking system increased by 20.4 percent and passed Birr 1.0 trillion mark at the end of June, 2020.The lion's share 29.5 percentof the outstanding loans went to mines, power and water sectorfollowed by industry 21.5 percent, international trade 13 percent, housing and construction11.2 percent, domestic trade 8.5 percent and transport and communication6.7 percent and the others 9.6 percent. The share of private sector in outstanding credit was Birr 484.6billion (or 47percent) reflecting a 28.3percent annualgrowth. The remaining 53 percent share wastaken up by public enterprises(NBE Annual Report, June 2020).

According to previous studies no developmental strategy would have been achieved without the heavy involvement of the commercial banks of Ethiopia, as all strategies need money for their implementation. For this reason, the role and contributions of these commercial banks is indispensableif it is likelyto ensure the development of Ethiopia. And as previous studiesinvestigatedthe roles of the commercial banks arefinancing industries, financing trade, financing agriculture, financing small and micro manufacturing industries, facilitating commerce, facilitating efficient collection of revenue, help in implementing monitory policy and reduce culture of extravagant (NBE).

Commercial Banks are financial intermediaries raise funds primarily by issuing checkable deposits (deposits on which checks can be written), savings deposits (deposits that are payable on demand but do not allow their owner to write checks), and time deposits (deposits with fixed terms to maturity). They then use these funds to make commercial, consumer, and mortgage loans.

Regarding Ethiopia's financial industry structure, the sector consists of 17 banks (1 public banks and 16 private banks), 14 private insurance companies, 1 public insurance company, 31 microfinance institutions and over 8200 Saving And Credit Cooperatives (SACCOs) in both rural and urban areas. In the financial sector of Ethiopia the Banking sector is dominant accounting for over 80% of the total assets of the financial sector (Getnet, 2014).

Awell-developed financial sector may increase investments, which can promote economic growth. According to Boyd and Prescott (1986), these principles identified two important roles performed by financial intermediaries. Firstly, the financial intermediaries identify the best production technologies and reduce the costs of acquiring and processing information which improves resource allocation. Secondly, they boost the rate of technological innovation by identifying those entrepreneurs with the best chances of successfully initiating new goods and production processes.

The definition of the financial sector includes mainly formal financial intermediaries in Ethiopia's financial system, specifically commercial banks that meet the definition of financial depository institutions. The financial system is a channel through which financial development influences growth and sound financial system is characterized by healthy financial institutions and smooth, well-functioning financial markets which jointly allow for robustness and resilience in the face of adverse shocks (OECD, 2010; Estrada, Park, and Ramayandi, 2010). Access to financial services is another dimension of financial development, although it is not widely covered in this study. The lack of access to finance can be a serious barrier to investment and business growth and impedes the setting up of businesses essential for the growth of a dynamic economy. In an inefficiently functioning banking system, it is hard for savings to be mobilized and normally accumulated outside of the banking system, where they are not effectively used for capital formation and growth of the economy.

The Ethiopian financial sector has been broadly safe, sound, well capitalized and profitable. Commercial banks opened 807 new branches in 2018/19 alone which increased the total number of branches to 5,564 from 4,757 a year ago. The banks also increased their deposit mobilization by 23.2 percent, loan collection by 18.1 percent and loan disbursement by 42.5 percent. Their nonperforming loan was within the required ceiling of 5 percent (NBE Annual Report, June 2019).In contrast, by the end of 2019/20, banks opened 947 new branchesin 2019/20; thereby raising the number of their branches to 6,511 from 5,564 in a year 2018/19. As a result, bank branches to population ratio stood at 1:15,702people. About 34.1 percent of the bank branches were located in Addis Ababa. Major branch expansion was undertaken by Commercial Bank of Ethiopia which opened 247 branches, followed by Abyssinia Bank (226 branches), Awash Bank (58 branches), United Bank (57 branches), Nib International Bank (47 branches), Wegagen Bank

(44 braches), Berhan International Bank (39 branches), Oromia International Bank (37 branches) and Lion international Bank (37 branches).Thus,share of private banks in total branch network slightly increased to 70.5 percent from69.7 percent last year. At the same time, total capital of the banking industry increased by 11.2 percent and reached Birr 112.9 billion by the end of June 2020 (NBE Annual Report, June 2020).

1.2 Statement of the Problem

Commercial banks in Ethiopia are leading institutions and banking sector has been growing rapidly for the last two decades. The banking sector operates in a very competitive environment. Every bank wishes to have a maximum number of the clients who deposits money with the bank and in return lends this money to borrowers hence, increasing its profitability and performance. Commercial banks in Ethiopia as any other banks in developing countries provide a wide range of services to their clients such as online banking, mobile banking, and facilities to pay bills online or through mobile, making purchases or other payments through online or mobile banking etc. Commercial banks play an important role in economic growth of developing countries like Ethiopia. Economic growth involves investment in various sectors of the economy. Commercial banks collect savings from the people and mobilize savings for investment in industrial project. The investors borrow from banks to finance the projects. Commercial banks are involved in the process of increasing the wealth of the economy, particularly the capital goods needed for raisingproductivity.

A more developed and efficient financial institution is more likely to mobilize and directa country's scarce resources to their most productive use in a way of enhancing productivity and impact positively the economic growth.Financial intermediation is the process through which financial institutions transfer financial resources from surplus units of the economy to deficit ones (Abdusalam, 2013). However, for financial institutions to discharge this role effectively, they have to be developed in terms of their resource mobilization, variety of financial assets and efficient in credit allocation.

The financial sector in Ethiopia is composed of the banking industry, insurance companies, microfinance institutions, saving and credit cooperatives and the informal financial sector. But the Ethiopian financial system is rudimentary and dominated by banks.

Zerayehu*et al* (2013), as cited by Abraham Desta(2018), that the banking industry accounts for about 95% of the total financial sector assets. But, he also noted that Ethiopia still remains a highly under-banked country in the world even though supply of the banking service is growing from year to year but it has not led to an increased outreach of the banking system at large (Roman, 2012). Therefore, it is interesting to state that Ethiopia's commercial bank development, as measured by its development indicators such as deposits of commercial banks, loan and advances and asset with respect to GDP needs empirically investigation in the context of Ethiopia just to know whether these indicators contribute to the growth of Ethiopian economy.

Several studies have been trying to identify and explain the relationship between the financial sector development and economic growth with different variables, despite the fact that the existence of the issue is quite sure known for many years. The theoretical explanations in the literature provide the financial sector development (FSD)-led Economic Growth Hypothesis or the Growth-led financial sector development (FSD) Hypothesis. This study adds an important unique contribution to the existing stock of knowledge about the analyses of commercial banks-real GDP model by taking real GDP as dependent variable (Proxy for economic growth) and bank loans, deposit, total assets and profit as explanatory variables. As far as the knowledge of the researcher is concerned, there is no enough study attempts to look into the contributions of Commercial BankstowardsEconomic Growth with OLS model. On the other hand, from previous study on the same topic conducted in Ethiopian context by Abraham Desta (2018) regression results revealed that among development indicators of commercial bank deposit, loan of advance and total assets positively and significantly contribute to economic growth and the profitability commercial banks which is net profit by proxy ROA has negative but significant association with RGDP. In this study the profitability of commercial banks, apart from its significance, is expected to have positive impact on economic growth.

Therefore, extensive study of the Commercial Banks contribution to Economic Growth and the motive to investigate the relationship between banks deposit, loans total assets and profit with inclusion of additional four years data in the model and a debate is made with the previous study, with respect to the variables considered in this study on their association with economic growth.

The objective of this study is mainly an attempt to verify the effect and contribution of the Commercial Banks to the dynamic Economic Growth of Ethiopia and vice versa using dynamic

multivariate time-series data with an Ordinary Least Square Model (OLS). A number of related empirical literature studies; description of the variables; specification and estimation of the models that inspire the study in genuine options concerning methods for the analyses will be provided.A thorough review of the literature indicates that only one study has been undertaken on contribution of commercial banks to Ethiopian economic growth. Moreover; studies that should have been carried out giving high focus on the long-established Commercial Banks of Ethiopia are missing. Thus, this research paper tried to fill the gap by using four known efficiency measurement and financial sector development indicator variables (total asset, total deposit, total loan and profit) and with the inclusion of the lagged value of RGDP on its own effect as an additional variable by taking long year's data from the year 2001 to 202020 (20 years) than the previous study and by focusing on the seven long-established commercial banks to assess the contribution of commercial banksto the economic growth of Ethiopia.

1.3 Research hypothesis

Hypotheses of the study stands on the theories related to a banking sector development and economic growth that has been developed over the years by banking area researchers and past empirical studies. Hence, based on the general objective, the present study seeks to test the following 4 hypotheses:

Hypothesis 1:

$\boldsymbol{H0}$: There is no relationship between commercial banks deposits and economic growth.

$\boldsymbol{H1}$: There is a positive relationship between commercial banks deposits and economic growth.

Hypothesis 2:

$\boldsymbol{H0}$: There is no relationship between commercial bank's loans and economic growth.

$\boldsymbol{H1}$: There is a positive relationship between commercial bank's loans and economic growth.

Hypothesis 3:

$\boldsymbol{H0}$: There is no relationship between commercial bank's total assets and economic growth.

$H1$: There is a positive relationship between commercial bank's total assets and economic growth.

Hypothesis 4:

$H0$: There is no relationship between commercial bank's profit and economic growth.

$H1$: There is a positive relationship between commercial bank's profit and economic growth.

Hypothesis 5:

$H0$: There is no relationship between the lagged values of GDP and economic growth.

$H1$: There is a positive relationship between the lagged values of GDP and economic growth.

1.4 Objective of the Study

1.4.1 General Objective

The general objective of this study is to analyze the contribution of Commercial Banks in Ethiopia towards the growth of the Ethiopian economy.

1.4.2 Specific Objectives

Specifically, the study aims to:

Investigate the contribution of Commercial Banksdeposit towards the growth of the Ethiopian economy.

Investigate the contribution of Commercial Banks in Ethiopia's Loan and advances towards the economy growth of Ethiopia.

Determine the contribution ofEthiopia's Commercial bank's asset towards the growth of the country's economy

Determine the contribution of Commercial Bank's profitabilitytowards the growth of Ethiopian economy.

1.5 Scope of the Study

The study examines the contribution of commercial banks real gross domestic product (a proxy for economic growth), and tried to identify relative significance of the GDP growth (dependent variable) and commercial banks contribution taking deposit, loans, total assets and profitabilityThis research study is undertaken in Ethiopia, covering a sample of seven commercial banks licensed, supervised and regulated by the National Bank Of Ethiopia and by taking total asset, total deposit, total loan and profit as independent variables and RGDP AS DEPENDENT VARIABLE using data from the period of 2001 to 2020G.C (20 years) and finally to give some policy recommendations.

1.6 Significance of the Study

The study is designed to examine the contribution of commercial banks development variables and real gross domestic product, and tried to identify existing relationship between the GDP growth and commercial banks deposit collection, credit allocations to economic agents, total asset and profitability as independent variables. Hence, the findings of the study are tremendously beneficial for academic purpose, policy makers and managements of Banks. It also helps for researchers who conduct researches on related topics in furthering knowledge.

