



# **Determinants of Domestic Private Investment in Ethiopia**

**BY**

**YEMISRACH ARAYA**

**ID No. GSD \8729\11**

*A thesis submitted to: The Department of Accounting and Finance, College of Business and Economics Presented in Partial fulfillment of the requirements for the degree of Master of business Administration in Finance.*

**Adviser**

**Dr Takele Fufa**

**March, 2022**

**Addis Ababa Ethiopia**

# **Determinants of Domestic Private Investment in Ethiopia**

**BY**

**YEMISRACH ARAYA**

**ID No. GSD \8729\11**

*A thesis submitted to: The Department of Accounting and Finance, College of  
Business and Economics Presented in Partial fulfillment of the requirements for  
the degree of Master of business Administration in Finance.*

**Adviser**

**Dr Takele Fufa**

**March, 2022**

**Addis Ababa Ethiopia**

## **Statement of Declaration**

I Yemisrach Araya, have prepared independently a research work entitled "Determinants of Domestic Private Investment in Ethiopia." in partial fulfillment of the requirement of the M.B.A. In Finance distance program with the guidance and support of the research adviser. I do hereby declare that this paper is my original work and that it has not been submitted by any other person for an award of degree in this or any other university/institution.

**Submitted by:**

**Full Name-----Signature-----Date-----**

**Approved by:**

**This Thesis has been submitted for examination with my approval as adviser.**

**Name of Advisor-----Signature-----Date-----**

## **APPROVAL**

**The undersigned certify that they have read and hereby recommend to Addis Ababa University to accept the Thesis submitted by Yemisrach Araya entitled "Determinants of Domestic Private Investment in Ethiopia", in partial fulfillment of the requirements for the award of a Master's of Business administration in Finance.**

**Submitted by: Full Name-----Signature-----Date-----**

**Approved by: Name of Advisor-----Signature-----Date -----**

**Name of Internal Examiner-----Signature----- Date -----**

**Name of External Examiner-----Signature----- Date -----**

**Name of Head of Department-----Signature----- Date -----**

## **Acknowledgement**

First of all, my deepest gratitude goes to the son of Virgin Merry, Jesus Christie and his mother for showing me the road, sending to me the support persons and giving all the strength to make it this happen. This paper will not be possible without the huge effort that I had from different peoples especially Mr. Omar Mohammed, he has been there for me from the start to end of this MBA course, I firmly say that without him I couldn't achieve anything; then people working in the NBE ( Mr. Hussien Abdella), EIA (Mrs. Azalech Bekele and Mrs. Amelework Ayalew); and others institutions: CSA and ERCA, for providing the relevant data for my study.

Most importantly, I would like to thank my adviser Dr Takele Fufa for his prompt replay, unlimited support, suggestion encouragement and advice. I would like to extend my appreciation to his comments guided me to improve the quality of my work.

Finally, I am really thanks to my mother Mitiknesh Yemane for praying to me and recharging my energy, my sister Elisabeth Araya for unlimited moral and material support, My son Robel Amaha for encouraging and giving moral support throughout my study and the rest of the family members and friends, who have been giving me endless inspirational support especially those who asked me about the thesis process and achievements, your support was a lot to me and thanks to all.

## **Abstract**

*For the last couple of decades, there are several economic and political reforms has been done to increase the performance of private investment in Ethiopia; but the actual performance of private investment was very low. This paper conducted with the main objective of identifying the determinants of private investment in Ethiopia. A time series data has been used for the period of 1992-2020. The researcher has been applied Domestic Private Investment as dependent variable and; Exchange rate, Federal money reserve, Inflation rate, Interest rate, loan for private sector, and loan for public investment as independent variables. Augmented dickey Fuller test was utilized to conduct unit root test to all variables; the result has been some variables were stationary at level and the rests were at 1<sup>st</sup> difference. Thus the analysis is used ARDL model in order to check the relationship between variables. The ECM, bound test and long run result showed that in short run, the interest rate and Federal Reserve Money affect Domestic private investment positively, however exchange rate and loan for private investment affect negatively; Likewise long run positive relationship exist exchange rate, nominal gross domestic product and loan for private investment as well. This shows there should be an intervention made by the Ethiopian government and respective body together, on creating stable investment environment through encouraging production of domestic products, access to loan for private sector and controlling the factors that alter interest rate and exchange rate; furthermore the government should retain Federal reserve money to increase financial resources as of to increase the performance of domestic private investment in the country. Finally, the policy makers should conduct detail investigation, and extensive studies on exchange rate, interest rate and proper utilization of loan issues.*

**Key words:** ARDL model, ECM, Determinants, Domestic Private Investment, Ethiopia

## **List of Tables**

Table 2.1: Summary of Literature Review

Table 3.1: Summary of expected sign with respect to independent variables

Table 4.1: Sectoral and Regional distribution of Private investment In Ethiopia

Table 4.2: Summary of Correlation coefficient result

Table 4.3: Heteroscedasticity test result

Table 4.4: Serial correlation analysis test result

Table 4.5: Summary of individual Unit root test result

Table 4.6: Summary of group Unit root test result

Table 4.7: ECM, Cointegration test result

Table 4.8: Bound test result

Table 4.9: Long run relationship Summary

Table 4.10: Summary of regression result

Table 5.1: Summary of short run and long run result with its coefficient

## **List of Figures**

Figure 2.1: Conceptual framework of determinants of domestic investment

Figure 4.1: Trend of gross domestic investment in Ethiopia with ETB

Figure 4.2: Normality test result

Figure 4.3: Stability test result

Figure 4.4: Model selection Criteria result

## **List of Annex**

Annex 1: Raw Data collected from respective institutions

Annex 2: Work file preprocessed in logarithm form

## **List of Acronyms and Abbreviations**

ADF	Augmented Dickey Fuller
AIC	Akaike Information Criteria
ARDL	Auto Regressive Distributed Lag
CSA	Central Statistical Agency
DPI	Domestic Private Investment
ECM	Vector Error Correction Method
EIC	Ethiopian Investment commission
ERCA	Ethiopian Revenue and Customs Authority
ETB	Ethiopian Birr
FDRE	the Federal Democratic Republic of Ethiopia
IMF	International Monetary Fund
LDC's	Least Developed Countries
NBE	National Bank of Ethiopia
nGDP	Nominal Gross Domestic Product
SNNPR	South Nations Nationalities people's Region
UNCTAD	United Nations Conference on Trade and Development
USD	United States Dollar
VAR	Vector Auto Regressive
WDI	World Development Indicator
WGI	Worldwide Governance Indicators

## Table of Contents

Statement of Declaration.....	i
Approval.....	ii
Acknowledgement.....	iii
Abstract.....	iv
List of tables.....	v
List of Figures.....	vi
List of Annex.....	vii
List of Acronyms and Abbreviations.....	viii
<b>CHAPTER ONE</b>	
Introduction.....	1
1.1. Background of the Study .....	1
1.2. Statement of the problem .....	3
1.3. Objectives of the study.....	5
1.3.1. General objective of the study.....	5
1.3.2. Specific objectives.....	5
1.4. Research Hypothesis .....	6
1.5. Limitations of the study.....	7
1.6. Scope of the study.....	7
1.7. Significance of the study .....	7
1.8 Organization of the study.....	8
<b>CHAPTER TWO</b>	
Literature Review.....	9
2.1. Basic Investment Theories.....	9
2.2. Empirical review .....	11
2.3. The Conceptual Research Gap .....	12
2.4. Theoretical Framework of domestic private Investment .....	13
<b>CHAPTER THREE</b>	
Methodology .....	19
3.1 Introduction.....	19
3.2 Research Design .....	19
3.3 Type & source of Data .....	19
3.4 Method of data processing & analysis .....	20
3.5 Model specification .....	20
3.5.1. Summary of variables under investigation and expected sign .....	21
3.5.2. Definition of variables and assumptions for research hypothesis .....	23

## **CHAPTER FOUR**

Result and Discussion .....	25
4.1. Presentation of Data analysis .....	25
4.2. Trends of Domestic Investment in Ethiopia .....	27
4.3. Regional And sectoral distribution of domestic private investment in Ethiopia..	27
4.4. Correlation analysis .....	28
4.5. Test for Multicollinearity problems among independent variables .....	29
4.6. Residual analysis tests .....	29
4.7. Stability test (Cusum) test .....	31
4.8. Unit root Test summary .....	32
4.9. Cointegration test, Bound Test and Long run relationship summary.....	34
4.10. Estimation Output in log run .....	38
4.10.1. Explanatory power of the model and Goodness of fit statistics .....	38
4.10.2. Statistical results of the ARDL model with stationary variables .....	39
4.10.3. Summary of regression result.....	42

## **CHAPTER FIVE**

Summary, Conclusion and Recommendation .....	45
5.1. Summary .....	45
5.2 Conclusion .....	46
5.2. Recommendation .....	47

## **Bibliography/Reference**

## **Annexes**

# CHAPTER ONE

## Introduction

This chapter enlightened about background of the study, statement of the problem, objective of the study, hypothesis of the study, significance of the study, scope of the study, limitation of the study, and organization of the study.

### 1.1. Background of the study

Rate of investment is one of the key indicators of countries' economic development. This indicator helps to differentiate developed countries from developing countries; indicated as, high-growth countries have high investment, whereas low growth countries have low investment. Hence, the low investment indicated that the productive capacity of the economy goes to down and resulted lower rates of growth, job creation opportunity; and difficult for the poor to improve their livelihoods. This leads to developing countries such as Ethiopia, their economic growth mainly depends by increment of investment. (White, 2005).

Likewise, the experiences of most developed countries have enlightened that their rapid economic growths have come from increased investment. Through investment, many countries raise their productive capacity of an economy, create new capital goods and increase capital accumulation. Hence the more increment in the rate of investment resulted that capital stock rapidly grow. Therefore, Investment is best way for inducing economic growth and reducing poverty. (Abate, Y. 2016)

For instance, there is an effort made by the Ethiopian government to attract private investment and the recently revised investment policy have said that: by giving recognition on the role of private sector investment increment in all sectors of the economy resulted in increasing productivity and accelerating the economic development of the country, and hence ensure its sustainability, strengthen domestic production capacity and thereby improve the Living standards of its people. (Investment Proclamation no. 1180/2020)

Even though, the Ethiopia government has been made various policy reforms to stimulate private investment, the actual performance is very low. (Hailu, A. 2013) Moreover, unregulated and high inflation rate, exchange rate fluctuation, interest rate increment could be a signal of macro-economic instability, beside that prolonged poor governance and rampant corruption and leads to reduce the investors' desire and appetite. Additionally, frequent changes of investment policies and requirements, unpredictable, full of bureaucracy, inefficient and poor infrastructural investment environment would deteriorate investors' confidence and ability to invest. (Abate, Y. 2016)

For the last couple of decades, there are several economic and political reforms has been done in order to increase the performance of private investment in Ethiopia; but the actual performance of private investment was still very low. This is the reason behind this study and conducted with the main objective of identifying the determinants of private investment in Ethiopia. However, there are limited no of studies that identify the determinants of private investment in Ethiopia clearly; beside that, their study period, independent variable composition and method of analysis is different from this study.

For instance, the performance of public investment measured in some studies but not their financial source, so this study assumed that loan for public investment has an effect on domestic private investment. Likewise some studies are taking external debt as an explanatory variable but not source of fund that used for payment for external debt, in similar manner, this study also assumed that federal reserve money have an effect on domestic private investment. Therefore, this paper identify the main determinants of domestic private investment in Ethiopia and show their relationship with the private investment; give insight to the policy makers for major points should be emphasized and give further direction; have a knowledge about business environment to investors before entering to business; and to researchers to utilize as reference for further investigation.

## **1.2. Statement of the Problem**

Poverty is the main trait for the developing countries like Ethiopia, to mitigate poverty, the improvement of living the standard of people is mandatory. Dramatic change in economic, political and social conditions achieved through development of private sector; to help improve economic growth. Domestic private investment helps in reduction of poverty; and understanding the status and determinants of private investment is essential for attaining successful, sustainable and consistent development. (Ouattara, 2004).

Investment is the most important macroeconomics variable that can affect the economic growth. Study shows in Pakistan 89% increment in investment resulted from increase of GDP of the country. So Government should also encourage investors at national and international level. (N.Ahmad, M. luqman, M. F. Hayat, 2012)

Basically the higher inflation harms the savers because they lost their purchasing power and ability to invest for future, however, it benefits the borrowers due to the inflation shrinks their debt over time. Likewise it flavored the exporter and dis favored the importer the optimal inflation assumed to be 2%.

In the case of Ethiopia, the inflation rate is the delicate matter and increase for long period of time and resulted negatively affected private investment in the short run by undercutting the saving capacity of citizens (shortage of investment finance), by weakening investors' confidence and over the last couple of years seems to ability to invest, and/or by triggering diversion of investment from productive sector to speculative activities. Besides that, the government should be curious before imposing any remarkable adjustment in the interest rate and Exchange rate. even though the government of Ethiopia have been made various reforms in order to stimulate private investment but the achievement is very low. (Hailu A., 2013).

