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DETERMINANTS OF ECONOMIC GROWTH IN ETHIOPIA

BY

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DETERMINANTS OF ECONOMIC GROWTH IN ETHIOPIA

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APPROVAL OF BOARD EXAMINERS

As members of the Examining Board of the final MA open defense, we certify that we read and evaluated the thesis prepared by Melakebirhan Mekonnen and recommend that it be accepted as fulfilling the thesis requirement for the Degree of Master of Art in Development Economics.

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Advisor	Signature	Date

DECLARATION

I declare that this MA thesis is my original work, and has never been presented for the award of any degree in this or any other university and all source of materials used for the thesis have been duly acknowledged.

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ENDORSEMENT

This thesis has been submitted to St. Mary's University, School Of Graduate Studies for examination with my approval as a University advisory.

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LIST OF ACRONOMY

EXR- Exchange Rate

GDP- Gross Domestic Product

INR- Inflation Rate

LR- Lending Rate

NBE- National Bank of Ethiopia

OLS- Ordinary List Square

SDR- Saving Deposit Rate

TB- Trade Balance

VECM- vector Error Correction Mechanism

ARDL- Auto Regressive Distributed Lag

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ABSTRACT

Financial liberalization and Banking sector has a strong relationship to achieve economic growth that is Ethiopian government try to liberalize the financial sector. This paper attempts to assess the effect of financial liberalization and banking sector development in economic growth in Ethiopia. The study used quantitative research design. In order to achieve the objective of the study, unit root test were used for the period of 1989-2020. Data were analyzed on quantitative basis using descriptive and regression analysis ARDL method. The obtained result from ARDL given that exchange rate, trade balance, inflation rate and private sector investment were statistically significant and have positive relationship with economic growth. On the other hand, variable like trade balance was statistically significant and has negative relationship with economic growth. Lending rate has positive relationship with economic growth nevertheless it is statistically insignificant. From the result, exchange rate and saving deposit rate would no doubt enhance economic growth and the governments in the country have to intensify efforts that provide better financial system.

***Keywords**:*

ARDL, Cointegration, Determinant Economic Growth, Descriptive statistics, Stationarity ,Ethiopia

CHAPTER ONE: INTRODUCTION

1.1. Background of the Study

Substantial economic growth is the main macro-economic objective of all countries and one of the most important agenda in world political economy. Increase of gross domestic product is a basic requisite to economic development. As indicated by Haller, economic growth is the process of raising the sizes of national economies, the macro-economic indications, especially the GDP per capita, in an increasing but not necessarily linear direction, with positive effects on the economic-social sector. The economic achievements result in the advance of the quality of life, adequate conditions of treatment, improvement of the academic system and an improved distribution of incomes (Haller, 2012).

According to African Export-Import Bank (AEIB,2018), inflation has been a tendency of being higher in Ethiopia and reached 13.6% in December 2017 up from 6.7% in December 2016 partly on account of the devaluation of the Birr in October 2017 and poor weather conditions. The devaluation of the currency together with continued credit expansion is likely to prolong causing inflation in the short to medium term. Regarding exchange rate, Ethiopia's currency is the "Birr" and the country's exchange rate undertakes under a controlled floating regime. Implementation of gradual depreciation policy of the Birr has been started since October 2017. The exchange rate dollar to birr now stands at Birr27.43: US$1, compared to the exchange rate of Birr23.40: US$1, reflecting a devaluation of 15%. This was to enhance price competitiveness, attract FDI, and boost exports to narrow trade deficits. Despite this move, the exerting pressure by IMF continues for further devaluation could further weaken the Birr in the short to medium term (Ibid).

On the other hand, Nguyen (2008), financial liberalization refers to a reduction in the role of government, and an increase in the role of the market, in allocating credit. He further points out that financial liberalization can be measured by taking into account credit controls, interest rate controls, entry barriers for banks, regulations, privatization, and restrictions on international financial transactions.

Moreover, NajiaSAQIB(2013:127) stated that;the role of banking sector is more crucial in developing countries as the financial sector provides the financial services to the rest of the economy. The important role of the banking sector in all economies is to channel resources from primary savers to investment opportunities. Therefore, efficient banking system facilitates better mobilization and use of resources and thus, accelerates the process of economic growth.

Additionally, he also strengthened As banking sector plays a crucial role in the economic development, most governments in developing countries intervened to the banking sector to achieve the economic growth. Common types of government intervention to the domestic financial sector are interest rate ceilings, selective credit allocation, market-entry regulation, government ownership, and capital flows. Restrictions and control on bank behavior imposed by governments often results in negative real interest rate, high inflation, and less supply of loanable funds and excess demand for credit. Many studies showed that government's control and intervention in the banking system limits the operation of market mechanism

Thus, In the financial liberalization theory, Shaw (1973) and Mckinnon (1973) claimed that financial liberalization policies would increase savings which consequently spurs investment and induce economic growth. They argued that higher interest rates brought about by liberalization leads to a more efficient allocation of resources, higher level of investment and economic growth. The focus of liberalization has been to replace the severely constrained "command and control" system with a relatively liberalized regime with prices reflecting economic costs, along with a greater reliance on the private sector as the engine of growth (Bhaduri, 2005).This strongly clarifies that the necessity of financial liberalization on economic growth as well as banking sector development.

In Ethiopia, before 1992 (during the Dreg period) the financial sector was highly repressed; differentiated by restricted entry, constrained banks‟ role on interest rates and credit limits. Ethiopia, a land-locked developing country, has been achieving a double-digit economic growth in the last two consecutive decades. However, its recent impressive growth has been accompanied by high inflation (Bane, 2018), unemployment, trade balance deficiency, food insecurity, and political instability. Mainly, the inflationary pressure is becoming hard-hitting to the country's economy, particularly in recent days.

Therefore, the objective of this study is to evaluate determinants of economic growth in developing countries, taking the Ethiopia in case from 1989-2020 . The study will be of the most importance because it would provide policy recommendations to the various stakeholders in emerging nations i.e. countries taking adequate measures in their economy for rapid growth and industrialization, using the findings from the Ethiopian experience as a benchmark to conclude on the efficacy of financial liberalization in developing economies and make recommendations.

Thus, study would be assessed determinants economic growth of Ethiopia in terms of exchange rate, lending rate, inflation rate, trade balance, minimum deposit rate and private sector investment.

1.2. Statement of the Problem

Edomgent (2018), and (Levine R., (1997) stated that financial sector play a vital role in countries‟ economy since it facilitate payments, mobilize saving and allocates funds for the most productive uses, limit risks and costs and generate economic activities. Therefore, it is clear that the concern of financial sector is essential for growth of a country and economic growth as well as economic development.

As per supporters of financial liberalization, financial liberalization increases competition among banks and increases profit, the increase in competition among banking markets will increase interest rate on deposit, which leads to higher saving rate. As a result, amount of resources available for investment increase and enhance economic growth (Mckinnon R. 1973)

In Ethiopia, the trends in economic growth have shown improvements with time for the last few years following considerable reforms in economic policy of the country. It has been experiencing various changes in political and economic structures following changes in political ideologies with each regime. The changes in government structure have created inconsistency in economic policies by successive regimes as well as natural catastrophe such as; famine, drought and prolonged civil war and Ethio-Eritrean war (Minyahil,Leta,wondwosen;2019)

Edomgennet (2018), has examined the effect of financial liberalization on economic growth of four selected IGAD countries (Djibouti, Ethiopia, Kenya and Uganda) using Panel Data for the period of 2007-2016, indicated that exchange rate and degree of openness were statistically significant and have positive relationship with economic growth. On the contrary, variables like lending rate and financial deepening were statistically significant and have negative relationship with economic growth. Inflation has positive relationship with economic growth nevertheless it is statistically insignificant. From the result, trade openness would no doubt enhance economic growth and the government in the region has to intensify efforts that provide better financial system.

Based on the African Economic Outlook details of 2012, Ethiopia ranks 12th fastest growing economy over the globe and the average growth rate for the last decade was estimated 10.9 percent. Besides, Ethiopia’s collective economy reached the sub-Saharan African leading economy. Even though many previous studies exist on the determinants of economic growth in the country, majority of them didn’t study variables; like trade balance, lending rate, saving deposit rate, exchange rate, inflation rate and private sector investment. These important variables were well considered in the present study. This study investigates the determinants of

economic growth in Ethiopia employing the time series variables for the periods running from 1989 to 2020.

1.3. Objectives of the study

1.3.1. General Objective

The overall research objective of this study is to assess determinants of economic growth in Ethiopia.

1.3.2. Specific Objectives

- To evaluate determinants of economic growth in Ethiopia.
- To show the significant relationship among determinants economic growth in Ethiopia.
- To examine the main macroeconomic determinants of growth in Ethiopia
- To analyze the interaction of determinant variables in growth process

1.4. Research Questions

- ✓ What effect does a determinant bring to economic growth in Ethiopia?
- ✓ What are the significant relationships among determinants of economic growth in Ethiopia?
- ✓ How to examine the main macro-economic determinants?
- ✓ How to analyze the interaction of determinant variables on economic growth in Ethiopia?

1.5. Scope and Limitation of the Study

The study would focus on to the determinants economic growth in Ethiopia. This study would use time series data covering the period from 1989 to 2020 which would be collected from the National Bank of Ethiopia and Central Statistics Authority.

This study would focus to assess the effect of independent variables and elements of financial liberalization exchange rate, lending rate, degree of openness in financial sector and private sector investment on the dependent variable under investigation Economic Growth of Ethiopia as measured by GDP.

1.6. Significance of the Study

The study attempts to examine determinants on economic growth. According to time frame, the study was delimited with the period between years of 1989 – 2020. The employed secondary data was collected from National Bank of Ethiopia and bureau of statistical agency of Ethiopia

data. However, these companies as well as other concerned institutions have not every vital data which were important to this study. In connection with lack of organized and diversified data, the researcher dropped and modified some targeted variables and changed by other variables. The researcher was used only available variables due to lake of appropriate data.

1.7. Organization of the Study

The first chapter comprises overview of the study by including the introduction, background of the study, statement of the problem, objective of the study, scope and limitation of the study, significance of the study, and how the study were organized. The second chapter presents a brief review of the historical, theoretical and empirical literature on the relationship between finance and economic growth. It is about review of related literature. Under chapter three, detailed methodology including data type source and variables with their definitions are presented. Chapter four deals with descriptive analysis, econometric analysis and presents finding of the analysis. The last chapter provides conclusion and recommendation.

CHAPTER TWO: LITERATURE REVIEW

2.1. Theoretical Review

According Edomgenet (2018) A Well-grounded economy is mainly characterized by efficient and stimulating financial market. Regulation mainly characterized by imperfect information, regulatory impediments and artificial structures. Before world war first there was almost absence of restrictions on across border capital flows, after the war many countries exercise with capital controls which varies in nature and intensity. Now, due to globalization, liberalization is taking place the gradual lifting of restrictions. Although there has been a gradual lifting of restrictions over time, there were periods of reversals, in which restrictions were re-imposed. The most substantial reversals took place in the upshot of the 1982 debt crisis, in the mid-1990s (Stiglitz, 2000). Most countries are financially repressed. Repression is marked by regulation of interest rates, credit controls, restriction on free entry into the financial sector especially in banking sector, insufficient resource mobilization, high transaction costs and asymmetric information (Folawewo, 2009). Financial liberalization policies are introduced to correct the deficiency in financial system in countries to induce financial depth and economic growth.

2.2. ECONOMIC GROWTH THEORIES

2.2.1. The Classical Economic Theory

According to this theory the relationship between of money and price level is explained in terms of the quantity theory of money. Classical theory of money explained that price level is a function of the supply of money. In this theory they assumed that there is full employment in the economy and unemployment occurred due to rigidity of money wages. This theory argues that economic growth will decrease because of increasing population and limited resources. They believed that the temporary increase in real GDP would cause a population explosion that would consequently cause decrease in real GDP. Keynes did not agree with the classical view that the supply of money influenced the price level directly and that the economy always stayed at full employment level.

2.2.2. Neo-Classical Economic Theory

Neoclassical growth model of (Solow, 1957) provide framework for analyzing economic growth. The determinant of long-term economic growth rate is through accumulation of factor input such as physical capital and labor. According to this model, the role of technological change is very crucial, even more important than the accumulation of capital. Here, long run per capita growth

rate depends entirely on the exogenous rate of technological progress. Increase in savings rate will lead to a temporary increase in per capital K/L and per capita output. However, both would return to a steady-state of growth at higher level of per capita output. Savings has no impact on long-run per capita output growth rate but has an impact on long-run level of per capita output.

2.2.3. The Keynesians Economic Theory

In Keynesians theory, monetary policy as working of primarily through interest rate, an increase in the money supply leads to a fall in interest rate to include the public to hold additional money balances. It asserts that a change in the supply of money can permanently change such variablesas the rate of interest, the aggregate demand, and the level of employment, output and income. As a result, when the supply of money is increased, its first effect is on the rate of interest which tends to fall. The falling interest rates affects in investment given businessmen expected profit.