1.7 Limitations of the Study

The study will utilize data of twenty years (20), years in the regression analysis due to absence in the availability data for more periods as the establishment period of most of the private commercial banks is less than the past two decades. In addition to this enclosure of public or private saving (deposit), total commercial bank credit to consumption and investment by all economic agents, total commercial bank assets and total profitability of commercial banks as the most suitable and limited independent variables to determine GDP growth of the country‘s in line of commercial banksareother limitation of the study.

1.8 Organization of the Paper

The paper will be organized into five chapters. Following the introduction part, chapter two presents the review of related theoretical and empirical literature regarding Bank credit and economic growth. Chapter three gives insight on the model specification and methodology

employed. Chapter four presents empirical results and its interpretation, and finally chapter five provides conclusion and policy implications based on the findings.

Chapter Two

Literature Review

2.1 Theoretical Literature Review

Commercial banks are considered not merely as dealers in money but also the leaders in economic development. They are not only the store houses of the country's wealth but also thereservoirs of resources necessary for economic development. They play an important role in theeconomic development of a country. According to Johnson.B and S. Sedaca (2004) a well-developed banking system is essential for the economic development of a country

McKinnon (1973) and Shaw (1973) argue that financial development is a prerequisite for economicgrowth. They point out that financial development can affect growth positively through itsinfluence on saving and investment.Schumpeter (1911), who emphasized the importance of financial services in promotingeconomic growth and highlighted circumstances in which financial institutions can actively encourage innovation and promote future growth by determining and funding productive investments.

The endogenous growth models of the 1990s provided additional theoretical support to therelationship between financial development and economic performance (see, for example, Bencivenga and Smith (1991), Greenwood and Jovanovich (1990), and King and Levine 1993). These models assume that financial intermediaries provide the economy with various types of services, reducing investment risks (liquidity and productivity risks), collecting information and offering better share diversification. These financial services improve the efficiency and volume of investment. Endogenous growth models assume that the level of investment and productivity growth are the channels of transmission from financial intermediation to economic growth.

Hussein (2002) examines the hypothesis of the financial liberalization school that financial development that comes from increases in interest rates toward the long-run equilibrium level and the efficient allocation of resources affected economic growth in Egypt. Using the autoregressive differenced lag (ARDL) model, he shows that financial sector development is important for economic growth. A rise in the private credit to total credit ratio leads to a rise in real GDP per capita in the long run.

The results indicate that interest rates have a positive impact on savings and an ambiguous effect on economic growth. Hussein concludes that an increase in the real rate of interest is not the essential route through which to develop and enhance Egypt's financial sector. Other measures such as, developing the stock market, encouraging competition and participation of the private sector, and offering a variety of financial assets may play more important roles in boosting the financial sector, according to Hussein, although he provides no empirical evidence of the effectiveness of these instruments in boosting the financial sector and thereby driving growth.

According to Chavula (2017) a developed financial sector increases access to financial services and offers a full range of financial products and services to different economic sectors.Schumpeter (1911), who emphasized the importance of financial services in promoting economic growth and highlighted circumstances in which financial institutions can actively encourage innovation and promote future growth by determining and funding productive investments.

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2.1.1 Definition of Terms

Economic Growth is the capacity of an economy to produce goods and services, compared with one period to another. In other words, it means the overall increase in the productivity of an economy, which means the labor force has become more productive than before.Campbell. R .et al (1993), defines economic growth as the outward shift of the Production possibility frontier

(PPF), here PPF refers to a curve that shows the maximum combination of goods can be produced using the available resources at a particular time 2. This is illustrated below

Gross Domestic Product (GDP) is a monetary value of the final goods and services produces during a given period. And it is used to measure the economic health of a country and also gauges a country's standard of living.

Deposits are the placement of funds with a bank or other financial institutions to be withdrawn at an agreed period of time. The depositor agrees by keeping his funds in the bank that they can be used by the bank for further investments.

Advances are amounts of money loaned by the bank to the borrower at a certain rate of interest usually by holding back collateral.

Interest earnings are the amount of money earned by banks as results of loaning activity which is the core business of banks.

Profitability is the ability of a business to produce surplus after paying all the expenses. In terms of banks, this surplus is produced from interest on the loans and other investments made by the banks.

Investments in banking terms are the number of money banks has loaned to clients for the purpose of investing in other business.

Domestic saving as a percentage of GDPis the GDP minus the consumption. This saved money is either kept in the public or invested back in the business. There are two types of saving the public saving and domestic saving. The public saving is saving by banks; on the other hand, the domestic saving is by the households which are invested back into the business through banks.

The ratio of GDP business investment is the part of money invested back into the business by the government or public. The gross domestic formation is defined as the sum of fixed assets formation and changes in inventories.

Private sector credit to GDP is financial resources provided to the private sector by financial corporations, through loans, purchase of securities, and trade credits or other accounts receivables.

2.1.2 Theories of Economic Growth

The problems of economic growth are complex and multidimensional, this has led to a number of economic growth theories. In economic terms, a theory can be said as the inter-relationship of economic variables.Theories of economic growth came into existence in the 20th century when the decolonization occurred for theunderdeveloped counties. Over the past few decades, three main theoretical approaches to economic growth have dominated the field of economic development.

First, formal aggregate economic growth modeling, as dominated for decades by neoclassical economic formulations under very limiting basic assumptions, related increases of outputs. Second, the thrust for theoretical interest in evolutionary economic theorizing, with this approach overall economic performances, depending on the prevailing variations beneath the aggregate level and that in a market economy, changes take place in the context of continuous disequilibrium, evolutionary theorizing is often based on an analysis of micro and macroeconomic phenomena. Finally, a more holistic approach of economic historians which focus on a wider spectrum (such as capital accumulations, education attainment, political evolutions and broader social phenomena) of phenomena that might otherwise escape adequate explanations, especially in formal growth theorizing. Most of the economic growth theories came into existence in the 1950s. According to Kuznets et al., the story of economic growth starts with farmers who specialize in certain types of agriculture products. Some farmers are good at raising certain crops while others are better at livestock. This specialization also leads to higher levels of productivity and as a result, income increases thus, the growth process begins. In the 1980s three different thoughts changed the way economic growth theories are looked at. First, the stability of the neoclassical model is based on the assumption of constant returns to scale in production technologies. Second, we know that economic growth is geared by the new ideas, products, and innovations.But, in the Neo-classical model no mechanism explains why innovation occurs. Third, beginning in the mid-1970s the income patterns have reversed which boosted the economic development.

2.1.2.1 Neoclassical theory of economic growth

This theory contends that a particular set of intuitions in an economy does not matter. According to Hoff and Stieglitz, this theory rests on three different points (a) outcomes are determined by

fundamental forces (reflecting resources, preferences, and technology) (b) these forces lead to Pareto-efficient outcomes, and (c) institutions do not even influence the choice of the equilibrium. Neoclassical economics argue that neither institutions nor wealth distribution mattered for efficiency; productive resources always gravitated through market exchanges into the hands of the persons who valued them the most. The modeling techniques resolve for the impersonal outcomes that would emerge from an impersonal setting with the market for all goods, all periods, and all risks where people make trades and the history does not matter. According to Dang and Pheng the argument of the neoclassical theory states that underdevelopment is not the result of predatory activities rather it the result of domestic issues arising from heavy state intervention such as poor resources allocation, government-induced price distortions, and corruption. Another strand of neoclassical growth theory originated from Harrod-Domar and Solow models. In the Harrod-Domar view instability in economic growth wasthe result of failure to equate a 'warranted' and a 'natural' rate of growth. The warranted rate of growth is dependent on the savings rate and on a given capital requirement per unit of output. The natural rate is the maximum long-run sustainable rate of growth. It is determined by the rate of growth of the labor force and the rate of growth of output per worker. This central proposition of the Harrod-Domar model arises from the assumption that investment is both capacity creating and income generating.

Solow neoclassical growth model: Solow was motivated by skepticism that a sustained rise in the savings rate is the key to the transition from a slow toa fast growth path and by a concern that the capital-output ratio be replaced by a richer and more realistic representation of technology and he stresses the importance of three factors of output growth: increase in labor quantity and quality, increases in capital and improvement in technology. In his article Blanchard et al., explains in detail the Solow Model of growth, according to them, the economic growth goes hand in hand with saving and population growth. Solow's model predicts that higher the rate of saving the richer the country will be and the higher the rate of population growth the poorer the country will be. Examining recently available data they find that savings and population growth affect income in the direction that Solow predicted. Thus, proving that neoclassical theory supported by Solow is still valid and is confirmed by the empirical data. In the existing Solow model, Mankiw et al. included another dimension which is an accumulation of human as well a human capital. They tested the new model empirically and found that human capital is in fact correlated with the

saving and population growth. The human capital accumulation lowers the estimated effects of saving and population growth to roughly the values predicted by the Solow model.

Ranis affirms that Solow provided the most important transitional mechanisms in the realm of both neoclassic theory and policy, his contribution was to emphasize, the importance of changing economic environment through the technological innovations. He provided a new point of departure for the neo-classical growth theory.

2.1.2.2 Endogenous growth theory

The 'new' growth economics literature was initially motivated by the apparent inconsistency between the implications of the neoclassical theory and (a) lack of evidence of convergence toward steady state growth even among presently developed economies (Romer, 1983)and (b) by the inability to successfully account for differences in income growth rates or income levels across countries (Romer, 1994).This model notes that technological changes over time have not been equally transmitted in developing counties. The new growth theorists link technological growth to the product knowledge. This theory emphasizes that economic growth results from the use of knowledge rather than labor and capital. This theory argues that the higher rate of returns as expected in the Solow model is greatly eroded by lower levels of complementary investment in human capital (knowledge), infrastructure, or research and development whereas, knowledge is different from other economic goods because of its possibility to grow boundlessly. According to Masoud, in the new growth paradigm, the focus shift from production of wealth through the human capital to the knowledge acquisition over time. All theoretical and empirical studies have emphasized on the role playedby the financial market development in the overall development of the economy however, the new growth theory has re-emphasized the number of fundamental issues concerning the interdiction of technical progress, economies of scale and formation of physical convergence of countries.

2.1.2.3 Theory of coordination failure

This theory argues that the market may fail to achieve coordination among complementary activities. When the return of one investment depends on the development of another investment and that other investment somehow fails it will automatically fail the principalinvestment. According to Dang and Phengtwo scenarios exits, one is all investors as a whole are better off when all investment to be achieved at the same time. On the other hand, it is not good for one

investor to take the same actions when he knows that others will not do the same. This theory initially came onto the scene in the 1990s but it existed even before that where different industries fail to coordinate their activities.