Similarly the Ethiopian investment climate seems more public led than private sector investment; this is due to the requirement of infrastructure, regulatory institutions organization bureaucracy. The undeniable fact is the contribution of private investment in development of economic growth of a country is huge, but the case of Ethiopia performance was not satisfactory. (Wondimu, E. 2020)

There are some studies that show the major problems may challenge increment of private investment in Ethiopia such as business environment, legal system, finance and financing sector, and macroeconomic environment factors. However, in Ethiopian economy, private sector investment has shown improvement following the 1996 economic reform but still have a fluctuating performance (Alemayehu, 2004). Based on NBE data's, starting to 1992EC (or 1999/2000GC), and The Ethiopian GDP increases remarkably to put in figure: in 1999/20 to 2008/09 the average nGDP increment was 19.87%. With similar fashion, the next decade starting from 2009/10 to 2018/19, the average increment was 23.5% in nGDP. (NBE)

Likewise, the exchange rate and inflation rate increment status shows for the first decade is 293% and 7.36%, for next decade is 55% and 11.01%, and for the recent decade 94% and 15.5% respectively. (NBE 1992-2020) As the figure indicated that, the exchange rate and inflation rate increasing continuously but it is not at constant manner this might be an indicator for economic instability.

Moreover, the Ethiopian private investment increases remarkably for instance, the recent decade was 161%, this doesn't means that, the growth was sustainable and consistent. To show some inconsistency, there are years that achieved the growth of private investment was 640.9% and 417.7 % respectively whereas the following year after these achievements were very low: that has score of -84.3% and -92.7% respectively. (EIC 1992-2020))

Having the above information in mind and identifying the determinants of private investment is more important because some studies show that shortage of finance support to private investment is the reason to achieve low performance of private investment and other studies suggested that it is lack of infrastructure but the effect of loan for public investment was not evaluated well; this is the first motive to conduct the study.

Beside that the second reason is, there is limited number of study on this topic also the reason; therefore, the researcher contributes a best input to investor and policymakers through delivering updated information. Practically, the investor benefits by having knowledge of factors that serve as inducer of investment, and its drawbacks, give insight and focal point to government for policy amendment plus this paper can be a baseline for further study.

### **1.3. Objective of the study**

#### **General objective**

- The main objective of this study is to investigate the Major determinants of domestic private investment in Ethiopia for short run and Long run.

#### **Specific objectives**

The study expects to answer the following core objectives:

- To examine the effect of interest rate, exchange rate and inflation on domestic private investment as of to measure monetary factors.
- To examine the effect of loan for private sector, and Federal Reserve money on domestic private investment to measure proxy to financial resource.
- To examine the effect of nominal gross domestic products on the domestic private [private investment.

#### **1.4. Research Hypothesis**

Based on the empirical literature on the determinants of private investment in developing countries the study proposed the following working hypotheses to be hold true in the researcher analysis.

The dependent variable is Domestic private investment and the explanatory variables that are expected to determine private investment are Exchange rate, inflation rate, and bank loan for private sector, nominal gross domestic product, interest rate and Federal Reserve money. The explanatory variable that may affect the decision to invest in the literature are very wide and only variables having sound theoretical explanations and empirical evidences are selected for this study.

$H_0$ : there is no significant effect of Exchange rate increment on flow of domestic private investment.

$H_0$ : there is no significant effect of Inflation rate increment on flow of domestic private investment.

$H_0$ : there is no significant effect of loan for private sector increment on flow of domestic private investment.

$H_0$ : there is no significant effect of nominal gross domestic product increment on flow of domestic private investment.

$H_0$ : there is no significant effect of Interest rate increment on flow of domestic private investment.

$H_0$ : there is no significant effect of federal money reserve increment on flow of domestic private investment.

### **1.5. Limitations of the study**

The researcher interested to evaluate effect of the explanatory variables because most of the related topic studies indicated that there is a significant relationship with the domestic private investment; especially to examine proxy to financial resource for private investment loan and external debt are the financial source. Thus external debt depends on Federal Reserve money of one country. Then to utilize Federal Reserve money as explanatory variable on the domestic private investment, there is no enough studies that illustrate directly Federal Reserve money. Therefore, the researcher utilizes close variables findings that used to establish relationship with these variables plus the direct findings on these variables. For instance, to explain the effect of federal money reserve effect on private investment, the researcher apply the effect of the external debt on private investment, for hypothesis development stage, and the discussion part.

### **1.6. Scope of the study**

The scope of this study is listed in terms of source of data, and method. With regard to source of data: this study use exclusively secondary data from archive of Ethiopian Investment commission, National bank of Ethiopia, and Central statistical agency. In terms of method, based on the regression differentiation result the researcher use the Auto Regressive Distributed Lag model through EVIEWS software with appropriate details analysis like unit root test and others necessary techniques that time series data required to fit. This is due to the data nature of multi-year of analysis and based on unit root test result.

### **1.7. Significance of the study**

Despite several economic and political reforms has been done in order to increase the performance of private investment in Ethiopia for the last couple of decades; yet, the actual performance of private investment was very low.

Even though, this is the reason behind this study, the existence of limited no of studies that identify the determinants of private investment in Ethiopia also additional reason; beside that, their study period, independent variable composition and method of analysis is different from this study. For instance, the effect of loan for public investment was not evaluated rather the

effect of public investment is measured. Likewise some studies are taking external debt as an explanatory variable but not source of fund that used for payment for external debt, whereas, this study wants to assess the effect of federal reserve money and loan for public investment along with other independent variables directly on domestic private investment.

Therefore, the researcher believes that this study gives an in site to policy makers: about the effect of interest rate, exchange rate, inflation rate, loan for public investment and loan for private sector, federal money reserve, trade openness, on domestic private investment. More practically, it provides to investors which variables are significantly affecting the implementation private investment. In the meanwhile it serves as a rough indicator for the performance of independent variables like effect of inflation rate, exchange and others listed in this study, on domestic private investment. Thus, the government and other respective body will come out with a new strategy (short and long term) and strengthen their institutions by creating conducive business environment. Finally, it also serves as a reference material a good basis to carry out for subsequent research activities related topics.

### **1.8. Organization of the study**

This paper organizes in such a manner that the first chapter deals with the background of the study, statement of the problem, objectives of the study, research hypothesis, limitation of the study, scope of the study, significance of the study and organization of the study; the second chapter covers the review of related literature in terms of both theoretical and empirical studies, theoretical framework and the research gap: the third chapter, covers methodology part: which deals about operational definition variable, research design, type and source of data, method of data processing; and analysis model specification. The forth chapter deals with analysis, result, discussion and its interpretations; the final chapter that is chapter five that summarize, conclude and give appropriate recommendation.

## CHAPTER TWO

### Literature Review

This chapter also explains the basic theoretical review behind the study; and the empirical studies that show effects of the explanatory variables with domestic private investment. Thus, the detail reviews described as: Basic investment theories; conceptual framework of determinants of domestic investment; the main research gap and diagrammatic representation of conceptual framework of determinants of domestic investment are addressed in the chapter broadly.

#### 2.1 Basic theoretical review

Economic behavior analysis helps investor to make optimal investment decision, because it forecasts the accumulation of productive capacity, focus on growth and hence the future assertion of consistent growth path of an economy. There are many theories and methods that enable to understand the concept of investment and investor's behavior on investment decision; and some of them will be presented in this section; and the researcher explained their meaning and concepts of basic theories discussed as follows.

The oldest model is **Simple Accelerator theory**: the accelerator model which is an increase in the rate of output of a firm will require appropriate increase in its capital stock. A key implication of this model is that investment (change in capital stock) is driven by change in aggregate demand. In other words every demand increase produced output increase, the level of net investment is proportional to change in output and their relationship is fixed. The main drawback of these theory are, it doesn't consider other factors like interest rate, no excess capacity unutilized, and cannot accommodating any discrepancy other than the formulated one.

The **Flexible accelerator theory**: as the name indicated, it is the better version of accelerator theory and accommodating all drawbacks listed in the accelerator theory. In both accelerator theories (simple and flexible) of investment behavior, desired capital is proportional to output. The main implication of the model is that the investment expenditure of an investing firm is proportional to its output while its output is a function of demand. In other words firms choose investments with positive net present value.

**Neoclassical theory:** It is one of the flexible accelerated theory models and it's the optimal accumulation of capital that is an inclusive of the principle & policy implication, desired stock is determined by output and the price of capital services relative to the price of output. Hence, capital service price depends in turn, on the price of capital goods, the interest rate, and tax treatment of business income change in output equals to price of capital equals to stock. In other words, it combines the user cost of capital and the accelerator effect to explain investment behavior. It is also important to note that the firm in the neoclassical model is assumed to operate under perfectly competitive product and factor markets which implies inter alia absence of liquidity constraints (to adjust capital stock) and a general equilibrium situation with full employment.

**Tobin- q theory:** is one of the recent models and also known as Tobin's Q ratio, equals the market value of a company divided by its assets replacement cost. Thus equilibrium is when market value equals replacement cost. In its simplest form, this theory proposed the Expected Profits model in investment expenditure is related to the ratio of the market value of business capital assets to the replacement value of those assets (the acquisition cost of the firm).

**Financial theory:** the most recent theory and the theory said that, the desired capital stock or investment depends on the level of profit. It depends on the assumed profit that the business will produce in the future. These reinforce the investor acquire the funds through internal funds (retained earnings and depreciation expense from funds set aside as plant and equipment depreciate) or external funds through loan, issuing of bond or stock.

This study on the determinants of domestic private investment in Ethiopian do not fit solely to one specific theory, rather it apply more than two theories; For instance, the neoclassical theory touch the interest rate, the financial theory touches loan for investment, and flexible accelerator theory stated about the net present value or the other factors that have impact on NPV. Therefore, the objective of this study is determining the factors that have contribution to domestic private investment, through applying the combinations of theories; thus the study attempt to reformulate variables that are supposed to have strong association with investment.

## **2.2. Empirical review of Domestic Private Investment and its explanatory variables**

In this section, the researcher tries to demonstrate the independent variables (major determinants of domestic private investment in Ethiopia) that have relationship with domestic private investment in previous studies; and summarized as follows:

Investment is the most important macroeconomics variable that can affect the economic growth and vital for one country's development. The idea of increasing investment resulted; improving economic growth, reducing unemployment and poverty of countries, and at the end it increases the wealth of the nation and nationalities. Reliable and continuous increase in domestic private investment also helps in reduction of poverty. Domestic private investment helps in reduction of poverty; and understanding the status and determinants of private investment is essential for attaining successful, sustainable and consistent development goals. (Ouattara, 2004)

Immediate attention required to induce the magnitude and productivity of investment in many of the sub-Saharan countries like Botswana. It helps to achieve sustainable economic growth. (Patrick, L. 2006) This also works for Ethiopia too.

Implement consistent investment policies, requirements, regulatory frameworks, and macro-economic and political stability; address bureaucratic inefficiencies and poor governance problems are essential tools to build sustainable confidence of private investors and can create stable investment environment. (Hailu, A, 2013)

For developing countries like Ethiopia, to mitigate poverty is basic questions to be answered. Investment is one key instrument and primary engine of economic growth. Thus, increasing the economic growth resulted; improving the living standard of their people. There are different factors which are expected to affect the performance of investment activities. As a result due attention has been given to development of private sector in developing countries to help improve economic growth. (Mustefa, 2014)

Likewise, the experiences of most developed countries have enlightened that their rapid economic growths have come from increased investment. Through investment, many countries raise their productive capacity of an economy, create new capital goods and increase capital accumulation. So the more increment in the rate of investment resulted that capital stock rapidly

grow. Therefore, Investment is best way for inducing economic growth and reducing poverty. (Abate, Y. 2016)

In Gambia government must played important role in promoting private investment by pursue debt restructuring of cancellation. Unfortunately, government spending on public investment has been insignificant to allow private investment to enjoy economies of scale. therefore exchange rate and the low credit to private sector are the two major factors that have hindered private sector investment. The role of government is not well played as it should be. (Rafael, K. 2020)

To attain a strong economy of one country, the people should invest their money domestically. Thus domestic private investment has the direct role on development of sustainable economy of the country. (Sangeetha, D.2015),

### **I. Exchange rate**

It reflects the prices of goods and services used for private final consumption of households.

In an economy with a growth dynamic changes, the price of a good or service may be tends to upwards or downwards for a period of months or years. However, that price changes are the result of the change request or offer for goods and services does not always imply, change in the general level of prices. Increasing the price of goods or services may be offset by the decrease of others, in other words, a change in the average level of prices have a tendency for more prices to move up or down, resulted that price appreciation. Inflation represents the accelerated growth, and the general level of prices, matched by increased money, low purchasing power of money and depreciation under the influence of economic, monetary, social, and domestic and foreign policies (Bandoi, 2008).