Financial Liberalization and Repression

Financial development and its correlation to economic growth have got a profound analysis and research in the field of development. To this end, the opponents of financial repression argue that financial liberalization can support economic growth (McKinnon: 1973; Shaw: 1973) as cited in Chirac (2001). The paper further argued that financial sector of the economy is important in economic development as it supports in the breakaway from repetition repressed economic performance to accelerated economic growth. A fully liberalized domestic financial system is characterized by lack of controls on lending borrowing interest rates and certainly by lack of credit controls, i.e. no subsidies to certain sectors or certain credit allocations. In addition, it also entails permission of deposits in foreign currencies (Arrestees and Caner, 2004). The paper further argued by citing Kaminski and Schuler (2003) financial liberalization consists of deregulation of the foreign sector capital account, the domestic financial sector, and the stock market sector viewed separately from the domestic financial sector. It is argued that full liberalization occurs when at least two of the three sectors are fully liberalized and the third one is partially liberalized.

However, studies show mixed result of the effect of liberalization. Senet and Otchere (2005) conclude that despite the extensive financial sector reforms that have taken place it terms of interest and price liberalization, Sub-Saharan African financial systems face sever inefficiency and thinness. Ikhiide and Allawode (2001) based on studies by Fry, 1978; De Mello, 1986; Khattkhatte, 1988; Diiaz-Allejjandro, 1985 explain that certain countries experienced higher

savings and investment following liberalization and others have chronicled disasters in economies that undertook financial liberalization.

On the other extreme, financial repression refers to the distortion of domestic financial markets through measures such as ceilings on interest rates and credit expansion, selective allocation of credit and high reserve requirements, Ikhiide and Allawode (2001). The paper using the McKinon and Shaw argument pointed out that such misguided policies have damaged the economies of many developing countries by reducing savings and encouraging investment in inefficient and unproductive activities. Excessive intervention by government results control of interest on loans and deposits rates. Aryeetteyetall (1997) elucidate that ceilings on deposit and loan rates tend to raise the demand for and depress the supply of funds. This creates unsatisfied demand for investable funds which forces financial intermediaries to ration credit by means other than the interest rate while an informal market develops at uncontrolled rates.

The other feature of financial repression in the literatures is large differential between lending and deposit interest rates and implicit taxation (Aryeettey, 1997), (Chiirwa, 2001).Seck and Ell Nil (1993) as explained in Chirac (1993) argued that the high spread between lending and deposit rates can be viewed as an implicit tax through high reserve requirements on the banking sector by the monetary authorities. Moreover, governments often used banking institution as a source of implicit taxation by imposing high reserve requirement and financing operating losses of parastatals, Collier and Gunings 1991 cited in (Aryeettey, 1997).

Concerning the standard recommendations to curb the financial repression, Ikhiide and Allawode (2001) explained that positive interest rates be established on deposits and loans by eliminating interest rate and credit ceilings topping selective credit allocation and lowering reserve requirements. Finally, studies recommend that financial liberalization and bank restructuring should be accompanied by complementary measures to address institutional and structural problems (Areyeettey, 1997). In addition, studies emphasized the importance of attaining macroeconomic stability prior to financial liberalization (Dornbusch and Reynoso, 1993 in Ikhiide and Allawode, 2001).

2.3. Empirical Evidences/Literature

There are various studies that examined the effects of determinants of economic growth of different countries depending on the context and different variables and elements in the financial sector. Okapara (2010), has investigated the effect of financial liberalization on some macroeconomic variables in Nigeria. Real GDP, financial deepening, gross national savings, foreign direct investment and inflation rate were selected and given pre/post liberalization comparative analysis using the discriminate analysis technique. The findings show that the variable that impacts moston the economy owing to financial liberalization is the real GDP which recorded positively the highest contribution. From the result, it can be said financial liberalization positively increases the growth of the economy.

Similarly Segun B. et al (2020) have investigated the effect of financial liberalization on economic growth in Nigeria covering a period of 33years. Adopting McKinnon and Shaw hypothesis as the theoretical framework, economic growth was represented by gross domestic product (GDP), financial liberalization was represented by prime lending rate, saving deposit rate, exchange rate, credit to private sector and ratio of private investment to GDP. The study found that, financial liberalization has long and short run relationship with economic growth, prime lending rate had insignificant positive and credit to private sector had significant positive effects on economic growth. On the other hand, savings deposit rate, exchange rate and ratio of private investment to GDP have insignificant negative effects on economic growth. The study concluded that, financial liberalization has significant positive effect on economic growth with overriding effect from credit to private sector.

Edomgennet (2018) has examined the effect of financial liberalization on economic growth of four selected IGAD countries (Djibouti, Ethiopia, Kenya and Uganda)using Panel Data for the period of 2007-2016, indicated that exchange rate and degree of openness were statistically significant and have positive relationship with economic growth. On the contrary, variables like lending rate and financial deepening were statistically significant and have negative relationship with economic growth. Inflation has positive relationship with economic growth nevertheless it is statistically insignificant. From the result, trade openness would no doubt enhance economic growth and the government in the region has to intensify efforts that provide better financial system.

2.4. Conceptual Framework

The conceptual framework shown in Figure 1 indicates that, economic growth is dependent on. From the theoretical and empirical literature reviews, the following conceptual framework of the study was developed by the researcher.

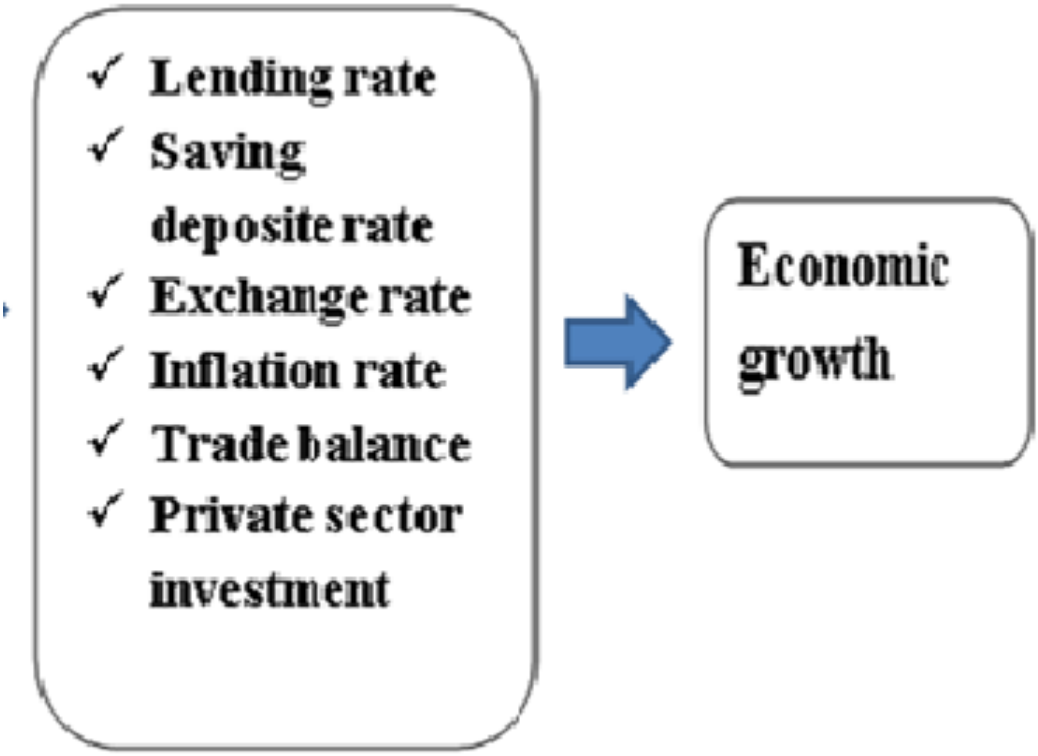


Figure 1 The conceptual framework of the study

Source: Compiled by the researcher

CHAPTER THREE: RESEARCHMETHODOLOGY

3.1. Research Design

The main objective of the study is to examine the effect of determinants on economic growth of Ethiopia. The researcher would used explanatory research design which is devoted to finding the relationship among dependent and independent variables.

3.2. Research Approach

To achieve the objective of this research the researcher has planned to use quantitative research approach to examine the effect of determinants on economic growth in Ethiopia.

3.2.1. Data and Data source

The study adopts an econometric model in determining the effect of financial liberalization on economic growth in Ethiopia. To collect appropriate and enough data for the effectiveness of this research, the researcher used secondary sources. The study gathered time series annual data for the period covering 1989 to 2020 from the national Bank of Ethiopia and National Bureau of Statistics. The methodology involved econometric techniques such as; Ordinary Least Square (OLS) method, Augmented Dickey-Fuller (ADF) Unit Root test. The period is specified based on considering availability of data and reasonable time period to capture the real figure of studying issue. The researcher was employed EVIEWs version 10 statistical software to analyze the data.

3.2.2. Methods of Data Analysis

This study was developed based on descriptive analysis and ADRL Model result analysis. It provides the descriptive analysis of the multivariate time serious data and variables for the study of collaboration analysis between dependent and independent variables, deals the results of the data analysis that constitutes the findings of the study.

3.3. Method of Data Analysis

To answer the research questions, statistical analyses would be carried out using the following methods: First, descriptive statistics (i.e. mean and standard deviation) of the variables (both dependent and independent) would be calculated over the sample period and this was in line with (Malhotra, 2007), which states using descriptive statistics methods helps the researcher in picturing the existing situation and allows relevant information. Then, a correlation analysis

between dependent and independent variables would be made. Also a graphical and tabular analysis of the variables used was conducted to capture their movement over time

3.4. Model specification

The model employed in this study is built based on the modification of the models in Kasekende and Atingi-Ego (2003), Faria et al. (2009), and Akpan (2004).. The model specifies the endogenous variable (Gross Domestic Product) as a function of Lending Rate, Exchange Rate, Inflation Rate, trade balance, private sector investment and saving deposit rate representing the exogenous variables.

The model is specified as follows:

GDP = f (LR, EXR, INF, PSI, SDR, TB)…….. (1)

Where;

GDP = Gross Domestic Product

LR = Lending Rate

EXR = Exchange Rate

INR = Inflation Rate

PSI = Private sector

SDR = saving deposit rate investment

TB= trade balance

The econometric form of equation (1) is represented as:

GDP = B0 + B1LR + B2EXR + B3INR + B4PSI + B5SDR+B6TB + e …… (2)

Where: B0 = Intercept of relationship in the model/constant

B1-B6 = Coefficients of each independent or explanatory variable

e= Stochastic or Error term Byloglinearizing, the model becomes;

logGDPt = B0 + B1logLRt + B2logEXRt + B3log INRt + B4logPSIt + B5log SDRt+B6logTBt + e…….……(3)

By specifying the error correction model (ECM) from equation (4), the model becomes:

ΔlogGDP = B0 + B1Σlog LRt-1 + B2ΣlogEXRt-1+ B3ΣlogINRt-1 + B4Σlog PSIt-1 + B5Σlog SDRt-1+B6ΣlogTBt+ ΣECMt-1 + Σt …… (4)

Where

ΣECM = Error Correction term

t – 1 = variable lagged by one period

Σt = White noise residual The „a priori" expectations are determined by the principles of economic theory and refer to the expected relationship between the explained variable and the explanatory variable(s). It is expected that B1, B2, B3< 0 while B4, B5,B6> 0.

3.5. Description of variables

3.5.1. Dependent variable

Gross domestic variable: According to (Solow, 1957), economic growth is the increase in the amount of goods and services produced in an economy over time. It is the expansion of the nation"s income. It allows a nation to forecast long term business Trends and compare different government policies. It indicates the direction of the economy. The measurement of growth is the GDP rate. GDP is the total dollar amount of goods and services produced in a country, the sum of all money spent in the economy whether on consumption, investment, and government spending and net exports. GDP rate is the percentage change of GDP over a certain period, usually one year. The study used economic growth measured by the rate of the annual change in the GDP at constant prices. To measure economic growth, GDP was used and for precision logarithm of GDP used to tell the rate of growth.