2.1.3 Economic growth

The goal of economic growth is to create a wealth of a nation. The need to stimulate economic growth is a topic of importance in an advanced emerging and less developed economies. With the increase in population many less developed economies are facing the challenge of improving economic growth. As Liang and Reichert note that with population growth in less developed economies and the changing demographics and widening income disparities in many of the most advanced economies, the issue of economic growth has taken on increased importance. Economic growth is defined as the process by which the supply of goods and services is increasing while improving the quality of life. According to Azam and Khattak, economicgrowth is the automatic birthright for an economy; therefore, for an economy to grow, it has to create the right conditions for growth. Economic growth is measured by the increase in Gross National Product (GNP) and Gross Domestic Product (GDP). The World Bank now replaces GNP per capita with Gross National Income (GNI) per capita to compare wealth among countries. According to Hamza and Khan, the most important indicator for decision makers and governments use to make decisions and policies for a country. It tells about the overall health of the economy in a country. GDP is defined as the sum of all goods and services produced in a country over time, without double counting products used in other outputs. This indicator measures that well-being and development based on material wealth. Mo [29] identifies four variables for determining economic growth these are a share of investment in GDP, the rate of population growth and initial level of real GDP per capita, and proxy for human capital. His first two variables belong to the growth component and last two belongs to the development component.

2.1.4 Financial sector and economic growth relationship

There is no doubt that the financial sector has a positive relation to economic growth, Claessensand Feijen argue that there exists a positive relationship between the financial sector and economic growth even when other important factors are taken into consideration. There is strong evidence that good financial conditions cause development. The growth in the financial

sector and economic growth always go hand in hand. The argument of what comes before is still under debate, but one thing is certain both works together for the development of people. Increase in economic growth leads to higher income and education level which, therefore, in turn, generate greater sophisticated financial risk management services. The banking sector provides financial capital to the capital markets which in return creates jobs resulting into economic development.

2.2 Empirical Review

There are quite extensive empirical literatures on the relationship between financial development and economic growth. But, the empirical studies on the contribution of commercial banks on economic growth in Ethiopian context are not sufficiently studied.

2.2.1 Financial Development and Economic Growth

According to (Levine, 1997) the level of financial development is a good predictor of future ratesof economic growth, capital accumulation and technological change. Financial instruments, markets and institutions arise to mitigate the effects of information and transaction costs. Finding ways to reduce transaction costs influences saving rates, investment decisions, technological innovations and the long-run growth rate of the economy. In the same way, innovations in telecommunications (such as internet banking) and technological changes (the use of POS and Automatic Teller Machines) have affected the financial services industries and the way commercial banks deliver services to their clients (Claessens, Glaessner, &Klingebiel, 2000).

King and Levine 108 (1993a), has contributed one of the most influential studies on the subject which shows a strong positive link between financial development and economic growth in a multivariate setting. They also show that financial development has predictive power for future growth and interpret this finding as evidence for a causal relationship that run from financial development to economic growth. The study covers a cross-section of 80 countries during the period 1960-1989 and uses four measures of the level of financial development. The first is liquid liabilities of banks and non-bank financial institutions as a share of GDP, which measures the size of financial intermediaries. The second is the ratio of bank credit to the sum of bank and central bank credit, which measures the degree to which banks versus the central bank allocate. The third is the ratio of private credit to domestic credit and the forth is private credit to GDP ratio. The last two indicators measure the extent to which the banking system channel fund to the

private sector. They provide evidence that that financial sector development, proxy by the ratio of bank credit granted to the private sector to GDP, affects economic growth both through the improvement of investment productivity (better allocation of capital) and through higher investment level. Their claim is that banking sector development can spur economic growth in the long-run are also supported by the findings of De Gregorio and Guidotti 109 (1995), who consider that financial deepening affects growth through a combination of the two effects but with more importance for the efficiency effect.

With same line of argument, De Gregorio and Guidotti (1995) examined the empirical relationship between financial development and economic growth; conclude that, by and large, financial development leads to improved growth. In contrast, financial sector distortions reduce the rate of economic growth by reducing the rate of innovation. The study, therefore, concludes that financial systems are important for productivity, growth, and economic development (King and Levine, 1993).

On the other hand, Rajan and Zingales (1998) have been investigated whether financial development facilitates economic growth by scrutinizing the rationale that financial development reduces the cost of external finance to firms. The result of their study suggests that financial development has a substantial supportive influence on the rate of economic growth. Specifically, the results indicate that industrial sectors that have relatively greater need for external finance develop disproportionately faster in countries with more developed financial markets.

Financial intermediation and financial markets contribute directly to economic growth and aggregate economic welfare through their effects on capital accumulation (the rate of investment) and technological innovations. First, greater financial development leads to greater mobilization of savings and its allocation to the highest-return investment projects. This increased accumulation increases economic growth. Second, by allocating capital to the right investment projects and promoting sound corporate governance, financial development increases the rate of technological innovation and productivity growth, further enhancing economic growth and welfare (World-Economic-Forum, 2012).

A number of authors have extended their studies to examine the finance-growth relationship using time-series data on individual countries, and thus have found that the nature of the

relationship can indeed vary among countries. Therefore, caution should be used in making generalizations about the likely benefits arising from Financial Sector Development (FDS) in any particular country compared to developed countries. The weight of the evidence shows that FSD does make an important contribution to growth in most countries in the developing world (Esso (2010); Hassan, Sanchez, and Yu (2011); Pan and Wang (2013).

Empirical evidence from 29 sub-Saharan African countries forwarded by Ibrahim and Alagidede (2017) suggests that levels of per capital income, human capital, and financial development above the threshold mediate the relation between financial development and economic growth. Tran (2008) examines the finance–growth nexus in Vietnam and shows that financial development has a positive impact on economic growth.

On the other hand according to the study conducted by Ram (1999) investigated the relation between financial development and economic growth in 95 countries and reports that financial development does not promote economic growth. The study rather finds a negligible or weakly negative co-variation between financial development and growth of real GDP per capita. Additionally, Hye and Islam (2013) investigate the finance-growth connection in Bangladesh using principal component analysis technique as well as the autoregressive distributed lag (ARDL) approach to co-integration and report that the impact of financial development on economic growth is negative.

According to the study conducted by Adeniyi et al. (2015) use annual data for time period from 1960 to 2010 to examine the effect of financial development on economic growth in Nigeria and report that financial development negatively impacts growth, but a sign reversal emerges on accounting for threshold-type effects, implying that a threshold effect exists in the finance–growth connection in Nigeria.

Law et al. (2013) that institutional quality drives the finance-growth nexus. Ruiz-Vergara (2017) apply dynamic threshold technique to annual data (1991– 2014) from 116 countries to examine the non-linear relation between finance and economic growth. The paper reports that countries below the finance threshold grow less, whereas that above the threshold grows faster, suggesting that threshold effect exists in the relation between finance and economic growth.

The other study done by Huang (2010), which examines the effect of real interest rates on the finance–growth nexus with data from Japan and reports that in the regime with higher (lower) real interest rates, the banking system has significantly positive (adverse) effects on output growth. The authors' conclusion that a low interest rate policy is an important hindrance to the ability of the banking system to impact economic growth in Japan is not only instructive but also supportive of the filtering hypothesis of interest rates.

2.2.2 Financial development indicators

The common indicators used in empirical studies to investigate the finance-economic growth relationship include the total credit to the economy termed as an appropriate measure of financial development (Levine et al, 2000); Abubakar and Gani, 2013), cited by Abraham Desta. This monetary aggregate is a traditional proxy of financial development and deepening (Lynch, 1996). It supports the mobilization of savings to facilitate transactions, provide credit to producers and consumers, reduce transaction costs and fulfill the medium exchange function of money. The ratio of liquid liabilities to GDP (indicated as M3/GDP) was used as a measure of financial depth; however Levine and Zervos (1998) argued that the use of this indicator limits the identification of where the financial system allocates capital. Despite its widely used measure, Levine and Zervos also argued that increases in M3/GDP as a measure of the liabilities of banks, the central bank and financial intermediaries are not necessarily associated with increases in credit (one aspect of financial development that might generate economic growth).

Lynch (1996), cited by Abraham Desta (2018), also identified that various other monetary aggregates, namely broad/money and bank deposits as quantity measures, and are more reliable across time in a country than across countries. Most importantly, Lynch indicated that financial intermediation transaction costs cannot be evaluated accurately in individual countries and cannot be compared across countries, owing to differences in variables ranging from financial sector design to population dispersion. Alternatively, bank interest rate margins are another indicator often used to estimate the intermediation transaction costs (Lynch, 1996).

The lack of credit has been cited by firm managers in the developing countries especially Nigeria as their major constraint (Bigstein and Soderbom, 2005) where lack of funds has made it difficult for industries to invest in modern machines, information technology and human resources development which are critical in reducing production costs, raising productivity and improving

competitiveness. Also, low investments have been traced to unwillingness of banks to provide credits to manufacturers, owing partly to the mismatch between the short-term nature of banks' funds and the medium to long term nature of funds needed by industries.

As cited by Monday Osagie Adenomon on financial inefficiency(Hashim, 2012) suggests that despite series of bank reformed aimed at strengthening theability of banks to efficient services delivery and branch networking as well as funding the realsector to boost Nigerian economy, the dynamic challenges still lingers on the efforts. The problems such as inefficient allocation of funds to the real sector, lack of long-dated funding, decline in domestic credit by the banking sector to the private sector, mismatch of liquidity in the Nigeria economy.

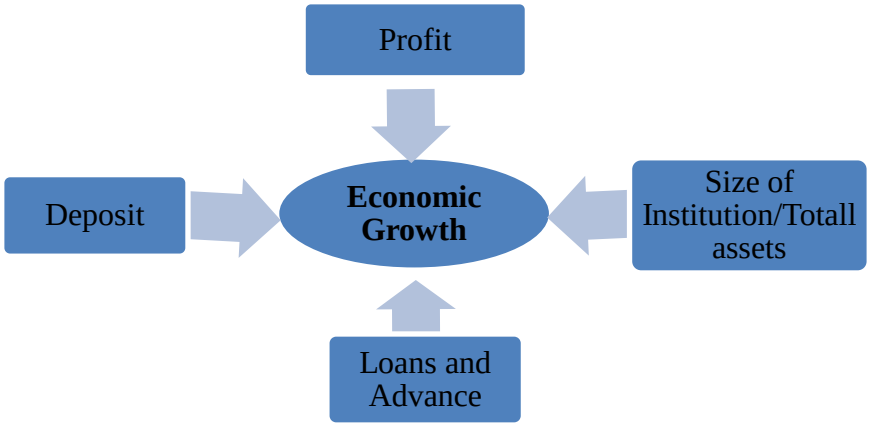
On their investigation, Abubakar and Gani (2013), with the long run relationship between financialdevelopment indicators and economic growth in Nigeria for the data period from 1970 to 2010 usingthe Johansen and Juselius (1990) approach to co integration and Vector Error Correction Modeling (VECM) discovered that long-run, liquid liabilities of commercial banks and trade openness exert significant positive influence on economic growth, conversely, credit to the private sector, interest rate spread and government expenditure exert significant negative influence. This implied that, credit to the private sector is spoiled by the identified problems and government borrowing and high interest rate are crowding out investment and growth. And then they recommend that financial reforms in Nigeria should focus more on deepening the sector in terms of financial instruments so that firms can have alternatives to banks' credit which proved to be inefficient and detrimental to growth, moreover, government should inculcate fiscal discipline so as to reduce excessive borrowing from the financial sector and thereby crowding out private investment.