In African countries where there may be a scarce of entrepreneurship, a stable macroeconomic environment encourages growth of private investment and for the firms forced to act in a rational manner. That's because, in a context of low inflation, suitable deficit and public debt, more risk adverse investment behavior is limited and access to financial and capital markets is less difficult. (Samuel & Aram 2012)

Exchange rate, public investment and credit have positive effect on private investment in the long-run. Similarly, exchange rate has positive effect whereas inflation has negative effects on

private investment in the short run. To enhance the performance of private sector in the country, the required measures should be taken like constructing basic infrastructure, creating macroeconomic and political stable environment for investment; and improving real income of people are among the mandatory. (Abate, Y. 2016)

## **II. Inflation rate :**

It is rate that indicates the purchasing power of the currency falling down; became the price of goods and services rising up. These comes from the increase in money supply to the economy through by printing money, by devaluation of money in the form of tender and bid, and / or purchase of government bonds from secondary market.

Basically the higher inflation harms the savers because they lost their purchasing power and ability to invest for future, however, it benefits the borrowers due to the inflation shrinks their debt over time. Likewise it flavored the exporter and dis favored the importer the optimal inflation assumed to be 2%.

In the case of Ethiopia, the inflation rate is the delicate matter and increase for long period of time and resulted negatively affected private investment in the short run by undercutting the saving capacity of citizens (shortage of investment finance), by weakening investors' confidence and over the last couple of years seems to ability to invest, and/or by triggering diversion of investment from productive sector to speculative activities, And hence the government should put remarkable adjustment in order to control the rate. (Hailu A. 2013)

## **III. Interest rate or cost of capital (IR)**

It is an average rate imposed by bank for credit given to investors; the rate is given by NBE. Real interest rate was negative in the short-run but positive in the long run. A higher real interest rate increases the flow of bank credits, which complements the private sector savings and facilitates private capital formation and hence private investment. Effect of inflation rate on private

investment is not significant in the long-run. Credit to private sector maintains its positive effect in the long-run. (Kodane, R.2020)

#### **IV. Nominal Gross Domestic Product (nGDP):**

It measures the value of final all goods and service that are bought by the final user, produces in the county in a given period of time. Many studies have resulted clear positive effect on private investment. To support this, Study shows in Pakistan 89% increment in investment resulted from increase of GDP of the country. (N.Ahmad, M. luqman, M. F. Hayat, 2012) In Botswana GDP have positive influence on private investment and have virtuous cycle like increased private investment resulted nominal GDP growth. (P. Lesetho, 2006)

The Other African researchers also confirmed that, nGDP exerts a positive effect on private investment for both in short and long run. (Oshikoya (1994), Ghura and Goodwin (2000) and Mlambo and Oshikoya (2001), (R. Kodane 2020)

Similarly, the Ethiopian researchers have the same conclusions regarding to nGDP in their studies. These studies were done in different time frame, methodology and; confirmed that the nominal GDP have a positive effect on Private investment and resulted the higher nominal GDP is assumed increase effective demands for goods and services and thereby inspire private investors. (Ambachew S., 2010), (Abate Y., 2016), (Tesfaye E. 2018), (Wondimu E. 2020)

#### **v. Bank loan for private sector :**

It refers to annual flow of credit to private sector credit. In other words it refers to the loans, come from financial institution to the private investment.

In Africa, access to financial resources for private investment is limited. Likewise, within Africa in many countries, the share of domestic credit to the private sector is very low. (UNCTAD, 2014).

The impact of credit availability on private investment is highlighted in this study. The empirical evidence provided suggests that there would be a reduction in the level of private investment with adverse impacts on the short-term productive capacity of the private sector when the sector is squeezed for credit. This finding confirms the importance of the links between the financial

sector and real economic activity in the economic growth process. (Oshikoya, 1994), (Ghura and Goodwin, 2000) and (Mlambo and Oshikoya, 2001)(Patrick LLesotho, 2006)

Domestic investment by domestic enterprises is likely to be constrained by lack of access to credit as has been documented in several studies.(Ajide and Lawanson, 2012) It also confirmed that increasing credit by the banking sector to the private investment is likely to boost private sector investment. ( Kodane, R. 2020)

## **VI. Federal Money reserve:**

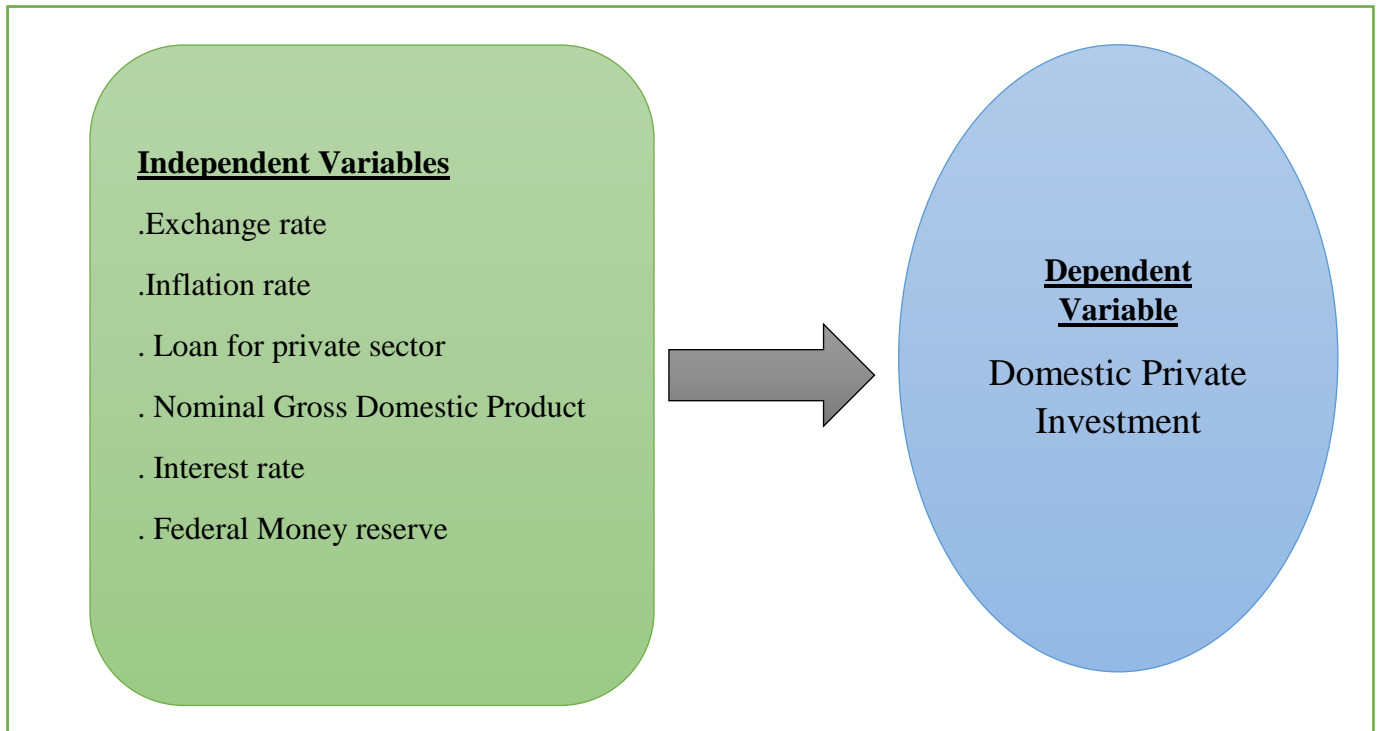
The holdings of currencies, precious metals, and other highly liquid assets used to redeem national currencies and bank deposits and to meet current and near term financial obligations by a country's central bank, government treasury, or other monetary authority. These holdings facilitate the regulation of the country's currency and money supply as well as help manage liquidity for transactions in global markets. Reserves are an asset in the country's balance of payments and helps the private sector can acquire capital asset easily through increases flow of money to banks, increases domestic saving rate and stimulates capital formation. These facilitate global trade competition.

In Gambia, external debt and real exchange rate have negative the effect in the long run, However, credit to private sector and public investment have a positive effect on private investment in the long-run. Exchange rate plays increasing role on the user's cost of capital. (Kodane , R. 2020)

Likewise, in Ethiopia there is serious shortage of finance and to overcome this problem, external debt is serves as source of productive investment, as long as proper management of debt burden on the economy it has favorable effect on the private investment in countries. (Hailu, A. 2013)

As we can see from definitions of Federal Reserve Money, it is an asset that can pay the external debt for the country, this means the reason to study of reserve money as explanatory variable is indirectly shows the country's potential to spend money for balance of payment, external debt and hence monitor the economy properly. The researcher expected sign would be positive.

### 2.3. Conceptual framework of determinants of domestic Investment



*Figure 2.1: Conceptual frame work of Domestic Private Investment.*

### Summary of literature Review

<b>Variables</b>	<b>Studies on Private investment their findings are categorized:</b>	
	In favor or positive effect on Domestic private investment	Dis favor or negative effect on Domestic private investment
<b>Exchange Rate</b>	P.Lestho, 2006, Tesfaye, E. 2018.	Wondimu, E. 2020
<b>Federal reserve money</b>	Hailu, A. 2013, and Wasihun D.2017,(unpublished), for external debt, Woldemariam, F. 2018	Ambachew S. 2010, Wondimu, E. 2020,
<b>Interest Rate</b>	Solomon, L.A. 2020	Gizachew,G.2017, Mmathabo, S. 2017, Woldemariam, F. 2018
<b>Inflation Rate</b>		Ambachew, S. 2010, Hailu, A. 2013,Wasihun,D.,(unpublished) 2017,
<b>Loan for private sector</b>	P.Lestho, 2006, Tesfaye, E. 2018, Wondimu, E. 2020,	
<b>Nominal Gross Domestic Product</b>	Ambachew S. 2010, Hailu,A..2013, P. Lesetho, 2006, Abate Y. 2016, Tesfaye E. 2018, R. Kodane 2020 Woldemariam, F. 2018	

*Table 2.1: Summary of literature review*

#### **2.4. The conceptual research gap**

Some studies show that shortage of finance support to private investment is the reason to achieve low performance of private investment, and other studies suggested that limited production of national products. This study reaffirms that whether there is the financial shortage or not. Besides that the existence of limited number of studies with this topic in Ethiopia and majority of them applied Vector Auto Regression (VAR) to identify the effect of determinants on domestic private investment both in long run and short run. Whereas, this study prefer the Auto Regressive Distributive Lag (ARDL) model because it enables to use data with stationery in combination of level and 1<sup>st</sup> difference and auto regressive models are one of the remedy to reduce the multicollinearity effect on variables.

Similarly, this study is different from other study first by analyzing the effect of federal reserve money; studies have been identified the effect of external debt on private investment ,they suggested that, if it is properly managed the effect is positive towards to private investment, however, federal money reserve used to show the potential ability to pay external debt, This potential ability was not evaluated properly with enough studies. Hence, the primary reason is evaluating the proxy to financial resources on private investment, secondly, by evaluating the effect of Federal money reserve on domestic private investment and the last but not the least, by updating the recent time change on the data of these explanatory variables addressed well.

Therefore, the researcher compiles the whole inputs in order to show the clear relationship between the independent variable with dependent variable in short run and long run. This might help to fill the gap between the previous studies and actual events, so as to support the investor to identify easily the inducer of investment, and drawbacks, give insight and focal point to government for policy amendment and this paper can be a baseline for further study. Therefore, the researcher contributes a best input to investor and policymakers through delivering updated information.

## **CHAPTER THREE**

### **Methodology**

#### **3.1. Introduction**

This chapter discussed about the research design, source of data, method of data collection, & target population, the model and software used for data analysis. Methodology of a research provides a framework or a blueprint for conducting a research, (Dawson 2002). So the researcher illustrates the detail framework of this study.

#### **3.2. Research Design**

This study applied correlational research design with quantitative research type in time series analysis; method of data collection was conducted through secondary data from National Bank of Ethiopia (NBE), Ethiopian Investment Commission (EIC), Central statistical agency (CSA), International monetary fund (IMF), & World bank of global (WBG), and from other reliable sources as form of direct official data, public bulletin, websites and other official resources. In order to perform the determination of main economic variables of private investment in Ethiopia, the researcher used 29 years data from 1991/92-2019/20, on some important variables.

The collected secondary data assisted by the Box-Jenkins procedure that is, the most popular procedure in time series analysis, and perform the identifying; estimating and forecasting autoregressive integrated moving average models (ARDL). In identification step, the data required pre-processing procedure that is re-scaling the data's in to logarithmic form to make it stationary. Then in verification, estimation and forecast step, each data should be stationary at level or 1<sup>st</sup> difference in order to use ARDL model, thus the researcher perform Augmented Dickey Fuller method to test unit root test for individual data and group data. On top of that, the researcher conduct several tests to check the data's quality and model fitness through test for heteroscedasticity, multicollinearity, stability, and auto correlation/serial correlation. Then the

result was summarized using tables, graph, charts and other appropriate statistical tools accordingly.

### **3.3. Type & Sources of Data**

The study used secondary data from NBE, CSA, ERCA, EIC, and IMF & WBG and from other reliable sources as form of direct official data, public bulletin, websites and other official resources. Additionally, the researcher use annual reports, statistical reports, research documents and official publications. As we listed before, the data is purely secondary and in line with prior studies on economic growth and private investment.