3.5.2 Independent variables

Exchange rate

An exchange rate is the price of nation"s currency in terms of another currency. Thus, it has two components, the domestic currency and a foreign currency, and can be quoted either directly or indirectly. It is the rate at which the one currency may be converted in to another. It determines how much the residents of a country pay for imported goods, and services, and how much they receive as a payment for exported goods and services. Exchange rate can be nominal or real. Real exchange rate is obtained when inflation influences are excluded. Movement in exchange rate affects overall economic activity. Countries revalue and devalue their currency depending on their economic conditions. Therefore, movements in the real exchange rates do affect the overall output. In theory, currency depreciation is associated with possibilities for both contractionary and expansionary effects on outputs 10 of different sectors. When a currency appreciates (rise in value of currency) or strengthens in relation to other currencies, imports get cheaper. This means you will buy more of another foreign currency so that you can purchase foreign goods. Higher exchange rate leads to trade deficits. Because strong currencies lead to cheaper imports, a country tends to import more than they export. This causes a trade deficit, which can exert a

contractionary effect on the economy. This lowers demand for goods and as a result lowers GDP (Glüzmann, 2012). Devaluation often invites a recession and inflation and thus pushes the economy into an inflation- devaluation spiral, causing a serious setback in economic development. High economic growth rate is most likely accompanied by a high investment rate and high export growth as well. Successful exports produce current account surpluses, resulting in nominal appreciation pressure on the currency unless the central bank intervenes in the foreign exchange market and accumulates foreign reserves (Takatoshi Ito, 1999). Empirical evidence for example (Okapara, 2010), found that exchange rate has a positive effect Nigerian economy.(Di Nino, 20011), also conclude that there is a positive relationship between exchange rate and economic growth for a panel dataset covering the period 1861-2011. In 10 See on Working paper of exchange rate and economic growth 32 addition, the authors show that undervaluation supported growth by increasing exports, especially from high-productivity sectors, in Italy in 1861-2011. (Nwadiubu, 2014), indicated that there is direct relationship between exchange rate and economic growth. The study used annual real effective exchange rate measured by nominal effective exchange rate which is measured by local currency per dollar. From theories and empirical literatures it is expected to be positive.

Lending rate

Lending rate is the bank rate that usually meets short term and medium term financing needs of private sector. This rate is differentiated according to credit worthiness of borrowers‟ objective of financing. The terms and conditions attached to these rates differ by country, however, limiting by their compatibility. It is the cost of debt for the borrower and the rate of return for the lender. There is a close link between bank lending rate. Economic condition changes over time in line with economic and business cycle and economic conditions may face a serious of booms and lumps (Folawewo, 2009). With much business cycle closures financial institutions unable to provide loan at a lower rate as they have to cover their cost. Therefore, lending rate is a tool in monetary policy when a county wants to increase and investment and consumption in the country‟s economy. As lending rate are increased, consumers tend to save as returns form saving are higher. With less disposable income being spent as a result of the increase in the interest rate, the economy slows down and visa vice (Keynes, 1936). High interest rate has a negative effect of increasing cost of borrowing and consequently limiting the level of aggregate investment and consumption. Therefore, the overall economy growth in the country affected negatively (Ng'etich, 2011). (Mckinnon, 1973), argued that high and positive interest rate creates money balance and it is essential for capital accumulation until interest rate doesn‟t exceeds real return

on capital. Empirical evidences for instance, (Daniel, 2014) found that lending rate has negative impact in Kenya. (Giovanni, 2012) argue that high interest rate have concretionary effect on annual real GDP, (Korior, 2006) finds that high lending rate by financial institution in the country have 33 made the accessibility almost impossible to the poor and effectively negated on poverty alleviation, (Montiel, 1995), argue that financial system gain efficiency when spread between lending and deposit rate narrows. In this study, lending rate is used based on average annual interest on loans. High interest rate reduces demand for borrowers by then reduces investment. Hence, Lending rate is expected to be negative.

Inflation rate: is the annual percentage change in the cost of average consumer of acquiring basket of goods and services. It is a measure of general price changes in the economy. Inflation rate is the rate at which the general price for goods and services are rising and consequently purchasing power of currency is falling. A healthy rate of inflation is considered to be 2-3% per year11 . There are many cause of inflation. For instance, money supply, national debt, demand pull effect, cost push effect and exchange rate effect. Economic growth is exogenously determined. Growth linked with: high level of saving and investment. In investigating economic growth, inflation treated as one of macroeconomic research and policy (Mamo, 2012). There are many controversial findings in the relationship between economic growth and inflation. The relationship between economic growth and inflation can be positive, negative or neutral (Mamo, 2012). However, the relationship between them is not the phenomenon rather the level of inflation affects economic growth positively or negatively. . It is expected that the variable has a negative effect on economic growth of the countries.

According to (Ghosh, 1998), there is positive relationship between inflation and economic growth when inflation is low. However, this relation turned to negative when inflation is high. In practical evidence (Ghosh, 1998) found that inflation has significant negative impact when it is above 2.5% for a sample of 145 countries. (Khan, 2001), used OLS panel data for 140 countries and the result revels that inflation has negative impact on economic growth when it is above the trash hold level. The study used annual rate of change in the consumer price index as a measure of the level of inflation in the region On the other hand, Huang et al. (2010) prove empirically that there is a nonlinear inflation threshold in the finance-growth link, which is between 7.31 and 7.69%. Moreover, Boyd, Levine, and Smith (2001) provide ample evidence for banking systems and stock markets in the sense that there is an inverse, nonlinear relationship between finance and inflation. They point out that if inflation exceeded 15%, there would be a fall in financial

sector development. Khan, Senhadji, and Smith (2006) found an inflation threshold between 3 and 6% per year; Rousseau and Wachtel (2002) determined a limit between 13 and 25%, whereas Rousseau and Yilmazkuday (2009) confirmed econometrically and graphically a threshold between 4 and 19%. Kim and Lin (2010) analyze the longhand short-run relationship between inflation and financial intermediary performance. They find a negative long-run association between inflation and finance that coexists with a positive short-run relationship. Such results are observed in low-income or low-inflation countries when the data are split into income or inflation groups. Thus, in practice it has been shown that there is a nonlinear, negative association between inflation and finance and a threshold over which there is no consensus yet

Several economists have found that countries with high inflation rates have inefficiently small banking sectors and equity markets. This effect suggests that inflation reduces bank lending to the private sector, which is consistent with the view that a sufficiently high rate of inflation induces banks to ration credit

As John H. Boyd and Bruce Champ (2005,3) stated that: The world has seen a dramatic decline in inflation rates in recent decades, but concerns about inflation may still be warranted, especially in some countries. Evidence is mounting that inflation is harmful to economic activity even at fairly modest rates of inflation because of the way it adversely affects the banking sector and investment.

Financial Deeping: Financial deepening is the sum of currency outside banks, demand deposits other than those of central government; the time saving and foreign currency deposits of resident sectors other than the central government; bank and travelers check; and other securities such as certificates of deposits and commercial paper. Financial deepening defined as the increased provision of financial services with a wider choice of services geared to all levels of society. It generally means an increased ratio of money supply to GDP, in other words, it refers to liquid money. The more liquid money is accessible in an economy; the more exist for continual growth (Shaw, 1973). Financial deepening stimulates higher investments, faster growth. Economic experts use financial deepening as an indicator of sufficient liquidity and smooth financial intermediation. Money supply and other prices indices constitute financial deepening indicators. Financial deepening defined as an increase in asset and the provision of needed financial services to the economy. Financial deepening measured as selected money relative to GDP. The ratio of private sector credit to GDP is also an alternative indicator of financial deepening. There is a

linkage between financial deepening and economic growth, the financial system mobilizes pools and channels funds into productive capital and by doing so it contributes to economic growth. On the other hand, if the linkage goes from economic growth to financial development, then under this logic, the economic growth would increase demand for sophisticated financial instruments, which in turn leads to development in the financial sector (Levine R. , 2005). (Banam, 2010), indicated in his finding that financial liberalization has strong and statistically significant effect on economic growth of Iran. (Asamoah, 2008), showed that that financial liberalization has increased the rate of capital accumulation and improved efficiency in capital utilization which is essential to economic growth in Ghana. (Kasekadene, 2003), financial liberalization promoted efficiency in Uganda. (Okapara, 2010), indicated that financial liberalization has positive effect in Kenya however the result is statistically insignificant. On contrary of these (Foluso, 2017), found that financial liberalization has positive and statistically 35 significant relationship however for low income countries it has negative impact even though it is statistically insignificant. (Achy, 2003), on his study of five MENNA countries found that financial liberalization led to further distortion. In this study, financial liberalization is proxied by financial deepening and measured by ratio of money supply to GDP. The variable is expected to have positive relationship to GDP.

Private sector investment: is the share of a country's capital formation attributed to private citizens or the value of a country's total assets owned by its citizens. The proxy for this variable is the gross fixed capital formation (private sector) % of GDP as defined by the World Bank (Nwakoby & Bernard, 2016; Marang' a et al., 2018; Pickson & Ofori-Abebrese, 2016).

Private sector investment is the key engine for economic growth, job creation and complements public sector investment (Santandrea et al., 2015; Ade et al., 2017; Park et al., 2016; McEwan et al., 2017). Private sector investment is associated with a high level of employment, increased foreign direct investment, economic growth, poverty alleviation and high per capita income (Haroon & Nasr, 2011; Nwakoby & Bernard, 2016; Obayori et al., 2018). Owing to its significance in stimulating economic growth and the wellbeing of the populaces, researchers have engrossed their work on the most important determinants of private investment. Wang et al. (2018), Wang et al., (2019), and Szczygielski et al., 2017) argue that public sector investment is an important ingredient for private sector investment. Nevertheless, non-infrastructural public investment would crowd out the level of private sector involvement in economic development (Geddes et al., 2017; Idris & Bakar, 2017). Studies by Valadkhani (2004) and Khan & Rinluhart (1990), singled out factors such as GDP growth rate, household level of income, the balance of

payment and inflation rate as key determinants of private sector investment. However, financial constraint stands out as the key hindrance to private sector investment in developing and emerging economies (Park et al., 2016; Obafemi et al., 2015; Ugwu et al., 2017).

Banking sector development is the moderator and it is measured as domestic credit to the private sector; which are claims on the private sectors by commercial banks in the form of loan advances. Domestic credit is the aggregate of liquid liabilities of financial systems and other claims on the private sector by the banking sector as a percentage of GDP. This is a standard measure of banking sector development (Ahmed & Bashir, 2016; Low et al., 2018; Bayar et al., 2018; Habibullah et al., 2017).

Trade openness enhances growth through: first and more prominent, channel operates as a transmission mechanism of technological progress and spillovers that are generated by improvements in knowledge in trade-partner countries. Second, trade and technological diffusion reduce the redundancy effect of research duplication, and reduce cost and enlarge by encouraging research-intensive production that spurs economic growth (Tybout, 2003). Third, a related indirect channel of international trade occurs via competition among firms in outward-oriented countries. These pro-competitive gains from trade might force domestic firms to innovate by encouraging specialization that would have been unprofitable in smaller markets. This last channel is gaining momentum by a large micro econometric literature, in which the hypothesis of learning by exporting is thoroughly investigated (Mélitz, 2003). 12 An open economy is an economy in which there are economic activities between the domestic community and outside. 36 (Nwadiubu, 2014), found that there is positive effect of degree of openness in Nigerian Economy. (Romer, 1994), found that export growth impacted on economic growth positively in less developed countries. (Onafowora, 1998), also found a significant positive effect of exports on economic growth for a sample of 12 Sub-Saharan Africa (SSA) countries, and concluded that it was possible to stimulate growth through an outward-oriented growth strategy. This study used ratio of Import plus export to GDP as a measure of degree of openness in IGAD region. It is expected that degree of openness has positive effect on economic growth of the countries.

Table 1: Hypothesis testing

Variable	Description	Expected sign
Inflation rate	Reported annual inflation rate	Negative
Lending rate	Reported annual interest rate	Negative
Exchange rate	The reported annual exchange rate	Positive
Private sector investment	Money supply/GDP	Positive
Trade balance	Import plus export over GDP	Positive
Saving deposit rate	Major tool of success for GDP	Positive

CHAPTER FOUR: RESULT AND DISCUSSION

This chapter analyses the factors that determine economic growth in Ethiopia using annual data from 1989 -2020 . It contains both descriptive and econometric analysis. Under descriptive part discussed current status and overall performances effects of financial liberalization and banking sector and the trend and growth status of the variables are described. Before doing direct estimation of the model, it was tested the unit root test to check whether the time-series is stationary or not.

Following estimation of the result employ autocorrelation and normality.

4.1. Results of Descriptive Statistics

4.1.1. Trends of real GDP and its growth in Ethiopia from 1998 -2020

Economic growth of Ethiopia shows consisted and little improvement until 2003. After 2002 it shows significant improvement and up rises consistently. Within this period there is government change in 1991, liberalization as well as economic reform in 1994. However, both events didn‟t create improvement on economic growth of the country. Moreover the improvement comes from the implementation of financial liberalization in banking industry in the country in 2002. After 2010 the growth is raised dramatically.