2.3 Conceptual Framework

The conceptual framework is developed based on the empirical literature reviewed with regard to the contribution of commercial banks for economic growth in various jurisdictions. In this regard, the relationship between commercial banks, taking deposit, loans and advances, total assets and profit as variables of interest, and economic growth proxy by gross domestic product is developed in a similar manner to the studies that also examined the contribution of commercial

banks to economic growth of Ethiopia such as Abraham Desta (2018), and Marius Niba(2011) on the assessing the Role of Commercial Banks on Economic Growth in Cameroon while making minor adjustments to suit the Ethiopian environment. This confirms that the development of the conceptual framework of the study is well aligned to similar studies conducted in different jurisdictions.

Figure 1: Conceptual Framework



Chapter Three

Research Methodology and Design

3.1 Type and sources of data

The study has utilized time-series secondary data from the period 2001 to 2020. The data'sare obtained from data base of National Bank of Ethiopia (NBE), Central Statistics Agency of Ethiopia (CSA), Ministry of Finance and Economic Commission of Ethiopia and from the data base of other international institutions like, World Bank and International Monetary Fund. Accordingly, data of each explanatory variable are generated from each year's annual reports of the National Bank of Ethiopia and compared with the figures reported by each of the seven commercial banks annual report. Then, each year's data for all the explanatory variables from the seven commercial banks, namely Commercial Bank of Ethiopia, Awash Bank, Dashen Bank, NIB Bank, Wegagen Bank, United Bank and Bank of Abyssinia, aggregated as yearly data for the whole period of the study.

3.2 Population of the Study

Population in statistics is the specific population about which information is desired. According to Ngechu (2004), a population is a well-defined or set of people, services, elements, and events, group of things or households that are being investigated. Therefore, the population of this study consists of all commercial banks which are operating in the Ethiopian banking industry as per the proclamation and directives of the NBE. Accordingly, there are 18 commercial banks in Ethiopia,of which 1 is public owned banks (The Commercial Bank of Ethiopia) and the other 17 are private owned commercial banks.

3.3 Modeling Specification

Amultivariate regression model is most appropriate for the study to establish the relationship on the contribution ofcommercial bank's deposits, loans, assets and profits on growth of the GDP.Hence, the under stated multivariate linear regression model has been applied for the estimation of the variables of interest. This model has been preferred in order for avoiding the stationary problem which characterizes uni-variate model.

The model of the relationship, between commercial banking sector development variables and economic growth (proxy by GDP) is established on the basis of the equation:

GDP = f (Deposit, Loan advances, Total Asset, Profitability)

$$Log\ (RGDP_t) = \beta_0 + \beta_1 \log(TDEPO_t) + \beta_2 Iog\ (TLOAN_t) + \beta_3 Log\ (TASSET_t) + \log\ \beta_4 (RGDP_{t-1}) + ROA_t + \varepsilon_t$$

Definition of the variables:

RGDP= Real Gross Domestic Product (RGDP)

TDEPO= total Deposit of Commercial Banks for the period considered

TLOAN= Total Loan provided for Economic Agents for the time period considered.

TASSET= the total assets of commercial banks included in the study.

ROA= Return on Asset (To measure profitability of all commercial banks in Ethiopia)

$RGDP_{t-1}$ = Lagged value of real Gross Domestic Product

E = the error term

β_0 Is an intercept, β_1, β_2 β_3 and β_4 are coefficients of the independent variables, that are indicating the slopes.

Description of Variables

In the specification of the model the total deposit (LOGTDEPO), loans (LOGTLOAN), total assets (LOGTASSET), profit (ROA) and lagged value of real gross domestic product ($LOGRGDP_{t-1)}$ respectively are independent variables with predicted positive effect**,** Gross Domestic Product represented by GDP proxy by logarithm of real GDP (LOGRGDP) in the model is the only dependent variable of the model**.**

Gross Domestic Product **(**GDP) represents Rate of growth of aggregate goods and services production in the country. It is defined as the level of production of goods and services by a country over a certain period of time.

Deposit represents an amount of moneyheld at a financial institution on behalf of an account holderforsafekeeping.

Loan represents the amount of fundschanneled into the private and public sector and thus, is more directly linked to investment and economic growth.

The size (asset) of commercial banks represents the amounts of productive capital accumulated by commercial banks in order for enabling them efficiently allocate their financial resources to economic agents.

Profitability is calculated by return on total assets (ROA). It stands for the ratio which measures earnings before interest and tax expenses against its total assets. The ROA shows the firm's effectiveness of using its total assets to generate earnings.

3.4 Estimation Technique and Test of significance

The multiple regression technique will be used to estimate the contribution of commercial banks on economic growth with the aid of STATA statistical package.

In testing the results, Augmented Dickey-Fuller test was used to test for stationarity in the variables. Unit root test is the starting point of the analysis of time series variables. Accordingly, ADF unit root test is used to see if the variables have unit root or not. All variables under this study passed the test and found to have unit root at level both without trend and with trend. Trace statistic and Eigenvalue tests were used to examine the co-integration properties of the models. In addition to this, the study will be seen the other different testing procedures. Such as, serial correlation test, heteroskedasticity test and normality test.

3.5 Methods of Data Analysis

For the purpose of data analyses in this study the use of some descriptive statistics such as mean, variance, ratios and percentages and econometric models has been employed to achieve the objectives of the study.

3.6 Expected Results

The expected results for the coefficients of explanatory variables, (parametric values from β_{1-4}**),** is positive. The researcher expects that the relationship between gross domestic product (proxy for economic growth) and commercial bank deposit, loans, asset, profitand lagged value of RGDP be positive. Thus, the signs of the estimated coefficients are thus expected to be greater than zero respectively.

Chapter four

Data testing, analysis and discussion of results

4.1 Unit Root Test

Unit root test is the starting point of the analysis of time series variables. Unit root tests are tests for stationarity in a time series. Accordingly, ADF unit root test, which handles bigger and more complex models, is used to check if the variables have unit root or not. All variables under this study passed the test and three of them are found to have unit root at level without trend but, are found to be stationary at level with trend. The other variable ROA is also found to be stationary at level both without trend and with trend.

Table-4.1 and 4.2below are depicting the summary of the unit root test results for the variables LOGRGDP, LOGTLOAN, ROA and $LOGRGDP_{t-1}$ both without trend and with trend respectively.

Table 4.1 Unit Root Test Results of variables at Level

Variables	(ADF) t-Statistics Without Trends	Critical value at 5%	Prob.	(ADF) t- Statistics With Trends	Critical value at 5%	Prob.
LOGRGDP	-0.883 (N)	-3.000	0.390	-3.868 (Y)	-3.600	0.001
LOGTLOAN	-1.789 (N)	-3.000	0.091	-4.033 (Y)	-3.600	0.004
ROA	-5.357 (Y)	-3.000	0.000	-7.263 (Y)	-3.600	0.000
LOGTASS	-0.684 (N)	-3.000	0.503	-1.492 (N)	-3.600	0.177
LOGTDEPO	0.725 (N)	-3.000	0.478	-0.723 (N)	-3.600	0.480
$LOGRGDP_{t-1}$	-2.870 (N)	-3.000	0.011	-6.158 (Y)	-3.600	0.000

Source: Author's computation using STAATA-14 software

Table 4.2 Unit Root Test Results of variables in first difference

Variables	(ADF) t-Statistics Without Trends	Critical value at 5%	Prob.	(ADF) t-Statistics With Trends	Critical value at 5%	Prob.
LOGRGDP	-0.105 (N)	-3.00	0.089	-2.862 (N)	-3.60	0.009
LOGTLOAN	-0.423 (N)	-3.00	0.678	-4.026 (Y)	-3.60	0.001
ROA	-1.672 (N)	-3.00	0.001	-1.356 (N)	-3.60	0.577
LOGTASS	0.060 (N)	-3.00	0.143	-2.380 (N)	-3.60	0.030
LOGTDEPO	2.172 (N)	-3.00	0.11	-0.796 (N)	-3.60	0.387
$LOGRGDP_{t-1}$	-0.350 (N)	-3.00	0.547	-2.213 (N)	-3.60	0.046

Source: Author's computation using STATA-14 software

Table 4.1 and 4.2 show the unit root test results of variables at level without trends and with trends. "Y" represents the absence of unit root or the variable are stationary (t-statistic value is greater than the critical value at 5 percent) and "N" represents the existence of unit root and hence, variables are not significant (t-statistics value is less than the critical value at 5 percent).

As shown from the table 4.1 above, for the variable ROA t-statistic value (-5.357 percent) at level is greater than the critical value (-3.000 percent) at 5 percent confidence interval without trend and its t-statistic value (-7.263) at level is greater than the critical value (-3.600 percent) at 5 percent confidence interval with trend and ROA is stationary both without trends and with trends at level. Hence, the variable is significant both without trends and with trends at level.In this case the null hypothesis that the model has a unit root is not failed to be rejected.

On the other hand, the variables LOGTASS and LOGTDEPO have a unit root at level and first difference both without trend and with trend using AD-F t-test at level and first difference both without trend and with trend. Hence, for the two variables, LOGTASS and LOGTDEPO another alternative test tool, Modified Dickey–Fuller t-test, has been applied. Essentially, the modified Dickey–Fuller t-test is an augmented Dickey–Fuller test, similar to the test performed by Stata's dfuller command, except that the time series is transformed via a generalized least squares (GLS) regression before performing the test. Elliott, Rothenberg, and Stock and later studies have

shown that this test has significantly greater power than the previous versions of the Augmented Dickey–Fuller test.

Tables 4.3 and 4.4 below show the unit root test results for the variables LOGTASS and LOGTDEPO using a Modified Dickey–Fuller t-test at optimal lags according to Schwert criterion for the choice of optimal lags.