The data collection process started with issuing letter of support from Addis Ababa University, Masters of Business Administration coordinator office to the respective institutions, then these Institutions gave their secondary data from their archive electronically in the form of soft copy. Then summarized and tabulated logarithm form of data to be ready for analysis.

### **3.4. Methods of Data Processing & Analysis**

The collected secondary data was preprocessed by converting the raw data into logarithmic form, checked the quality by conducting several tests, identified the result by using ARDL model in Eviews software, and summarized using tables, figures, graphs, other appropriate statistical tools with its interpretation. Specifically, test for stationery, reliability, consistency, multicollinearity, heteroscedasticity, serial correlation, & auto correlation conducted using Eviews10; and followed by identifying significant relationship between dependent variable with explanatory variables that determine private investment in the country, in this step the researcher used Correlation, Integration, bound test and long term relationship tests with ARDL model.

### **3.5. Model specification**

The research approach used cointegration analysis and Long term relationship analysis using ARDL regression model with AIC method. To reduce multicollinearity effect the researcher used

2 lag beside that, the researcher conduct several tests to check the data's quality and model fitness through test for heteroscedasticity, multicollinearity, stability, and auto correlation/serial correlation.

Thus before defining the relationship of private investment and its determinants through cointegration coefficients, the study applied unit root test by using the Augmented Dickey–Fuller (ADF) in order to check the stationery properties of the data then, the Auto Regressive Distributive Lag (ARDL) model enables to use data with stationery in combination of level and 1<sup>st</sup> difference and auto regressive models are one of the remedy to reduce the multicollinearity effect on variables.

The general form of the model had the following relationship:

$$LDPI = f( LRM, LPBL, LnGDP, LlnfR, LER, LIR )$$

**Where:**

- ✧ LDPI= logarithm of Domestic Private investment
- ✧ LRM = logarithm of federal reserve money in the national bank of Ethiopia
- ✧ LPBL= logarithm of Bank loan for private sector
- ✧ LnGDP= logarithm of nominal gross Domestic Product
- ✧ LlnfR= logarithm of Annual rate of Inflation based on consumer price index
- ✧ LER= logarithm of Exchange rate given by NBE
- ✧ LIR= logarithm of Interest rate: an average interest given by NBE

Since this study covered the period 1991/92-2019/20 and constitute time-series analysis, the appropriate modeling strategy used time-series analysis. The other important details will be evaluated and summarized based on the result we find:

### 3.5.1 Summary of variables under investigation and expected signs

Explanatory Variables	Description of indicator variable	Expected sign
Federal Reserve Money	The holdings of Money reserves that are highly liquid assets in the country's balance of payments, used to meet current and near term financial obligations by Ethiopia's national bank; and hence facilitate the regulation of the country's currency and transactions in global markets. Resulted decreases cost of capital and stimulates capital formation, and encourage investment	Positive
Inflation rate, (Annual %)	Variables used to capture macroeconomic instability and price system of information content.	Negative
Bank Loan for Private sector (PBL)	An indication for user cost of capital goods (when it rises, cost of capital good increases and investment declines, in line with neoclassical assumption.  In other side, when interest rate raises the flow of money to banks increases and rate of domestic saving increases and stimulates capital formation and encourage investment	Positive
Nominal Gross Domestic Product	It measures the value of final all goods and service that are bought by the final user, produces in the county in a given period of time.	Positive
Exchange rate (ER)	An average interest rate imposed by banks when they give loan or credit to finance the private investment.	Positive /Negative
Interest rate (IR)	An average interest rate imposed by banks when they give loan or credit to finance the private investment	Positive /Negative

*Table: 3.1. Summary of expected sign with respect to independent variables*

### 3.5.2. Definition of variables and assumption for Research Hypothesis

This research paper focused on the determinants of domestic private investment(DPI) and hence, DPI serves as the dependent variable based on availability of data strength and fitness to the model ,the study utilized seven independent variables, these are: federal Reserve money (RM), Inflation rate(INF), private bank Loan(PBL), nominal Gross domestic Product (nGDP), Interest rate(IR), and Exchange rate (ER). All the variables are converted to logarithm form before conducting any analysis.

**Domestic Private Investment (DPI):** is the dependent variable, and the purchase of a capital asset resulted to produce income, and/or appreciate in value. The independent macro-economic variables are assumed to affect domestic private investment in Ethiopia are described as follows:

**Bank Loan for private sector (PBL):** Annual flow of credit to private sector credit. In other words it refers to the loans, come from financial institution to the private sector and expected to have positive relation with private investment. The rationale behind that, is the availability of financial loan increases, decrease the problem of shortage of cost of capital for investment and hence people motivate to invest more to private sector.

**Exchange Rate (ER):** average rate imposed by national bank of Ethiopia in order to exchange foreign currency to local currency. Similarly, for the purpose of uniformity and comfort ability to analysis, applied the logarithm of their respective year value.

**Federal Money Reserve (RM):** The holdings of currencies, precious metals, and other highly liquid assets used to redeem national currencies and bank deposits and to meet current and near term financial obligations by a country's central bank, government treasury, or other monetary authority.

These holdings facilitate the regulation of the country's currency and money supply as well as help manage liquidity for transactions in global markets. Reserves are an asset in the country's balance of payments and helps the private sector can acquire capital asset easily by making facilitation of payment globally. Therefore the expected sign is positive relation to private investment.

**Inflation rate (INFR):** the definition is rate that indicates the purchasing power of the currency falling down result the price of goods and services rising up. This data collected from CSA. INFR is assumed to have positive relationship with private investment. Because the opportunity cost of capital decreases, investors would be motivated to invest. Like other variables it utilized the logarithm of their respective year value.

**Interest Rate (IR):** average rate imposed by bank for credit given to investors, it is given by NBE. For the purpose of stationery and uniformity applied the logarithm of their respective year value.

**Nominal Gross domestic product (nGDP):** measures the value of final all goods and service that is, those that are bought by the final user, produces in the county in a given period of time. It count sell of the output generated within the border of a country. Consequently, the study expects the coefficient of nGDP to be positive.

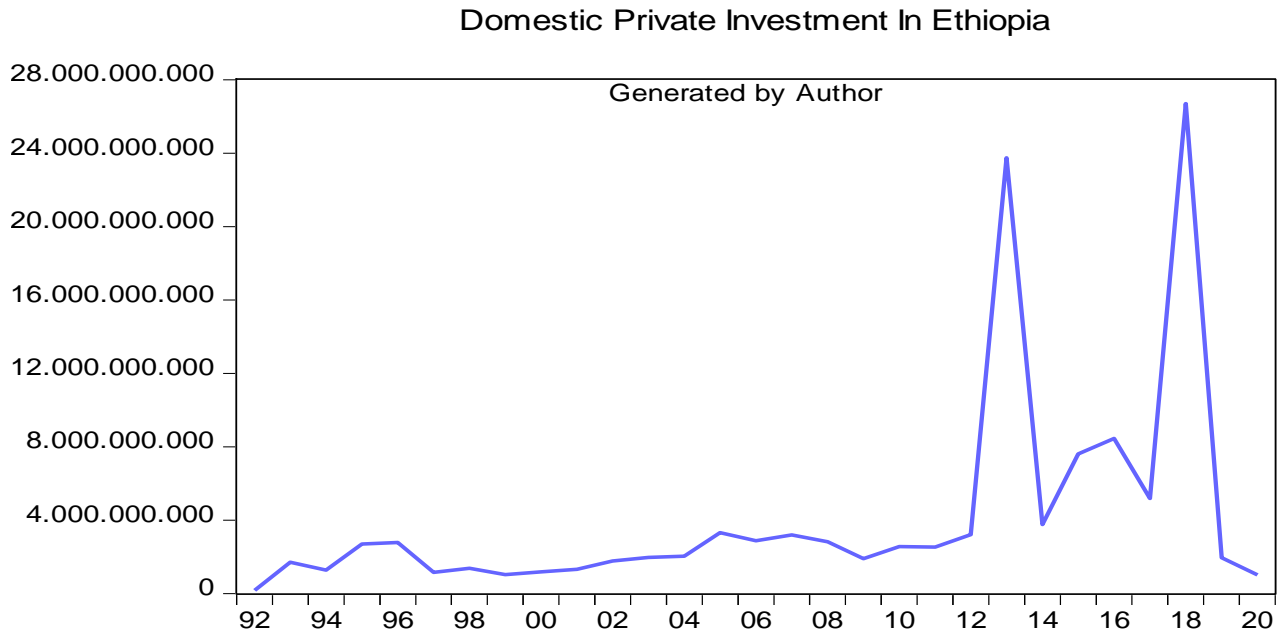
# CHAPTER FOUR

## Result and Discussion

### 4.1 Presentation of data analysis

This chapter presents the relationship between the dependent variables (Domestic private investment) with its explanatory variables such as inflation rate, interest rate, exchange rate, federal money reserve, loan for private sector, and loan for public investment. The chapter covers a brief description of trends of private investment with its interpretation; and then it covers data fitness test, analysis, presentation, summarization and interpretation of co-integration and log run coefficient results is presented.

### 4.2. Trends of Domestic private Investment in Ethiopia



*Figure: 4.1: Trend of Domestic private investment in Ethiopia (1992-2020)*

The actual performance of trend of domestic private investment in Ethiopia as the graph indicated: From the 1992 to end of 2012 it was below 4billion ETB or 500million USD, then suddenly in 2013 it raised to over 23billion ETB (1.2billion USD) because the government gave incentive the investors to win the 4<sup>th</sup> election of EPRDF, then the period from 2014 to 2017 it was in the range of about 4billion (200million USD) to 8billion ETB (400million USD), again also exploded to more than 26billion ETB in 2018, this was due to government reform that gave

hope to investors to have stable investment environment then also drop down dramatically again below 4billion ETB. In general the overall average is about 4billion ETB but if we exclude the peak years like 2013 and 2018, the average was about 2.6 billion ETB therefore the performance very low mostly it was below 4billion ETB, if it is converted to its equivalent currency it was very small amount and put the country in low developing category.

Even though the government of Ethiopia said that: by giving recognition on the role of private sector investment increment in all sectors of the economy resulted in increasing productivity and accelerating the economic development of the country, and hence ensure its sustainability, strengthen domestic production capacity and thereby improve the Living standards of its people. (Investment Proclamation no. 1180/2020) The actual performance still is not satisfactory.

#### 4.3. Regional And sectorial distribution of domestic private investment in Ethiopia

Sectoral and Regional distribution of Domestic Private investment in Ethiopia								
No	Sector	No of Projects	Total amount invested in birr	%	Regions	No of Projects	Total amount invested in birr	%
1	Agriculture, hunting and forestry	12,790	31,670,215,505.66	26.12	Addis Ababa	52374	59,528,034,656.45	49.10
2	Fishing	40	5,558,100.00	0.00	Afar	957	924,873,050.00	0.76
3	Mining and quarrying	368	519,819,500.00	0.43	Amhara	16472	9,201,810,919.44	7.59
4	Manufacturing	29,136	40,768,227,711.88	33.63	B.Gumze	2212	4,507,317,611.08	3.72
5	Electricity (Generation, Transmission and Distribution)	52	600,000,000.00	0.49	Dire Dawa	3496	394,293,392.00	0.33
6	Education	2,145	3,267,727,311.05	2.70	Gambella	217	60,845,000.00	0.05
7	Health and social work	1,244	2,179,782,852.69	1.80	Harari	1247	266,577,365.00	0.22
8	Hotels (like Resort Hotels, Motels, Lodges and Restaurants)	7,890	6,277,221,740.57	5.18	Multiregional	114	259,775,422.00	0.21
9	Tour Operation, Transport and Communication	1,736	2,176,444,270.81	1.80	Oromia	17482	8,477,661,221.19	6.99
10	Real estate, Machinery and Equipment Rental and Consultancy Service	37,740	21,328,741,794.52	17.59	SNNPR	5704	26,635,764,102.45	21.97
11	Construction Contracting Including Water Well Drilling	15,010	10,924,069,402.76	9.01	Somali	2587	528,373,165.94	0.44
12	Other community, social and personal service activities	1,403	543,142,594.33	0.45	Tigray	8509	10,440,936,263.72	8.61
13	Wholesale, retail trade & repair service	1,817	965,311,385.00	0.80				
	<b>Total</b>	<b>111,371</b>	<b>121,226,262,169.27</b>	<b>100</b>		<b>111371</b>	<b>121,226,262,169.27</b>	<b>100</b>

Table 4.1: Sectoral and Regional distribution of Private investment In Ethiopia from 1992 to 2020 (Source EIC)

#### **4.3.1. Sectorial distribution of Domestic private investment**

Based on the above table and generated by the author from Ethiopian investment commission data showed that, with in the period of 1992 to 2020, most investor preferred to invest primarily on manufacturing sector which accounts 33.6% of total domestic private investment this might be due to tax incentive, facilitation of industrial zone, and other infrastructures availability.