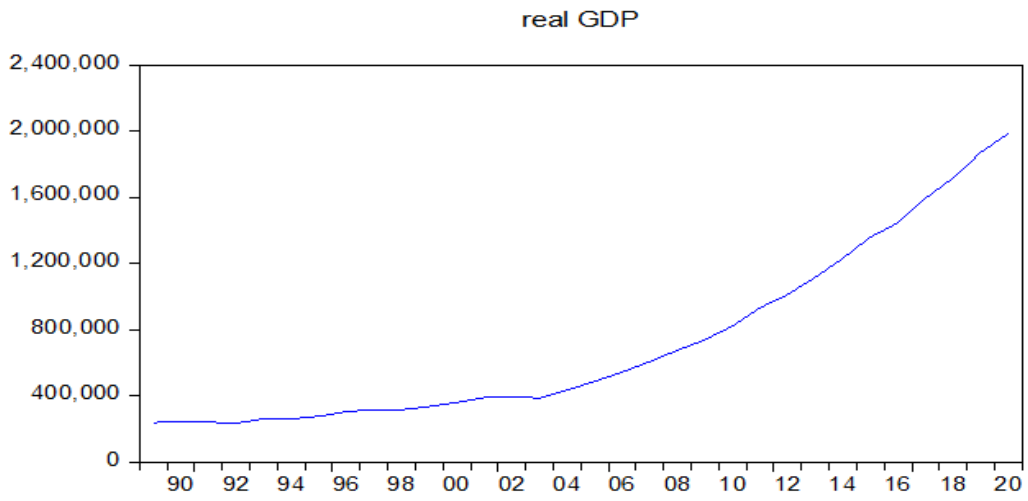


Figure 1:- Trend of real GDP in Ethiopia from 1998-2020
Source:- Model result

4.1.2. Description of variables mean, standard deviation, minimum and maximum

Within the period of 32 years between 1989 and 2020 Ethiopia's real GDP average was birr 341.3 billion per year; where birr 102.3 billion and birr 1.8 trillion was the minimum and maximum real GDP of the country. The maximum real GDP recorded was made in 2020 and the minimum was in 1989. The year 1989 which was the year of savor conflict as well as the instability of the central government in Ethiopia? That is reason the country's real GDP was highly diminished.

In Ethiopia between 1998 and 2020 the maximum exchange rate was 31.3 birr billion which was registered in the year 2020 and the minimum was birr 2.07 million it recorded in 1989. Within these 32 years the average exchange rate was 11.6 million per year. On average In Ethiopia exchange rate generate birr 11.6 billion profit per year; within these 32 years the inflation rate was recorded maximum profit of birr 55.2 billion and minimum of -10.8 million, it records in 2008 and 2000 respectively. The Ethiopian banking sector invests for private sector investment birr 567 million in average per year from 1989 to 2020. The maximum and minimum private sector Investment in Ethiopia was birr 26 billion and 2 million respectively; it records in the year 2018 and 1889 respectively. In Ethiopia between 1998 and 2020 the maximum exchange rate was 31.3 birr billion which was registered in the year 2020 and the minimum was birr 2.07 million it recorded in 1989. Within these 32 years the average exchange rate was 11.6 million per year. On average In Ethiopia exchange rate generate birr 11.6 billion profit per year; within these 32 years the inflation rate was recorded maximum profit of birr 55.2 billion and minimum of -10.8 million, it records in 2008 and 2000 respectively. The Ethiopian banking sector invest for private sector investment birr 567 million in average per year from 1989 to 2020

Table 2:- Summary of descriptive statistics of model

Variable	Mean	Minimum	Maximum	Sdt.Dev.
Real GDP	341295.6	102340.56	1813697	39301.1
Exchange rate	11.6	2.07	31.3	.995952
Inflation rate	11.1	-10.8	55.2	3.87163
Lending rate	11.7	6.8	15.5	.341293
Saving deposit rate	5.4	3	10	.168088
Private sector investment	5646767	-1261743	-349819923	518446
Trade balance	-8803498	-3.5	-1138210	.19008

Source: Model Result

4.2. Econometrics Model Results

4.2.1. Unit root test

Most macroeconomic time serious data are trended and unit root (non-stationary). Non-stationary Macro variables are not efficient; it would lead to the problem of spurious regression. Which means that there is no sense among the variables. Therefore, before customizing the data it is better to estimate VECM, checking whether the data is stationary or not and changing to stationary by differencing method.

Summary of Order of Integration

Table 3: Summary of Order of Integration

Variables	Order of integration
GDP	I(1)
LR	I(1)
EXR	I(1)
SDR	I(1)
PSI	I(1)
TB	I(1)
INR	I(1)

Table 4: OLS results

Dependent Variable: REAL_GDP
Method: Least Squares
Date: 06/05/21 Time: 03:45
Sample: 1989 2020
Included observations: 32

Variable	Coefficient	Std. Error	t-Statistic	Prob.
EXCHANGE_RATE	28578.64	5130.778	5.570041	0.0000
INFLECTION_RATE	1279.849	710.3266	1.801776	0.0837
LENDING_RATE	742.5254	7829.358	0.094839	0.9252
MINIMUM_DEPOSITE_RATE	-9151.265	7144.145	-1.280946	0.2120
PRIVATE_SECTOR_INVESTMENT	0.004112	0.002092	1.965354	0.0606
TRADE_BALANCE	-0.002513	0.000301	-8.339970	0.0000
C	176278.1	53115.48	3.318771	0.0028

R-squared	0.993310	Mean dependent var	725426.2
Adjusted R-squared	0.991705	S.D. dependent var	539301.4
S.E. of regression	49118.33	Akaike info criterion	24.63249
Sum squared resid	6.03E+10	Schwarz criterion	24.95312
Log likelihood	-387.1199	Hannan-Quinn criter.	24.73877
F-statistic	618.6875	Durbin-Watson stat	1.622428
Prob(F-statistic)	0.000000		

Source: own estimation: - T-statistics are stated in parenthesis and *, **, ***means significant at 10%,5%, 1% significance level respectively

From the above table the model can be mathematically expressed as:

logGDPt = B0 + B1logLRt + B2logEXRt + B3log INRt + B4logPSIt + B5log SDRt+B6logTBt + e

GDP = +176278.1+742.5254LR + 28578.64***EXR + 1279.84*INR +0.004112*PSI-9151.265SDR- 0.002513***TB+e

From the above OLS results, it could be inferred that the constant parameter is positively or directly related to GDP. The coefficient of the constant parameter (B0) is +176278.1. This implies that if all the independent variables are held constant, GDP which is the explained variable will increase by 176278.1units.

Lending rate: The coefficient of lending rate is 742.5254. This implies that in the short run, lending rate (LR) is directly related to GDP. A unit increase in LR means that GDP will increase by 742.5254units.

Exchange rate: the coefficient of exchange rate (EXR) is 28578.64 and this implies that a direct relationship exists between GDP and EXR in the short run. The short run equilibrium relationship existing between GDP. The relationship shows that a unit increase in EXR will cause GDP to rise by 28578.64 units.

Inflation rate: The coefficient of INF is 1279.849. This means that a positive relationship subsists between GDP and INF. GDP will increase by 1279.849 units if the inflation rate increases by a unit.

Private sector investment: the coefficient of PSI is 0.004112. This means that a positive relationship between GDP and PSI. When private sector investment increases by one unit, of the country total output will increase by 0.004112 unit.

4.3. Unit Root Test Time series

Data are often assumed to be non-stationary and thus, it is necessary to perform unit root test to ensure that there is stationary of data. The test would be employed to avoid the problem of spurious regression. In conducting this test, the Augmented Dickey-Fuller (ADF) unit root test would be employed to determine the stationary of data. The decision rule is that Augmented Dickey-Fuller (ADF) test statistics must be greater than Mackinnon Critical Value at 5% and at absolute term i.e. ignoring the negativity of both the ADF test statistics and Mackinnon critical value, before the variable can be adjudged to be stationary, otherwise we accept the null hypothesis (H0) i.e. data is non-stationary and reject the alternative hypothesis (H1) i.e. data is stationary.

From own result except private investment and trade balance all variables were non stationary at level. To ensure the stationary of data for variables found to be non-stationary at level, there were need to proceed to test for stationary at first difference and intercept specially for trade balance and trend intercept for real GDP

Table 5: Result of ADF Unit Root Test at First and Second Difference

VARIABLES	ADF TEST STATISTICS VALUE	MACKINNON CRITICAL VALUE AT 5%	DECISION RULE		REMARKS
			H_0	H_1	
GDP	4.426732	3.64732	Reject	Accept	Stationary
LR	4.774585	3.04574	Reject	Accept	Stationary
EXR	6.061140	3.57424	Reject	Accept	Stationary
INR	8.42596	3.57424	Reject	Accept	Stationary
SDR	5.06114	2.96392	Reject	Accept	Stationary
PSI	3.38024	2.90411	Reject	Accept	Stationary
TB	3.18352	2.99187	Reject	Accept	Stationary

From the table 4, it could be revealed that the variables (EXR, LR, , INF,PSI and SDR) were stationary at first difference. This is because their respective ADF test statistics value is greater than Mackinnon critical value at 5% and at absolute term. The other variables TB and GDP were stationary at first difference only intercept and trend with intercept respectively.

4.3.1. Vector error correction diagnostic test

ARDL Model result

Dependent Variable: REAL GDP
Method: ARDL
Date: 07/04/21 Time: 13:26
Sample (adjusted): 1990 2020
Included observations: 31 after adjustments
Dependent lags: 1 (Fixed)
Dynamic regressors (1 lag, fixed): TRADE BALANCE PRIVATE SECTOR I
NVESTMENT MINIMUM_DEPOSITE_RATE LENDING_RATE
INFLECTION RATE EXCHANGE RATE
Fixed regressors: C

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
REAL GDP(-1)	1.098595	0.168249	6.529567	0.0000
TRADE_BALANCE	-0.000199	0.000316	-0.632018	0.5358
TRADE BALANCE(-1)	0.000268	0.000365	0.733315	0.4734
PRIVATE SECTOR INVESTMENT	0.000792	0.001266	0.625152	0.5402
PRIVATE SECTOR INVESTMENT(-1)	0.001109	0.001117	0.992819	0.3347
MINIMUM DEPOSITE RATE	3332.040	6592.844	0.505402	0.6198
MINIMUM DEPOSITE RATE(-1)	-6970.069	6370.325	-1.094147	0.2892
LENDING RATE	1810.466	5044.265	0.358916	0.7241
LENDING_RATE(-1)	2013.491	5493.411	0.366528	0.7185
INFLECTION RATE	-122.0079	386.4756	-0.315694	0.7561
INFLECTION RATE(-1)	-51.82374	383.9331	-0.134981	0.8942
EXCHANGE RATE	-3835.146	8709.171	-0.440357	0.6652
EXCHANGE RATE(-1)	3275.003	7006.867	0.467399	0.6461
C	-32641.45	46637.73	-0.699894	0.4935

R-squared	0.999037	Mean dependent var	741092.2
Adjusted R-squared	0.998301	S.D. dependent var	540763.8
S.E. of regression	22292.49	Akaike info criterion	23.16434
Sum squared resid	8.45E+09	Schwarz criterion	23.81195
Log likelihood	-345.0473	Hannan-Quinn criter.	23.37544
F-statistic	1356.618	Durbin-Watson stat	2.405312
Prob(F-statistic)	0.000000		

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

ARDL Long Run Form and Bounds Test
Dependent Variable: D(REAL_GDP)
Selected Model: ARDL(1, 1, 1, 1, 1, 1, 1)
Case 3: Unrestricted Constant and No Trend
Date: 07/04/21 Time: 13:29
Sample: 1989 2020
Included observations: 31

Conditional Error Correction Regression

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-32641.45	46637.73	-0.699894	0.4935
REAL_GDP(-1)*	0.098595	0.168249	0.586004	0.5656
TRADE_BALANCE(-1)	6.85E-05	0.000447	0.153273	0.8800
PRIVATE_SECTOR_IN...	0.001900	0.001760	1.079692	0.2954
MINIMUM_DEPOSITE_...	-3638.029	4525.701	-0.803860	0.4326
LENDING_RATE(-1)	3823.957	4820.207	0.793318	0.4385
INFLECTION_RATE(-1)	-173.8316	633.8908	-0.274230	0.7872
EXCHANGE_RATE(-1)	-560.1423	5110.747	-0.109601	0.9140
D(TRADE_BALANCE)	-0.000199	0.000316	-0.632018	0.5358
D(PRIVATE_SECTOR_I...	0.000792	0.001266	0.625152	0.5402
D(MINIMUM_DEPOSITE...	3332.040	6592.844	0.505402	0.6198
D(LENDING_RATE)	1810.466	5044.265	0.358916	0.7241
D(INFLECTION_RATE)	-122.0079	386.4756	-0.315694	0.7561
D(EXCHANGE_RATE)	-3835.146	8709.171	-0.440357	0.6652

* p-value incompatible with t-Bounds distribution.