DF-GLS for LOGTASS
Maxlag = 8 chosen by Schwert criterion

Table 4.3 Unit Root Test Results of the variable LOGTASSbased on Schwert criterion for max. lag

lags	DF-GLS tau Test Statistic	1% Critical Value	5% Critical Value	10% Critical Value
8	-0.867	-3.770	-6.632	-4.903
7	-1.298	-3.770	-4.929	-3.642
6	-3.400	-3.770	-3.828	-2.861
5	-1.884	-3.770	-3.218	-2.467
4	**-3.000**	-3.770	**-2.989**	-2.368
3	-2.558	-3.770	-3.030	-2.474
2	-3.571	-3.770	-3.229	-2.692
1	-2.359	-3.770	-3.476	-2.932

Source: own computation using STATA -14 software

DF-GLS for LOGTDEPO

Maxlag = 8 chosen by Schwert criterion

Table 4.4 Unit Root Test Results of the variable LOGTASS based on Schwert criterion for max. Lag

lags	DF-GLS tau Test Statistic	1% Critical Value	5% Critical Value	10% Critical Value
8	-1.756	-3.770	-6.632	-4.903
7	-4.588	-3.770	-4.929	-3.642
6	-2.865	-3.770	-3.828	-2.861
5	-3.519	-3.770	-3.218	-2.467
4	**-3.129**	-3.770	**-2.989**	-2.368
3	-2.309	-3.770	-3.030	-2.474
2	-1.355	-3.770	-3.229	-2.692
1	-1.385	-3.770	-3.476	-2.932

Source: Author's computation using STATA-14 software

Accordingly, tables 4.3 and 4.4 below show the unit root test results for the variables LOGTASS and LOGTDEPO using a Modified Dickey–Fuller t-test at optimal lags according to Schwert criterion for the choice of maximum lags. Hence, the variable LOGTASS with a t-statistic value of **-3.571** at I (2) is found to be stationary and significant and the null hypothesis that the variable LOGTASS has unit root is not failed to be rejected. On the other hand as shown by table 4.4 above for the variable LOGTDEPO the result for unit roots tests using a Modified Dickey–Fuller t-test at optimal lag selection according to Schwert criterion for the choice of maximum lags the t-statistic value of **-3.129**confirms the absence of unit root or non-stationarity at lagged value of I(4). Hence, the null hypothesis that states the presence of unit root for the variable LOGTDEPO is not failed to be rejected.

4.2 Granger causality tests

Table 4.5 Granger causality Wald tests

Equation	Excluded	chi2	df	Prob > chi2
LOGRGDP	LOGTASS	11.752	2	0.003
LOGRGDP	LOGTDEPO	39.843	2	0.000
LOGRGDP	LOGTLOAN	2.7282	2	0.256
LOGRGDP	ROA	5.1122	2	0.078
LOGRGDP	ALL	55.271	8	0.000
LOGTASS	LOGRGDP	1.4785	2	0.477
LOGTASS	LOGTDEPO	12.609	2	0.002
LOGTASS	LOGTLOAN	16.673	2	0.000
LOGTASS	ROA	7.5102	2	0.023
LOGTASS	ALL	33.115	8	0.000

LOGTDEPO	LOGRGDP	3.1065	2	0.212
LOGTDEPO	LOGTASS	5.3999	2	0.067
LOGTDEPO	LOGTLOAN	0.22184	2	0.895
LOGTDEPO	ROA	4.8108	2	0.090
LOGTDEPO	ALL	18.471	8	0.018
LOGTLOAN	LOGRGDP	75.748	2	0.000
LOGTLOAN	LOGTASS	92.196	2	0.000
LOGTLOAN	LOGTDEPO	33.269	2	0.000
LOGTLOAN	ROA	68.05	2	0.000
LOGTLOAN	ALL	246.43	8	0.000
ROA	LOGRGDP	7.2418	2	0.027
ROA	LOGTDEPO	17.177	2	0.000
ROA	LOGTASS	3.2047	2	0.201
ROA	LOGTLOAN	11.403	2	0.003
ROA	ALL	35.84	8	0.000

Source: Author's computation using STATA-14 software

The first row of table 4.5 above shows that lagged values of the variables LOGTASS, LOGTDEPO causes LOGRGDP as p-values of them is less than 0.05. But, the lag values of LOGTLOAN and ROA do not cause LOGRGDP as their p-values is greater than 0.05. And the direction of causality is therefore from LOGTASS, LOGTDEPO, to LOGRGDP.

The second row of table 4.5 above shows that lagged values of the variables LOGRGDPdo not causes LOGTASS as its p-value of is bigger than 0.05 at 95 percent level of confidence interval. Therefore, the direction of causality is from LOGTDEPO, LOGTLOAN and ROA to LOGTASS. In the third row of table 4.5 above p-values of the variables LOGRGDP, LOGTASS, LOGTLOAN and ROA are bigger than 0.05. Therefore, the lagged values of the variables LOGRGDP, LOGTASS, LOGTLOAN and ROA do not cause LOGTDEPO. Therefore, there is no causality from LOGRGDP, LOGTLOAN and ROA to LOGTDEPO.

In the fourth row of table 4.5 above p-values of the variables LOGRGDP, LOGTASS, LOGTDEPO and ROA are very small (0.0000<0.05). Therefore, the lagged values of the variables LOGRGDP, LOGTASS, LOGTDEPO and ROA cause LOGTLOAN. The last row of table 4.5 above depicts the lagged value of the variable LOGTASS do not cause ROA as its p-value (0.201) is greater than 0.05. However, the lagged values of the variables LOGRGDP, LOGTDEPO and LOGTLOAN causes the variable ROA as their p-values are smaller than 0.05 at 5 percent confidence level.

4.3 Skewness and Kurtosis test for normality

Skewness is a measure of the asymmetry of the probability distribution of a random variable about its mean. It represents the amount and direction of skew. On the other hand, Kurtosis represents the height and sharpness of the central peak relative to that of a standard bell curve.

The null and alternative hypotheses for the normality test are:

Null hypothesis: The data follows a normal distribution.

Alternative hypothesis: The data does not follow a normal distribution.

The table and graph below shows the results obtained after performing the Skewness and Kurtosis test for normality in STATA.

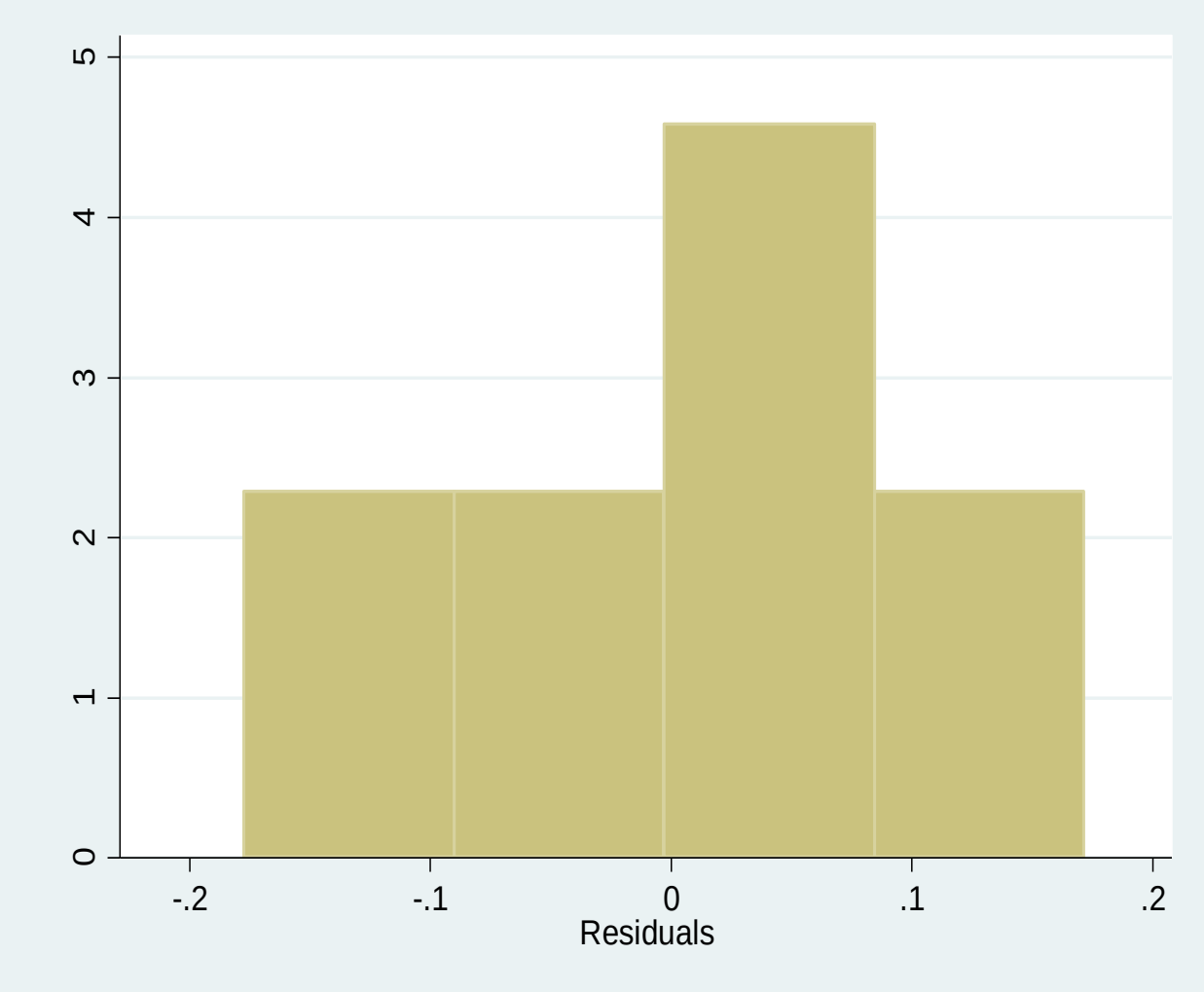
Table 4.6 Skewness/Kurtosis tests for Normality in STATA

Variable	Obs.	Pr(Skewness)	Pr(Kurtosis)	adj chi2(2)	Prob>chi2

Resid.	20	0.5980	0.6483	0.51	0.7764

Source: Author's computation from STATA-14 software

Figure 2: Normality Test



Source: Author's computation from STATA-14 software

As depicted by the table above skewness test shows the number of observations (which is 20 in this study) and the probability of skewness which is 0.5980 implying that skewness is asymptotically normally distributed (p-value of skewness 0.05).

Similarly, Pr (Kurtosis) 0.6483 indicates that kurtosis is also asymptotically distributed (p-value of kurtosis > 0.05). Finally, chi2 is 0.7764 which is greater than 0.05 implying its significance at a 5 percent level. Consequently, the null hypothesis cannot be rejected. Therefore, according to the Skewness test for normality, residuals show normal distribution.

Consequently, the null hypothesis cannot be rejected. Therefore, according to the Skewness test for normality, residuals show normal distribution.

4.4 Durbin Watson test for autocorrelation

Durbin Watson test depends upon two quantities; the number of observations and number of parameters to test. In the dataset, the number of observations is 20 and the number of parameters is 4. In the Durbin Watson table below two numbers are present, dl and du; these are the "critical values". Durbin Watson statistic ranges from 0 to 4. As depicted by the table below Statistics value between 0 to dl represents positive serial autocorrelation. Values between dl and du; 4-du and 4-dl indicate serial correlation cannot be determined. The value between du and 4-du represents no autocorrelation. Finally, the value between 4-dl and 4 indicates negative serial correlation at 95 percent confidence interval.

In this study the number of parameters is 2 and the number of observations is 20. Consequently, Durbin Watson lower limit from the table (dl) = 3.402 and Durbin Watson upper limit from the table (du) = 1.736. Therefore, when du and dl are plotted on the scale, results are as shown below.