Next to manufacturing the agricultural sector keep the 2<sup>nd</sup> place this accounts to 26.12% of total domestic private investment, on the third place 17.59% of total investment put by real estate business followed by the fourth and fifth place Construction and hotel sector these also accounts 9.01% and 5.18% of total investment respectively. The rests (these are Education, Health, Tourism, mining, Electricity and others) performed below 3% of total domestic private investment.

#### **4.3.2. Regional distribution of Domestic private investment**

According to the above table and also generated by the author from EIC data revealed that, with in the period of 1992 to 2020, the first rank to invest 49.1% of total domestic private investment goes to Addis Ababa city, this might due to the nearest access to infrastructure, population density to have manpower, and others. The second place took South nations and nationality peoples' region (SNNPR), which accounts to 21.97% of total domestic private investment, then the third place owned by Tigray region this accounts 8.61% of total domestic private investment, the fourth and fifth placed taken by Amhara and Oromia region these accounts 7.59% and 6.99% of total domestic private investment respectively.

From this study the regional distribution is not based on the population regions have, furthermore, when we see Amhara and Oromia regions have the most populous regions followed that SNNPR region, but their performance are less than Tigray region and Addis Ababa city precisely their accounts below the 10% of total domestic private investment. This requires further investigation about the distribution affecting factors through conducting detail survey in the future.

The rests (Afar, Somali, Dire dawa, Harari, Gambela, and multiregional areas) are performed below 1% except Benshangul gumze regional state that was 3.72%. To summarize the performance, even if the rank indicate there is performance but the overall total domestic private

investment is very low before imposition of inflation. Because yearly performance showed that, it was below 400million ETB.

#### 4.4. Correlation analysis

The correlation analysis used to measure the degree of relatedness of two variables and this relation and strength measures through its coefficient; Based on Pearson correlation coefficient interpretation, if  $y$  and  $x$  are correlated and its corresponding value is greater than zero it's to be positively correlated and vice versa. If the value is zero it means no relationship exists.

Correlation result							
	LDPI	LINFR	LIR	LER	LPBL	LnGDP	LRM
LDPI	1	0.469452	0.155821	0.776767	0.617188	0.577681	0.676467
LINFR	0.469452	1	-0.110419	0.367765	0.271078	0.311825	0.646775
LIR	0.155821	-0.110419	1	0.111363	0.07263	-0.115761	0.217363
LER	0.776767	0.367765	0.111363	1	0.224199	0.22737	0.562341
LPBL	0.617188	0.271078	0.07263	0.224199	1	0.969879	0.292159
LnGDP	0.577681	0.311825	-0.115761	0.22737	0.969879	1	0.725137
LRM	0.676467	0.646775	0.217363	0.562341	0.292159	0.725137	1

*Table: 4.2: Summary of correlation coefficient result*

From the above correlation result table, between the dependent and the explanatory variable, it exist a strong positive correlation between Exchange rate, loan for private sector, nominal gross domestic product and federal money reserve, with domestic private investment. However as per brooks (2008) stated, changes in independent variable cause changes in dependent variable, it is simply evidence for the existence of a linear relationship between these variables.

In other words, the result showed that most of variables correlated positively, this may indicated that there is tendency of having relation in long run, no relation or some of the correlated negatively. Therefore by these result, the researcher can say there is the relationship between dependent and independent variables but not give specific summary rather forwarded to further analysis.

#### 4.5. Test for Multicollinearity problems among independent variables

$H_0$ : there is multicollinearity and correlation coefficient of independent variable  $> 0.8$

To reduce multicollinearity effect the researcher uses lag 2 in all analysis and furthermore, the researcher utilize Auto regressive distributive lag model. The correlation coefficient is serves as indicator of the existence of multicollinearity test is conducted by testing between the independent variables. As Gujarati, (2004) stated if the correlation coefficient is greater than 0.8, there is a suspicion of multicollinearity problems between explanatory variables. According to the correlation table, all independent variables are below 0.8 and hence, the independent variables have no multicollinearity problem so we reject the null hypothesis.

#### 4.6. Residual Analysis Tests

- Residual Analysis Test for Heteroscedasticity

Heteroscedasticity Test: ARCH			
F-statistic	0.263465	Prob. F(2,21)	0.7709
Obs*R-squared	0.587465	Prob. Chi-Square(2)	0.7455

*Table: 4.3: heteroscedasticity test result*

The study applies ARCH test for heteroscedasticity and use Eviews 10 software. The null hypothesis of this test has heteroscedasticity with the level of significant 5%; the p-value should be greater than 5% to conclude that it is homoscedasticity. As per the results stated, ARCH methods their respective F- stat and CHI- square are greater than 5% and hence we are reject the null hypothesis.

- **Residual Analysis test for Auto correlation /serial correlation:**

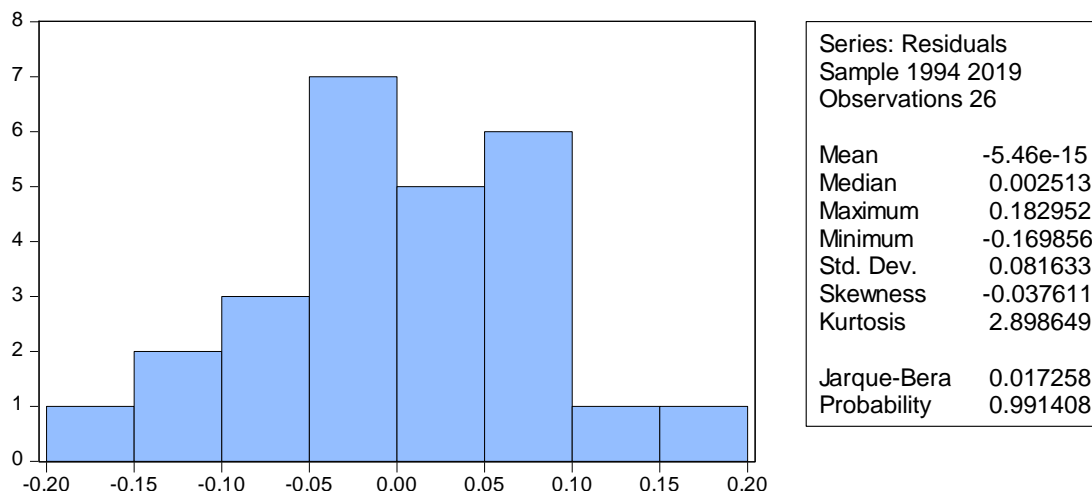
Breusch-Godfrey Serial Correlation LM Test:			
F-statistic	0.412546	Prob. F(2,13)	0.6703
Obs*R-squared	1.5517	Prob. Chi-Square(2)	0.4603

*Table 4.4: Serial correlation analysis test result*

The Test for Auto correlation /Serial correlation is required to depict the degree of similarity between given time series and a lagged version of itself over successive time interval. This problem identified using the methods; for auto correlation test applied Breusch-Godfrey Serial Correlation LM Test and Durban Watts test (DW) test. If DW value  $>2$ , there is no auto correlation or no residuals are correlated to each other. In our case the DW value was 2.815 and safe to say the residuals are not correlated with each other.

Similarly, Breusch-Godfrey Serial Correlation LM Test. statistic value used to depict auto correlation the null hypothesis: there is auto correlation and its probability value less than 5%. In our case its F statistic corresponding value is (0.4125) is not in range of (2,13) and respective Chi-Square (2)and its probability values 0.4603. Hence, reject the null hypothesis and no auto correlation and serial correlation.

- **Residual analysis Test for Normality**



*Figure 4.2: Normality test result*

As we all know normality of the residuals is optional requirement in order to be the model blue but the researcher conduct the normality test. However the researcher conducts this test to achieve more excellence on the data quality, thus the study applied Jarque-Bera (JB) test that is the most commonly applicable tests for normality. Null hypothesis is the residual data are not normally distributed. If the residuals are normally distributed, the Jarque-Bera (JB) statistic would be significant. This means that the  $p$ -value given at the bottom of the normality test screen should be less than 0.05 to reject the null hypothesis normality at the 5% level (Brooks, 2008). Based on the result generated from Eviews10 and presented on the above graph 4.2 and the table on the right side of the graph, the P-value of Jarque-Bera (JB) test is 0.017258 which is less than 0.05 (5%) hence the null hypothesis is rejected or the residuals are normally distributed.

#### 4.7. Stability test (CUSUM test) for the

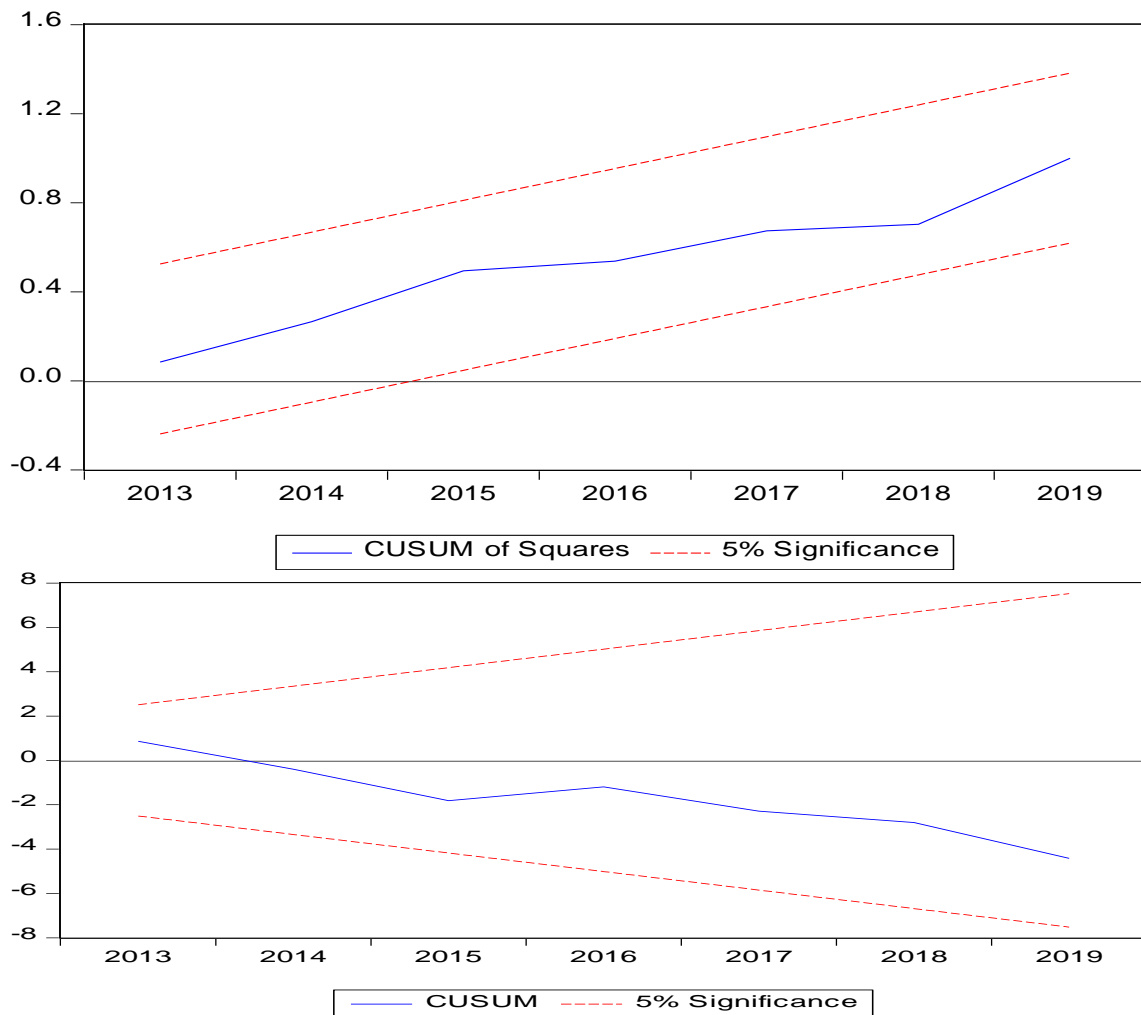


Figure 4.3: stability test result

As the two diagrams described the CUSUM test and the CUSUM squared test showed that the model of all roots is less than and pointed between the unit circle. Hence we can say surely that our model is fit for stability test or stable.

#### 4.8. Unit root test summary

- **Individual unit root test**

This table summarized the individual unit root test result and its corresponding decision.

Variables	Coefficient	ADF (P- value)	Significant at	Trend and or Intercept	Decision
LDPI	0.9413	0.0053	level	Both	Stationery
LER	-0.577	0.0186	Level	Both	Stationery
LINFR	-0.951	0.0036	level	trend	Stationery
LIR	-0.772	0.0005	level	Intercept	Stationery
LPBL	-0.6333	0.0173	1 <sup>st</sup> difference	Intercept	Stationery
LnGDP	-5.87	0.0003	1 <sup>st</sup> difference	Intercept	Stationery
LRM	-1.298	0.0000	1 <sup>st</sup> difference	Intercept	Stationery

*Table 4.5: Summary of individual unit root test*

The above table result generated from Eviews 10 software by inputting all logarithmic data's individually in Augmented Dickey Fuller model to examine unit root test. In details these result explained that, LDPI, LIR, LER, and LINFR, are stationery at level likewise, LPBL, LnGDP, and LRM were stationery at 1st difference; and hence all data's are stationery at level and 1st difference and therefore the researcher allowed to use ARDL model.