Levels Equation
Case 3: Unrestricted Constant and No Trend

Variable	Coefficient	Std. Error	t-Statistic	Prob.
TRADE_BALANCE	-0.000694	0.003463	-0.200529	0.8434
PRIVATE_SECTOR_IN...	-0.019275	0.043427	-0.443841	0.6628
MINIMUM_DEPOSITE_...	36898.85	89863.64	0.410609	0.6865
LENDING_RATE	-38784.63	80740.04	-0.480364	0.6371
INFLECTION_RATE	1763.094	5512.703	0.319824	0.7530
EXCHANGE_RATE	5681.264	44286.68	0.128284	0.8994

EC = REAL_GDP - (-0.0007*TRADE_BALANCE -0.0193*PRIVATE_SECTOR_I
NVESTMENT + 36898.8453*MINIMUM_DEPOSITE_RATE -38784.6317
*LENDING_RATE + 1763.0936*INFLECTION_RATE + 5681.2641
*EXCHANGE_RATE)

F-Bounds Test — Null Hypothesis: No levels relationship

Test Statistic	Value	Signif.	I(0)	I(1)
		Asymptotic: n=1000		
F-statistic	7.599153	10%	2.12	3.23
k	6	5%	2.45	3.61
		2.5%	2.75	3.99
		1%	3.15	4.43
Actual Sample Size	31		Finite Sample: n=35	
		10%	2.387	3.671
		5%	2.864	4.324
		1%	4.016	5.797
			Finite Sample: n=30	
		10%	2.457	3.797
		5%	2.97	4.499
		1%	4.27	6.211

t-Bounds Test — Null Hypothesis: No levels relationship

The absolute value of t-statistic is higher than I(1)series, we can reject the null hypothesis and no co-integration. If t-statistics lower than I(0),the null hypothesis of co-integration cannot be rejected. On the other side, if F-statistics greater than p-value on the upper bound there is long run. Therefore, we can use error correction mechanism (ECM).

EC=RGDP-(-0.007*TB)-0.0193*PSI+36898.845*SDR-
38784.6317*LR+176.O93*INR+5681.2641*EXR

From the equation above, all determinants were significant at 10% and they have a long run causal effect on economic growth in Ethiopia.

R 2 = 0.999037

Note: * denotes that the coefficients are significant at 95% confidence level

Source: Author's Computation.

From the table above, it shows that the coefficient of ECM is -0.146287. The ECM is significant with the appropriate negative sign. The coefficient of ECM in the parsimonious model indicates that the speed of adjustment of any past deviation to long run equilibrium is 1.6%. This shows that present value of the dependent variable adjust more slowly to changes in the independent variables than what was obtained in the over-parameterized model. The result of the parsimonious model also reveals that all variables except INF and the lagged value of SDR are significant. Their significance was determined taking into consideration their probability value. The corresponding probability value of each variable must be less than 10%. It can be concluded that changes affecting GDP are determined by LR, EXR, INR,TB, in the short run and LR and SDR in the long run. The table reveals that the coefficient of EXR, SDR and INR is negative while the coefficients of LR, PSI and TB are positive. From the results, it could be deduced that LR has a direct relationship with GDP because of the positively signed coefficient .This implies that a unit increase in LR will lead to increase in GDP. Also, the coefficient of EXR is negative suggests that a negative relationship subsists between EXR and GDP. The implication of a unit change in EXR is that GDP will consequently increase by that amount. The results also indicate that INF and GDP are negatively related.. A unit decrease in INF will only cause GDP to down. However, INR,EXR and SDR are negatively related.

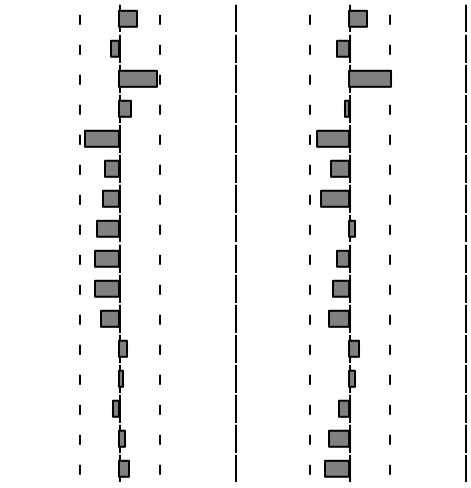
The coefficient of multiple determination (R2) is 0.999≈ 0.999 which indicates that 99.9% of total variations or changes in the present value of GDP is explained by changes of past value in the explanatory variables (LR,EXR,INF,SDR, and TB) while the remaining 0.1% is explained by other variation outside the model i.e. the error term.

4.3.1.1. Autocorrelation test

Autocorrelation is checked by Durbin-Watson statistics test. The autocorrelation verification criteria is the probability values of the variable at each lag is more than 5%. It means it should be insignificant. In this study, the variables show autocorrelation problem. However, it was removed the autocorrelation problem by using Bruesch-Goldfrey serial autocorrelation LM test. After removed the autocorrelation problem, the result of probability value is transformed to 2.23. Therefore, it satisfies the conditions of the autocorrelation test.

Figure 3. Autocorrelation Test Result

Date: 06/05/21 Time: 03:52
Sample: 1989 2020
Included observations: 32

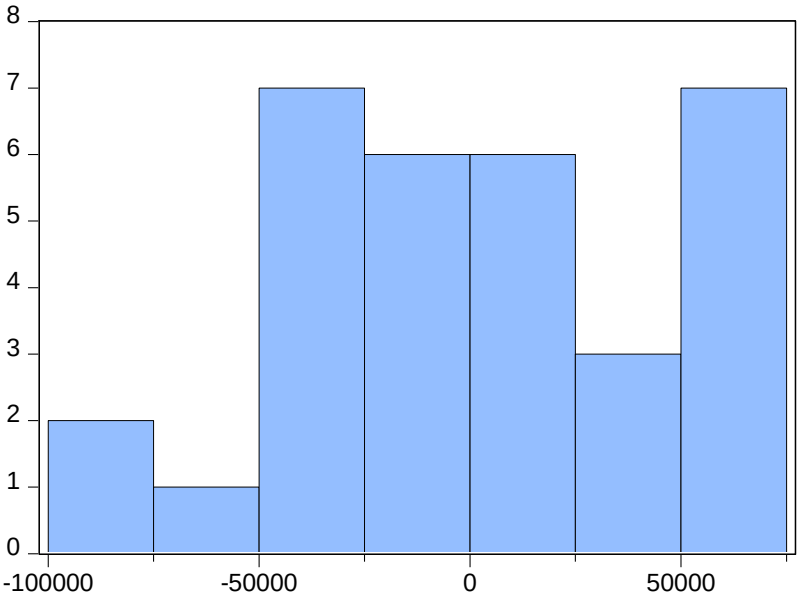


Autocorrelation	Partial Correlation		AC	PAC	Q-Stat	Prob
		1	0.159	0.159	0.8866	0.346
		2	-0.074	-0.102	1.0869	0.581
		3	0.337	0.380	5.3488	0.148
		4	0.111	-0.041	5.8301	0.212
		5	-0.306	-0.288	9.6150	0.087
		6	-0.134	-0.167	10.362	0.110
		7	-0.153	-0.257	11.374	0.123
		8	-0.191	0.062	13.034	0.111
		9	-0.208	-0.099	15.075	0.089
		10	-0.212	-0.146	17.290	0.068
		11	-0.158	-0.175	18.586	0.069
		12	0.078	0.090	18.919	0.090
		13	0.028	0.064	18.963	0.124
		14	-0.063	-0.084	19.201	0.157
		15	0.057	-0.181	19.408	0.196
		16	0.098	-0.206	20.060	0.218

4.3.1.2. Normality distributed disturbance test

Normality distributed disturbance test is checked by Jarque-Bera test. A verification criterion of normality distributed disturbance test is the probability values of most variables are insignificant (more than 5%). In this test, inflation rate "private sector investment and trade balance significant. Other remaining variables are insignificant. Therefore, the test result indicates that residuals are normally distributed.

Figure 4. Normality test result



Series: Residuals	
Sample 1989 2020	
Observations 32	
Mean	-3.59e-11
Median	-1820.519
Maximum	67395.98
Minimum	-91893.49
Std. Dev.	44109.56
Skewness	-0.126436
Kurtosis	2.161697
Jarque-Bera	1.022262
Probability	0.599817

Major Findings of the Study

From the above descriptive and OLS analysis indicated above, the major findings of this study are:

- Trade Balance, lending rate and private sector investment have positively affect the Ethiopian Economic Growth
- Exchange rate, Inflation Rate and saving deposit rate have negative effect on the economic growth of Ethiopia
- Saving deposit rate and Lending rate has no significant effect on the economic growth of Ethiopia

CHAPTER FIVE: CONCLUSION AND RECOMMENDATIONS

5.1. Conclusion

The present study examines factors potentially explaining the economic growth of Ethiopia using annual time series observations for the period running from 1989 to 2020. Individual variables were all subjected to both the TADF and PP unit root tests; and that, the existence of mixed order of integration has been confirmed with both approaches. For Cointegration issues, the ARDL approach was employed and the existence of long run relationship among variables entered the growth model has been confirmed too. Besides, none of the diagnostic tests was revealed invalid thereby ensuring the relevance of inferences made based on the ARDL estimates The unit root test was carried out to establish that the time series data on all the variables are stationary, significant, normally distributed, the fitness of the model, autocorrelation of the variables with respective graph and unit root test.

The main finding emerging from this study indicates that determinants of economic growth; hence, it justifies the assertion of Mckinnon (1973) and Shaw (1973) on financial liberalization.

It can be concluded that financial liberalization and banking sector development are prominent features in economic growth of Ethiopia.

The degree of openness or trade dependency ratio is an important aspect of globalization which shows that the trade relation of Ethiopia with the rest of world has contributed significantly towards economic growth.

Further, from the descriptive analysis; In Ethiopia between 1998 and 2020 the maximum exchange rate was registered in the year 2020 and the minimum it recorded in 1989. Within these 32 years the average exchange rate was 11.6 million per year. On average In Ethiopia exchange rate generate birr 11.6 billion profit per year; within these 32 years the inflation rate was recorded maximum profit of birr 55.2 billion and minimum of -10.8 million, it records in 2008 and 2000 respectively. The Ethiopian banking sector invests for private sector investment birr 567 million in average per year from 1989 to 2020. In Ethiopia between 1998 and 2020 the maximum exchange rate was 31.3 birr billion which was registered in the year 2020 and the minimum was birr 2.07 million it recorded in 1989. Within these 32 years the average exchange rate was 11.6 million per year. On average In Ethiopia exchange rate generate birr 11.6 billion profit per year; within these 32 years the inflation rate was recorded maximum profit of birr 55.2 billion and minimum of -10.8 million, it records in 2008 and 2000 respectively. The Ethiopian

banking sector invest for private sector investment birr 567 million in average per year from 1989 to 2020

5.2. Recommendations

Based on the objective and the study, the researcher has recommended the following points.

1. Strong macroeconomic policies should be pursued to maintain and stabilize the economy.
2. The policy towards interest rate should be made such that savings would be stimulated thereby placing more funds in the hands of banks to intermediate to investors seeking funds. Also, lending rate should be reasonable so as not to determine investors to borrow for investment projects.
3. Since Saving deposit rate and Lending rate has no significant effect on the economic growth of Ethiopia the government should try to accelerate the banking sector.