Table 4.7 Results of Durbin Watson test

Positive serial	**Indeterminate**	**No serial correlation**	**Indeterminate**	**Negative serial correlation**
0 dl=0.598	du=1.736	2	4-du=2.264	4-dl=3.402 4

Source: Author's computation from STATA-14 software

For this study Durbin Watson d-statistics from the STATA command is 1.903378, which lies between 4-du and 2, implying there is no serial correlation between the residuals in the model.

4.5 Breusch-Godfrey LM test for autocorrelation

Breusch-Godfrey LM test has an advantage over classical Durbin Watson D test. The Durbin Watson test relies upon the assumption that the distribution of residuals is normal whereas Breusch-Godfrey LM test is less sensitive to this assumption. Another advantage of this test

is that it allows researchers to test for serial correlation through a number of lags besides one lag that is a correlation between the residuals between time t and t-k (where k is the number of lags). This is unlike the Durbin Watson test which allows testing for only correlation between t and t-1. Therefore if k is 1, then the results of Breusch-Godfrey test and Durbin Watson test will be the same.

Table 4.8 Breusch-Godfrey LM test for autocorrelation

lags(p)	chi2	df	Prob > chi2
1	0.004	1	0.9525

Source: Author's computation using STATA-14 software

Null hypothesis**:** There is no serial correlation.

Alternative Hypothesis: There is a serial correlation.

Since from the above table, chi2 is greater than 0.05 or 5 percent, the null hypothesis cannot be rejected. In other words, there is no serial correlation between the residuals in the model.

If heteroskedasticity is present in the data, the variance differs across the values of the explanatory variables and violates the assumption. This will make the OLS estimator unreliable due to bias. It is therefore, imperative to test for heteroskedasticity and apply corrective measures if it is present. Various tests help detect heteroskedasticity such as Breusch Pagan test and White test. Heteroskedasticity tests use the standard errors obtained from the regression results.

Table 4.9 Regression result from Stata

Number of obs.	**=**	**20**			
F(4, 15)	**=**	**480.56**			
Prob > F	**=**	**0.0000**			
R-squared	**=**	**0.9923**			
Adj R-squared	**=**	**0.9902**			
Root MSE	**=**	**0.10698**			
LOG(RGDP)	Coef.	Std. Err.	t	P>|t|	[95% Conf. Interval]

LOG(TASS)	0.35155275	0.0970708	3.41	0.004	0.1242535	0.5380568
LOG(TDEPO)	0.4376778	0.1192036	7.00	0.000	0.5809013	1.089054
LOG(TLOAN)	0.1686997	0.0357581	0.45	0.657	-0.0600365	0.0923965
ROA	-0.7131556	1.449018	-2.57	0.021	-6.808385	0 -.6313663
$LOGRGDP_{t-1}$	0.1395542	0.144600	0.97	0.351	-0.1705822	0.4496907
_Cons	4.462037	2.296357	1.94	0.072	-.463158	9.387232

Source: Author's computation using STATA-14 software

4.6 Test for multi-collinearity

The problem of multi-collinearity arises when one explanatory variable in a multiple regression model highly correlates with one or more than one of other explanatory variables. It is a problem because it underestimates the statistical significance of an explanatory variable (Allen, 1997). A high correlation between independent variables will result in a large standard error. This will make the corresponding regression coefficients unstable and also statistically less significant.

Correlate LOGTASS LOGTDEPO LOGTLOAN ROA
(Obs=20)

Table 4.10 Multi-collinearity test result from STATA

Variables	LOGTASS	LOGTDEPO	LOGTLOAN	ROA
LOGTASS	1.0000			
LOGTDEPO	0.9715	1.0000		
LOGTLOAN	0.8515	0.8318	1.0000	
ROA	0.7328	0.7609	0.6954	1.0000

Source: own computation using STATA-14 software

The correlation values shown in the above table are close to 1. Thus there is a high degree of correlation between variables LOGTASS, LOGTDEPO, LOGTLOAN and ROA.

4.7 VIF test

It is the variance inflation factor which is a measure of the amount of multi-collinearity in a set of multiple regression variables.

Table 4.11 VIF test result using STATA

Variable	VIF	1/VIF
LOGTASS	20.21	0.05
LOGTDEPO	19.63	0.05
LOGTLOAN	3.79	0.26
ROA	2.48	0.40
Mean VIF	**11.53**	

Source: Author's computation using STATA-14 software

As depicted by the table 4.15 above mean VIF is 11.5, implying that correlation is not very high. As a rule of thumb, a VIF value less than 10 indicates no multi-collinearity between the variables. 1/VIF is the tolerance, which indicates the degree of collinearity. Variables with tolerance value less than 0.1 are the linear combination of other explanatory variables. But, in the above table 1/VIF for all variables is almost equal to or greater than 0.1. Hence, there is tolerable level of multi-collinearity in the model.

However, with different mechanisms suggested by scholars it has been adjusted. So here by transforming the log-log functional form to log-lin form and regressed the independent variable LOGRGDP with the independent variables total asset and total deposit. Then by performing the VIF test with this regression output the collinearity effect is removed as depicted by the stata results shown on the table below.

Table 4.12 VIF test result after functional transformation of the variables

Variable	VIF	1/VIF
TASS	9.56	0.1046
TDEPO	9.56	0.1046
Mean VIF	9.56	

Source: Author's own Computation using STATA-14 software

As depicted by the table 4.16 above mean VIF is 9.56, implying that there is no collinearity. As a rule of thumb, a VIF value less than 10 indicates no multicollinearity between the variables. Hence, the mean VIF value 9.56 is less than 10 and it confirms that there is no

multicollinearity between the explanatory variables asset and deposit. On the other hand, 1/VIF is the tolerance, which indicates the degree of collinearity. Variables with tolerance value less than 0.1 are the linear combination of other explanatory variables. But, in the above table 1/VIF for the variables is greater than 0.1. Hence, it confirms that there is no multicollinearity in the model.

4.8 Descriptive Statistics

Table 4.13 Descriptive Analysis

Statistic	LOG(RGDP)	LOG(TASS)	LOG(TDEPO)	LOG(TLOAN)	RAO
Mean	26.21036	25.84835	25.33527	24.93488	0.8584461
Maximum	28.54826	27.59937	27.19735	27.55491	0.8836212
Minimum	23.07216	24.76182	24.40919	23.42642	0.842140
Std. Dev.	1.347145	1.136543	0.929528	1.336405	0.0266591
Skewness	-0.2031165	0.0866388	0.3383719	0.2239821	-2.175621
Kurtosis	2.798544	1.672306	2.435216	1.990705	7.792637
Observations	20	20	20	20	20

Source: Author's computation output from STATA-14 software

Table 4.5 demonstrates the summary of descriptive statistics for the values of the variables used in the sample. The summary of the descriptive statistics include the mean, standard deviation, minimum and maximum of one dependent variable RGDP and for independent variables (asset, deposit, loan and advance and profit) .It contains twenty years data on commercial banks in Ethiopia from 2001-2020. The descriptive statistics summaries are the collection of measurement of the two statistic called location and variation one of which indicates the central value of variables (the mean is the most common measurement of this variability) and the other indicates the spread of the data from the center value (i.e. variance and standard deviation). The mean is the sum of the observations divided by the total number of observation.

The standard deviation is the square root of the variable and indicates how close the data is to the mean value of the variables and standard deviation measures the dispersion of the data from the mean. The standard deviation is the sample mean of the squared distance from the mean. Range is also another measure of dispersion and it is the difference between the largest and smallest

values (maximum and minimum). Minimum is the lowest values in the variable and maximum is the largest value in the variable.

As it is depicted by the table 4.5 above, in this study the variable RGDP is used as a measure of economic growth in Ethiopia and four independent variables as indicators of development of commercial bank are taken to identify the contributions of Ethiopian commercial banks for the economic growth of Ethiopia.

As clearly depicted in the descriptive statistics result above the RGDP has a mean value of 26.2 its minimum and maximum are 23.1 and 28.5 respectively. Regarding the independent variable the mean of the loan and advance has a value of 24. Here the average of mean value of loan and advance and mean value of RGDP has a value of 25 and it fall between 26 and 24. The mean value of deposit is 25 and it is the same as the average value of total loan and RGDP. Further, the other important variable in the model, asset has a mean of 25 and the average of its value and the mean value of RGDP is approximately the same as the mean value of RGDP. Finally, profit of commercial banks has mean value of 0.86 and the average of its minimum and maximum values (0.86) is approximately the same as the mean value of the variable profit.

4.9 Empirical analysis and discussion of results

Table 4.14 Regression Outputs

LOGRGDP	**Coef.**	**Std. Err.**	**t**	**P>t**	**[95% Conf. Interval]**	
LOGASS	0.35155275	0.0970708	3.41	0.004	0.1242535	0.5380568
LOGTDEPO	0.4376778	0.1192036	7.00	0.000	0.5809013	1.089054
LOGTLOAN	0.1686997	0.0357581	0.45	0.657	-0.0600365	0.0923965
ROA	-0.7131556	1.449018	-2.57	0.021	-6.808385	-0.6313663
$LOGRGDP_{t-1}$	0.1395542	0.144600	0.97	0.351	-0.1705822	0.4496907
_cons	4.462037	2.296357	1.94	0.072	-0.463158	9.387232

F(5, 14)	**=110.41**
Prob > F	**= 0.0000**
R-squared	**= 0.9753**
Adj R-squared	**= 0.9664**

Root MSE	**= 0.010698**
Mean dependent var	**= 26.4**
S.E of Reg	**= 0.2415509**
S.D of dependent var	**= 1.080248**
Variance of dep. Var	**= 1.166937**

Source: Author's computation output from STATA-14 software

4.10 The discussion of variables with respect to parameter outputs from STAT.

The overall coefficient of determination R2, which is the explanatory power of the model, is 0.9753that is R2 = 0.9753implies that 97.5 percent of the variations in economic growth are explained by the independent variables used in this study. The remaining 2.5 percent of changes on the dependent variable is explained by other variables that are not considered in the model but can cause variation on the dependent variable which is represented in the model as stochastic or random error term. Since the Prob (F-statistic) is 0.000, which is below the error term of 0.05. This implies that the alternative hypothesis explains the hypothesis. The F test at 95 percent level of significance shows that probability (F-stat) calculated of 0.000 is less than the error term of 5 percent, in this wise, we reject the H0 and accept H1. This means that the significant level of 0.9753 on the statistical table explains the improvement in the economic growth in Ethiopia. Therefore, fail to reject H1 that, total asset, total deposit and total loan of commercial banks in Ethiopia has contribution on the economic growth of the country.

4.10.1 Total asset

As depicted by the above table with OLS regression result of this study total asset of Ethiopian commercial banks, which is the proxy variable to the size, signify its positive relation with RGDP and it is significant. The regression table depicted that a 1 percent increase in total asset results in 0.35155275 percent rise on RGDP. The study on the same topic by Abraham Desta (2018), with time series data analysis using 2SLS shown that a 1 percent increase in total assets of commercial banks in Ethiopia result in 0.407585 percentchange on RGDP of the country and this result is in line with the result of this study.