- **Group Unit root test summary**

Group unit root test: Summary				
Series: LDPI, LER, LINFR, LIR, LNGDP, LPBL, LRM				
Date: 04/29/22 Time: 05:05				
Sample: 1992 2020				
Exogenous variables: Individual effects				
Automatic selection of maximum lags				
Automatic lag length selection based on SIC: 0 to 3				
Newey-West automatic bandwidth selection and Bartlett kernel				
Method	Statistic	Prob.**	Cross-	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin	-7.34119	0	7	183
Null: Unit root (assumes individual unit root process)				
Im, Pesara	-10.0747	0	7	183
ADF - Fish	107.747	0	7	183
PP - Fishe	155.833	0	7	188

*Table 4.6: Summary of group Unit root test result*

As table 4.5 below described, all variable is stationary at level and first difference and the null hypothesis to be rejected the probability of unit root test is less than 5% . In testing unit root, 2 lag selection and (AIC) are utilized. Therefore, this group unit root test revealed that for all Levin Lin & Chu  $t^*$ , Im, pesaran and shin W-stat, ADF and PP Fisher Chi square, the data's are significant: P- Value 0.0000 and hence, it is stationery as the group and individual tests hence reject the null hypothesis .

#### **4.9. ECM Cointegration test, bound test and long run relationship summary**

To conduct cointegration analysis evaluation of unit root test is mandatory and their result should be stationary at level or 1<sup>st</sup> difference or both. Based on the result of unit root test some variables are stationary at level and some are in 1<sup>st</sup> difference, therefore this analysis used ARDL model.

ARDL Error Correction Regression				
Dependent Variable: D(LDPI)				
Selected Model: ARDL(2, 2, 2, 2, 2, 2, 1)				
Case 5: Unrestricted Constant and Unrestricted Trend				
Date: 04/28/22 Time: 06:16				
Sample: 1992 2020				
Included observations: 26				
Short Run cointegrating Form				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LER(-1))	-2.016417	0.290916	-6.931276	0.0002
D(LER)	0.779625	0.330243	2.360763	0.0503
D(LIR(-1))	3.403267	0.364759	9.330181	0
D(LINFR(-1))	0.422237	0.213831	1.974624	0.0889
D(LPBL(-1))	-0.917214	0.160049	-5.730838	0.0007
D(LPBL)	3.359185	0.201983	16.63103	0
D(LRM(-1))	1.809307	0.232103	7.795275	0.0001
D(LRM)	0.422237	0.213831	1.974624	0.0889
D(nGDP(-1))	-3.514093	0.238594	-14.72833	0
D(nGDP)	0.092286	0.213529	0.432194	0.6786
CointEq(-1)*	-0.865167	0.054845	-15.77462	0
C	-25.88605	1.656323	-15.62862	0
@TREND	-0.32717	0.02032	-16.10061	0
R-squared	0.984776	Mean dependent var		0.065506
Adjusted R-squared	0.970723	S.D. dependent var		0.274724
S.E. of regression	0.047007	Akaike info criterion		-2.970206
Sum squared resid	0.028725	Schwarz criterion		-2.341158
Log likelihood	51.61268	Hannan-Quinn criter.		-2.789063
F-statistic	70.0767	Durbin-Watson stat		2.815806
Prob(F-statistic)	0			

*Table: 4.7: short run cointegration test Result*

According to the above result indicated that in short term, CointEq (-1) is significant at 5% and hence the variables has relationship in long run and the conversion rate of short run to long run form is 86.52%; thus the exchange rate, interest rate, federal reserve money and loan for private

investment are significant, and have short run effect on domestic private investment. Interpreted as by increase in one percent of exchange rate, and loan for private investment individually, the Domestic private investment decreases by 2.02%, and 0.92% respectively; whereas, one percent increases in interest rate, and federal reserve money individually, the domestic private investment increased by 3.4% and 1.81 % respectively.

● **Bound test summary**

Bound test Summary				
F-Bounds Test		Null Hypothesis: No levels relationship		
Test Statistic	Value	Signif.	I(0)	I(1)
Asymptotic: n=1000				
F-statistic	19.14143	10%	2.53	3.59
k	6	5%	2.87	4.38
		2.50%	3.19	4.38
		1%	3.6	4.9
Actual Sample		26	Finite Sample: n=35	
			10%	2.879
			5%	3.426
			1%	4.704
			Finite Sample: n=30	
			10%	2.977
			5%	3.576
			1%	5.046
t-Bounds Test		Null Hypothesis: No levels relationship		
Test Statistic	Value	Signif.	I(0)	I(1)
t-statistic	-6.217204	10%	-3.13	-4.37
		5%	-3.41	-4.69
		2.50%	-3.65	-4.96
		1%	-3.96	-5.31

Table 4.8: Bound test result

The bound test serves as an indicator of whether there is the relationship exists or not and the null hypothesis is: there is no level of relationship. To decide that, if the F statistics and t statistics result in between the upper and lower bound, the independent variables do not have long run relationship and hence failed to reject the null hypothesis. In this case, we reject the null hypothesis and this model have a long run relationship because, both F and t statistics is out of the upper and lower bound of 5% significance level. Thus we are conducting further analysis and presented in below section.

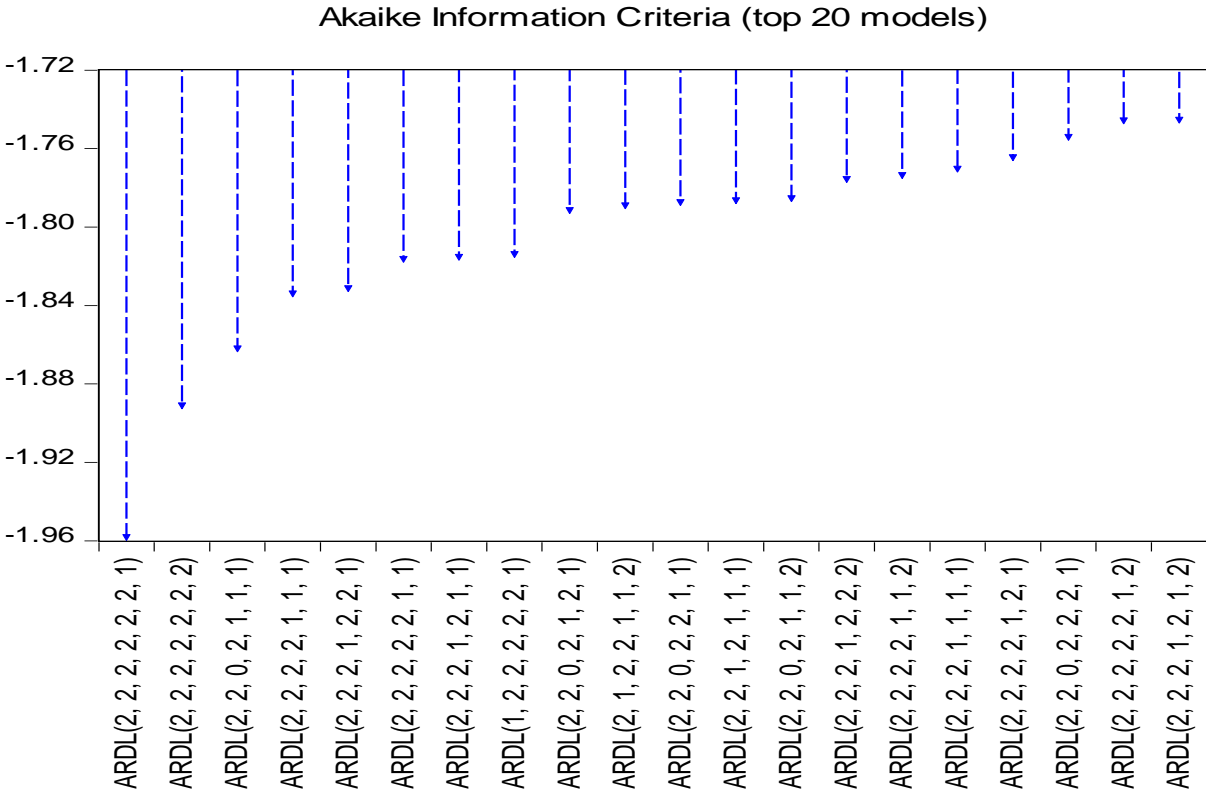


Figure 4.4: Model selection criteria result

The above figure represents AIC model that was Selected Model: ARDL(2, 2, 2, 2, 2, 2, 1)

● **Long Run relationship summary**

ARDL Long Run Form				
Dependent Variable: D(LDPI)				
Selected Model: ARDL(2, 2, 2, 2, 2, 2, 1)				
Case 5: Unrestricted Constant and Unrestricted Trend				
Date: 04/28/22 Time: 06:15				
Sample: 1992 2020				
Included observations: 26				
ARDL Long Run Form				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
LER	6.401901	2.107058	3.038313	0.0189
LINFR	0.092807	0.070972	1.307648	0.2323
LIR	-5.273201	2.44959	-2.152687	0.0683
LPBL	2.738552	1.13105	2.421248	0.046
LRM	-1.945816	1.069382	-1.819572	0.1116
LnGDP	3.181362	1.200749	2.649482	0.033
EC = LDPI - (6.4019*LER + 0.0928*LINFR - 5.2732*LIR + 2.7386*LPBL - 1.9458*LRM + 3.1814*LnGDP )				
R-squared	0.984776	Mean dependent var	0.065506	
Adjusted R-squared	0.970723	S.D. dependent var	0.274724	
S.E. of regression	0.047007	Akaike info criterion	-2.970206	
Sum squared resid	0.028725	Schwarz criterion	-2.341158	
Log likelihood	51.61268	Hannan-Quinn criter.	-2.789063	
F-statistic	70.0767	Durbin-Watson stat	2.815806	
Prob(F-statistic)	0			

Figure: 4.9: Long run relationship summary.

According to the above summary table, the long term positive significant relationship exists in exchange rate, loan for private investment, and nominal gross domestic product; this result is happening according to our expected sign except for private investment loan; furthermore,

insignificant positive relationship exist in inflation rate, whereas, negative insignificant relationship exists in interest rate and federal reserve money. To elaborate more, when one percent increment on exchange rate, loan for private investment and nominal gross domestic product appears individually, the domestic private investment increase by 6.402%, 2.73% and 3.18% respectively. The detail description and interpretation of the result summarized on next section.

#### **4.10. Estimation Output in log run**

In previous sections this study showed the prerequisite steps to perform this analysis and put model criteria, and reached successfully on this step. Therefore, the regression analysis is presented a percentage /unit change in the independent variable causes a percentage change/unit on the dependent variable.

This section is different from others because the researcher described long run relationship between the dependent variable that is domestic private investment in Ethiopia, model fitness and determinant variables and interpreted with theoretical hypotheses and contextual realities of Ethiopia. The collected secondary data were classified and tabulated after which the multiple regression technique was used to estimate the respective relationships.

The estimated regression equation is;

$$LDPI = (-25.88605 + 6.4019*LER + 0.0928*LINFR - 5.2732*LIR + 2.7386*LPBL - 1.9458*LRM + 3.1814*LnGDP)$$

##### **4.10.1. Explanatory power of the model and Goodness of fit statistics**

Based on table 4.8. result, the researcher evaluates the model reliability and validity, this paper use as indicator  $R^2$  and p (F-statistics). In this case the null hypothesis of F-statistic (the overall significance test) is rejected if the value of p (F-statistics) is greater than 5% and  $R^2$  value near to zero respectively. This model has p (F-statistics) of value 0.000 as well the  $R^2$  value 0.984776, and hence we can say that, the study has strong statistical fit and it is best to explain and represent a good performance of the model. In other words, all the explanatory variables in the model have jointly contributed to the variation in log of DPI.

Beside the reliability and validity concept, the Goodness of fit statistics also measured commonly through  $R^2$  and adjusted  $R^2$ . The Goodness of fit statistics illustrate how 'close' the regression line fitted to all of the data points taken together.

Its description is the value of  $R^2$  and adjusted  $R^2$  always lie between 0 and 1 and if this correlation is high, the model fits the data well, while if the correlation is low (close to zero), the model is not a good fit to the data. However, there are a number of problems with  $R^2$  as a goodness of fit measure: Therefore, this study has the  $R^2$  and adjusted  $R^2$  of 0.984776 and 0.970723 respectively. This means 98.5 percent of the variations in Domestic private Investment are explained by the independent variables. Likewise, the high value of  $R^2$  indicated that the independent variables (ER, INFR, IR, PBL, nGDP, and RM) are well explained the Domestic private investment trends.