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APPENDEX

APPENDIX A: VARIANCE INFLATION FACTOR

Variance Inflation Factors
Date: 06/05/21 Time: 03:56
Sample: 1989 2020
Included observations: 32

Variable	Coefficient Variance	Uncentered VIF	Centered VIF
EXCHANGE_RATE	26324883	68.55369	21.62626
INFLECTION_RATE	504563.8	2.068313	1.247514
LENDING_RATE	61298840	116.1243	4.317558
MINIMUM_DEPOSIT...	51038805	22.86857	3.082683
PRIVATE_SECTOR_...	4.38E-06	3.564735	1.713138
TRADE_BALANCE	9.08E-08	25.92887	16.59793
C	2.82E+09	37.42011	NA

APPENDIX B: DESCRIPTIVE STATISTICS

	REAL GDP	EXCHANGE...	INFLECTIO...	LENDING ...	MINIMUM D...	PRIVATE S...	TRADE BA...
Mean	725426.2	11.59308	11.07462	11.72672	5.406250	5646767.	-88034980
Median	463783.6	8.635750	8.412968	11.88000	5.000000	3533201.	-20610071
Maximum	1989519.	31.34270	55.24131	15.50000	10.00000	25876332	-1138210.
Minimum	237017.9	2.070000	-10.77339	6.800000	3.000000	4200.000	-3.50E+08
Std. Dev.	539301.4	7.995952	13.87163	2.341293	2.168088	5518446.	1.19E+08
Skewness	1.011102	0.882682	1.470130	-0.759888	0.968820	1.711537	-1.195219
Kurtosis	2.721014	2.829463	5.552933	3.272906	3.068724	6.707929	2.834583
Jarque-Bera	5.556193	4.194120	20.21679	3.178929	5.012226	33.95490	7.655407
Probability	0.062157	0.122817	0.000041	0.204035	0.081585	0.000000	0.021760
Sum	23213639	370.9785	354.3878	375.2550	173.0000	1.81E+08	-2.82E+09
Sum Sq. Dev.	9.02E+12	1981.993	5965.082	169.9312	145.7188	9.44E+14	4.41E+17
Observations	32	32	32	32	32	32	32

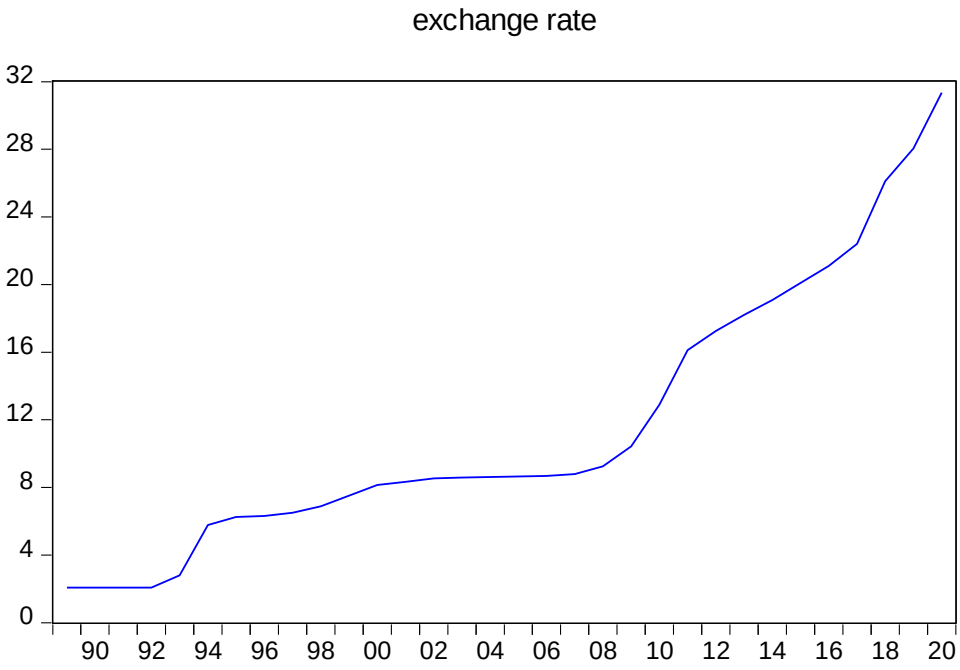
APPENDIX C: EXCHANGE RATE

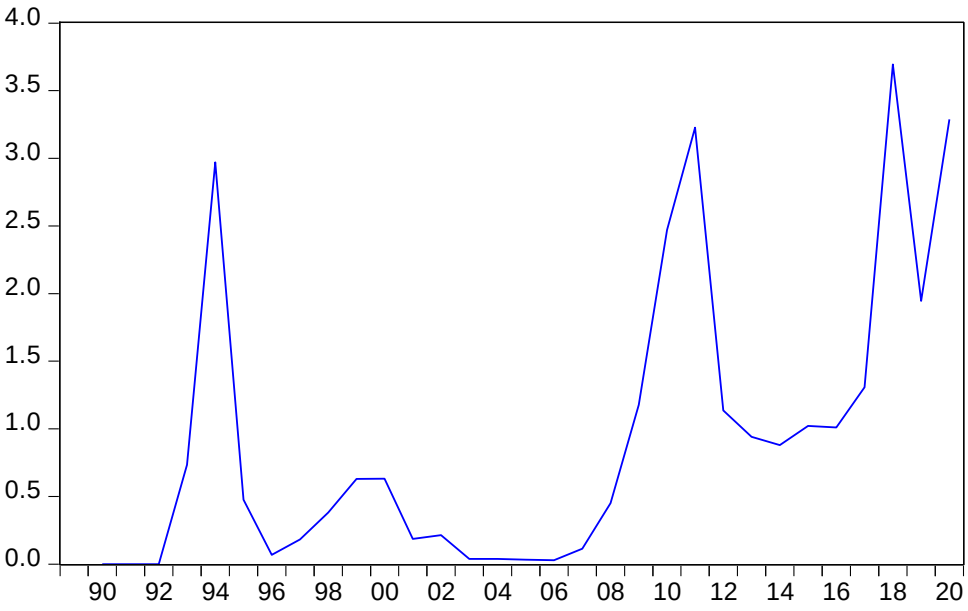
Null Hypothesis: EXCHANGE RATE has a unit root
Exogenous: Constant
Lag Length: 1 (Automatic - based on AIC, maxlag=7)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		1.928597	0.9997
Test critical values:	1% level	-3.670170	
	5% level	-2.963972	
	10% level	-2.621007	

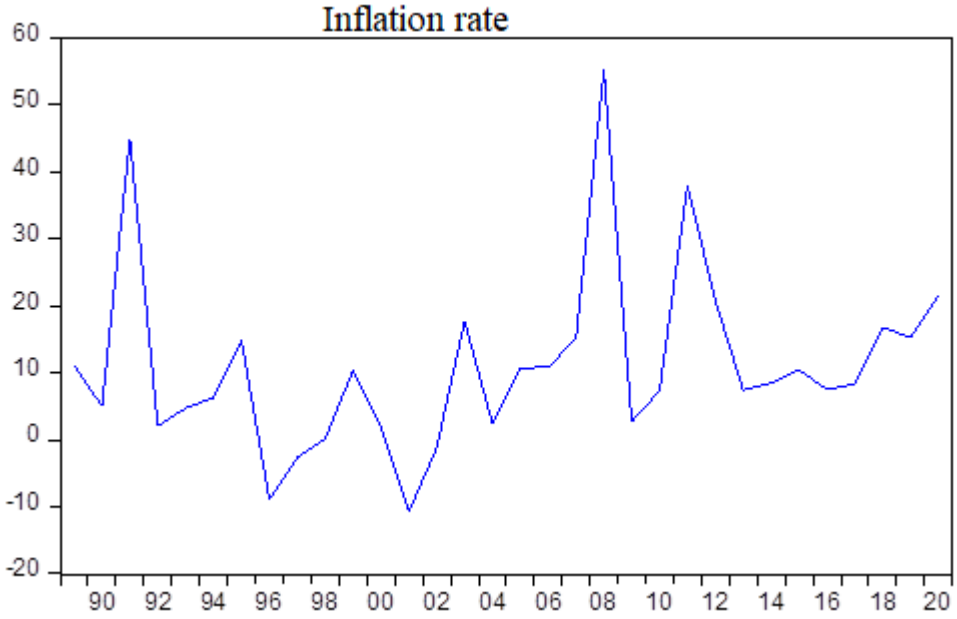
Null Hypothesis: D(EXCHANGE_RATE,2) has a unit root
Exogenous: Constant, Linear Trend
Lag Length: 0 (Automatic - based on AIC, maxlag=7)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-6.634217	0.0000
Test critical values:	1% level	-4.309824	
	5% level	-3.574244	
	10% level	-3.221728	



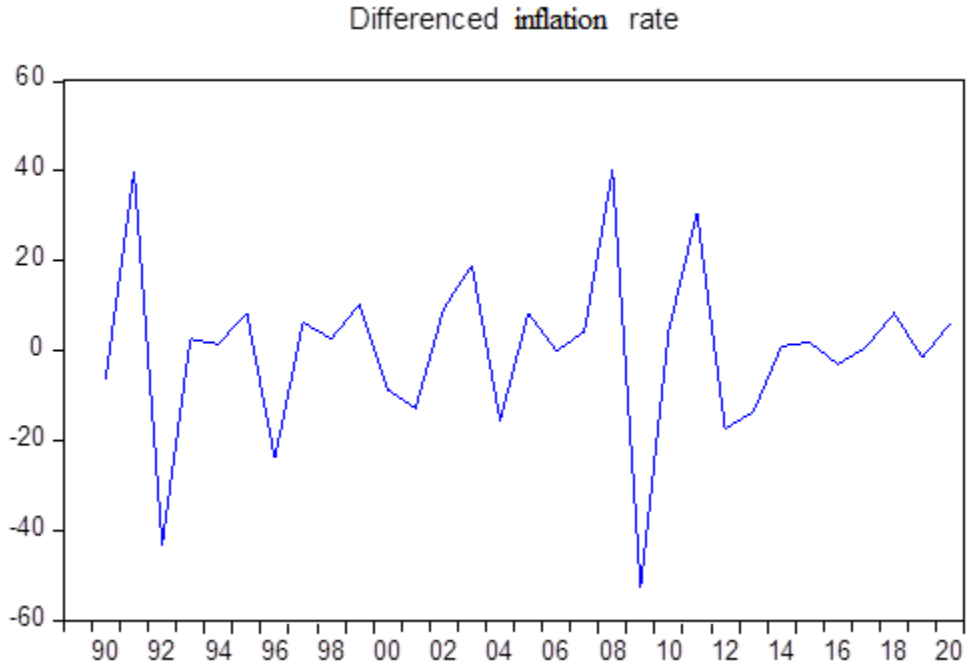


APPENDIX D: INFLATION RATE



Null Hypothesis: D(INFLECTION RATE) has a unit root
Exogenous: Constant, Linear Trend
Lag Length: 1 (Automatic - based on AIC, maxlag=7)

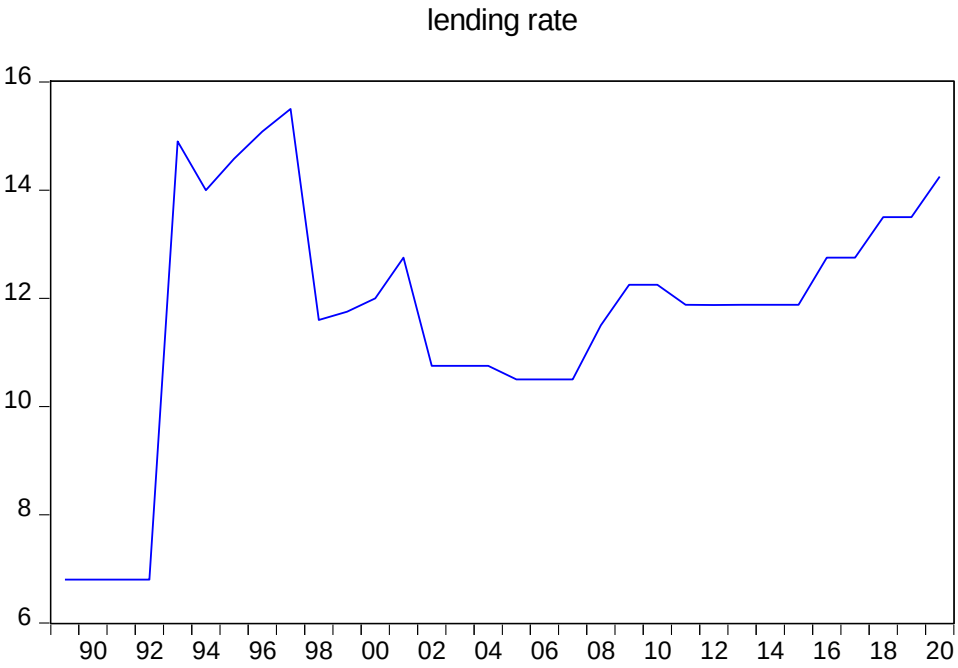
		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-8.425962	0.0000
Test critical values:	1% level	-4.309824	
	5% level	-3.574244	
	10% level	-3.221728	

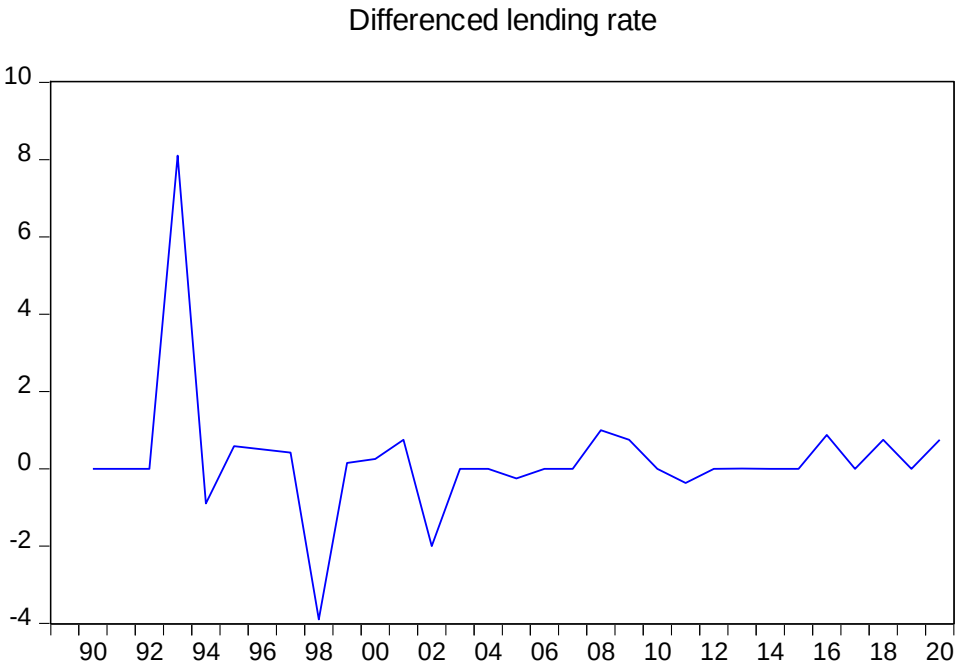


APPENDIX E: LENDING RATE

Null Hypothesis: D(LENDING_RATE) has a unit root
Exogenous: Constant, Linear Trend
Lag Length: 4 (Automatic - based on AIC, maxlag=7)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-4.774585	0.0039
Test critical values:	1% level	-4.356068	
	5% level	-3.595026	
	10% level	-3.233456	