4.10.2 Deposit

As depicted by the table above beta coefficients indicate how a proportional change on the independent variables can affect or cause a change to the dependent variable. Hence, the greater the value of the betas indicates the larger impact be on the dependent variable and vice versa. Thus, in this study as shown by the table above the ratio of total deposit to RGDP has positive and statistically significant relationship with RGDP. In this study regression coefficient of the variable total deposit has suggested that when the amount of commercial bank's deposit increased the economic growth also increased or it means that one percent rise in TDEPO causes RGDP to increase by 0.4376778 percent. This implies that more deposit mobilized by the commercial banks the more availability of funds to be channeled to borrowing investors and hence smoothen project financing. When projects grow they increase capital formation and employment opportunity and all these factors positively contribute to economic growth of the country. According to the study undertaken by Samson Ogege and Abass A. Shiro (2012) in order to assess the role of deposit money banks on growth of Nigerian economy empirical evidence from time series data derived using two-stage OLS approach signify that money deposit banks in Nigeria found to respond positively to economic growth. Based on the empirical evidence a 1 percent increase in deposit money banks is capable of increasing economic growth by 0.326 percent.

Solow's model predicts that higher the rate of saving the richer the country will be. Examining recently available data, including this study, they find that savings affect income in the direction that Solow predicted. Thus, proving that neoclassical theory supported by Solow is still valid and is confirmed by the empirical data.

4.10.3 Loan and advances

As depicted by the table above loan and advance are statistically significant at 5% level significance and it has a positive coefficient of 0.1686997 and this implies a 1 percent increase in loan and advances granted by commercial banks has a contribution 0.016 percent to economic growth in Ethiopia. This can signify that the increase of commercial bank's loan is one of the indicators of their development and when commercial banks can help as a catalyst for economic growth by allocating the scarce resource. In this regard the commercial banks can provide sufficient monetary resource plan of enthusiastic and opportunistic entrepreneurs. Commercial

banks have an important function to perform, that, they can scrutinize and select the plan of enthusiastic entrepreneurs and make the finance available to them, Schumpeter (1911), the most famous theories who strongly supported the idea that there is positive relationship between well-functioning banks and economic growth by providing credit to the entrepreneur for the best profit which leads to technological innovation via mobilizing service. Additionally, Abreham Desta (2018), empirical evidence from time series data on the contribution of commercial banks on economic growth of Ethiopia suggested that the amount of commercial bank deposit increased the economic growth. According to his work a one percent rise in money deposit in commercial banks causes RGDP to increase by 0.166 percent. On the other hand, Abubakar and Gani (2013) investigated the long run relationship between financial development indicators and economic growth in Nigeria for the period 1970-2010 and the study showed that credit to the private sector exert significant negative influence on economic growth.

Monday Osagie Adenomon (2019), the ARDL model time series data analysis the Contribution of Commercial Banks to GDP Growth in Nigeria revealed that loans and advances are significantly positively related to GDP in Nigeria and a 1 percent rise in loans and advances rise GDP by 0.211882 percent which is also in line with this study

4.10.4 Profit

As per the regression result of this study with time series data analysis using OLS model the profitability of commercial banks bank have negative relationship and significant impact, which the commercial bank profit increases by 1percent result in 0.7131556 percent fall on the RGDP of the country. The study conducted by Omotayo Ajibike Adekola (2016) on the determination of the effect of banks' profitability on the gross domestic product of Nigeria show that any change in banks' profitability represented by return on capital employed and return on equity will significantly cause a change in the economic growth which is represented by gross domestic product. This was confirmed by the probability (F-statistic) that showing there is a negative significant relationship between banks' profitability and the gross domestic product in Nigeria. The negative significant relationship between banks' profit and economic growth asserted by Omotayo Ajibike is in line with the result of this study.

In the analysis of the effect of bank profitability on economic growth by Paul-Olivier Klein and Laurent Weill (2019) which covered a sample of 133 countries during the period 1999–2013 by

applying a system-GMM regressions signified a positive impact of bank profitability on economic growth in the short-run. And based on their regression analysis output an increase of the ROA of 1 percent leads to an increase of 0.331 percent of economic growth over a period of three years and the significance of bank profitability for economic growth in their study is in line with the result of this study.

4.10.5 Lagged value of RGDP

As per the regression result of this study with time series data analysis using OLS model the real gross domestic product at time t ispositively affected by the gross domestic product at time t-1 (lagged value), this is the effect of the lagged value of gross domestic product on itself, which is as shown by the regression result above the a 1 percent change on gross domestic product at time t-1 has a positive change on gross domestic product at time t with an estimated parametric value of 0.1395542 percent.

Chapter Five

Conclusion and Recommendations

5.1 Conclusions

This portion discusses the study findings on parametric estimation results obtained from regression analysis. The study was carried out to assess the contribution of commercial banks to the economy growth of Ethiopian by analyzing twenty years' time series data covering time period from 2001 to 2020 by considering a total seven long established commercial banks in Ethiopia.

Among the financial institutions in the country Commercial Banks play a crucial role for the economic development of a country. They gather and accumulate the indolent savings of the large group of the population and make them available for those economic agents who have better investment opportunities. Commercial banks also create a good room in mobilizing new demand deposits by their major operation of loan granting and purchasing investment securities. They also play a great role by facilitating bidirectional trading activities through intermediation of imports and exports as a source of fund and by accepting and discounting of bills of exchange. Banks also create the mobility of capital and also they provides service such as accepting deposits, making business loans and offering basic investment products.

As cited by Abraham Desta, Schumpeter(1911) argued that efficient financial system plays important role in helping the nation economy to grow and a well-functioning Banks spur technological innovation by offering funds to entrepreneurs who successfully implement innovative products and production process and stimulate the future economic growth and also efficient Commercial banks might affect the Economic growth in three ways: It increases the productivity of investment, it reduces financial costs and increases the share of savings channeled in to productive investment and It promote savings. (PAGANO,1993) a more efficient accessible financial sector plays a vital role in channeling scarce resource to their most productive use as this operates properly the Economy will grow in its full potential.

So far there have been few studies done to come up with the best predictive model on the contribution commercial banks for economic growth in Ethiopian context. Through, different methodologies have been used to come up with different models on the determinants of financial sector development. This study indicates empirical results on the contribution of commercial banks to economic growth in Ethiopian context. Over the past few years, financial institutions have become an integral part of the economic growth. It is through the financial sector that capital is provided to the business sector which eventually contributes to the economic growth of a country. Many studies as indicated in the above discussion have argued that financial sector developments are the most important ingredients of economic development.

For the purpose of this study total deposit, total loan and advance, total asset and profit of commercial banks are used as independent or explanatory variables and RGDP as dependent variable. For the purpose of checking accuracy and viability of the data Augmented dikey-Fuller (ADF) unit root test, Modified Augmented Dikey-Fuller unit root test, granger causality test, test of normality, test of serial correlation, test of heteroskedasticity and multi-collinearity test has been conducted at early stage of the analysis. Accordingly, as shown by the ADF unit root test result the variables RGDP, total loan & advances and profit confirmed to be non-stationery at level both without and with trend. The other two variables total asset and total deposit are confirmed non-stationary after the operation of Modified ADF (DF-GLS) unit root test with lags (4).

In the granger causality test the p-value confirms the explanatory variables total assets and total deposit causes RGDP. And the independent variables total loan and advances, and profit do not cause the dependent variable RGDP which is significantly different from the study result on reported by Abraham Desta (2018) on his assessment of the contribution of commercial banks to economic growth. Therefore, as obtained from the analysis of this study the direction of causality is from total asset and total deposit to RGDP. On the other hand the variable LOGRGDP do not cause LOGTASS. So the direction of causality is from the variables LGTDEPO, LOGTLOAN and ROA to LOGTASS. As it is shown from the causality test analysis there is no causality from lag values of the variables LOGRGDP, LOGTASS, LOGTLOAN and ROA to LOGTDEPO. But there is causality on the lag values of the variables LOGRGDP, LOGTASS, LOGTDEPO and ROA towards the variable LOGTLOAN. Finally, the study result also shows that there is no

causality from the variable LOGTASS to the variable ROA. But, there is causality from lag values of the variables LOGRGDP, LGTDEPO and LOGTLOAN to the variable ROA.

The OLS regression results in this study signify that among efficiency measurement and Development indicators of commercial banks total assets, total deposit, and total loan & advance positively and significantly contribute for the economic growth of the country. On the other hand, the profitability which is net profit by proxy of ROA has negative but significant relationship with economic growth which is proxy by RGDP.

5.2 Recommendation

The following recommendations are stated by the researcher as per the finding and parametric estimation of the study.

According to this study total asset has positive and significant association with the economic growth. So, it is more important to increase the size of commercial banks in Ethiopia in order to make them more liquid, stable and capable to resist risks in case of financial panic and prevent them from bankruptcy so the stake holders and policy makers shall devise strategy and policy to increase the size of commercial banks which so that they can potentially be able to contribute to economic growth the country.

As shown in the result of estimation deposits of commercial banks have positive and significant association with economic growth so the researcher recommends the commercial banks to increasing their capability in mobilizing deposit through the use of different marketing strategies in a way that can address non-banked areas of the country.

The commercial banks operating in the country shall attract depositors by introducing attractive and motivating deposit schemes and provide a reasonably beneficial rate of interest schemes to its customers. They also shall enable to create saving habits by among people through continuous education and appropriate advertisement mechanisms. They also should provide diverse accounts to attract customer as per the requirements of customers.

The variable loan and advance has positive association with the economic growth of the country. With these commercial banks has to provide quality and sufficient loan granting services for all economic sectors. They shall revise their loan procedures by enforcing their central governor

(NBE) to update its rules and directives in a way that they can produce all inclusive and workable loan procedure based on the context of the country. As the main actor in realizing the growth and development of the country the National Bank of Ethiopia shall also be genuinely realize the commercial banks contribution to the economic growth of Ethiopia through the provision of workable policies, rules and directives so as to encourage commercial banks to extend credit facilities to private investors and public economic sectors and be able to remove any hindrances that undermine the provision of loan (credit) to the domestic economy. The commercial banks shall aggressively mobilize deposits by offering attractive rates of interest and thus convert the savings into active capital. If not that amount fund would have remained idle. Hence, after mobilizing the resource the commercial banks shall distribute these savings through loans among productive enterprises which are helpful in developing the country and nation building and in this way they can facilitate the optimum utilization of the financial resources of the community at large.

At last, this research findingsshows that there is a negative relationship between RGDP and profit. It shows that due to inflation and the profit that declared by the commercial banks is not financed in the productive sector, and the difference in the maturity of loans granted by commercial banks and the requirement by the regulatory to rise capital of commercial banks in Ethiopia. Due to this it has negative effect to the growth of RGDP. In this study the expected outcome on the relationship between profit and RGDP was positive. But, as indicated by the estimation outcome it is not in line with the expected outcome. So, I highly recommend any interested body to further the study so that to clear the vague.