#### **4.10.2. Statistical results of the ARDL model with stationary variables**

This section discusses each independent variable with the result of t-test by comparing Probability of t-value with level of significance by using eviews10. This study a 5 percent  $\alpha$  or 95% confidence level is used to interpret the results. If the probability of t value  $<0.05$ , then we may conclude that the independent variable is significant toward dependent variable. The explanation of t-test for each independent variable will be presented below:

##### **Constant (Y-intercept)**

This study long run constant has a negative coefficient of 25.88605 with a p - value of 0.000 and hence it is significant at 5% confidence level. Therefore, by holding all independent variables constant, there will be 25.88605 ETB domestic private investment decrease in Ethiopia.

##### **Exchange Rate (ER)**

The t-statistics of ER probability value is 0.0002, its coefficient negative in short runs with significant value and 0.0189 p-values in long run its respective coefficient is positive and significant. From this interpretation, for short run every time the country's ER increase the level of domestic private investment decrease by 2.02%; the result is one of our possible expectation and in line with the finding of (Wondimu, E. 2020). Whereas, in long run every time the

country's ER increase the level of domestic private investment increase by 6.402%; this result also fall in to our possible expectation and in line with the finding of (p. Lestho, 2006) and (Tesfaye E, 2018). The researcher mentioned in literature part, the exchange rate is the delicate matter that required efficient and effective management to have positive effect on domestic private investment, thus the result showed that the emphasis to be given towards to exchange rate should continue.

### **Inflation (INFR)**

The relationship between inflow of DPI and Inflation rate is a positive sign for both short and long run but it is insignificant. However, this may be due to the inflation rate increment is beyond the tolerable limit. This mentioned in some literatures; the normal tolerable inflation rate margin that helps to induce investment is 2%, but in our case the inflation rate is beyond 2% and requires more attention.

### **Interest Rate (IR)**

The t-statistics of IR probability value is 0.0683 and 0.0000 in short and long run respectively, which is negative significant in short run. In short run the interest rate one percent increment on interest rate appears, the domestic private investment decreased by 3.403% units however in long run we cannot say much because it is insignificant. This result in line with the finding of (Solomon L.A. 2020) and the assumption of neoclassical theory that, the increase in cost of debt incur to higher users cost of capital results to lower rate of investment it is as per our expectation.

### **Loan for Private sector (PBL)**

Loan for private sector has the t-statistics of IR probability value is 0.0007 and 0.046 in short and long run respectively. However, in short run the relationship is negative but in long run the relationship is positive. This show that for in short run one percent increment on loan for private investment appears, the domestic private investment decreased by 0.92% where as in long run one percent increment on loan for private investment appears, the domestic private investment increased by 2.74%; this finding in line with the work of (P. Lesetho, 2006), (Tesfaye, E. 2018) and (Wondimu, E. 2020) in long run.

### **Nominal Gross Domestic Product (nGDP)**

The t-statistics of nGDP probability value is 0.6786 and 0.033 in short and long run respectively, which is significant positive relationship, exists in long run. Thus, in long run when one percent increases in nominal Gross Domestic Products, the domestic private investment also increased by 3.18%. This result is consistent with the findings of (Hailu A. (2013), and (Woldemariam F. 2018). Hence, this finding is the exact expectation of the study.

### **Federal money reserve (RM)**

Federal money reserve the t-statistics of IR probability value is 0.0001 and 0.1146 in short and long run respectively. However, in short run the relationship is significant positive but in long run the relationship negative and insignificant. This show that for in short run one percent increment on loan for private investment appears, the domestic private investment decreased by 1.81%; this finding in line with the work (Hailu, A. 2013), and (Woldemariam F. 2018) However, in long run we cannot say much about it due to insignificant result. Hence, this finding is similar to our expectation of the study.

### **4.10.3. Summary of results**

This paper conducted several analyses because the nature of time series data has potentially cause, auto correlation/ serial correlation, and heteroscedasticity, multicollinearity, instability and non-stationery problems. Having conducted appropriate analyses to test for auto correlation /serial correlation, test for heteroscedasticity, test for multicollinearity, model stability test and non-stationery tests; the chapter summarized the overall major points that should emphasized by this study and the researcher observed the following results:

- No heteroscedasticity is revealed. If the residuals violet their respective variances are not constant characterizes, the data has heteroscedasticity problem. This examines through ARCH test after regression analysis. The result should insignificant in 95% confidence interval and 5% level thus there is no heteroscedasticity and this in line with our result is their respective F- stat P 0.7709, CHI-.Square P 0.7455.

- No Multicollinearity problem is shown this examines through the correlation coefficient as rule of thumb if Correlation coefficient  $>0.8$ , there is multicollinearity problem. Thus our correlation coefficients of all variables remains  $< 0.8$  and hence there was no multicollinearity problems between the variables.
- No auto correlation or serial correlation is happened. This problem depicted through Durban Watts test (DW) and test Breusch-Godfrey Serial Correlation LM Test. Both tests confirmed there is no autocorrelation. For instance, If DW value  $>2$ , there is no auto correlation or no residuals are correlated to each other. In our case the DW value was 2.81 and safe to say the residuals are not correlated with each other also proven by Breusch Serial Correlation LM test and both probability of F and Probability of Chi-square were insignificant and hence there is no auto correlation.
- Our data exhibit Linearity character that means all independent variables exhibit linear relationship with dependent variables, this is examined by stationery tests and their result should be explained in 95% confidence level and 5% significant. This examines through stationery test and our results were stationery.
- The residuals should be normally distributed in fact these requirement is optional but to evaluate these, the Jaguar beta test applied and the result should be Jarque-Bera (JB)  $<5\%$  and significant value indicate, the residuals are normally distributed.

On top of that, stationery is the key point time series data, it means to analyze and forecast the data should have constant variability overtime. To examine stationery this study utilizes ADF method and if the results in line with 5% significant probability value the data has stationery. Non stationery test revealed that after conducting individual and group unit root test in ADF method, the data was stationery at level and 1st difference. Moreover the researcher examines model stability through CUSUM test. Therefore the study examines each problem step by step and the result was free from all problems stated on the above, and its corresponding interpretations properly describe in the above chapter.

Furthermore, ARDL model to predict both short run and long run relationship, and hence in short term, negative relationship exists in exchange rate, and loan for private investment. To speculate in numbers: when one % increase in exchange rate, and loan for private investment individually, the domestic private investment decrease by 2.02%, and 0.92% units respectively however, one percent increase in interest rate and Federal reserve money, the domestic private investment increases by 3.4% and 1.81% respectively.

Likewise in long run, the exchange rate, loan for private investment and nominal Gross Domestic product are significant and affect DPI positively. To elaborate more, an increase in one percent of exchange rate, loan for private investment and nominal Gross Domestic product individually the Domestic private investment increased by 6.402%, 2.74% and 3.18%. The detail description and interpretation of the result presented in this chapter and on the next chapter the researcher give brief summary, its own conclusion and recommendation and you are politely invited to read.

Independent Variable	Hypothesis: Ho	Expected sign	Regression result
LER	there is no significant effect of ER increment on flow of domestic private investment	Negative/positive	Reject Ho (negative/positive Sign)
LINFR	there is no significant effect of INFR increment on flow of domestic private investment	Positive	Fail to reject Ho (positive Sign)
LIR	there is no significant effect of IR increment on flow of domestic private investment	Negative	Reject Ho (positive Sign)
LPBL	there is no significant effect of PBL increment on flow of domestic private investment	Positive	Reject Ho (Positive/negative sign)
LnGDP	there is no significant effect of nGDP increment on flow of domestic private investment	Positive/negative	Reject Ho (positive Sign)
LRM	there is no significant effect of RM increment on flow of domestic private investment	Positive	Reject Ho (negative Sign)

*Table: 4.10. Summary of regression result*

## CHAPTER FIVE

### Summary, Conclusion and Recommendation

#### 5.1. Summary

The thesis was conducted utilizing ARDL regression model. In these data series to check for stationery Augmented Dickey Fuller/ADF/ Technique was utilized. Then correlation and auto correlation tests were conducted, following integration, bound test and co-integration tests, through ARDL model finally, normality test applied through Jarque-Bera (JB), hetroskedasticity test conducted through ARCH test, and stability test through Cusum tests were conducted, thus the data was stationery, and free from all inherent time series problems. Accordingly, the results of regression analysis have been identified the determinants of domestic private investment in Ethiopia and show their relationship clearly with domestic private investment in both short run and long run are summarized below;

#### Summary of Effect of explanatory variables on Domestic private investment in short run and long run

List of Explanatory Variables	Is Significant in Short run?	Coefficient	Is Significant in Long run?	Coefficient
Exchange rate	Yes	-2.02	Yes	6.402
Federal reserve money	Yes	1.81	No	-1.94
Inflation rate	No	0.42	No	0.093
Interest rate	Yes	3.40	No	-5.27
Loan for Private investment	Yes	-0.92	Yes	2.74
Nominal Gross Domestic Product	No	0.0923	Yes	3.18
<b>Total variables significant</b>	<b>4</b>		<b>3</b>	

*Table 5.1: Summary of short run and long run result with its coefficient*

## 5.2. Conclusion

In short run, negative relationship exists in exchange rate, and loan for private investment. To speculate in numbers: one percent increment on exchange rate, the domestic private investment decrease by 2.02%; and one percent increment on loan for private investment, the domestic private investment decrease by 0.92%; However, positive significant relationship appears with interest rate and Federal reserve money; one percent increment on interest rate and Federal reserve money individually, the domestic private investment increase by 3.403% and 1.81% respectively.

With similar fashion, in long run every time the country's the exchange rate, loan for private investment and nominal Gross Domestic Product are increase in one percent, the Domestic private investment increased by 6.402%, 2.74% and 3.18%, respectively. This result in line with the finding of (Ambachew, S. 2010), and (Wondimu, E. 2020,).

The researcher enlighten in previous literature section, the exchange rate and inflation rate are the delicate matter that required efficient and effective management to have positive effect towards on domestic private investment, thus the result showed that there is inefficient and ineffective management regarding of exchange rate imposition. Moreover, the researcher also mentioned that inflation rate growth beyond 2%, will compromise the economic stability, so it needs close supervision.

Generally, this study identified and concluded the determinants of private investment of in Ethiopia, and thereby the exchange rate, nominal GDP and loan for private investment have been positively affected domestic private investment.

Therefore, the researcher believes this study serve as baseline study for detail investigation, and extensive studies on exchange rate, interest rate, loan for private sector, nominal Gross Domestic product, and federal reserve money issues are mandatory to the government before imposing of any policy, monetary and financial actions.

### 5.3. Recommendation

In general, unregulated and high inflation rate, exchange rate fluctuation, interest rate increment could be a signal of macro-economic instability and leads to reduce the investors' desire and appetite. Likewise, frequent changes of investment policies and requirements, unpredictable, full of bureaucracy, inefficient and poor infrastructural investment environment would deteriorate investors' confidence and ability to invest. Thus, based on the above findings, policy makers notify and act accordingly on the following points:

- The government should control the factors that induce increasing of exchange rate. For example promoting export than import, encouraging domestic utilization of resources and other possible factors that gives immediate relief on reduction of exchange rate.
- The policy makers should be sensitive before on imposing intervention on exchange rate and interest rate. Moreover, create stable macro-economic environment by putting an effort to enhance domestic national product.
- The policy makers and monetary institutions should give emphasis on where is the last destination of loan for private investment; place proper evaluation, follow up and take corrective actions in time before wasting the financial resources.
- The overall management of loan to private investment requires adequate monitoring system. Thus make sure that the policy makers put appropriate monitoring variables for external sources of finance (loan) efficiently and effectively for productive investment activities,
- Ensure the existence of fertile investment environment by putting consistent investment policies and requirements, by creating clear and efficient bureaucratic structure and good governance at all levels, and by opening more space/investment opportunities/ for private investors, Additionally the government gives appropriate emphasis to achieve sustainable growth, and establish the advanced mechanism of support system to accelerate the domestic private investment in Ethiopia.

Finally, the researcher suggests that conducting extensive study on determinants of private investment in Ethiopia through utilizing the essential quantitative and qualitative methods, helps to reach proper policy direction, actions and decisions for policy makers; and based on these directions the government can achieve the sustainable and consistent growth of the country overall.

## **Bibliography/Reference**

Abate Yesigat 2016, An Empirical Analysis Determinants of Domestic Private Investment in Ethiopia during 1971 to 2014: [www.theinternationaljournal.org](http://www.theinternationaljournal.org), RJSSM: Volume: 05, Number: 09, Page 87-89 January 2016.

Agenor, K. (2005). Public Infrastructure and Private Investment in. the Middle East and North Africa. World Bank Policy Research Working Paper 3661

Alemayehu, G. (2004). 'The Structure and performance of Ethiopia's financial sector: In the pre and post reform period: with special focus on banking'. || 1-15

Ambachew Mekonin, 2010, determinants of private investment in Ethiopia, Ethiopian Journal of Economics, Volume XIX, No. 1, April 2010.

Amenu Daba, (2020), "Analysis of Determinants of private investment in Ethiopia" IJEMS, Vol9:5, 2020 ISSN: 2162-6359

Bakari, Sayef, 2017, The Impact of Domestic Investment on Economic Growth: New Evidence from Malaysia, MPRA; Online at <https://mpra.ub.uni-muenchen.de/79436/> MPRA Paper No. 79436, posted 30 May 2017 04:34 UTC

Bandoi A. 2008, Transferring pricing, annual of university of craiova Economics sciences series 2008, Vol 1, Issue 36, 169--176.