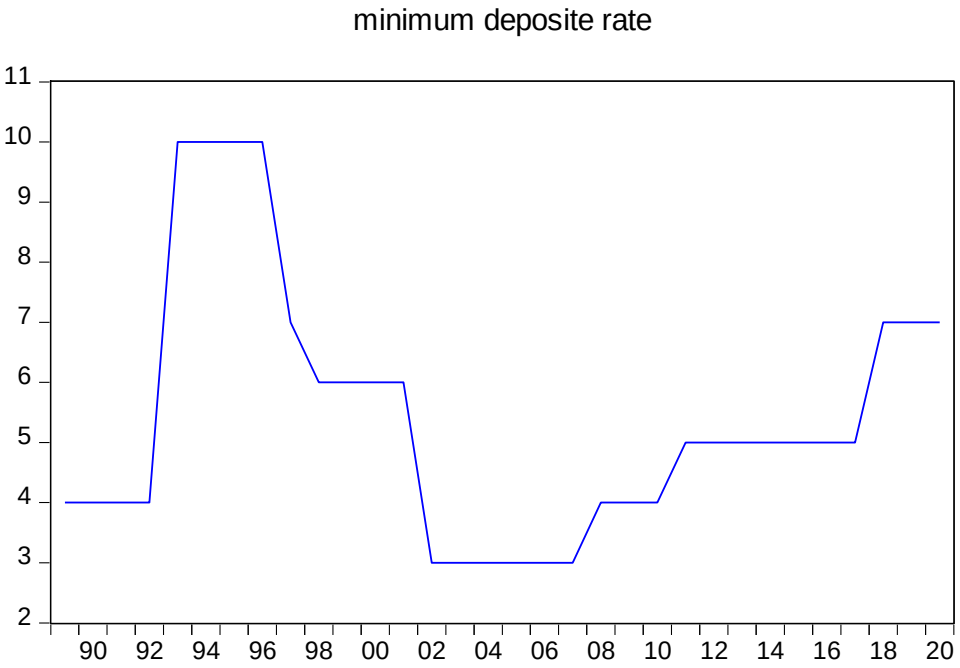


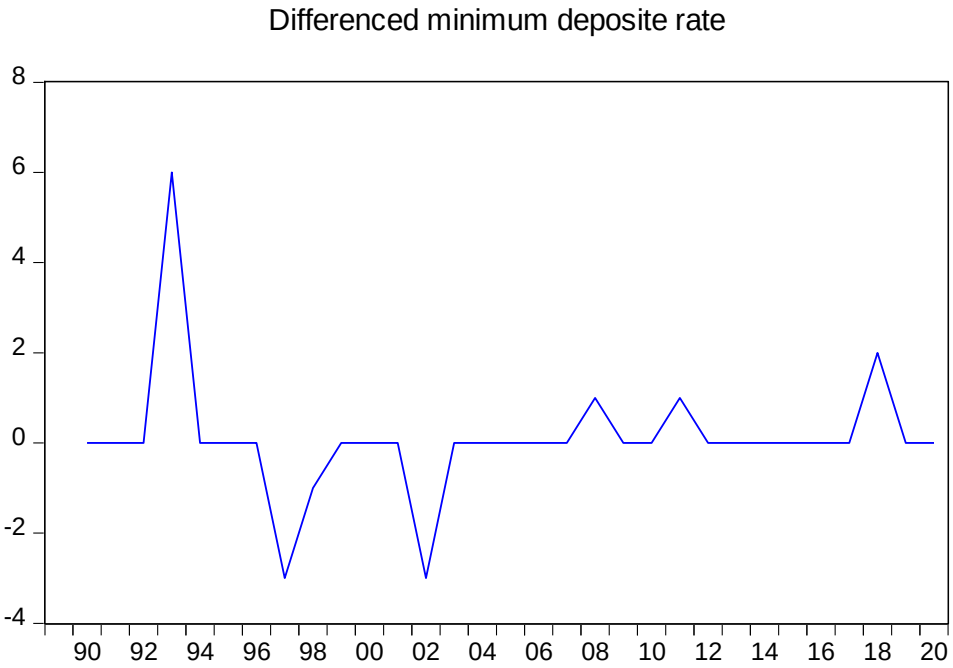


APPENDIX F: MINIMUM DEPOSIT RATE

Null Hypothesis: D(MINIMUM_DEPOSITE_RATE) has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on AIC, maxlag=7)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-5.061140	0.0003
Test critical values:	1% level	-3.670170	
	5% level	-2.963972	
	10% level	-2.621007	

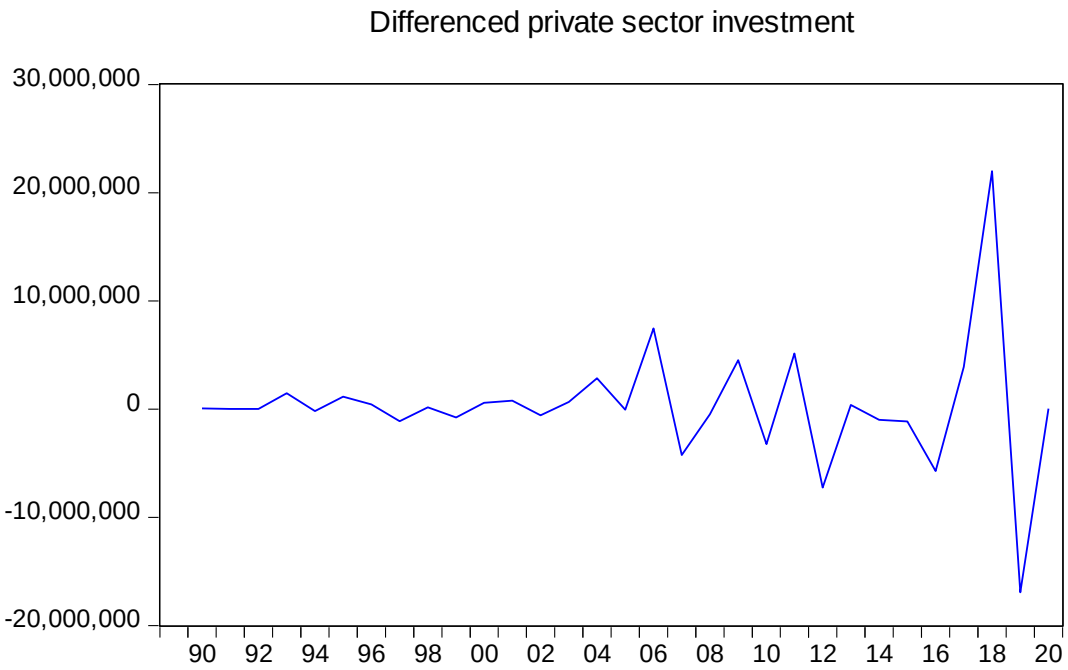




APPENDIX G: PRIVATE SECTOR INVESTMENT

Null Hypothesis: PRIVATE_SECTOR_INVESTMENT has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on AIC, maxlag=7)

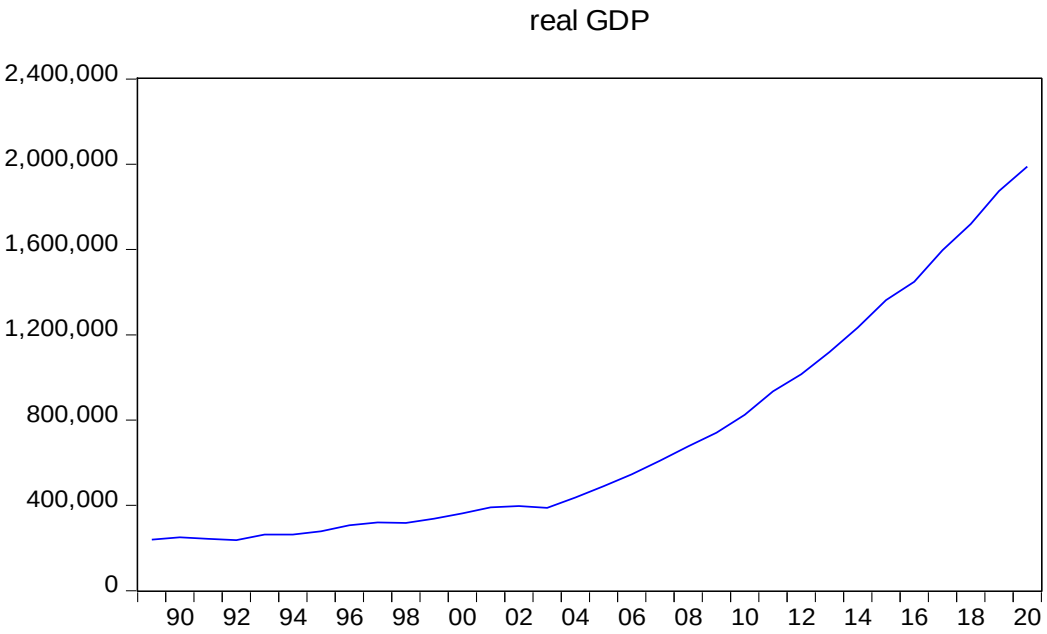
		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-3.380248	0.0196
Test critical values:	1% level	-3.661661	
	5% level	-2.960411	
	10% level	-2.619160	

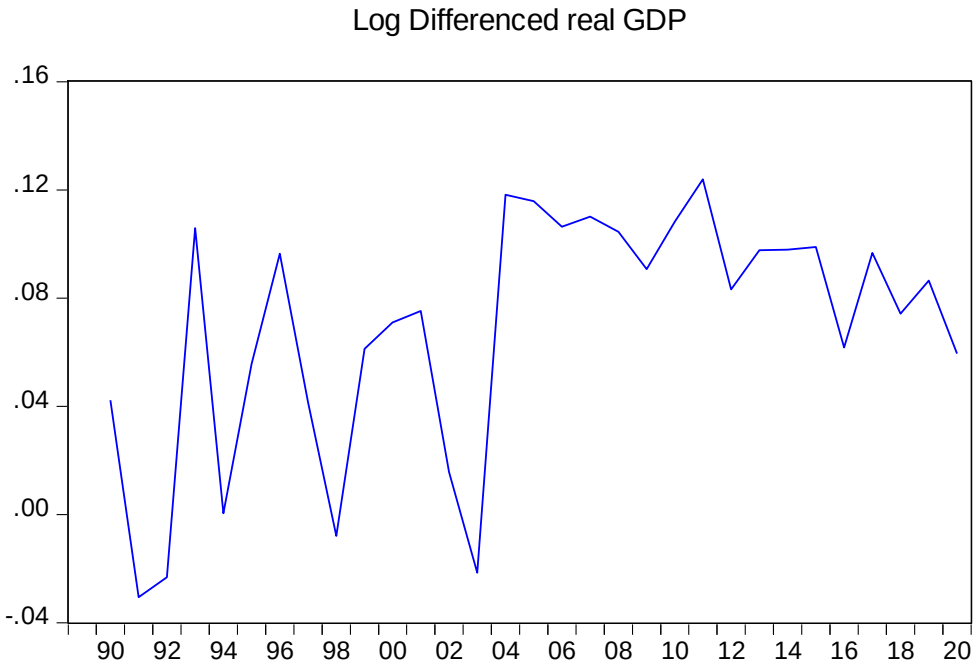


APPENDIX H: REAL GDP

Null Hypothesis: D(REAL_GDP) has a unit root
Exogenous: Constant, Linear Trend
Lag Length: 0 (Automatic - based on AIC, maxlag=7)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-4.663484	0.0042
Test critical values:	1% level	-4.296729	
	5% level	-3.568379	
	10% level	-3.218382	