Finally, as the variables bank's asset, deposit and the loan they provide to economic sectors have found to have positive impact on RGDP economic policy makers, shall make sectorial plan linked with banking facilities and the National Bank of Ethiopia should update its rules and directives in a way that enable commercial banks in Ethiopia to operate smoothly and safely. Policies shall be set so that the commercial banks can entertain the demand for banking facilities in agricultural sector which is the back bone of the country's economy.

The commercial banks shall operate in order to help the economic development of the country by implementing the monetary policy of the country devised by the National Bank of Ethiopia so that it will assist on the policy of monetary management. With this and others the commercial

banks shall contribute much to the growth of a developing economy of the country by granting sufficient loans to agriculture, micro and medium enterprises, industry, manufacturing firms and the service industries with strict accordanceto the monetary policy of the country so as to help in capital formation and the to contribute to the GDP.

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APPENDICES

Year	ROA	Total asset	Total Deposit	Total Loan	RGDP	RGDPt-1
2001	0.767706723163547	25866147930	20456398461	11209644507	63343100000	6439800000
2002	0.848378603410319	27801502230	21631757285	9795108834	64990700000	63343100000
2003	0.822149716695531	48159817484	23868986806	10176109012	66586000000	64990700000
2004	0.833350990223531	37744372352	29881925606	12701708170	74397000000	66586000000
2005	0.842139985464866	46229831033	35241132629	14926762401	83804000000	74397000000
2006	0.853655600265541	52978274817	41079089163	18900144420	93474000000	83804000000
2007	0.860238785951067	66127598199	49452636000	22043267000	104499000000	93474000000
2008	0.872241180343683	77338821200	61869320000	34748901000	116467735000	104499000000
2009	0.871746858373484	98846765000	75248525000	33454611000	128523164000	116467735000
2010	0.866430340291295	124466777367	95815133000	40327091000	141187000000	128523164000
2011	0.862243320812143	179385277101	135745701000	52933258000	475600000000	141187000000
2012	0.870859712916182	236810556180	173683337000	90722987000	517000000000	475600000000
2013	0.876759200128756	292647589246	240670407000	106717228000	568000000000	517000000000
2014	0.873625363353494	292647589246	299450527000	142639850000	627000000000	568000000000
2015	0.869279221092842	292647589246	413030526000	176492767000	692000000000	627000000000
2016	0.870044968654134	292647589246	366821433049	198103358740	752000000000	692000000000
2017	0.869403735083716	292647589246	473664723048	236860227897	859760000000	752000000000
2018	0.873625256353486	292647589246	605418434749	287943594850	931730000000	859760000000
2019	0.883621156353468	292647589246	732835855427	348424412056	1089570000000	931730000000
2020	0.881421156353444	292647589246	808127721000	454437282000	1502373000000	1089570000000

Unit Root Test Results of variables at Level

Variables	(ADF) t-Statistics Without Trends	Critical value at 5%	Prob.	(ADF) t- Statistics With Trends	Critical value at 5%	Prob.
LOGRGDP	-0.883 (N)	-3.000	0.390	-3.868 (Y)	-3.600	0.001
LOGTLOAN	-1.789 (N)	-3.000	0.091	-4.033 (Y)	-3.600	0.004
ROA	-5.357 (Y)	-3.000	0.000	-7.263 (Y)	-3.600	0.000
LOGTASS	-0.684 (N)	-3.000	0.503	-1.492 (N)	-3.600	0.177
LOGTDEPO	0.725 (N)	-3.000	0.478	-0.723 (N)	-3.600	0.480
$LOGRGDP_{t-1}$	-2.870 (N)	-3.000	0.011	-6.158 (Y)	-3.600	0.000

Unit Root Test Results of variables in first difference

Variables	(ADF) t-Statistics Without Trends	Critical value at 5%	Prob.	(ADF) t-Statistics With Trends	Critical value at 5%	Prob.
LOGRGDP	-0.105 (N)	-3.00	0.089	-2.862 (N)	-3.60	0.009
LOGTLOAN	-0.423 (N)	-3.00	0.678	-4.026 (Y)	-3.60	0.001
ROA	-1.672 (N)	-3.00	0.001	-1.356 (N)	-3.60	0.577
LOGTASS	0.060 (N)	-3.00	0.143	-2.380 (N)	-3.60	0.030
LOGTDEPO	2.172 (N)	-3.00	0.11	-0.796 (N)	-3.60	0.387
$LOGRGDP_{t-1}$	-0.350 (N)	-3.00	0.547	-2.213 (N)	-3.60	0.046

Unit Root Test Results of the variable LOGTASS based on Schwert criterion for max. lag

lags	DF-GLS tau Test Statistic	1% Critical Value	5% Critical Value	10% Critical Value
8	-0.867	-3.770	-6.632	-4.903
7	-1.298	-3.770	-4.929	-3.642
6	-3.400	-3.770	-3.828	-2.861
5	-1.884	-3.770	-3.218	-2.467
4	**-3.000**	-3.770	**-2.989**	-2.368
3	-2.558	-3.770	-3.030	-2.474
2	-3.571	-3.770	-3.229	-2.692
1	-2.359	-3.770	-3.476	-2.932

DF-GLS for LOGTDEPO

Maxlag = 8 chosen by Schwert criterion

Unit Root Test Results of the variable LOGTASS based on Schwert criterion for max. Lag

lags	DF-GLS tau Test Statistic	1% Critical Value	5% Critical Value	10% Critical Value
8	-1.756	-3.770	-6.632	-4.903
7	-4.588	-3.770	-4.929	-3.642
6	-2.865	-3.770	-3.828	-2.861
5	-3.519	-3.770	-3.218	-2.467
4	**-3.129**	-3.770	**-2.989**	-2.368
3	-2.309	-3.770	-3.030	-2.474
2	-1.355	-3.770	-3.229	-2.692
1	-1.385	-3.770	-3.476	-2.932

Granger causality Wald tests

Equation	Excluded	chi2	df	Prob > chi2
LOGRGDP	LOGTASS	11.752	2	0.003
LOGRGDP	LOGTDEPO	39.843	2	0.000
LOGRGDP	LOGTLOAN	2.7282	2	0.256
LOGRGDP	ROA	5.1122	2	0.078
LOGRGDP	ALL	55.271	8	0.000
LOGTASS	LOGRGDP	1.4785	2	0.477
LOGTASS	LOGTDEPO	12.609	2	0.002

LOGTASS	LOGTLOAN	16.673	2	0.000
LOGTASS	ROA	7.5102	2	0.023
LOGTASS	ALL	33.115	8	0.000
LOGTDEPO	LOGRGDP	3.1065	2	0.212
LOGTDEPO	LOGTASS	5.3999	2	0.067
LOGTDEPO	LOGTLOAN	0.22184	2	0.895
LOGTDEPO	ROA	4.8108	2	0.090
LOGTDEPO	ALL	18.471	8	0.018
LOGTLOAN	LOGRGDP	75.748	2	0.000
LOGTLOAN	LOGTASS	92.196	2	0.000
LOGTLOAN	LOGTDEPO	33.269	2	0.000
LOGTLOAN	ROA	68.05	2	0.000
LOGTLOAN	ALL	246.43	8	0.000
ROA	LOGRGDP	7.2418	2	0.027
ROA	LOGTDEPO	17.177	2	0.000
ROA	LOGTASS	3.2047	2	0.201
ROA	LOGTLOAN	11.403	2	0.003
ROA	ALL	35.84	8	0.000

Skewness/Kurtosis tests for Normality in STATA

Variable	Obs.	Pr(Skewness)	Pr(Kurtosis)	adj chi2(2)	Prob>chi2
Resid.	20	0.5980	0.6483	0.51	0.7764

Results of Durbin Watson test

Positive serial	Indeterminate	No serial correlation	Indeterminate	Negative serial correlation
0 dl=0.598	du=1.736	2	4-du=2.264	4-dl=3.402 4

Breusch-Godfrey LM test for autocorrelation

lags(p)	chi2	df	Prob > chi2
1	0.004	1	0.9525

Regression result from Stata

Number of obs. = 20						
F(4, 15) = 480.56						
Prob > F = 0.0000						
R-squared = 0.9923						
Adj R-squared = 0.9902						
Root MSE = 0.10698						
LOG(RGDP)	Coef.	Std. Err.	t	P>|t|	[95% Conf. Interval]	
LOG(TASS)	0.35155275	0.0970708	3.41	0.004	0.1242535	0.5380568
LOG(TDEPO)	0.4376778	0.1192036	7.00	0.000	0.5809013	1.089054
LOG(TLOAN)	0.1686997	0.0357581	0.45	0.657	-0.0600365	0.0923965
ROA	-0.7131556	1.449018	-2.57	0.021	-6.808385	0 -.6313663
$LOGRGDP_{t-1}$	0.1395542	0.144600	0.97	0.351	-0.1705822	0.4496907
_Cons	4.462037	2.296357	1.94	0.072	-.463158	9.387232

Multi-collinearity test result from STATA

Variables	LOGTASS	LOGTDEPO	LOGTLOAN	ROA
LOGTASS	1.0000			
LOGTDEPO	0.9715	1.0000		
LOGTLOAN	0.8515	0.8318	1.0000	
ROA	0.7328	0.7609	0.6954	1.0000

VIF test result using STATA

Variable	VIF	1/VIF
LOGTASS	20.21	0.05
LOGTDEPO	19.63	0.05
LOGTLOAN	3.79	0.26
ROA	2.48	0.40
Mean VIF	**11.53**	

Descriptive Analysis

Statistic	LOG(RGDP)	LOG(TASS)	LOG(TDEPO)	LOG(TLOAN)	RAO
Mean	26.21036	25.84835	25.33527	24.93488	0.8584461
Maximum	28.54826	27.59937	27.19735	27.55491	0.8836212
Minimum	23.07216	24.76182	24.40919	23.42642	0.842140
Std. Dev.	1.347145	1.136543	0.929528	1.336405	0.0266591
Skewness	-0.2031165	0.0866388	0.3383719	0.2239821	-2.175621
Kurtosis	2.798544	1.672306	2.435216	1.990705	7.792637
Observations	20	20	20	20	20

Regression Outputs

LOGRGDP	**Coef.**	**Std. Err.**	**t**	**P>t**	**[95% Conf. Interval]**	
LOGASS	0.35155275	0.0970708	3.41	0.004	0.1242535	0.5380568

LOGTDEPO	0.4376778	0.1192036	7.00	0.000	0.5809013	1.089054
LOGTLOAN	0.1686997	0.0357581	0.45	0.657	-0.0600365	0.0923965
ROA	-0.7131556	1.449018	-2.57	0.021	-6.808385	-0.6313663
$LOGRGDP_{t-1}$	0.1395542	0.144600	0.97	0.351	-0.1705822	0.4496907
_cons	4.462037	2.296357	1.94	0.072	-0.463158	9.387232

F(5, 14) = 110.41

Prob > F = 0.0000

R-squared = 0.9753

Adj R-squared = 0.9664

Root MSE = 0.010698

Mean dependent var = 26.4

S.E of Reg = 0.2415509

S.D of dependent var = 1.080248

Variance of dep. Var = 1.166937