Batistar, M. Kingor, (2015), " analysis of determinants of private sector invest in Kenya" unpublished, a thesis submitted to University of Namibia (UNAM) for qualification of MBA, May, 2015

Bonga, W. G., & Nyoni, T. (2017). An empirical analysis of the determinant of private investment in Zimbabwe. *Dynamic Research Journals: Journal of Economic and Finance (DR-JEF)*, 2(4), 25–84.

Clark JM, 1917. Business acceleration and the law of demand: A technical factor in economic cycles." *Journal of political Economy* 25(3):217-35

Dawson, C. (2002), "Practical Research Methods: A user- friendly Guide to Mastering Research Techniques and Projects. Oxford: How to books, Ltd. Google scholar

Ghura, D. and B. Goodwin (2000). 'Determinants of private investment: A Cross Regional Empirical Investigation'. *Journal of Applied Economics*, 32 (14), pp. 1819-1829.

Gizachew, Yirtaw Adv, Dr Alem, Hagos,( 2017), "Determinants of private sector invest in manufacturing sector: The case of the state of Tigray" unpublished, a thesis submitted to UNISA, Addis Ababa, for qualification of Doctorate of Business Leadership, March, 2017

Guadagno, F 2012, "The determinants of industrialization in developing countries" 1960- 2005, mimeo, UNU-MERIT &Maastricht University, p.26.

Gujarati, D.N. (2004). "Basic Economics, 4<sup>th</sup> Edition," Mc Graw – Hill companies, New York.  
<https://www.scrip.org/basic Economics/>

Hailu Adunga 2013., "Determinants of Private investment in Ethiopia." , *Journal of Economics and Sustainable Development*, Vol.4, No.20

<https://World population review.com/countries/Ethiopia-population>, November15, 2.19 PM 2021.

<https://www. Investmentpolicy.unctad.org/ investment proclamation no1180/2020> generated November15, 2.19 PM 2021.

Hyman Minsky, 2008, "stabilizing an unstable economy" McGraw Hill, Forwarded by Henry Kaufman, May 5, 2008. ISBN 10- 0071592997

Jorgenson, D.W. 1967, "The Theory of Investment Behavior." In *Determinants of Investment Behavior*, edited by Robert Ferber. National Bureau of Economic Research. Cambridge: Massachusetts.

Khan, M. and Reinhart, C. (1990), 'Private investment and economic growth in developing countries. *World Development*, Vol.18 (2), 47-69. CREDIT Research Paper No. 04/05.

Lesotho, P. (2006). 'An investigation of the determinants of private investment: the case of Botswana'. University of the Western Cape, Department of Economics, Botswana

Meron Elias,( 2016), "effect of Tax incentive on domestic investment in Ethiopia" unpublished, a thesis submitted to Addis Ababa, University for qualification of MBA, January, 2016

Mmathabo, Sesele, Adv. Dr. Abdul Latif, Alhassam ( 2017), “Determinants of private investment in South Africa” unpublished, a thesis submitted to Development finance center, Capetown, South Africa, for qualification of MBA, December, 2017

Mustefa, S. (2014). Private Investment and Economic growth Evidence from Ethiopia. A thesis Submitted in Partial Fulfillment of the requirements for Degree of Master of Science in Economics (Specialization in policy Analysis), Mekele University, Ethiopia.

Najid Ahmad, Muhammad luqman, Muhammad Farhat Hayat, (AUGUST 2012), Importance of Investment for economic growth: evidence of Pakistan, Vol4, No.4, ijcrb.webs.com, page 683 ,<https://www.researchgate.net/publication/287800501> ;

Oniyewu, S. and Shareshta, A. 2005 “ Tax Incentives and Foreign Direct Investment in the MENA Region”.

Oshikoya, 1994 “Macro economic Determinants of domestic private investment in Africa. “ Economic development & cultural change 994, vol.42, issue3 573-96

Oshikoya, T. (2001). Macroeconomic Determinants of Domestic Private Investment in Africa: An Empirical Analysis. Economic Development and Cultural Change, 42(3), 573- 595.

Ouattara, B. (2004). Modelling the Long Run Determinants of Private Investment in Senegal. Credit Research Papers, No. 04/05.

Patrick Lesetho, Adv. Prof. Liab, Loots,( 2006), “ an investigation of private investment: The case of Botswana” unpublished, a thesis submitted to University of western Cape, Botswana for qualification of MA in Economics, July, 2006

Raphael Kolade Ayeni , (2020), Determinants of private sector investment in a less developed country: a case of the Gambia, Cogent Economics & Finance, 8:1, 1794279, DOI: 10.1080/23322039.2020.1794279

Samouel and Aram (2012) , "What are the determining factors of Industrialization in Africa? ", BEJI Samouel University of Sousse.

Sangeetha D,(2015), “Investment and its Role in Economic Development”,International Journal of Science and Research (IJSR) ISSN (Online): 2319-7064 Index Copernicus Value (2013): 6.14 | Impact Factor (2013): 4.438 Volume 4 Issue 9, September 2015 [www.ijsr.net](http://www.ijsr.net)

Tesfaye Eresso Gofe. (2018). “Assessments of The Determinants Of Investment Activities In Nekemte Town.” *International Journal of Research Granthaalayah*, 6(11), 366-383.  
<https://doi.org/10.29121/granthaalayah.v6.i11.2018.1140>.

Tobin, James 1969, “A General Equilibrium Approach to Monetary Theory." *Journal of Money, Credit and Banking* 1(1): 15-29

UNCTAD, 2014 "Economic development in Africa, Catalyzing investment for transformative growth in Africa"

Wasihum, Demeke, Adv. Mr Gebre medihin G/ Hiwot, (2018), “Determinants of private sector invest in Ethiopia” unpublished, a thesis submitted to Addis Ababa, University for qualification of MBA, February, 2018

White, S. (2005). Enhancing private investment for development; Policy guidance for development agencies,

Wolde mariyam, Fujaw, Adv, Dr Alem, Hagos, (2018), “Determinants of private sector invest in Ethiopia” unpublished, a thesis submitted to Addis Ababa, University for qualification of MBA, February, 2018

World Bank (2020), Unemployment rate: A better investment climate for everyone. World Development Report, Washington DC.

World Bank, World Development Report 1997: The State in a Changing World, Washington DC  
[www.investopedia.com/](http://www.investopedia.com/) understanding how the Federal Reserve creates money/ Michael J Boyle, Sean Ross updated, April27, 2021 extracted December 29, 2021

[www.investopedia.com/](http://www.investopedia.com/) what is inflation and how should it affect my investing?/ Troy Segal , June 25,2019 extracted December 29,2021

## ANNEX

### Annex 1: Raw Data collected from respective institutions

Year	DPI in 1000	PBL in million	INFR	ER	RM in Million	IR	nGDP in 1000
1992	167,615.70	247.10	2.05	2.07	4,811.30	6.80	24,848.90
1993	1,709,335.59	723.80	4.71	2.80	5,738.70	14.90	31,638.58
1994	1,275,019.27	1,410.80	6.29	5.77	6,676.66	14.00	33,059.65
1995	2,690,262.73	2,695.90	14.84	6.25	7,208.84	14.58	39,671.55
1996	2,784,720.59	2,977.30	-9.00	6.32	7,554.48	15.08	44,214.73
1997	1,154,060.05	3,100.70	-2.65	6.50	7,956.48	15.50	48,124.29
1998	1,378,395.02	3,917.30	0.10	6.88	6,972.48	11.60	52,388.40
1999	1,028,450.20	3,189.20	10.39	7.51	7,462.52	11.75	57,187.81
2000	1,174,626.51	3,316.78	1.89	8.14	7,966.40	12.00	61,273.00
2001	1,318,361.69	3,510.90	-10.77	8.33	10,745.51	12.75	62,030.14
2002	1,773,038.82	2,646.53	-1.22	8.54	8,846.23	10.75	60,760.84
2003	1,959,688.83	3,566.91	17.77	8.58	9,755.70	10.75	67,080.55
2004	2,030,287.08	5,009.88	2.38	8.62	12,147.81	10.75	77,880.38
2005	3,316,325.58	6,888.47	10.75	8.65	14,433.99	10.50	96,391.11
2006	2,880,168.58	10,129.44	10.82	8.68	24,029.27	10.50	119,934.43
2007	3,196,559.18	12,090.12	15.10	8.79	21,181.88	10.50	157,170.38
2008	2,819,627.74	16,690.01	55.24	9.24	27,313.60	11.50	227,703.42
2009	1,890,698.07	17,469.27	2.71	10.42	35,551.09	12.25	311,042.76
2010	2,562,531.13	23,435.60	7.32	12.89	45,107.02	12.25	348,685.81
2011	2,524,596.51	28,618.85	38.04	16.12	49,424.45	11.88	475,647.54
2012	3,205,576.31	30,362.58	20.81	17.25	69,043.11	11.88	690,444.50
2013	23,750,439.61	33,112.19	7.39	18.19	65,972.62	11.88	796,303.08
2014	3,753,782.28	36,846.64	8.46	19.07	74,942.30	11.88	974,727.38
2015	7,602,194.34	51,127.82	10.45	20.10	89,322.50	11.88	1,192,832.77
2016	8,452,328.48	59,694.83	7.50	21.11	102,467.80	12.75	1,449,397.37
2017	5,175,937.53	81,255.85	8.36	22.41	119,164.70	12.75	1,703,798.20
2018	26,694,474.15	85,043.21	16.77	26.11	146,257.90	13.50	2,064,789.30
2019	1,947,180.22	126,134.81	15.30	28.05	174,175.40	13.50	2,543,623.15
2020	1,009,980.38		21.55	31.34	200,749.30	14.25	3,182,998.08

## Annex 2: Work file/ preprocessed in logarithm form

Year	LDPI	LPBL	LINFR	LER	LRM	LIR	LnGDP
1992	8.230358732	8.392872745	0.312367102	0.447898028	9.682262437	0.832508913	10.3953
1993	9.228654801	8.859618579	0.673417524	0.447898028	9.758813522	1.173186268	10.5002
1994	9.108101951	9.149465451	0.79888941	0.761506865	9.824559066	1.146128036	10.5193
1995	9.429014036	9.430703779	1.171297727	0.79591476	9.857865266	1.163757524	10.5985
1996	9.441388222	9.473822627	-0.954242509	0.800565874	9.878204748	1.178401342	10.6456
1997	9.048510141	9.491459749	-0.431363764	0.812960124	9.900721139	1.190331698	10.6824
1998	9.129657453	9.592986833	-0.98090124	0.837695736	9.843387526	1.064457989	10.7192
1999	8.998740461	9.503681755	1.016771591	0.875703544	9.872885333	1.0700	10.7573
2000	9.069899799	9.520716016	0.277436868	0.910763101	9.901262109	1.079181246	10.7873
2001	9.120034574	9.545418855	1.032352212	0.920535502	10.03122683	1.105510185	10.7926
2002	9.248718244	9.422676055	0.087037359	0.931584987	9.946757981	1.031408464	10.7836
2003	9.292187118	9.552291871	1.249770097	0.933532841	9.989258437	1.031408464	10.8266
2004	9.307557451	9.699827156	0.377122342	0.935492151	10.08449788	1.031408464	10.8914
2005	9.520657161	9.838122645	1.031299281	0.937106471	10.15938649	1.021189299	10.9840
2006	9.459417909	10.00558561	1.034221551	0.938569756	10.38074056	1.021189299	11.0789
2007	9.504682749	10.08243046	1.179053917	0.944201277	10.32596459	1.021189299	11.1964
2008	9.450191775	10.22245655	1.742264008	0.965864635	10.43637893	1.06069784	11.3574
2009	9.276622181	10.24227481	0.432466551	1.017888558	10.55085292	1.088136089	11.4928
2010	9.408669151	10.36987617	0.864593719	1.110283239	10.65424414	1.088136089	11.5424
2011	9.402191977	10.45665219	1.580287134	1.207305762	10.69394185	1.074816441	11.6773
2012	9.50590612	10.48233873	1.318317832	1.236879725	10.83912031	1.074633618	11.8391
2013	10.37567165	10.51998796	0.86866536	1.259945098	10.81936371	1.074816441	11.9011
2014	9.57446908	10.56639789	0.927582671	1.280459993	10.87472703	1.074816441	11.9889
2015	9.880938967	10.7086573	1.018967097	1.303100978	10.95096087	1.074816441	12.0766
2016	9.926976367	10.77593669	0.875294602	1.324403876	11.01058741	1.105510185	12.1612
2017	9.713989026	10.90985466	0.922299687	1.350513555	11.07614762	1.105510185	12.2314
2018	10.42642137	10.92963963	1.224636002	1.416776931	11.16511933	1.130333768	12.3149
2019	9.28940615	11.10083497	1.184691431	1.447999437	11.24098682	1.130333768	12.4055
2020	9.004312936		1.333494058	1.496136406	11.30265404	1.153815	12.5028