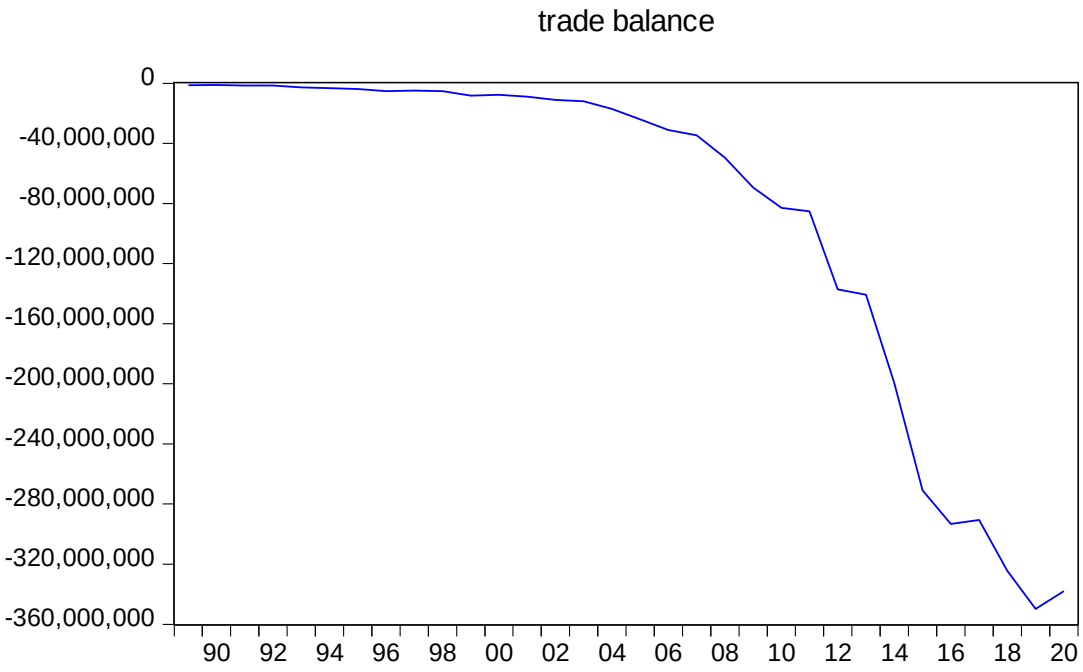


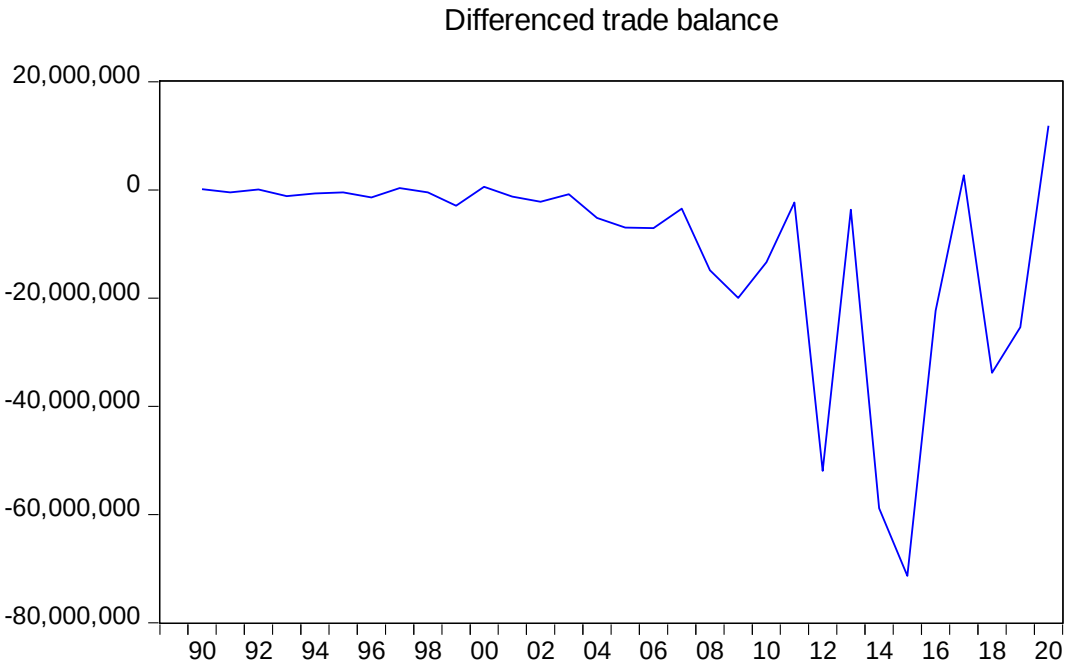
APPENDIX I: TRADE BALANCE

Null Hypothesis: TRADE_BALANCE has a unit root
Exogenous: Constant
Lag Length: 7 (Automatic - based on AIC, maxlag=7)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-3.183523	0.0337
Test critical values:	1% level	-3.737853	
	5% level	-2.991878	
	10% level	-2.635542	

*MacKinnon (1996) one-sided p-values.


trade balance
0
-40,000,000
-80,000,000
-120,000,000
-160,000,000
-200,000,000
-240,000,000
-280,000,000
-320,000,000
-360,000,000
90 92 94 96 98 00 02 04 06 08 10 12 14 16 18 20


Differenced trade balance
20,000,000
0
-20,000,000
-40,000,000
-60,000,000
-80,000,000
90 92 94 96 98 00 02 04 06 08 10 12 14 16 18 20

APPENDIX J: CORRELATION

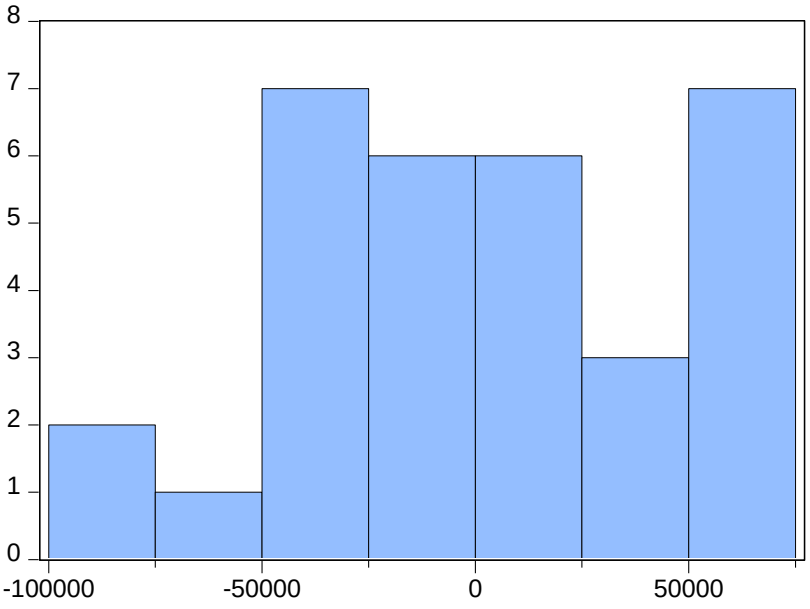
Breusch-Godfrey Serial Correlation LM Test:

F-statistic	0.579820	Prob. F(2,23)	0.5680
Obs*R-squared	1.535970	Prob. Chi-Square(2)	0.4639

Date: 06/05/21 Time: 03:52
Sample: 1989 2020
Included observations: 32

Autocorrelation	Partial Correlation		AC	PAC	Q-Stat	Prob
		1	0.159	0.159	0.8866	0.346
		2	-0.074	-0.102	1.0869	0.581
		3	0.337	0.380	5.3488	0.148
		4	0.111	-0.041	5.8301	0.212
		5	-0.306	-0.288	9.6150	0.087
		6	-0.134	-0.167	10.362	0.110
		7	-0.153	-0.257	11.374	0.123
		8	-0.191	0.062	13.034	0.111
		9	-0.208	-0.099	15.075	0.089
		10	-0.212	-0.146	17.290	0.068
		11	-0.158	-0.175	18.586	0.069
		12	0.078	0.090	18.919	0.090
		13	0.028	0.064	18.963	0.124
		14	-0.063	-0.084	19.201	0.157
		15	0.057	-0.181	19.408	0.196
		16	0.098	-0.206	20.060	0.218

APPENDIX K: NORMALITY



Series: Residuals
Sample 1989 2020
Observations 32

Mean	-3.59e-11
Median	-1820.519
Maximum	67395.98
Minimum	-91893.49
Std. Dev.	44109.56
Skewness	-0.126436
Kurtosis	2.161697
Jarque-Bera	1.022262
Probability	0.599817

APPENDIX L: REAL GDP

Dependent Variable: REAL_GDP
Method: Least Squares
Date: 06/05/21 Time: 03:45
Sample: 1989 2020
Included observations: 32

Variable	Coefficient	Std. Error	t-Statistic	Prob.
EXCHANGE_RATE	28578.64	5130.778	5.570041	0.0000
INFLECTION_RATE	1279.849	710.3266	1.801776	0.0837
LENDING_RATE	742.5254	7829.358	0.094839	0.9252
MINIMUM_DEPOSITE_RATE	-9151.265	7144.145	-1.280946	0.2120
PRIVATE_SECTOR_INVESTMENT	0.004112	0.002092	1.965354	0.0606
TRADE_BALANCE	-0.002513	0.000301	-8.339970	0.0000
C	176278.1	53115.48	3.318771	0.0028

R-squared	0.993310	Mean dependent var	725426.2
Adjusted R-squared	0.991705	S.D. dependent var	539301.4
S.E. of regression	49118.33	Akaike info criterion	24.63249
Sum squared resid	6.03E+10	Schwarz criterion	24.95312
Log likelihood	-387.1199	Hannan-Quinn criter.	24.73877
F-statistic	618.6875	Durbin-Watson stat	1.622428
Prob(F-statistic)	0.000000		

Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	1.764950	Prob. F(6,25)	0.1475
Obs*R-squared	9.521585	Prob. Chi-Square(6)	0.1463
Scaled explained SS	3.375608	Prob. Chi-Square(6)	0.7604

APPENDIX N: SUMMARY DATA

year	minimum deposite rate	inflection rate	exchange rate	trade balance	lending rate	private sector investment	real GDP
1989	4	11.1	2.07	-1,261,743	6.8	232,481.30	239780.1
1990	4	5.0	2.07	-1,138,210	6.8	298,432.80	250115.3
1991	4	45.0	2.07	-1,593,643	6.8	313,456.60	242576.3
1992	4	2.1	2.07	-1,510,630	6.8	323,840.80	237017.9
1993	10	4.7	2.8048	-2,686,305	14.9	1,780,649.19	263487.7
1994	10	6.3	5.7744	-3,335,794	14	1,592,031.05	263617.5
1995	10	14.8	6.2505	-3,809,041	14.58	2,742,707.46	278689.1
1996	10	-9.0	6.3178	-5,208,731	15.08	3,169,497.60	306885.2
1997	7	-2.7	6.5007	-4,869,801	15.5	2,049,396.04	319876.6
1998	6	0.1	6.8817	-5,319,172	11.6	2,217,913.32	317364.0
1999	6	10.4	7.5111	-8,264,744	11.75	1,446,217.50	337389.0
2000	6	1.9	8.1426	-7,683,789	12	2,027,255.39	362220.8
2001	6	-10.8	8.3279	-8,935,030	12.75	2,796,107.44	390508.1
2002	3	-1.2	8.5425	-11,111,981	10.75	2,210,216.87	396681.5
2003	3	17.8	8.5809	-11,930,139	10.75	2,859,943.63	388246.7
2004	3	2.4	8.6197	-17,117,225	10.75	5,711,088.76	436967.1
2005	3	10.7	8.6518	-24,102,916	10.5	5,661,486.13	490600.0
2006	3	10.8	8.6810	-31,187,699	10.5	13,105,185.67	545667.1
2007	3	15.1	8.7943	-34,668,823	10.5	8,844,272.30	609204.5
2008	4	55.2	9.2441	-49,502,970	11.5	8,356,132.00	676277.7
2009	4	2.7	10.4205	-69,459,440	12.25	12,867,580.10	740467.8
2010	4	7.3	12.8909	-82,840,966	12.25	9,626,274.15	825188.9
2011	5	38.0	16.1178	-85,167,797	11.88	14,752,456.28	934067.4
2012	5	20.8	17.2536	-137,092,371	11.88	7,498,437.39	1015089.7
2013	5	7.4	18.1947	-140,747,424	11.88	7,880,615.53	1119201.9
2014	5	8.5	19.0748	-199,594,359	11.88	6,884,362.42	1234276.5
2015	5	10.4	20.0956	-270,933,852	11.88	5,734,079.74	1362596.2
2016	5	7.5	21.1059	-293,288,103	12.75	4,200.00	1449397.5
2017	5	8.4	22.4137	-290,585,391	12.75	3,896,904.60	1596481.6
2018	7	16.8	26.1082	-324,402,473	13.50	25,876,331.88	1719491.4
2019	7	15.3	28.0543	-349,819,923	13.50	8,951,708.55	1874689.3
2020	7	21.5	31.3427	-337,948,871	14.25	8,985,287.68	1989519.0